DAUPHIN ISLAND COASTLINE RESTORATION: SAND SEARCH INVESTIGATION

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Prepared for:

Town of Dauphin Island

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Abstract

Over the past twenty (20) years, the beaches at the east and west ends of Dauphin Island have experienced some of the most dramatic shoreline recession seen in the United States. In response, the Town of Dauphin Island is pursuing a shore protection project along the most critically eroded sections of Dauphin Island. The Town of Dauphin Island appointed Dr. Scott Douglass of South Coast Engineers, LLC as Town Agent and authorized Coastal Planning & Engineering, Inc. (CPE) along with WRSCompass to conduct reconnaissance geophysical and geotechnical investigations to develop a conceptual design for the proposed shore protection project. Following the reconnaissance investigations, CPE, under the direction of Dr. Scott Douglass, was authorized to conduct design level and cultural resource investigations.

In January 2010, reconnaissance level geophysical and geotechnical investigations were conducted. One (1) potential sand resource area was identified during these investigations. In September 2010, design level geophysical and geotechnical investigations were conducted within this potential sand resource area. Following analysis of this data, additional reconnaissance investigations were conducted in order to explore the potential of locating sand directly offshore of Dauphin Island. Dr. Scott Douglass worked with CPE to define an investigation area. The sediment within this area was evaluated and it was determined that it was not suitable for beach nourishment because it was either predominantly clay or sand with little to some clay and/or silt. A cultural resource investigation was then conducted in the original investigation area.

Based on the results of the geophysical and geotechnical investigations, two (2) borrow areas were developed, which were bisected by an oil and gas pipeline. The northern borrow area (Borrow Area I) contains an estimated 5,303,000 cy of material and the southern borrow area (Borrow Area II) contains an estimated 2,541,500 cy of material.

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INTRODUCTION

Dauphin Island is a barrier island located just west of Mobile Pass, Alabama. The island is approximately 16 miles long. The eastern six (6) miles of the island is several miles wide and covered by a sand dune field with elevations of over 45 ft. above sea level and an extensive maritime forest. The western part of the island is only several hundred feet wide with maximum elevations of less than 10 ft. The eastern half of the island is inhabited while the westernmost eight (8) miles of the island are undeveloped and privately owned. The western end of the island was breached as a result of a hurricane on August 26, 1852. In 1868 the breach closed and remained closed until 1947 when it breached again. The western end of the island was also breached after Hurricanes Ivan and Katrina in 2004 and 2005, respectively. Figure 1 shows the location of Dauphin Island and the location of the offshore sand search investigation. Figure 1 also shows the location of the Hurricanes Ivan and Katrina breach.

In the past twenty (20) years, the beaches at the east end of Dauphin Island have experienced some of the most dramatic shoreline recession seen in the United States (Douglass *et al.*, 1999). In some areas, recession has exceeded 500 ft. (Douglass et al., 1999). The shoreline along the easternmost one (1) mile of Dauphin Island appears to be going through periods of recession and accretion that may be controlled by changes in the ephemeral islands and shoals immediately offshore of the island (Lamb, 1987). Since 1970, the west end of the island has been receding at an average rate of 2 to 3 ft/yr.

Barrier islands like Dauphin Island are critical to the protection of island and coastal mainland ecosystems and represent significant economic drivers. The Town of Dauphin Island is pursuing a shore protection project for critically eroded areas along the east and west ends of Dauphin Island with the goals of:

- Restoring coastal and marine habitat to recover threatened or endangered species or benefit species of concern;
- Preserving coastal wetlands through shoreline restoration or hydrological reconnection;
- Protecting communities and infrastructure through habitat restoration to improve coastal resiliency to storms and flooding; and
- Improving coastal habitat to respond to climate change through restoration or protection of transition zones that provide room for habitat migration with sea level rise.

The Town of Dauphin Island appointed Dr. Scott Douglass of South Coast Engineers, LLC as Town Agent and authorized Coastal Planning & Engineering, Inc. (CPE), working with WRSCompass, to conduct reconnaissance geophysical and geotechnical investigations to develop a conceptual design for the proposed shore protection project (Appendix 1). Following the reconnaissance investigations, CPE, under the direction of South Coast Engineers, was authorized to conduct design level and cultural resource investigations (Appendix 1).

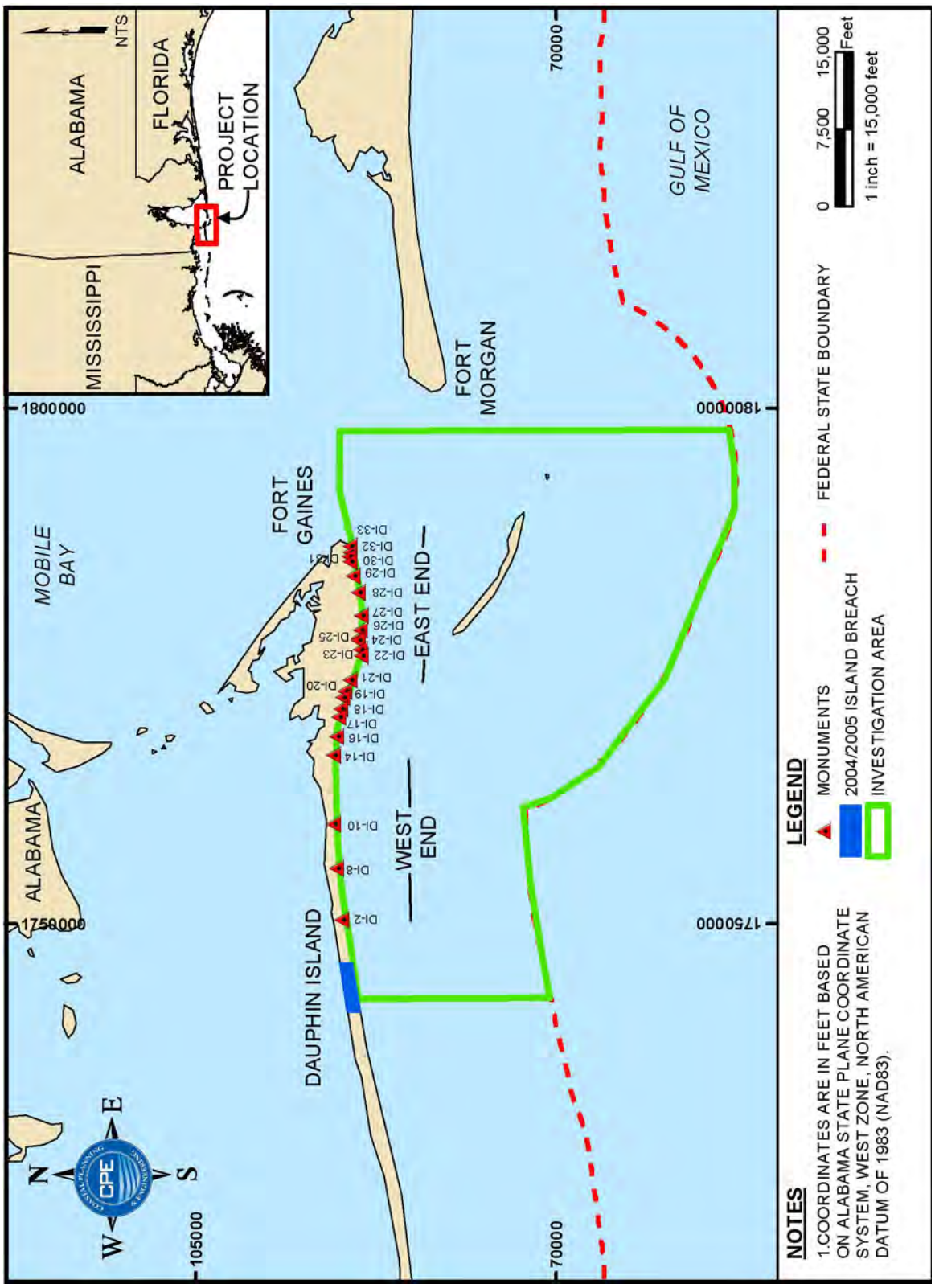


Figure 1. Dauphin Island, Alabama location map.

This sand search investigation followed sequential survey procedures developed by CPE that maximize resources and effectively characterize offshore sand deposits as described in general by Finkl, Andrews and Benedet (2003) and Finkl and Khalil (2005). Prior to the collection of any new data, existing data was compiled and reviewed during a Phase I investigation. Reconnaissance level geophysical and geotechnical data was then collected during a Phase II investigation. Reconnaissance level surveys that cover large areas of the seafloor provide useful information that helps define smaller targets (areas with higher potential for containing materials that are suitable for beach nourishment) where more intensive sand and cultural resource investigations are then conducted. Upon review of the reconnaissance data, additional remotely sensed data (*i.e.* seismic reflection profiles, sidescan sonar imagery and magnetometer surveys) and vibracores were collected in smaller target areas during a Phase III investigation.

This report presents the results of the Phase I, II and III offshore geophysical and geotechnical investigations that led to the identification of one (1) sand resource. General investigation sequencing is discussed first, followed by a brief description of Phase I data compilation, a description of Phase II and Phase III field activities, analysis of results from the Phase II and Phase III field measurements, and finally definition of the characteristics of the identified sand resources and borrow area development.

INVESTIGATION SEQUENCING

A systematic approach to marine sand searches has been developed over the years by the CPE Coastal Geology and Geomatics team (*e.g.* Finkl, Khalil and Andrews, 1997; Finkl, Andrews and Benedet, 2003; Finkl, Benedet and Andrews, 2005; Finkl and Khalil, 2005). In a comprehensive marine sand search, CPE typically divides the investigation into three (3) sequential phases (Figure 2). This phased approach can be modified to meet the scope of the investigation and accommodate the level of work previously performed. Regardless of the phases executed during a sand search, the CPE investigation sequencing is preserved in order to maintain efficiency and completeness to provide confident results.

Phase I investigations typically consist of a comprehensive review of the recipient beach and sediment resources offshore of the project area. This desktop study examines previously collected information within the geologic context of the search area in order to identify features having the highest potential of containing beach-compatible sand. The geological background of the area is assessed to identify the geomorphic features that may contain material suitable for the project. Information related to previously investigated areas, potential sand resources and borrow areas, is compiled and related back to the geomorphic features. Geophysical and geotechnical data previously collected within these areas, as well as any reports discussing the findings, are then reviewed. Based on this analysis, deposits potentially containing beach-compatible material are identified. The results of Phase I are used to define the areas that will be surveyed during Phase II investigations.

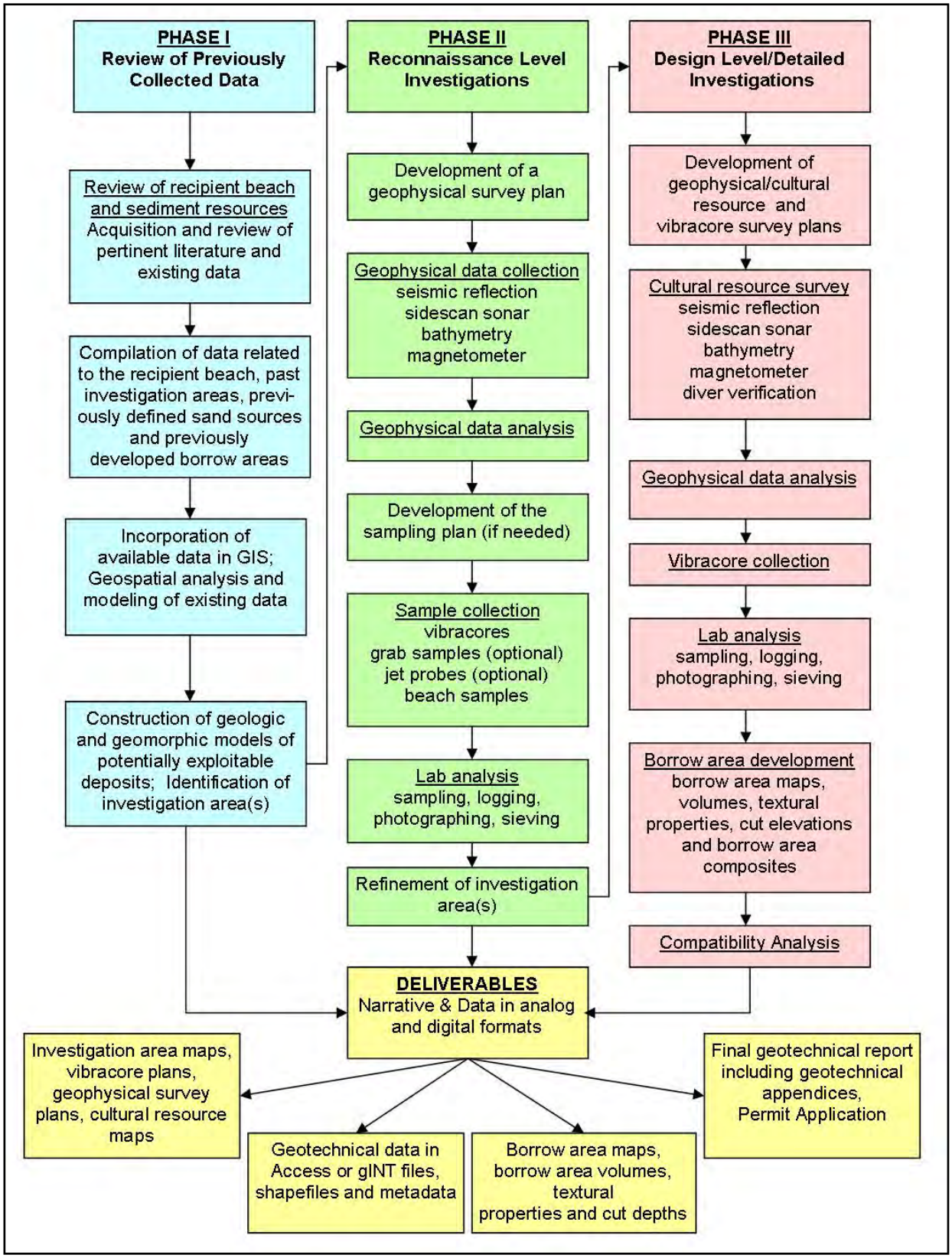


Figure 2. Flow diagram showing the general investigation sequence followed by CPE during a typical marine sand search investigation.

Phase II investigations usually consist of reconnaissance level geophysical and geotechnical surveys. A joint geophysical investigation (typically collecting seismic reflection profiles, sidescan sonar images, magnetometer and bathymetric data) is conducted at reconnaissance line spacing to assess the thickness of potential sand resources. The wide reconnaissance line spacing is designed to cover large expanses of seafloor. Therefore, the data coverage achieved during Phase II investigations may not be sufficient to develop a detailed sand thickness (isopachous) map. The geophysical data collected during this phase is used to design a vibracore investigation plan. Vibracores are collected to determine the sediment characteristics within the areas identified through remote sensing. Typically a limited number of cores are collected to groundtruth each potential sand resource. Sand resources within the investigation area are then analyzed using GIS procedures that integrate the seismic reflection profile and vibracore data to provide an estimate of deposit thickness and sedimentary characteristics. Beach samples may also be collected during this phase to characterize the existing beach in terms of grain size, color and composition (*i.e.* how well the potential borrow area sediment matches the existing beach material). The Phase II results are reviewed within the context of beach compatibility to identify potential resource areas that will undergo design level investigations during Phase III.

Phase III typically consists of design level geotechnical and geophysical investigations, a cultural resource investigation, and borrow area design. A joint seismic, sidescan sonar, magnetometer and bathymetric survey is conducted within the potential sand resource area(s). The data collected is used to identify possible cultural or environmental resources for avoidance and to develop isopach (sediment thickness) maps for borrow area design. These results are also used to target areas for additional vibracoring. In order to conform to standard geological and engineering practice, fulfill permitting requirements, and conduct geophysical and geotechnical surveys in an expeditious manner, vibracores are collected to provide a maximum spacing of 1000 ft. (industry standard spacing) within the potential resource area. Preliminary borrow area boundaries and excavation depths are developed from the data collected during the Phase I, II and III investigations.

A final cultural resource investigation is required to permit borrow areas for use. During this investigation, additional geophysical data is collected within the borrow area to achieve a total combined line spacing of 30 m (approximately 98 ft.). A qualified marine archaeologist is required to be on the survey vessel at all times during the cultural resource investigation. The geophysical data is used to identify any cultural resources, submerged hazards or any other features that would affect borrow area delineation and dredging activities. Based on the results of the cultural resource investigation, the marine archaeologist compiles a report that includes recommendations for buffers around any potentially significant magnetic anomalies. The final borrow area design is then modified to take the recommended buffers into account.

The Dauphin Island Sand Search included Phase I, II, III and cultural resource investigations. This report summarizes each phase and discusses the identification and development of two (2) final borrow areas.

PHASE I INVESTIGATIONS

During Phase I (review of historic data) of this investigation, CPE researchers conducted archival literature studies of the inner continental shelf area, within the Dauphin Island investigation area shown in Figure 1. Available data pertaining to oil and gas infrastructure, environmental avoidance areas and existing geological and geophysical data was compiled. This data was obtained from a variety of sources including the United States Geological Survey (USGS), Bureau of Ocean Energy Management, Regulation and Enforcement (BOEMRE), the Geological Survey of Alabama, and the National Oceanic and Atmospheric Administration (NOAA). The information and data that was compiled during the Phase I investigation is discussed below.

Geological Background

Developing an understanding of the geologic setting of the project area is an important part of the Phase I investigations because it provides contextual information that sets limits to potential sand resources. A description of the regional geologic setting defines the framework bedrock seafloor surfaces and the sediments that sit on them. The nature of sedimentary deposits determines sand quality, distribution, and its potential use for beach nourishment. It is thus necessary to understand the general continental shelf environments because the distribution of beach-quality sands on the seabed is not random, but spatially organized.

The Alabama coastal plain includes the southern portions of Mobile and Baldwin Counties and encompasses over 0.9 million acres of open water, 465 miles of shoreline and 17,920 acres of coastal marshes (Crance, 1971; Christmas, 1973). The marine part of coastal Alabama is part of the east Louisiana-Mississippi-Alabama Shelf (Parker, 1990). The shelf extends from the Mississippi delta east to the DeSoto Canyon and from the southern shorelines of the Mississippi, Alabama and northwest Florida barrier islands out to the 650 ft. isobath (Parker, 1990). The Alabama coastal plain is underlain by a sedimentary sequence that thickens to the south and attains a thickness of over 20,000 ft. (Smith, 1986). The western part of the shelf includes Dauphin Island, Pelican Island and two estuaries (Mississippi Sound and Mobile Bay) (Kopaska-Merkel and Rindsberg, 2005). Mobile Bay is the largest feature of the Alabama coastal region. It measures 33 miles from the Mobile-Tensaw delta at the north end of Mobile Bay to Main Pass, the 3 mile wide inlet connecting Mobile Bay to the Gulf of Mexico (Hummell, 1999). Figure 3 shows the morphology of the ebb tidal delta at the mouth of Mobile Bay.

Prior to Holocene sea level rise, the area that is currently the inner continental shelf, was mostly occupied by marshes, coastal plain forests and fluvial deltaic systems (Hummell, 1996). The development of a longshore drift system along the southern portion of the Morgan Peninsula and Dauphin Island, and a decrease in the rate of sea level rise at about 4500 years Before Present (BP) facilitated barrier island development and likely initiated ebb delta development and growth at the mouth of Mobile Bay (Hummell, 1996). The ebb tidal delta at the mouth of Mobile Bay, measures 10 miles wide and extends approximately 6 miles into the Gulf of Mexico (Hummell, 1999). The emergent part of the delta consists of numerous shoals and ephemeral islands (Hummell, 1999). In its natural state, the delta consisted of a large semicircular lobe with the western rim extending above sea level as a discontinuous series of islands plus a smaller lobe in deeper water (Ryan, 1969; Ryan and Goodell, 1972; Hummell, 1990). A north-south trending paleobathymetric high extending from Pelican Point and the Mobile-Tensaw alluvial valley has

confined the growth of the ebb delta to the western side of Main Pass and south of Dauphin Island (Hummell, 1996).

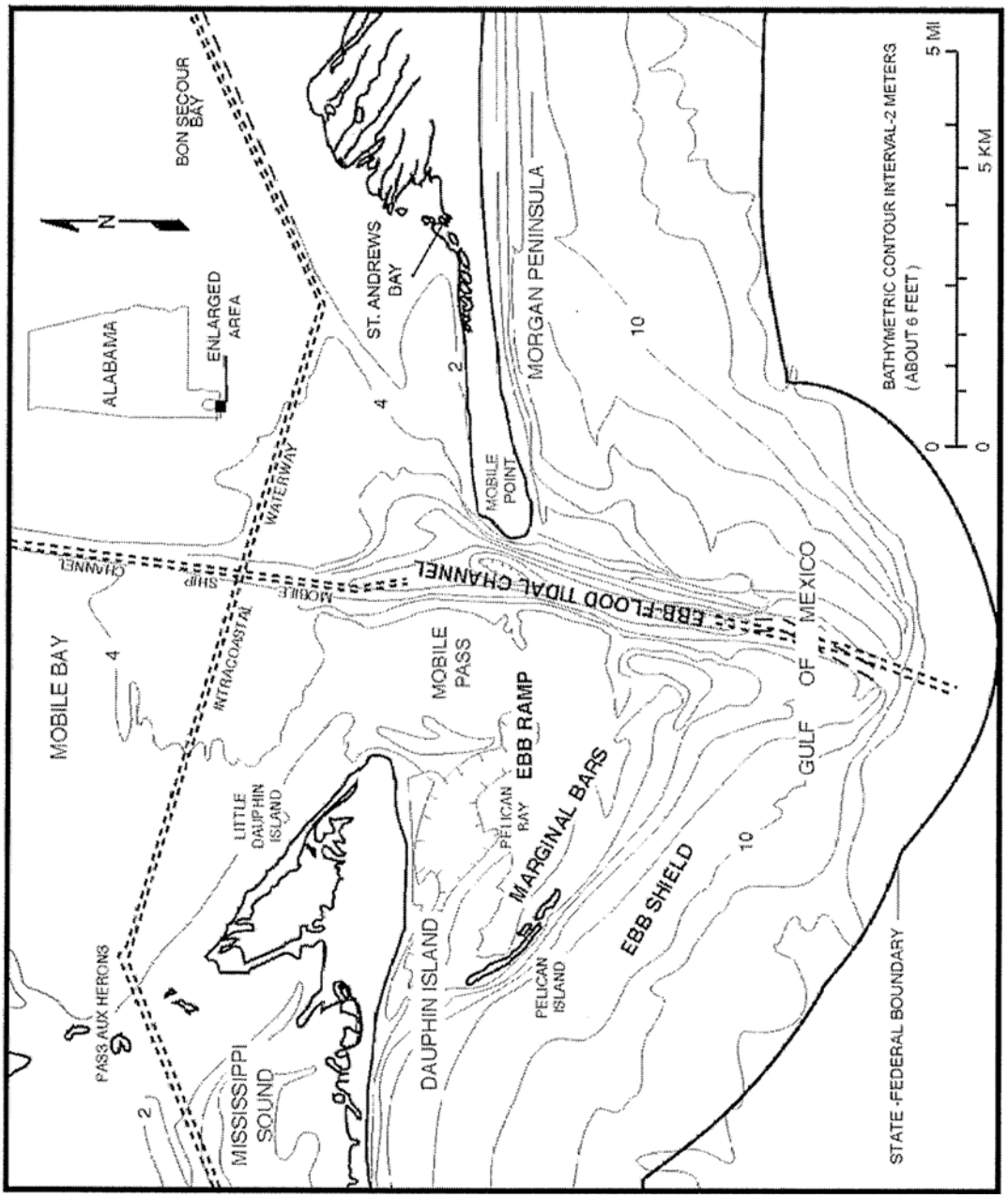


Figure 3. Geomorphology of the ebb tidal delta at the mouth of Mobile Bay (Hummell, 1990)

The present day seafloor topography and sediment distribution on the continental shelf off Alabama, are a result of a combination of factors including deltaic progradation, regression and subsequent dissection of the exposed shelf by fluvial systems associated with late Wisconsin sea level fall as well as by reworking by coastal processes during Holocene sea level rise (Ludwick, 1964; Kindinger et al, 1982; Kindinger, 1988; Kindinger et al, 1994; McBride, 1997).

The topography of the Alabama shelf varies to the east and west of Mobile Pass at the mouth of Mobile Bay.

The seafloor offshore of Dauphin Island is smooth and steep (Kopaska-Merkel and Rindsberg, 2005). It is bounded to the east by the Mobile Bay ebb tidal delta (Kopaska-Merkel and Rindsberg, 2005). The Morgan Peninsula forms the southern boundary of eastern Mobile Bay (Kopaska-Merkel and Rindsberg, 2005). East of Mobile Pass, the seafloor has relatively high relief and distinct types of ridges and other landforms (Kopaska-Merkel and Rindsberg, 2005). There are relict coastal features that survived reworking by marine transgression followed by Holocene fluvial-deltaic sedimentation and growth of shelf sand ridges (Vittor and Associates, 1985). East of the pass there are two main sets of ridges. One set consists of large ridges oriented ENE-WSW. The second set consists of smaller, overlapping ridges generally oriented SE-NW (Rindsberg and Kopaska-Merkel, 2006). The largest ridges on the east shelf include the North Perdido Shoal in federal waters off Perdido Key and the Baldwin Shoal in state and federal waters south of the Morgan Peninsula (Browder et al, 2003). The Baldwin Shoal is the largest ridge on the eastern Alabama-Florida shelf (Browder et al, 2003). Parker et al (1997) thought that it might be a relict feature made up of deposits from a Pleistocene ebb delta or alternatively from an early Holocene barrier spit that was overtaken by rising sea level during a transgression event. The Baldwin Shoal is anchored to the shoreline not far west of Pine Beach (Kopaska-Merkel and Rindsberg, 2005). Transverse sand ridges occupy the proximal part of the seafloor from about Pine Beach east to the state line and beyond (Kopaska-Merkel and Rindsberg, 2005). Many of the ridges are attached to the shoreline (Kopaska-Merkel and Rindsberg, 2005).

Numerous shelf studies have been conducted in an attempt to identify sediment provinces. In one of the earliest studies, Ludwick (1964) divided the Mississippi-Alabama shelf into six facies. Several years later, a surface sediment texture map was published by the USACE (1984). Parker et al (1993) then constructed surface sediment texture maps for the Alabama Exclusive Economic Zone using the USACE (1984) map and additional data collected by the Geologic Survey of Alabama in the early 1990s (Figure 4). This new map is unique because lithofacies are expressed as volumes of sediment of consistent physical characteristics. Six (6) main lithofacies associations were identified. These lithofacies include clean sand (graded shelly sand, echinoid sand, orthoquartzite, shelly sand, sand with mud burrows), dirty sand (muddy sand, muddy shelly sand), biogenic sediments (oyster biostrome, peat), muddy sediment (silty/clayey sand, sand-silt-clay, mud-sand interbeds) and pre-Holocene sediment.

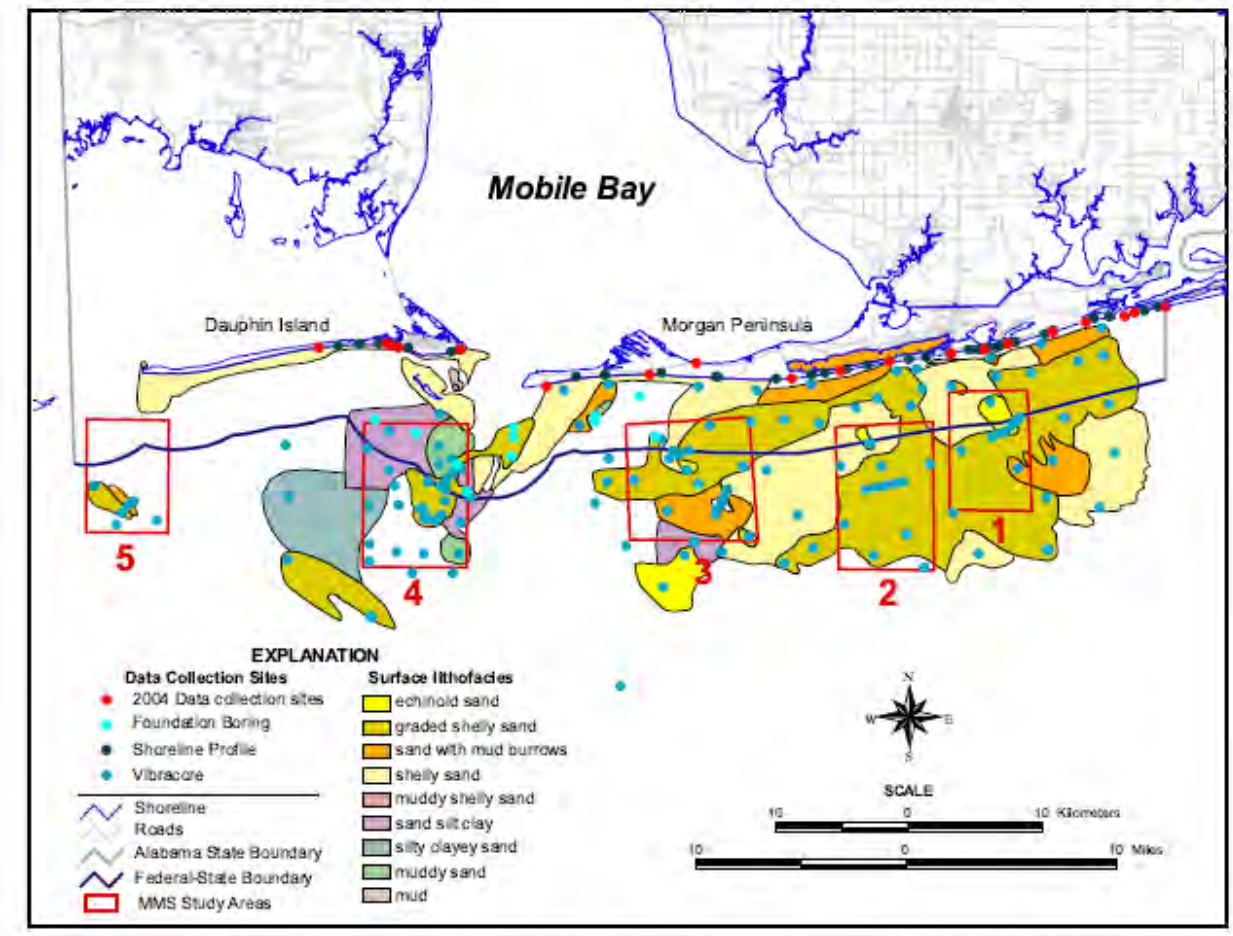


Figure 4. Map of surface sediment texture on the Alabama shelf with lithofacies defined by Parker et al (1993).

Previous Investigations

The following are summaries of several marine surveys and geotechnical studies previously conducted offshore of Dauphin Island. This information was compiled during the Phase I investigation and was evaluated within the context of the geologic framework to formulate the Phase II investigations.

Parker et al, 1997

Mineral resources in the Exclusive Economic Zone (EEZ) have been the target of much research in recent years because of the need to identify additional sand resources. Parker et al (1997) studied five (5) areas in the EEZ (Figure 5) that were thought to contain beach quality sand in form of shelf sand ridges and transverse bars. Their work confirmed the presence of these deposits.

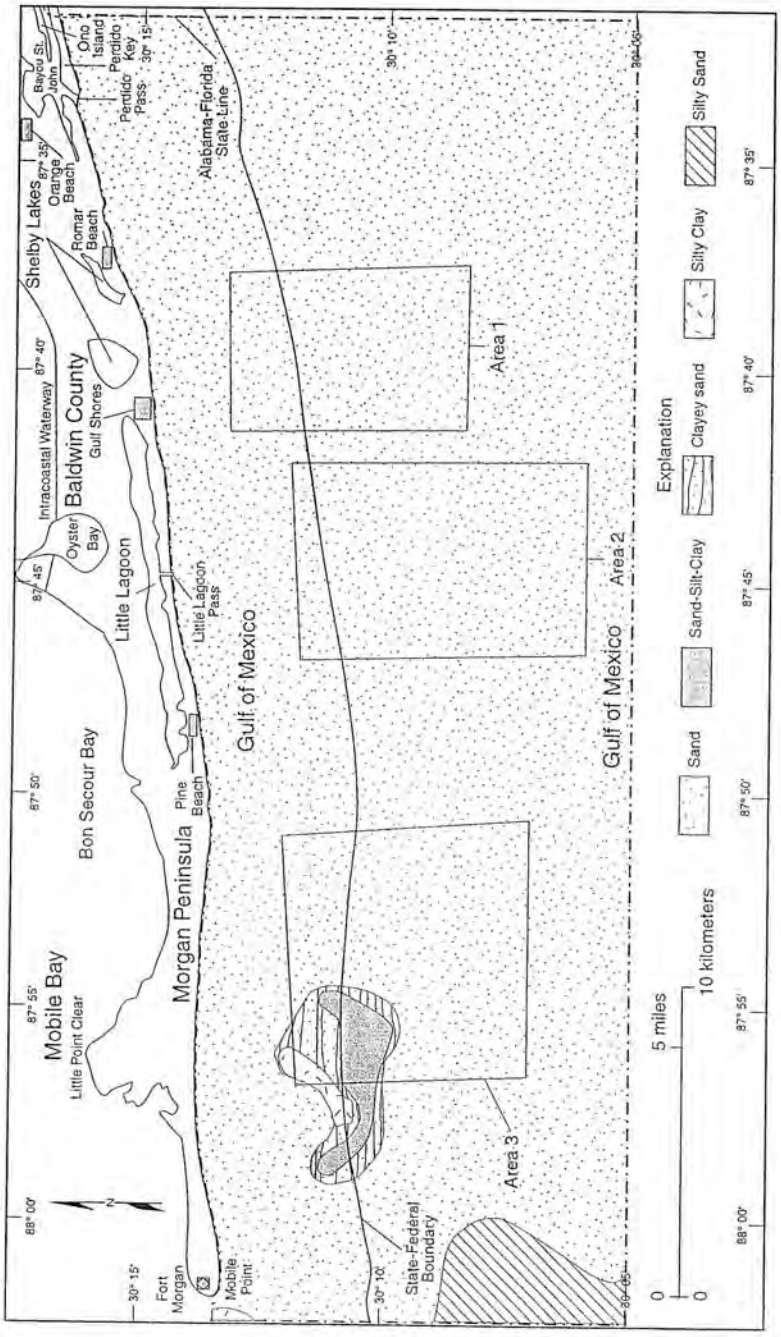


Figure 5. Areas investigated by Parker et al (1997).

Hummell 1999

The purpose of the Hummell (1999) study was to map this sand sheet south of the Morgan Peninsula as a potential sand resource for Baldwin County beach nourishment projects. Hummell (1999) further examined the data of Parker et al (1997) and identified a larger volume of sand resources in State and Federal waters in the form of a shelf sand sheet (Figure 6). The ridges and transverse bars identified by Parker et al are a part of this sand sheet.

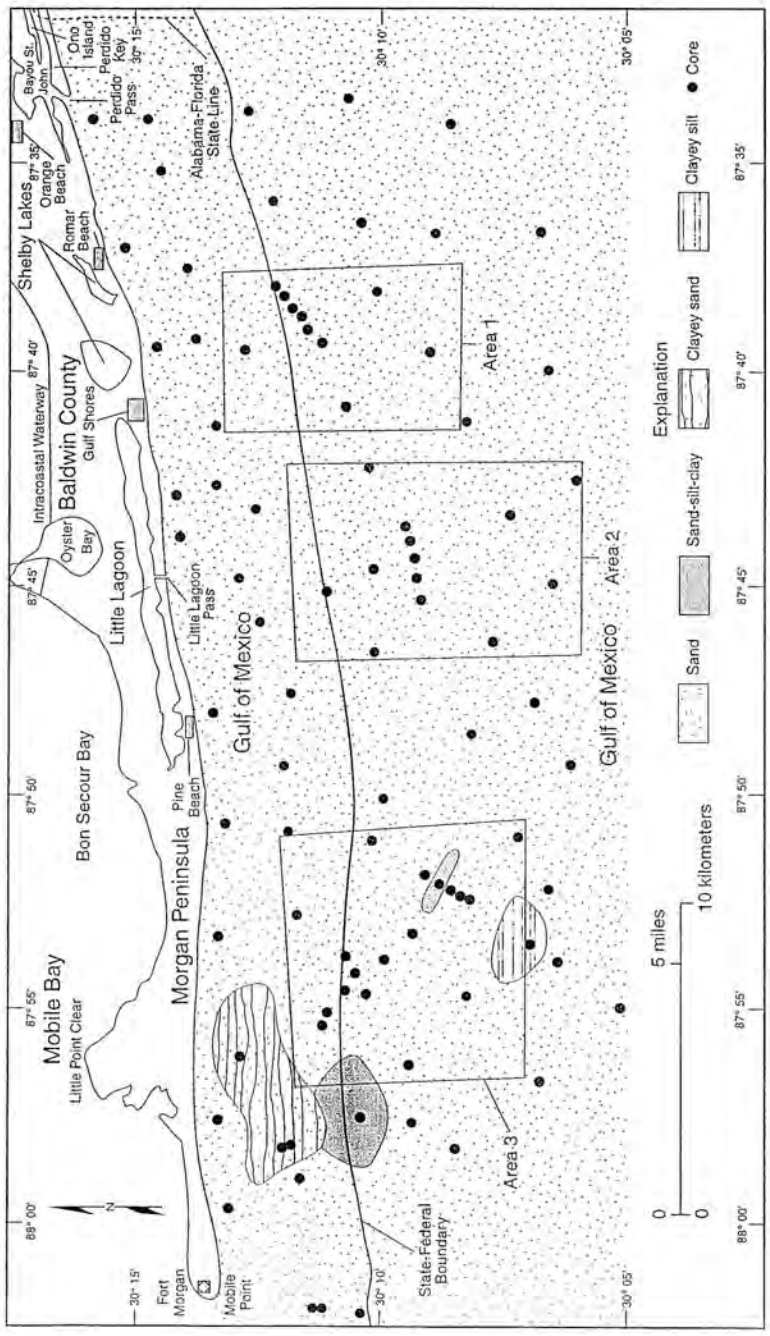


Figure 6. Distribution of sediment resources identified by Hummell (1999).

MMS & GSA (Kopaska-Merkel and Rindsberg, 2005) (Rindsberg and Kopaska-Merkel, 2006)

The MMS (now the Bureau of Ocean Energy Management, Regulation and Enforcement-BOEMRE) and GSA conducted a five (5) year study of Alabama beach sand quality and possible sources of sand for beach nourishment in Federal waters off the Alabama coast (Kopaska-Merkel and Rindsberg, 2005). Newly collected data suggests that there is a considerable amount of sand in both State and Federal waters that is sufficiently similar to Alabama beach sand in grain size

to be used for beach nourishment (Rindsberg and Kopaska-Merkel, 2006). The newly collected data as well as existing data was used to refine the generalized lithofacies defined by Parker et al (1997). Of the lithofacies identified on the shelf, the most promising for beach nourishment are the Graded Shelly sand and shelly sand. The Graded Shelly Sand is the coarsest lithofacies offshore Alabama and is most similar to the beach but includes a significant portion of shells and shell debris.

Previously Collected Geotechnical Data

Vibracores and grab samples have been collected within the investigation area. Twenty-three (23) vibracores were collected by the USGS offshore of Dauphin Island. The data associated with these cores includes core logs. The date of collection of these cores is unknown.

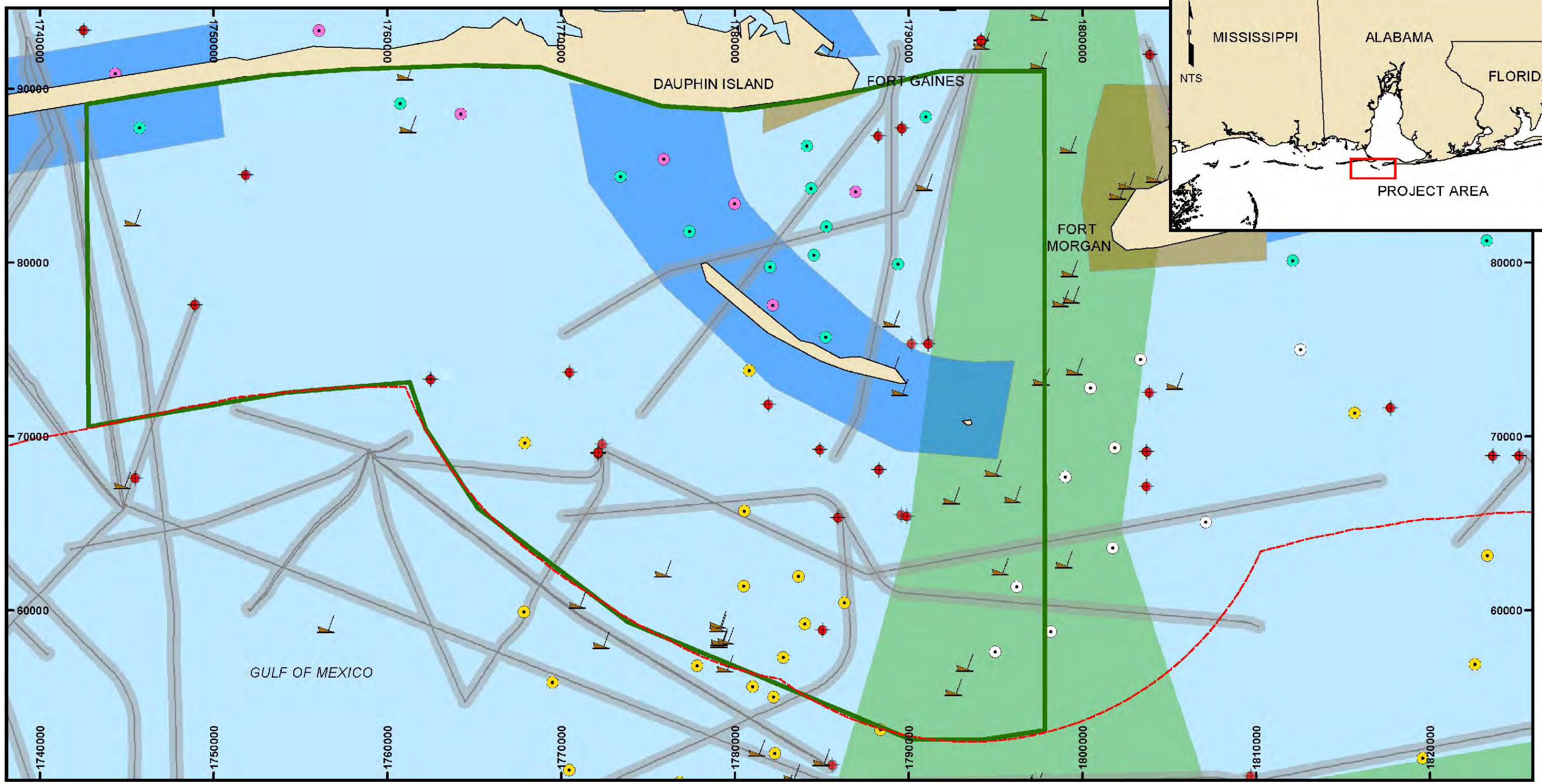
Sixty (60) vibracores were collected to the east of Dauphin Island in 2006 by Olsen Associates, Inc. The data associated with these cores includes vibracore logs, photographs and grain size curves/histograms.

One hundred and fourteen (114) vibracores were collected by BOEMRE. The date of collection is unknown. The data includes vibracore logs and grain size reports. With the exception of approximately eight (8) cores, these cores fall outside of the investigation area.

Six hundred and twenty-nine (629) grab samples were downloaded from the National Geophysical Data Center (NGDC), NOAA Satellite and Information Service**.** The NGDC/MGG Deck41 database contains surficial sediment descriptions for over 36,000 seafloor samples worldwide. Data include collecting source, ship, cruise, sample id, latitude/longitude, date of collection, water depth, sampling device, dominant lithology, secondary lithology, and a brief description of the surficial sediment at the location. Approximately five (5) of the samples fall within the Dauphin Island investigation area.

Results of Phase I Investigations

The data compiled during the Phase I review was evaluated and incorporated into a central Geographic Information System (GIS) database and subsequently used to develop a reconnaissance survey plan. Design level geophysical and geotechnical investigation plans were developed following the reconnaissance investigations. The data that was compiled during the Phase I investigation is shown in Figure 7.



NOTES

1. COORDINATES ARE IN FEET BASED ON ALABAMA STATE PLANE COORDINATE SYSTEM, WEST ZONE, NORTH AMERICAN DATUM OF 1983 (NAD83).

LEGEND

- FEDERAL STATE BOUNDARY
- USGS VIBRACORES
- 2006 OLSEN VIBRACORES
- GSA/MMS VIBRACORES

DECK41 NGDC DATA SET G02094

- CORES AND GRAB SAMPLES
- SHIPWRECKS
- OIL & GAS WELLS
- CHARTED PIPELINES
- 400 FT PIPELINE BUFFER
- CBRS UNIT
- PROTECTED AREA
- MMS SHIPPING FAIRWAY
- INVESTIGATION AREA

0 3,000 6,000 Feet

1 inch = 6,000 feet

N

TITLE:

FIGURE 7. DATA COMPILED DURING THE PHASE I INVESTIGATION.

COASTAL PLANNING & ENGINEERING, INC
2481 NW BOCA RATON BLVD.
BOCA RATON, FL 33431
PH. (561) 391-8102
FAX.(561) 391-9116

DATE: 10/26/10	BY: BF	COMM NO: 9950.00	FIGURE 7

PHASE II AND III INVESTIGATIONS

Investigation Details

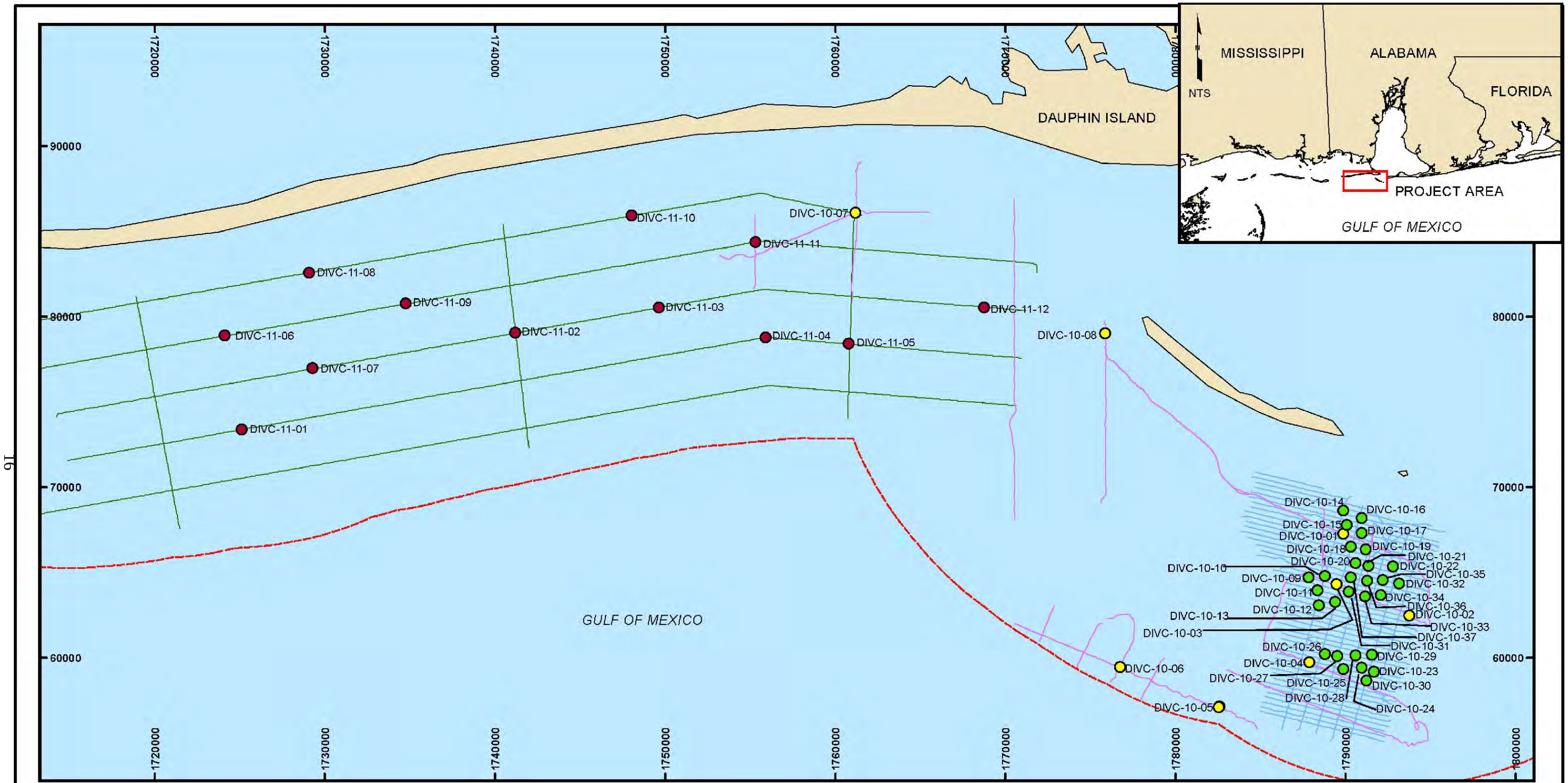
During Phase II investigations, CPE researchers conducted reconnaissance level geophysical and vibracore surveys within the area identified for additional investigation. On January 26th, 2010, concurrent seismic reflection profiling, and bathymetric surveys were conducted off the *R.V. Thunderforce.* A total of 31 statute line miles of geophysical data were collected. On January 27th, 2010, eight (8) vibracores were collected by American Vibracore Services (AVS). The geophysical and geotechnical data that was collected was assessed and one (1) potential sand resource area was identified for further investigation during a Phase III design level investigation. Figure 8 shows the location of the reconnaissance geophysical tracklines and vibracore locations. The geophysical data, coupled with analysis of the vibracores was used to determine sediment quality and to ascertain the presence of material suitable for dredging. Beach sand samples were also collected to characterize the existing beach and to determine compatibility between the beach and potential resource areas.

Phase III of the sand search included design level geophysical and geotechnical investigations. Between September 3rd and 5th, 2010, concurrent seismic reflection profiling, magnetometer and bathymetric surveys were conducted. Data was collected at approximately 60 m (approximately 200 ft) line spacing. Approximately 95 statute line miles of geophysical data were collected. The results of the Phase II geophysical investigation were used to plan vibracore locations for the Phase III geotechnical investigation. All magnetic anomalies, regardless of potential significance, were avoided by 400 ft. during the vibracore investigation. Twenty-nine (29) vibracores were collected by AVS between September 7th and 8th, 2010 to meet the maximum 1000 ft. industry standard spacing guidelines for permitting.

Following the design level investigation, an additional reconnaissance level investigation was conducted in an effort to determine the potential for locating sand directly offshore of Dauphin Island. Dr. Scott Douglass worked with CPE to delineate a new investigation area. Between November 17th and 18th, 2010, a reconnaissance geophysical survey was conducted within this investigation area. A concurrent magnetometer, seismic reflection profiling and bathymetric survey was conducted. Approximately 62 statute line miles of data was collected at a line spacing of approximately 2800 ft. On January 4th and 14th, 2011 twelve (12) additional reconnaissance level vibracores were collected by Athena Technologies Inc. Figure 8 shows the locations of the Phase II and III geophysical tracklines and vibracores. Based on analysis of the data that was collected, it was decided to abandon the new investigation area and focus on continuing to develop the previously identified sand source area. Based on the data that was collected up to this point from the first investigation area, preliminary borrow area boundaries and excavation elevations were developed.

In order to satisfy permitting requirements a cultural resource investigation was conducted between September 3-5, 2010 and February 22-23, 2011. During this investigation, additional geophysical data was collected within the preliminary borrow area(s). When combined with the previously collected geophysical data, a total line spacing of 30 m (approximately 100 ft.) was achieved. The joint seismic reflection profiling, sidescan sonar and magnetometer survey was used to identify potential cultural resources such as artifacts, underwater wrecks, submerged

hazards, significant relict landforms or any other features including modern debris that would affect borrow area delineation and dredging activities. A qualified marine archaeologist was onboard at all times during the cultural resource investigation. Based on the results of the cultural resource investigation, the marine archaeologist recommended the avoidance of several potentially significant magnetic anomalies by the creation of an avoidance buffer zone around each. These anomalies and avoidance buffers were included in the final borrow area design. The cultural resource report is provided in Appendix 13.



NOTES

1. COORDINATES ARE IN FEET BASED ON ALABAMA STATE PLANE COORDINATE SYSTEM, WEST ZONE, NORTH AMERICAN DATUM OF 1983 (NAD83).

LEGEND

- 2010 CPE RECONNAISSANCE VIBRACORES
- 2010 CPE DESIGN LEVEL VIBRACORES
- 2011 CPE RECONNAISSANCE VIBRACORES
- FEDERAL STATE BOUNDARY
- 2010 CPE RECONNAISSANCE TRACKLINES
- 2010 CPE DESIGN LEVEL GEOPHYSICAL TRACKLINES
- 2010 ADDITIONAL RECONNAISSANCE GEOPHYSICAL TRACKLINES

0 3,000 6,000 Feet

1 inch = 6,000 feet

N

TITLE:

FIGURE 8. LOCATION OF GEOPHYSICAL TRACKLINES AND VIBRACORES

COASTAL PLANNING & ENGINEERING, INC
2481 NW BOCA RATON BLVD.
BOCA RATON, FL 33431
PH. (561) 391-8102
FAX.(561) 391-9116

DATE: 10/26/10	BY: BF	COMM NO: 9950.00	FIGURE 8

Equipment and Methods

Due to the scope and precision required by modern sand search protocols, a wide range of geophysical and geotechnical survey methods are required. The Phase II and III investigations included bathymetric, sidescan sonar, seismic reflection profiling and magnetometer surveys, determination of sediment composition and thickness via vibracoring and characterization of the existing beach. Magnetometer data was not collected during the first reconnaissance investigation. Sidescan sonar was not collected during the first and second reconnaissance investigation. The bathymetric, sidescan sonar, seismic reflection profiling and magnetometer surveys were conducted concurrently using the setup illustrated in Figure 9. The collection and processing of this data is described below. The geophysical and geotechnical equipment used during the Phase II and III investigations is listed in Table 1.

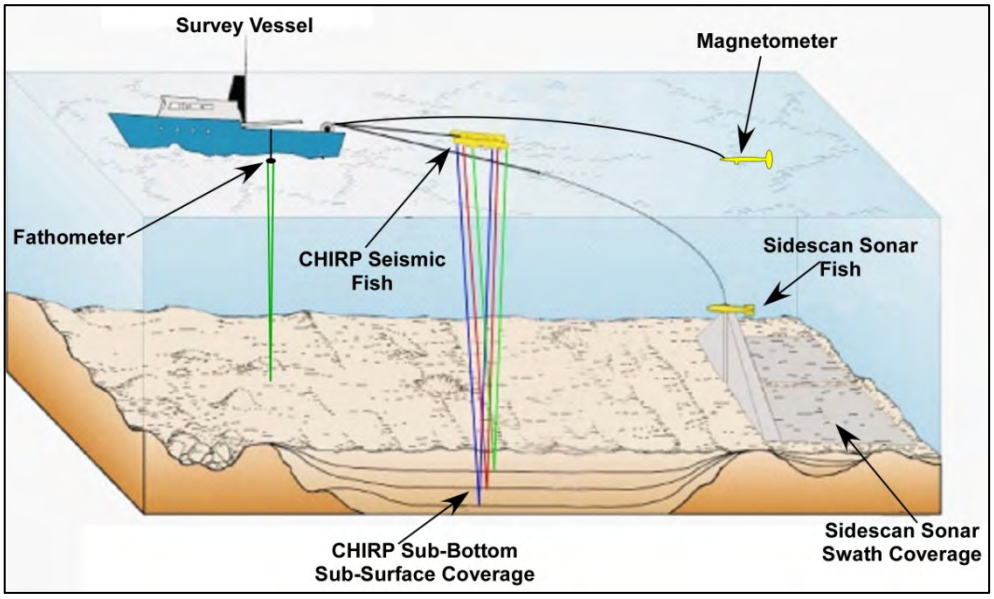


Figure 9. Schematic diagram showing the deployment of a joint seismic reflection profile, sidescan sonar, bathymetric and magnetometer survey.
(Modified from: http://woodshole.er.usgs.gov/operations/sfmapping/seismichist.htm)

Table 1. *Equipment used during Phase II and III of the sand search investigation.*

Equipment Type	Description
Navigation	Trimble Differential Global Positioning System (DGPS) and Trimble 5700 Real Time Kinetic (RTK) Global Positioning System interfaced with Hypack Inc.'s Hypack 2010 ® software
Sounder (Bathymetry)	Odom Hydrographic Systems, Inc. "Hydrotrac" Hydrographic Echo Sounder
Sub-bottom Profiler (seismic reflection)	EdgeTech X-STAR SB-512i Sub-bottom Profiler
Sidescan Sonar	Edgetech 4200-HFL
Vibracores	271B Alpine Pneumatic Vibracore; Athena Electric Vibracore System
Magnetometer	Geometrics G-882 Digital Cesium Marine Magnetometer interfaced with Hypack 2010® software

Navigation Systems

The navigation and positioning system deployed for the initial reconnaissance geotechnical surveys and the geophysical survey was a Trimble Differential Global Positioning System (DGPS) interfaced to Hypack Inc.'s Hypack 2010®. A Pro Beacon receiver provided differential GPS correction from the U.S. Coast Guard Navigational Beacon located at Mobile Point, Alabama. The DGPS initially receives the civilian signal from the global positioning system (GPS) NAVSTAR satellites. The locator automatically acquires and simultaneously tracks the NAVSTAR satellites, while receiving precisely measured code phase and Doppler phase shifts, which enables the receiver to compute the position and velocity of the vessel. The receiver then determines the time, latitude, longitude, height, and velocity once per second. Most of the time, the GPS accuracy with differential correction, provides for a position accuracy of one (1) to four (4) ft. This is within the accuracy needed for geotechnical investigations.

Subsequent geophysical surveys were conducted using a real-time kinematic (RTK) global positioning system (GPS) with dual frequency receivers. RTK GPS relies on a base station and transmitter placed on a survey point with a known elevation and horizontal position. The base station for the survey was set on the Dauphin Island Pier, as this location provided the clear horizon needed to minimize phase-measurement effects caused by multi-pathing. The base station position for the RTK GPS system was surveyed and established prior to survey operations. Horizontal and vertical positioning checks were conducted before and after the survey at existing monuments located within the project area to confirm survey accuracy. The base station transmits carrier phase and Doppler shift corrections via radio link to a receiver onboard the survey vessel. The receiver on the survey vessel can then apply the carrier phase and Doppler shift corrections to the position of the vessel as measured by GPS satellites.

Hypack Inc.'s Hypack 2010 ® Data Collection and Processing Program

Navigational, magnetometer, and depth sounder systems were interfaced with an onboard computer, and the data was integrated in real time using Hypack Inc.'s Hypack 2010® software. Hypack 2010® is a state-of-the-art navigation and hydrographic surveying system. The location of the fish tow-point on the vessel in relation to the DGPS/RTK GPS was measured, recorded and entered into the Hypack 2010® survey program. The length of cable deployed between the tow-point and each towfish was also measured and entered into Hypack 2010®. Hypack 2010® then takes these values and monitors the actual position of each towfish in real time. Online screen graphic displays include the pre-plotted survey lines, the updated boat track across the survey area, adjustable left/right indicator, as well as other positioning information such as boat speed, quality of fix measured by Position Dilution of Precision (PDOP), and line bearing. The digital data is merged with positioning data (DGPS/RTK GPS), video displayed and recorded to the acquisition computers hard disk for post processing and/or replay.

Bathymetric Survey

The Odom Hydrographic Systems, Inc.'s Hydrotrac, a single frequency portable hydrographic echo sounder, was used to perform the bathymetric survey. The Hydrotrac operates at frequencies of 24, 33, 40, 200, 210, or 340 kHz and is a digital, survey-grade sounder. A 210 kHz transducer was used for the bathymetric survey.

Tide data for the initial reconnaissance survey was obtained from the Dauphin Island Hydro, Alabama NOAA tide station (ID: 8735181). Water level was recorded every six (6) minutes and was downloaded from the NOAA website daily. After the reconnaissance survey all bathymetric data was tide corrected in Hypack 2010® using the verified NOAA tide data. RTK GPS was used for all subsequent surveys as described below.

Prior to the start of subsequent surveys, a reconnaissance survey of the Dauphin Island monuments was conducted to confirm that the survey control was in place and undisturbed. To achieve the required accuracy, the hydrographic survey was controlled and tide corrected using second order control. RTK GPS was used to locate and confirm the survey control for these surveys. Local tide gauges were also set by CPE for redundant tide measurement and RTK GPS tide verification. Tide gauges were set by CPE surveyors and located with RTK GPS or rod and level.

Real-time navigation software (Hypack), was used to provide navigation to the helm in order to minimize deviation from the online azimuth. This software provides horizontal position to the sounding data allowing real-time review of the data in plan view or cross section format. A Trimble RTK GPS and a TSS Motion Compensator were used onboard the survey vessel to provide instantaneous tide corrections as well as heave, pitch and roll corrections. Soundings were collected at intervals sufficient to provide an accurate depiction of the seafloor. Cross lines (tie lines) were collected to verify survey accuracies.

Horizontal and vertical positioning checks and sounder calibration were performed periodically throughout the surveys (typically at the beginning and end of each survey day). The sounder was calibrated via bar-checks and a sound velocity probe. The DIGIBAR PRO sound velocity meter is used to find the average sound velocity needed to calibrate the Hydrotrac sounder prior to performing the bar-check. Bar checks were performed from a depth of 5 ft. to the maximum depth of the survey area. Analog data showing the results of the bar check calibration is displayed on the sounder charts at 5 ft. increments during descent of the bar.

Upon completion of the field work, data was edited and reduced with CPE's internal software programs and Hypack 2010®. The RTK GPS tide data was compared to local predictions and other regional gauges for verification purposes. The offshore raw digital data was viewed and edited in Hypack 2010®. Digitized data was scanned for noise and compared to the analog record. False soundings were removed and a comma delimited ACSII file was created and exported.

Magnetometer Survey

High-resolution magnetic remote sensing is needed to identify any metallic objects that could represent a potential cultural resource or hazard to construction. A Geometrics G-882 Digital Cesium Marine Magnetometer, capable of a plus or minus 0.1 gamma resolution, was used to perform a cursory investigation of magnetic anomalies within the potential sediment sources (Figure 10). The purpose of the magnetometer survey was to establish the presence, and subsequent exclusion zones around any potential underwater wrecks, submerged hazards, or any other features that would affect borrow area delineation and dredging activities.

To produce a magnetic record of sufficient resolution, the sensor was deployed and maintained in the water column at a depth of 4 to 10 ft. below the water surface. A computer recorder provided a continuous permanent record of the magnetic background and target signatures. Positioning data generated by the navigation system was tied to magnetometer records by regular annotations to facilitate target location and anomaly analysis. Annotations include line number, date and time of start and end of each line, and target identification.

Upon completion of the general magnetometer survey, the data was examined by a marine archaeologist, who provided the locations of magnetic anomalies. The magnetic anomalies were avoided during subsequent geotechnical (vibracore) investigations by a 400 ft. buffer.

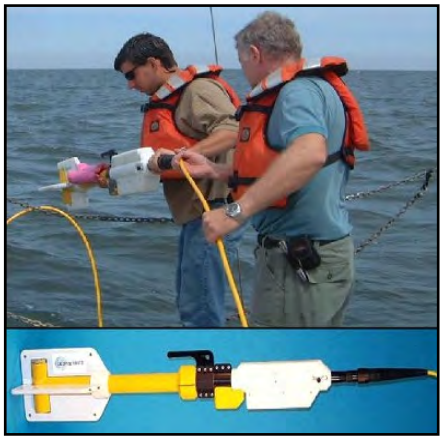


Figure 10. Geometrics G-882 Digital Cesium Marine Magnetometer used to investigate magnetic anomalies within the potential sediment source.

Seismic Reflection Profile Surveys

"Chirp" sub-bottom seismic-reflection data is used to show sedimentary stratigraphy and identify potential project-compatible sediment resources. The use of chirp sub-bottom data allows common stratigraphic layers to be mapped throughout the study area while determining the thickness and extent of potential project compatible sediment.

An EdgeTech X-STAR SB-512i was used to conduct the seismic reflection profile surveys (Figure 11). The X-STAR Full Spectrum Sonar is a versatile wideband FM sub-bottom profiler that collects digital normal incidence reflection data over many frequency ranges. This instrumentation generates cross-sectional images of the seabed (to a depth of up to 50 ft. in this survey). The X-STAR SB-512i transmits an FM pulse that is linearly swept over a full spectrum frequency range (also called a "chirp pulse"). The tapered waveform spectrum results in images that have virtually constant resolution with depth. The Chirp systems have an advantage over 3.5 kHz and "boomer" systems in sediment delineation because the reflectors are more discrete and less susceptible to ringing from both vessel and ambient noise. The full-wave rectified reflection horizons are cleaner and more distinct than the half-wave rectified reflections produced by older analog systems.

The X-STAR SB-512i, the newest model in the EdgeTech suite of Chirp Full Spectrum Sub-bottom towfish, differs from the older X-STAR SB-512 (which had four (4) 6" diameter transducers) by having a single 13" diameter low frequency transducer and a single 6.5" diameter high frequency transducer. The new low frequency transducer provides more low frequency energy at all pulse settings, which allows deeper penetration of seafloor sediments while at the same time maintaining the high resolution of the original configuration.

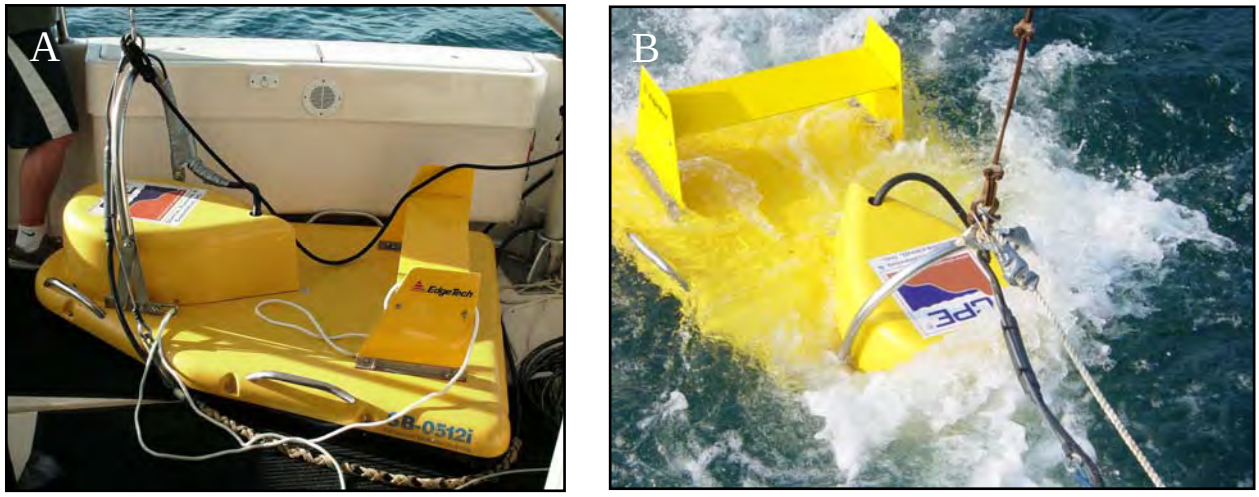


Figure 11. EdgeTech X-STAR SB-512i sub-bottom profiling system. (a) prior to deployment. (b) after deployment.

In order to minimize noise related to the survey vessel and sea conditions, the seismic towfish (which operates as both the source and receiver for the sub-bottom system) was deployed and towed behind the research vessel. The sub-bottom system was interfaced with DGPS/RTK GPS via Hypack 2010® navigational software. The location of the fish tow point (as referenced to the DGPS/RTK GPS antenna), together with the length of cable deployed from the tow point, were entered into Hypack 2010® in order to account for the fish layback and provide accurate positioning of the seismic fish during the survey. The sub-bottom system was operated by the Discover-SB® software program. At the start of the sub-bottom profiling survey, the sweep frequencies of the outgoing pulse together with the different gain settings available within Discover-SB® were adjusted to obtain the best possible resolution for the survey. The data was continuously bottom-tracked to allow for the application of real-time gain functions in order to have an optimal in-the-field view of the data. Automatic gain control (AGC) was used to normalize the data by strengthening quiet regions/soft returns while simultaneously reducing/eliminating overly strong returns by obtaining a local average at a given point. A time-varying gain (TVG) was used to increase the returning signal over time in order to reduce the effects of signal attenuation.

All sub-bottom data was recorded on the acquisition computer's hard disk and transferred to a USB memory stick and/or portable hard drive at the end of each survey day to back-up raw survey data. A printed hardcopy of the data was also produced as the data was collected. Notes regarding line name, time, event, and direction of collection were recorded for the beginning and end of each survey trackline. Post collection processing of the seismic data was completed using

Chesapeake Technology, Inc's SonarWiz.MAP +SBP® software. This software allows the user to apply specific gains and settings in order to produce enhanced sub-bottom imagery that can then be interpreted and digitized for specific stratigraphic facies relevant to the project goals.

The first data processing step is to calculate the approximate depth of the reflector below the sound source by converting the two-way travel time (the time in milliseconds that it takes for the "chirp pulse" to leave the source, hit the reflector and return to the source) to feet by utilizing an approximate value for the speed of sound through both the water and underlying geology. For this survey, a detailed hydrographic and geologic sound velocity structure was not available, so CPE geophysicists used an estimated sound velocity of 1.6 meters per millisecond (m/ms) in order to convert two-way travel time to feet. This estimate of the composite sound velocity is based on several assumptions including the speed of sound through water which is typically 1.5 m/ms as well as on the speed of sound through the sediment which can vary from 1.6 m/ms for unconsolidated sediment to >1.7 m/ms for limestone.

CPE geophysicists then processed the imagery to reduce noise effects (commonly due to the vessel, sea state, or other natural and anthropogenic phenomenon) and enhance stratigraphy. This was done using the processing features available in SonarWiz.MAP +SBP®; AGC, swell filter, and a user-defined gain control (UGC). The SonarWiz.MAP +SBP® AGC is similar to the Discover-SB® AGC feature, where the data are normalized in order to remove the extreme high and low returns, while enhancing the contrast of the middle returns. In order to appropriately apply the swell filter and UGC functions, the sub-bottom data was bottom-tracked to produce an accurate baseline representation of the seafloor. Once this was done through a process of automatic bottom tracking (based on the high-amplitude signal associated with the seafloor) and manual digitization, the swell filter and UGC were applied to the data. The swell filter is based on a ping averaging function that removes vertical changes in the data due to towfish movement caused by the sea state. The swell filter was increased or decreased depending on the period and frequency of the sea surface wave conditions, however, special care was taken during this phase to not remove, or smooth over geologic features that are masked by the sea state noise. The final step was to apply the UGC. The SonarWiz.MAP +SBP® UGC feature allows the user to define amplitude gains based on either the depth below the source, or the depth below the seafloor. For this survey, the UGC was adjusted so that the gain would increase with depth below the imaged seafloor (and not the source), mimicking a time-varying gain. The user was able to remove the noise within the water column, increase the contrast within the stratigraphy, and increase the amplitude of the stratigraphy with depth, accounting for some of the signal attenuation normally associated with sound penetration over time.

After data processing, sub-surface data interpretation was performed using SonarWiz.MAP +SBP® software. Using the SonarWiz.MAP +SBP® platform, processed seismic profile lines were opened to digitally display the recorded sub-surface stratigraphy. Using the software's Sonar File Manager, color coded vibracore descriptions were added directly to the seismic profiles. A project-specific color scheme was developed for the vibracores based on the compatibility of the prospective nourishment material with that on the existing beach. Specific objects found in the core, such as rocks or large pieces of coral, were called out and given a representative color as well. Using the vibracore descriptions as a guide, the seismic stratigraphy

was interpreted and the depth of the top of marginal to poor quality material was determined. The stratigraphic reflector that best correlated with this layer was digitized.

Using the seafloor and the reflector representing non beach-compatible material (i.e. high silt, clay or rock content), the thickness of the sediment wedge was calculated and exported in order to develop an isopach (sediment thickness) map of each area. The maps that were created were verified by importing and gridding the thickness data in Golden Software Inc's Surfer 8®. After gridding the data, contour maps showing sediment thickness were produced. The contour maps were checked for discrepancies in the data and the proper adjustments were made. Once the data was verified, final thicknesses were exported to be used in the borrow area design process.

Sidescan Sonar Survey

Sidescan data is required to verify the location and extent of unconsolidated sediment and to map ocean bottom features such as benthic habitats, exposed pipelines, cables, underwater wrecks, potential cultural resources, *etc*. The sidescan survey was conducted to identify features that may affect borrow area delineation, introduce hazards to dredging, or adversely impact the environment.

During this sand search investigation an EdgeTech 4200-HFL sidescan sonar system was used (Figure 12). This system uses full-spectrum chirp technology to deliver wide-band, high-energy pulses coupled with high resolution and good signal to noise ratio echo data. The sonar package included a portable configuration with a laptop computer running EdgeTech's Discover® acquisition software and a 300/600 kHz dual frequency towfish running in high definition mode. Dual frequency provides a more complete sidescan return that aids interpolation at the outer portions of the swath, which in turn provides a more complete data set.



Figure 12. EdgeTech 4200-HFL sidescan sonar system.

During the investigations, the sidescan was towed from the survey vessel at a position and depth that limited exposure to sources of interference and provided the best possible record quality. The survey was conducted in such a manner to achieve total bottom coverage within the survey area. The line spacing was set up so that we obtained 100% overlap (*i.e.* all areas of the seafloor were covered twice). The digital sidescan data was merged with positioning data (DGPS/RTK GPS via Hypack 2010®). Position data appeared in the video display and was logged to disk for post processing and/or replay. The acoustic data was recorded digitally.

Post collection processing of the sidescan data was completed using Chesapeake Technology, Inc's SonarWiz.MAP software. This software allows the user to apply specific gains and settings in order to produce enhanced sidescan imagery that can be interpreted and digitized for specific benthic habitat features and debris throughout the survey area. The first step in processing was to import the data into the software and bottom track the data. Bottom tracking is achieved using an automated bottom tracking routine and in some cases manual bottom tracking. This step provides the data with an accurate baseline representation of the seafloor and eliminates the water column from the data.

After bottom tracking, the data was processed to reduce noise effects (commonly due to the vessel, sea state, or other anthropogenic phenomenon) and enhance the seafloor definition. In most cases automatic time-varying gain (TVG) is sufficient to provide the best imagery. Time-varying gain divides the data into parallel swaths and equalizes backscatter of each swath to create a normalized image highlighting contrast change throughout the image, which creates a better mosaic and allows the processer to pick out areas with similar acoustic properties. In areas with high levels of noise in the data it was necessary to apply automatic gain control (AGC) which normalizes the data by strengthening quiet regions/soft returns while simultaneously reducing/eliminating overly strong returns by obtaining a local average at a given point. Once the data was sufficiently processed a mosaic was produced in the form of a geotiff.

Beach Sample Collection

The suitability of a sand source for beach nourishment is directly linked to the characteristics of the recipient beach. State and federal regulatory agencies require that sand resources for nourishment be "beach compatible", that is, "similar" to sand existing in the project area. Qualities such as grain size, silt content, color, and mineralogical content are taken into account. It is, therefore, important to accurately characterize existing beach sediments during a sand search investigation. This allows researchers to target potential sand resources that are most similar to the recipient beach.

On February 1st, 2010, CPE collected beach samples and nearshore sediment samples along three (3) transects on the east end of Dauphin Island, at monuments DI-21, 27 and 32. At DI-21, samples were collected from 4.9, 2.6, 0.9, -0.1, -6.4, -8.5 and -11.7 ft. NAVD88. At DI-27, samples were collected from 5.1, 2.2, 0.9, 0.0, -4.7, -8.8 and -12.6 ft. NAVD88. At DI-32, samples were collected from 7.0, 3.1, 0.9, -0.1, -4.2, -7.7, -11.9 and -16.2 ft. NAVD88.

On October 21st and 22nd, 2010, CPE collected beach samples and nearshore sediment samples from four (4) transects on the west end of Dauphin Island, at monuments DI-2, 8, 10 and

14. Along these transects, samples were collected from elevations of 5.5, 1.0 and -0.2 ft. NAVD88. At DI-2 samples were also collected from -5.5, -8.3, -6.5, and -12.5 ft NAVD88. At DI-8, additional samples were collected from -4.3, -6.6, -6.0, -10.4, -17.4 and -18.3 ft NAVD88. At DI-10 samples were also collected from -5.3, -7.6, -6.7, -13.4 and -17.4 ft NAVD88. At DI-14 samples were also collected from -5.6, -12.1, -18.2, -10.2, -14.2 and -18.1 ft NAVD88.

The samples that were collected show cross-shore sediment distribution at selected points across the existing beach. Results were composited by transect. These composites were used to characterize the existing beach.

Vibracore Survey

Vibracores are collected to obtain continuous physical samples of the material within the potential sand resource(s). They are used to characterize the physical properties of the material and groundtruth the seismic data.

A 271B Alpine Pneumatic vibracore system was used for the reconnaissance investigation (Figure 13). This self-contained, freestanding pneumatic vibracore unit contains an air-driven vibratory hammer assembly, an aluminum H-beam which acts as the vertical beam upright on the seafloor, 20-ft. long steel tubes measuring 4" in diameter, and a drilling bit with a cutting edge. An air hose array provides compressed air from the compressor on deck to drive the vibracore. The vibracore unit was truck-crane deployed from the R/V *Thunderforce*.

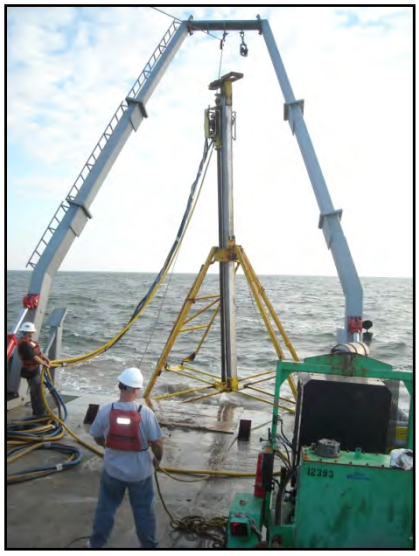


Figure 13. Crane Deployment of the 271B Alpine Pneumatic vibracore system off the *R/V Thunderforce.*

Design level vibracores were collected by Athena Technologies Inc. using Athena's custom designed and built vibracore system deployed from a sampling platform (Figure 14). Athena's system consists of a generator with a mechanical vibrator attached via cable. The vibrator is attached directly to a three-inch diameter, galvanized sample barrel. The sample barrel is lowered to the seafloor through a moonpool in the deck of the sampling platform by attaching

lengths of drill stem. The vibracore machine is then turned on and the sample barrel is allowed to penetrate until it reaches target depth or refusal.



Figure 14. Athena electric vibracore system.

If recovery was less than 80% of the expected penetration, the pipe was removed, a new pipe inserted, and a jet pump hose was attached just below the vibracore head. The rig was, again, lowered to the bottom and jetted into the sediment just above refusal depth. The jet was then turned off and the vibrator resumed collecting the lower part of the core.

Upon removal of the vibracores, they were measured, marked and cut into 5-ft. sections. The cores were then labeled, and transported to CPE's office in Boca Raton, Florida. There, the vibracores were split and logged by describing sedimentary properties by layer in terms of layer thickness, color, texture (grain size), composition and presence of clay, silt, gravel, or shell and any other identifying features (Figure 15). Wet Munsell color was determined in accordance with American Society for Testing and Materials Standard Materials Designation D2488-00 for description and identification of soils (visual-manual procedure) (ASTM, 2009). The vibracores were digitally photographed against an 18% gray background. This is the standard reference value against which all camera light meters are calibrated. Sediment samples were obtained from irregular intervals based on distinct layers in the sediment sequence. The unsampled half of each core was then archived. The top of core elevations were determined from bathymetric survey data.



Figure 15. Vibracore logging, sub-sample collection and Munsell color determination being conducted at CPE's office in Boca Raton, Florida.

Sediment Grain Size (Mechanical) Analysis. During sieve analysis, dry and washed Munsell colors were also noted. Sieve analyses were conducted on all sediment samples in accordance with American Society for Testing and Materials Standard Materials Designation D422-63 for particle size analysis of soils (ASTM, 2007). This method covered the quantitative determination of the distribution of sand size particles. For sediment finer than the No. 230 sieve (4.0 phi) the ASTM Standard Test Method, Designation D1140-00 was followed (ASTM, 2006). Mechanical sieving was accomplished using calibrated sieves. Weights retained on each sieve were recorded cumulatively.

Grain size data were entered into the gINT® software program, which computes the mean and median grain size, sorting, and silt/clay percentages for each sample using the moment method (Folk, 1974). Granularmetric reports and grain size distribution curves were compiled for each sample.

Results and Discussion

During this investigation, beach samples were collected and reconnaissance and design level geophysical and geotechnical investigations were conducted. Based on the results of these investigations, two (2) borrow areas were identified and developed. The results of these investigations are discussed below.

Beach samples were collected to characterize the existing beach. Appendices 3 and 4 contain granularmetric reports and grain size curves/histograms. Composites were created for each profile line. Composites are presented in Appendices 5, 6 and 7. Summary composites (Appendix 5) indicate that the sediment on the East end of Dauphin Island has a mean grain size of 0.28 mm and an average dry Munsell color value of 7. Average silt content is approximately 3.56%. Summary composites indicate that sediment on the West end of Dauphin Island has a mean grain size of 0.27 mm and an average dry Munsell color value of 7. Average silt content is approximately 1.63%.

Following the collection and analysis of the geophysical data (seismic reflection, bathymetry, magnetometer), a detailed plan to collect vibracores to target the most promising sand resources, while avoiding potential natural resources and magnetic anomalies, was developed. Appendices 8 and 9 contain vibracore logs and photographs. The granularmetric reports and grain size curves/histograms for the samples collected from the vibracores are presented in Appendices 10 and 11, respectively.

With the exception of two (2) vibracores (DIVC-10-06 and 07) the initial reconnaissance cores contained from 7 to 20 ft of fine grained sand with trace silt and trace shell hash. The Munsell color value of the sand ranges from 5 to 7, with a typical value of 6. Vibracore DIVC-10-06 contained 4 ft of sand which was underlain by sandy clay. The design level vibracores (DIVC-10-09 to DIVC-10-37) contained 11 to 20 ft of fine grained sand with trace silt and trace shell hash. The typical Munsell color value was 6 and the average mean grain size was approximately 0.24 mm. The additional reconnaissance vibracores (DIVC-11-01 to DIVC-11-12) vary in sediment quality. The easternmost cores are clay with a Munsell color value ranging from 3 to 5. The northwesternmost cores have a clay overburden, overlying 3 to 10 ft of fine grained sand with trace silt and trace shell hash. Vibracores DIVC-11-01, 07 and 02 contain 2 to 9 feet of fine grained sand with trace silt, trace shell hash and trace clay overlying clay. The typical Munsell color value ranges from 4 to 6.

CPE reviewed the vibracore logs for sediment quality. The logs were color coded according to quality, where green is the highest quality, yellow is marginal quality and red is low quality. Table 2 lists the criteria for color coding the vibracores. Sediment that appeared dark colored or clayey received a lower ranking.

Table 2. *Vibracore color code scheme showing the range of sediment differentiation.*

Color Code	**Description**[1]
Green	Poorly graded sand (SP)
Yellow	Poorly graded sand to gravelly clay (SP-GC); Poorly graded sand to silty sand (SP-SM); Poorly graded sand to clayey sand (SP-SC)
Red	Well graded gravel (GW); Gravelly silt (GM); Gravelly clay (GC); Clayey sand (SC); Silty sand (SM); Clay (CL)

[1]Sediment that was dark colored or clayey received a lower ranking.

The seismic data that was collected was processed and the color-coded vibracore logs were then plotted directly onto the data using the SonarWiz.MAP +SBP software program. Each vibracore was plotted on the line that fell closest to its location. The seismic data was then interpreted and digitized based on the correlated vibracore data. Upon the completion of interpretation and digitization, all of the seismic data was then exported as a "Web" based project of HTML/JPEG files viewable in any standard web browser software package (Appendix 12). The geophysical data, coupled with analysis of the vibracores was used to determine the thickness of sediments and to identify the elevation of the base of beach compatible material. An isopach was developed in the initial investigation area and was incorporated into the final borrow area design. A map depicting the elevation of the mapped seismic reflector is provided in Figure 16.

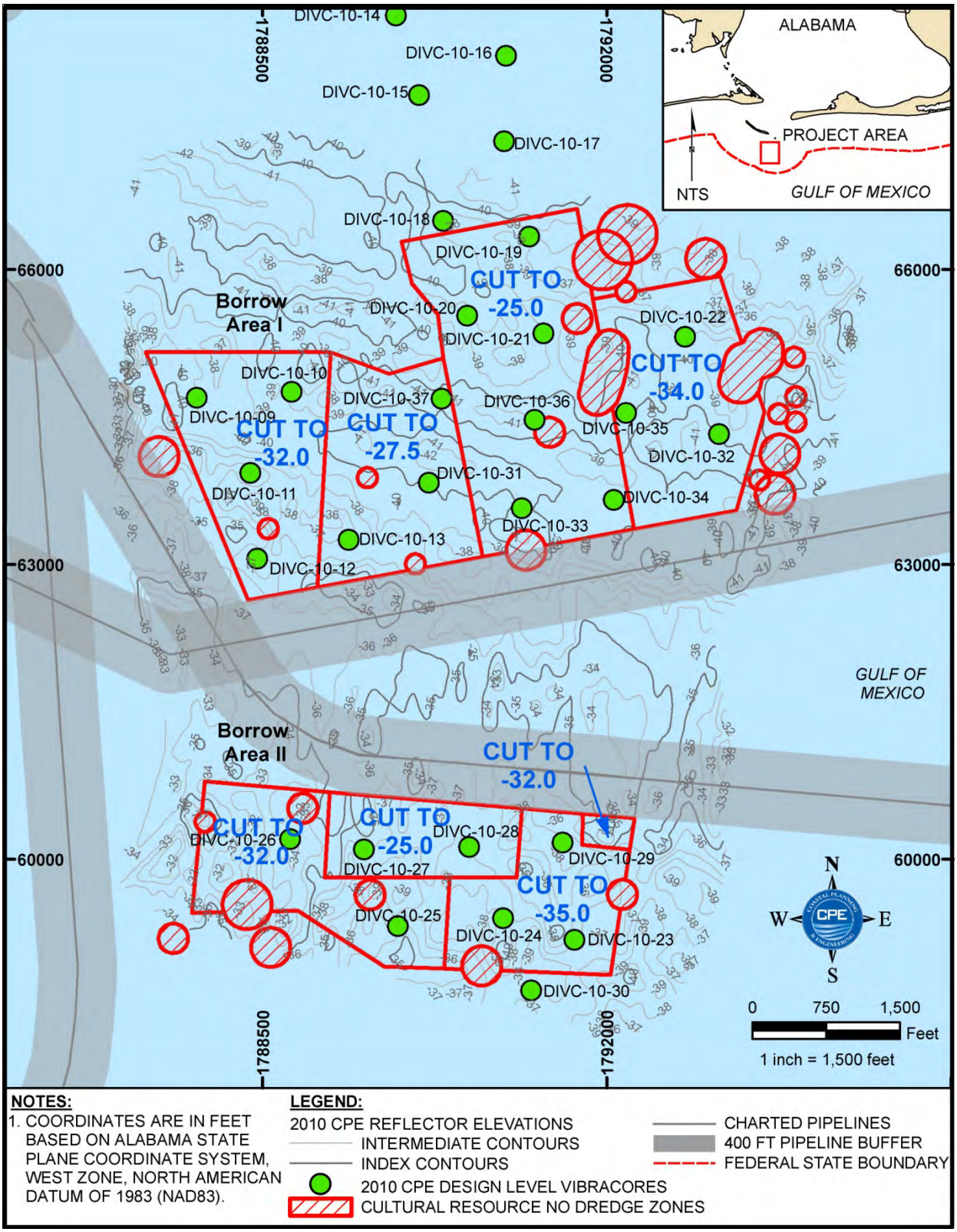


Figure 16. Elevation of the mapped seismic reflector.

For the offshore investigation area (comprised of seismic lines 006, 007, 008, 009 and 011 and vibracore DIVC-10-06), seismic stratigraphic mapping was not appropriate. This area consists of dredge disposal from the maintenance of the Mobile Bay shipping channel, and as such, is made up of multiple deposition events of varying source material, resulting in a mixed seismic stratigraphy with no horizontal bedding visible for mapping. While the vibracore indicates potentially beach-compatible sand near the surface, the lack of seismic stratigraphy within the hill is indicative of the fact that extensive vibracore sampling was required to define the deposit.

To determine the projects affects on potentially significant submerged cultural resources, Tidewater Atlantic Research, Inc. (TAR) carried out a background literature review and supervised a cultural resource investigation of the two (2) borrow areas. The cultural resource report compiled by TAR is provided in Appendix 13. TAR's review of background literature indicated that in the vicinity of the two (2) borrow areas the potential for submerged cultural resources is high due to international, national and regional maritime activities prevalent in the area.

Following the literature review, TAR supervised a magnetometer, sidescan sonar and subbottom profile survey in the vicinity of the two (2) borrow areas which was conducted by CPE in September 2010 and February 2011. Analysis of remote sensing data collected during this investigation, identified a total of 207 magnetic and 25 acoustic anomalies. In the vicinity of the northern borrow area, there were 129 magnetic and 19 acoustic anomalies. Of these, forty-nine (49) magnetic and fourteen (14) acoustic anomalies were indicative of potentially significant cultural resources and recommended for avoidance. In the vicinity of the southern borrow area, there were seventy-eight 78 magnetic and six (6) acoustic anomalies. Of these, twenty (20) magnetic and three (3) acoustic anomalies were indicative of potentially significant cultural resources and recommended for avoidance. The final recommended buffers for both areas range from 100 to 300-foot radius buffers. The magnetic anomaly buffers were incorporated into the final borrow area design. The sidescan sonar mosaic and magnetic anomalies with associated buffers are shown on Figure 17.

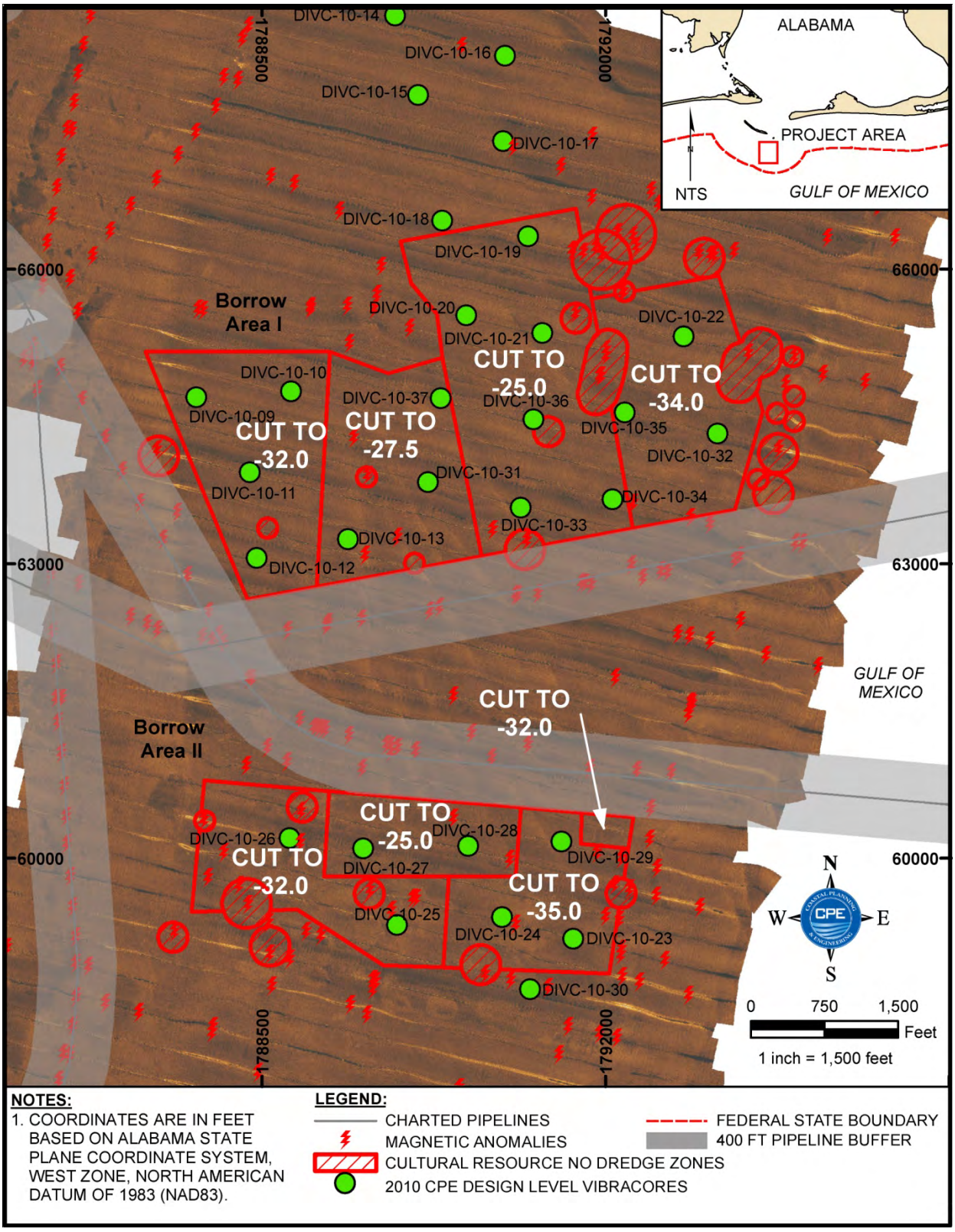


Figure 17. Sidescan sonar mosaic and magnetic anomalies with buffers.

BORROW AREA DESIGN

Two (2) borrow areas were designed that contained beach quality sand. The final borrow area design is shown in Figure 18.

Northern Borrow Area

The final borrow area (Borrow Area I) has four (4) cut elevations that range from -25.0 ft NAVD88 to -34 ft NAVD88. The total volume in the borrow area was calculated to be approximately 5,303,000 cy. This volume estimate is based on the volume of material above the cut elevations. The material in this area is predominantly fine grained sand with trace silt and trace shell hash. The typical dry Munsell color value is 7, the average mean grain size is approximately 0.26 mm and the silt content is 1.3%. The vibracores typically indicate 2ft or more of beach compatible material is located below the cut elevations.

Southern Borrow Area

The final borrow area (Borrow Area II) has four (4) cut elevations that range from -25.0 ft NAVD88 to -35.0 ft NAVD88. The total volume in the borrow area was calculated to be approximately 2,541,500 cy. The material in this area is predominantly fine grained sand with trace silt and trace shell hash. The typical dry Munsell color value is 7, the average mean grain size is approximately 0.23 mm and the silt content is 1.4%.

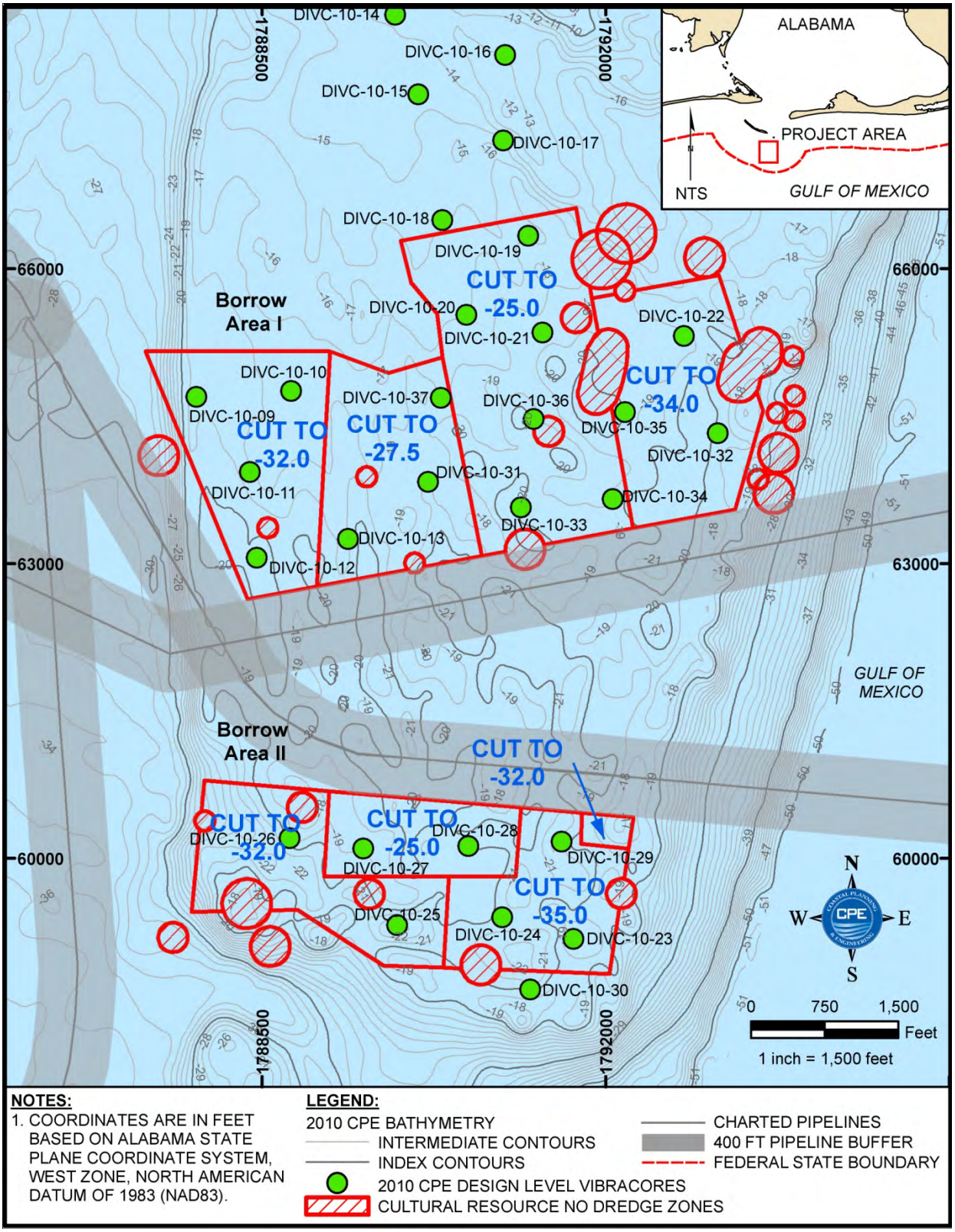


Figure 18. Borrow Area design.

Composite mean grain size, percent silt content and sorting were computed for each vibracore within Borrow Areas I and II by calculating the weighted average (sample weighted by representative lengths of the sampled layer within the core) and are included in Appendices 14, 15 and 16. The composite statistics for the entire borrow area were compiled by averaging the weighted results for all cores within the lateral and vertical limits of the borrow area. The composite statistics for the borrow areas and existing beaches are shown in Table 3. The material located within the two identified borrow areas is similar to the material found on the existing beach, and is beach compatible. A compatibility analysis is provided under Appendix 17.

Table 3. *Borrow Area and Beach characteristics.*

Location	Mean Grain Size[1]		Sorting[1]	Silt[2]	Avg. dry Munsell
	(mm)	(phi)	(phi)	(%)	color value
Borrow Area I-Primary Dredge Area	0.26	1.95	0.63	1.30	7
Borrow Area II-Secondary Dredge Area	0.23	2.13	0.54	1.40	7
West End Beach	0.27	1.89	0.65	1.63	7
East End Beach	0.28	1.86	0.69	3.56	7

[1] Sieve analyses were conducted on all sediment samples in accordance with American Society for Testing and Materials Standard Materials Designation D422-63 for particle size analysis of soils. Grain size data were entered into the gINT® software program, which computes the mean and median grain size, sorting, and silt/clay percentages for each sample using the moment method (Folk, 1974).
[2] Silt content is defined as the percentage of material finer than 0.0625 mm.

CONCLUSIONS

In an effort to identify beach compatible material for use in Dauphin Island beach nourishment projects sand resource investigations were conducted. Through these investigations approximately 7.8 million cubic yards of beach compatible sediments were identified. These sediments are located in two borrow areas (Borrow Area I and Borrow Area II) which are bisected by a pipeline. The material is typically fine grained sand with trace shell hash. The mean grain size of the sand within these borrow areas range from 0.26 mm to 0.23 mm, and they both contain less than 2% silt. The material is also very light in color, having an average dry Munsell color of 7. Samples collected along the existing beach during the sand resource investigations indicate that the material identified within the borrow areas is beach compatible.

ACKNOWLEDGEMENTS

Geophysical data was collected by Merritt McLean (CPE), Chris Dougherty (CPE), Jeff Andrews (CPE), Caren Reid (South Coast Engineers) and Scott Douglass (South Coast Engineers). Vibracores were collected by American Vibracore Services (AVS) with support provided by Jeff Andrews (CPE), Merritt McLean (CPE), Chris Dougherty (CPE) and Caren

Reid (South Coast Engineers). Vibracores were logged and compiled by Melany Larenas, Kristina Dennis and Beth Forrest. The project manager is Gordon Thomson.

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APPENDIX OVERVIEW

Introduction: These appendices contain the geophysical and geotechnical data used to develop Borrow Area I and Borrow Area II for use in the Dauphin Island Coastline Restoration Project. In 2010, bathymetric, magnetometer and remote sensing data (seismic and sidescan sonar) were collected. Thirty seven (37) vibracores were also taken within the investigation area. Twelve (12) additional vibracores were collected in 2011. The vibracore data is provided in the form of vibracore logs, vibracore photographs, granularmetric reports, grain size distribution curves/histograms and composite summary tables. To characterize the existing beach, a total of fifty-five (55) representative samples were collected in 2010. Twenty-two (22) samples were collected in February and thirty-three (33) samples were collected in October. The beach data is presented in granularmetric reports, grain size distribution curves/histograms and composite summary tables.

1) Scope of Services

This appendix contains descriptions of services provided in order to locate potential sand sources offshore of Dauphin Island, Alabama.

2) Survey Report

This appendix contains the GPS control information.

3) 2010 CPE Individual Beach Granularmetric Reports

This appendix contains individual granularmetric reports for each of the fifty-five (55) beach samples taken in 2010.

4) 2010 CPE Individual Beach Grain Size Distribution Curves/Histograms

This appendix contains individual gradation grain size distribution curves/histograms for each of the fifty-five (55) beach samples taken in 2010.

5) Beach Composite Summary Tables

A series of summary tables are presented in this appendix. These tables are used to calculate and summarize composite data. Composite calculations are based on the existing beach samples from 2010 presented in appendices 3 and 4. An average of the beach profiles was calculated for each Range Monument, producing the profile composite.

Three table types were produced to display this data. The *Composite Summary* table is a summary of key grain size data for all of the composites. The *Composite Distributions for R-Monuments* table shows the average percent retained on all sieves for the individual samples used to create profile composites. The *Cumulative Percents and Computed Distribution* table shows the weighted average percent retained on all sieves for the individual samples used to create beach composites.

6) Beach Composite Granularmetric Reports

Composite granularmetric reports, corresponding to the data presented in the tables in Appendix 5, are included here. Composite granularmetric reports are presented for the existing Dauphin Island Beach and each of the seven (7) range monuments.

7) Beach Composite Grain Size Distribution Curves/Histograms

Composite grain size distribution curves and histograms, corresponding to the data presented in the tables in Appendix 5, are included here. Composite grain size distribution curves and histograms are presented for the existing Dauphin Island Beach and each of the seven (7) range monuments.

8) 2010/2011 CPE Vibracore Logs

Laboratory and descriptive information for each vibracore is presented on the log sheets. Unified Soils Classification terminology is used in the core layer descriptions and key grain size information (mean grain size, fines content and sorting) for each vibracore sample is presented under the *Remarks* column. Multiple layer intervals are sometimes represented by a single sample. The *Sample Number* column is used to identify the specific sample that represents a specific layer. Logs for thirty-seven (37) vibracores collected in the 2010 investigation and twelve (12) vibracores collected in the 2011 investigation are included in this appendix.

9) 2010/2011 CPE Vibracore Photographs

Photographs of thirty-seven (37) vibracores collected in 2010 and twelve (12) vibracores collected in 2011 are presented here.

10) 2010/2011 CPE Individual Vibracore Granularmetric Reports

This appendix contains individual granularmetric reports for the vibracore samples collected in 2010 and 2011.

11) 2010/2011 CPE Individual Vibracore Grain Size Distribution Curves/Histograms

This appendix contains individual grain size distribution curves/histograms for the vibracore samples collected in 2010 and 2011.

12) 2010 CPE Seismic Data (Digital Copy Only)

This appendix includes seismic records collected in the study area. The files are in HTML format and are therefore only included in the digital report copy. A map showing the location of the 2010 geophysical tracklines is included in this appendix.

13) Cultural Resources Report

The Cultural Resource Investigation report developed by TAR is provided in this appendix.

14) Borrow Area Composite Summary Tables

A series of summary tables are presented in this appendix. These tables are used to calculate and summarize composite data.

Composite statistics for Borrow Area I and Borrow Area II were calculated based on the vibracore samples that are representative of the material defined within each area. Composite data provides the average physical characteristics of each borrow area. An average of the representative layers, weighted by effective length, was calculated for each vibracore, producing the vibracore composite. The vibracore composites were averaged and weighted by effective length to calculate the borrow area composite.

Three table types were produced to display this data. The *Composite Summary* table is a summary of key grain size data for all of the composites. The *Composite Data* table shows the composite data for the borrow areas and the supporting composite vibracore data used to calculate the borrow area composites. The *Cumulative Percents and Computed Composite Distribution* table shows the weighted average percent retained on all sieves for the individual samples used to create vibracore composites.

15) Borrow Area Composite Granularmetric Reports

Composite granularmetric reports, corresponding to data presented in the Appendix 14 tables, are included here. Granularmetric reports are presented for the borrow area as well as for each vibracore.

16) Borrow Area Composite Grain Size Distribution Curves/Histograms

Composite grain size distribution curves and histograms of the data presented in the Appendix 14 tables are included here. Curves and histograms are presented for the borrow area as well as for each vibracore.

17) Compatibility Analysis

An analysis of the proposed offshore borrow areas compatibility with the existing beach is presented here.

APPENDIX 1
Scope of Services

Project Narrative Attachment

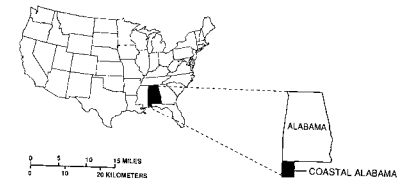
Town of Dauphin Island

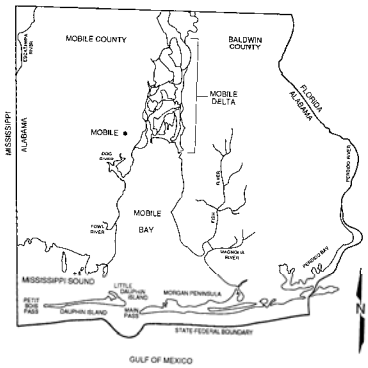
Beach and Barrier Island Restoration Engineering Study

With this award, the Town of Dauphin Island will develop the design of a beach and barrier island restoration project for critically eroded areas of Dauphin Island, Mobile County, Alabama.



The importance and applicability of the project cannot be understated – barrier islands such as Dauphin Island, Alabama are critical to the protection of island-based and coastal mainland ecosystems and represent regional significant economic drivers. This project embodies a number of attributes that are relevant to NOAA's mission. Specifically, this project will provide the design for restoring coastal and marine habitat for threatened and endangered species and also benefit species of concern; preservation of coastal wetlands through shoreline restoration or hydrological reconnection; protection of communities and infrastructure through habitat restoration to improve coastal resiliency to storms and flooding; and improvement of coastal habitat to respond to climate change through restoration or protection of transition zones that provide room for habitat migration with sea level rise.





The social, economic, ecological and cultural factors that influence coastal communities such as the Town of Dauphin Island (Town or Island) are complex. These factors ultimately create the linkage between the cultural and social resources present in the community and the inherent natural coastal resources. For example, economies and social activities are often ecotourism-based with festivals, celebrations, and community events focused on the natural and historic resources present within coastal communities. For many coastal communities the challenge is to use the presence of tourists or

seasonal residents to achieve local priorities and economic activity. As such, community priorities include protecting the resources and fostering sustainable economic situations that engenders respect for resources. Additionally, coastal communities such as the Island have seen their economies and social networks morph through time away from the "natural resource factory" model where they were dependent on harvesting of sea life or other local resources to a model where their economies are linked to tourism, retirees and second home constituencies. These constituencies tend to develop and support local natural resource social activism and recognize the direct ecosystem-to-economic linkage. Consequently, these communities understand the delicate balance between ecosystem-to-economic base use, loss, conservation and restoration possibilities.

It is from this unique coastal community understanding of the linkages between social, cultural and natural resources that the Town is pursuing this project. In recognizing the priority of protecting the Town's coastal resources but also doing what is necessary to sustain and grow the local economy the Town is pursuing economic growth, but in a way that engenders respect, sustainability and appreciation of its unique resources. Through this project we hope to preserve the unique social, cultural and natural resources located on Dauphin Island and develop our plan to mitigate the threat to these resources. The following links are provided to provide further understanding of the social, cultural and natural resources located on the Island:

- Town of Dauphin Island (www.townofdauphinisland.org),
- Dauphin Island Park and Beach Board (www.dauphinisland.org),
- Dauphin Island Sea Lab (www.disl.org).

The Town of Dauphin Island will contract with a team of consultants including South Coast Engineers, LLC to develop a design of a beach and barrier island restoration project for critically eroded areas of Dauphin Island. At this time, the team of consultants envisioned for this work includes Coastal Planning & Engineering, Inc. (CPE) working with WRSCompass (as a sub-consultant to CPE) for the majority of the coastal engineering analysis/design and Coastal Technology Corporation (Coastal Tech) for independent quality assurance and peer-review services throughout the study process. This CPE/WRSCompass team was the primary selection for the lead design firm from a qualifications-based selection process conducted by South Coast Engineers on behalf of the Town of Dauphin Island that concluded in February 2010. Subcontracts have not been established with either of these two groups (CPE/WRSCompass or Coastal Tech) for this work at this time but will be when this grant is received.

The barrier island and beach restoration project design will be to create a plan for a beach nourishment project consisting of the direct placement of large amounts of good quality sand on the beach to widen the beach and create a sand dune system. The conceptual design phase will include the development of cost estimates for several alternatives for construction including different beach widths. This conceptual design will incorporate sediment budget analysis including the historic shoreline and volumetric loss rates to develop estimates of volumes of sand required for initial construction and future renourishments. This phase will consider the possible use of coastal structures to aid in the retention of sand within the project limits. The final design documents and the permit applications will be based on the preferred alternative. (Actual barrier island and beach restoration will not take place under this award.)

This work will be closely coordinated with and will use the results of the presently ongoing study focused on a conceptual design of a solution for the east end of Dauphin Island. That presently ongoing effort is funded by NOAA Award No. NA09NOS463026. There will not be duplication of work.

The "east end" beach of the island is generally understood to be the three or so miles of south-facing beaches to the west of Ft. Gaines. These are the beaches to the east of the location where the former Pelican Island is now attached as a peninsula extending south from Dauphin Island from the fishing pier (the right side of the photo mosaic above). The "west end" beach of Dauphin Island is meant, for the purposes of this grant application, as the Gulf of Mexico beaches between the Pelican Island/Peninsula attachment location to the west end of the present-day island (left side of the photo mosaic above). There is presently a storm-induced breach at the end of that western location that is locally called "Katrina Cut" and is essentially a mile-plus wide inlet through an undeveloped portion of Dauphin Island. There are seven or eight miles of undeveloped barrier island to the west because of this breach. This grant application does not refer that undeveloped portion of Dauphin Island that could be, but is not, called West Dauphin Island (the part which is not shown in above mosaic) except for three survey profile lines mentioned in Task II.A. below.

The proposed scope of work is in 10 tasks:

Task I. Project Management, Coordination and Informational Meetings

The overall project manager, South Coast Engineers, will coordinate all CPE activities related to the project, monitor the project schedule and the quality assurance and peer review services by Coastal Tech. Project coordination will be maintained through South Coast Engineers as agents for the Town of Dauphin Island. Three progress meetings will be held with the Town and include a presentation at a public information forum on request. A web-page on the Town's web-site that explains the study process, findings and results will be updated and maintained throughout the duration of the project (http://www.townofdauphinisland.org/default.asp?ID=81)

Task II. Beach and Bathymetric Survey

A. Survey Overview

This survey is designed to provide the topographic and hydrographic survey data necessary for the preliminary design of the west end beach and barrier island restoration project and to aid in numerical modeling of the project area. Beach profiles will be collected within the project area of the west end beaches at approximately 500' spacing. Profile collection will begin at the Dauphin Island Pier and continue west to the end of the island. Whenever possible, existing profile control will be used for comparison purposes. Profiles will extend offshore 3000' or to the depth of closure; whichever is least. Selected profiles will extend landward (north) across Dauphin Island into the back bay to capture overwash events. Three additional profiles will be collected to west of the storm breach (locally called Katrina Cut) on the adjacent section of land. Further, a sufficient number of cross-sections will be collected within the breach to establish current condition. The mean high water will be derived using profile data. Any structures

protruding into survey area will be roughly located (generally houses and boardwalks). No underground utilities or jurisdictional boundaries will be located during this survey.

B. Survey Details and Procedures

Prior to the start of the survey, a reconnaissance of the monuments will be conducted to confirm that the survey control is in place and undisturbed. Real Time Kinematics (RTK) Global Positioning System (GPS) will be used to locate and confirm the survey control for this project. If necessary, GPS static methods will be used to establish high order control if none is locally available. All data will be collected relative to the North American Datum on 1983 (NAD 83) and the North American Vertical Datum of 1988 (NAVD 88). All coordinates will be referenced to the Alabama State Plane System.

Typical cross-sections of the beach in the project area will be surveyed using extended rod RTK GPS rovers, standard RTK GPS rovers, and differential leveling techniques. Typical profiles commence from a predefined upland point and extend seaward overlapping the nearshore hydrographic data. Landward extents of the upland survey will extend into the back bay of Dauphin Island (selected profiles), or 150 feet landward of the edge of vegetation, or until a hard shot is collected (roadway) or an obstacle is encountered. The nearshore survey will be conducted using a sounder with digitizer fathometer with a hull-mounted transducer. A RTK GPS and a TSS Motion Compensator will be used onboard the survey vessel to provide instantaneous tide corrections as well as heave, pitch, and roll corrections. Nearshore profiles extend seaward to the project limits. The landward limits of the nearshore profiles will be based on a minimum overlap of fifty (50) feet beyond the seaward extent of the nearshore beach profiles.

Manual tide readings will be taken while conducting the profile surveys. In order to maintain the vessel navigation along the profile lines, the navigation software will be used. This software provided horizontal position to the sounding data allowing real-time review of the profile data in plan view or cross section format. The software will also provide navigation to the helm to control the deviation from the online azimuth. Horizontal and vertical positioning checks will be conducted at the beginning and end of each day using 2nd order monuments located in the project area. The sounder will be calibrated via bar-checks and a sound velocity probe at the beginning and end of the day. Bar checks will be performed from a depth of five feet to a minimum depth of twenty-five feet. Analog data showing the results of the bar check calibration will be displayed on the sounder charts at five foot increments during descent and ascent of the bar.

Survey deliverables will include a certified topographic and hydrographic survey map with corresponding digital data. Control tabulation (profiles stations and permanent GPS control stations); survey field notes; and digital ground photography will also be developed.

Task III. Geotechnical Investigations for Borrow Area Development

A. Geotechnical Investigations Overview

The physical and ecological performance of barrier island and beach restoration projects is critically dependent on the quality (mineral, size and distribution) of the sand used for construction. Based on recent work it appears that there may be sufficient quantities of quality sand in the Sand Island Beneficial Use Area (southwest of the Sand Island Lighthouse) where sand dredged for maintenance of the outer bar of the Mobile Ship Channel has been placed. However, other potential locations will be investigated. It appears that adequate sources of sand can be found in state waters but federal waters may be investigated in coordination with MMS.

The field investigations needed to develop sediment resources for a restoration project for Dauphin Island will include design level geophysical and geotechnical surveys and a cultural resource investigation. A comprehensive multi-day seismic reflection profiling, sidescan sonar, bathymetric and magnetometer survey will be conducted over the investigation area. Following the design level geophysical survey, vibracores will be collected within the investigation area in order to obtain sufficient data to design a borrow area for the project. Following the design level geotechnical investigations, a multi-day cultural resource investigation will be conducted (listed as Task IV below)

Recent findings of the reconnaissance level investigations for the east end of Dauphin Island will be considered in the planning process. In addition, historic datasets available for the western island study area (bathymetry, seismic, sidescan, bottom samples, vibracores, *etc.*), NOAA bathymetry datasets and morphologic maps will be evaluated and analyzed in a GIS (Geographical Information System) framework in order to provide background information. The information gathered during this phase will be evaluated and incorporated in the existing GIS database that, in turn, will be used to develop the design level geotechnical investigation plan.

B. Design Level Geotechnical Survey

A multi-day joint seismic reflection profiling, bathymetric, sidescan sonar and magnetometer survey will be conducted. The purpose of the survey will be to conduct remote sensing studies in order to define potential borrow areas for use in the project. A description of the equipment and methods is provided below.

1. Remote Sensing Geophysical Survey Equipment

   a. Navigation System

   A Kinematic Global Positioning (RTK GPS) system with dual frequency receivers will be used on board the survey vessel to provide high-precision navigation and instantaneous tide corrections. A software system will be used to maintain the vessel navigation along the profile lines and will allow the integration of RTK GPS vertical and horizontal positioning with the sounding data, allowing real time review of the profile data in plan view or cross section format.

b. Seismic Reflection Profile Surveys

A seismic sub-bottom system will be used to conduct the seismic reflection profile surveys. A wideband FM sub-bottom profiler will collect digital normal incidence reflection data over many frequency ranges. This type of instrumentation generates cross-sectional images of the seabed (to a depth of up to 50 ft). The system will transmit an FM pulse that is linearly swept over a full spectrum frequency range (also called a "chirp pulse"). The tapered waveform spectrum results in images that have virtually constant resolution with depth.

Throughout the offshore seismic reflection survey, selection of the chirp pulse will be modified in real time to obtain the best possible resolution of geological features and the sequence stratigraphy (*i.e.* vertical sequence and lateral distribution of sediment bodies comprised by different grain sizes and sediment composition) that in turn optimizes data quality and aids subsequent interpretation. High frequency and/or short duration pulses are, for example, used to obtain highest resolution (clearest reflector image) in near surface situations while low frequency or longer duration pulses are used where deeper penetration is required.

c. Bathymetric Survey

A single frequency portable hydrographic echo sounder, will be used to perform the bathymetric portion of the remote sensing survey. The echo sounder will operate on a frequency of 210 kHz and is a digital, survey-grade sounder. The sounder will be calibrated using a speed-of-sound velocity meter. Speed of sound through water and other selected parameters will be adjusted to accurately reflect physical water conditions in the survey area.

d. Sidescan Sonar Survey

A sidescan sonar system will be used to collect sidescan sonar data over the entire area of investigation. The system will use full-spectrum chirp technology to deliver wide-band, high-energy pulses coupled with high resolution and superb signal to noise ratio echo data. The side scan sonar will aid in the location of underwater infrastructure (pipelines, etc.) associated with the petroleum industry in addition to mapping the Gulf bottom for borrow area development purposes.

e. Magnetometer Survey

A marine magnetometer will be used to perform a preliminary investigation of magnetic anomalies within the potential sediment sources. This survey will be conducted along with the seismic, sidescan sonar and bathymetric survey. The purpose of the magnetometer survey is to locate the presence of any wrecks, hazards or infrastructure features that would affect borrow area delineation and dredging activities. This survey will be used as reconnaissance for the cultural resources survey (Task IV below), which will be conducted at the conclusion of the geotechnical investigation.

2. Geophysical Data Analysis

The geophysical survey data will be stored in a digital format. The data acquisition system will digitize, store, and process seismic signals and combines the seismic imagery with navigational inputs to georeference data in real-time. Hardcopy records will also be produced during data acquisition. The digital sidescan data will be merged with the positioning data, video displayed, and recorded to the acquisition computer's hard disk for post processing and/or replay.

All sidescan sonar and seismic reflection data will be processed using a software package which allows for advanced processing, interpretation, and digital mosaic output and can produce georeferenced HTML's viewable in generic web-browser software programs. The package also produces digital geographic information for both sub-bottom and sidescan data that are exportable for incorporation into a GIS database. All sidescan sonar, sub-bottom profile, magnetometer and bathymetric data will be processed and interpreted by a geologist with expertise in beach nourishment borrow area design.

3. Vibracore Survey

A vibracore survey plan will be developed based on the results of the remote sensing geophysical survey. Vibracoring will be conducted to investigate promising sediment locations identified during the geophysical survey. The total number of vibracores collected will be determined based on field findings (over 20).

a. Vibracore Planning

Based on the results of the seismic, side-scan sonar, magnetometer and bathymetric surveys, those areas containing potential sand resources which meet other engineering and planning criteria will be considered for vibracoring investigation. Planned vibracore positions will be located on the bathymetric and isopach charts to determine preliminary core placement. The final product will be an isopach and bathymetric chart showing the location of the planned vibracores.

b. Vibracore Equipment

A pneumatic vibracore, configured to collect undisturbed sediment cores up to 20 ft in length, will be used for this investigation. This self-contained, free-standing pneumatic vibracore unit contains an air-driven vibratory hammer assembly, an aluminum H-beam which acts as the vertical beam upright on the seafloor, 20-ft long steel tubes measuring 3.5" in diameter (with a plastic core liner) and a drilling bit with a cutting edge. An air hose array provides compressed air from the compressor on deck to drive the vibracore.

c. Vibracore Acquisition

At each planned core location, a vibracore will be obtained. If field measurements indicate that less than 80% recovery has been achieved from the initial vibracore, then an additional core will be attempted at that location, or a hydraulic jetting technique may be used to attempt to sample below previously

retained material. In the event jetting is used, the recovery of the original vibracore and additional vibracore sections will be combined to determine the sediment regime at that location.

The location and spacing of vibracores will follow guidelines recommended by the U.S. Army Corps of Engineers. Proposed vibracore locations will be identified prior to field operations. However, the actual vibracore locations will be determined while in the field, adjusted based on the results of the ongoing vibracore investigation.

The vibracores will provide up to a maximum of 20 feet of the stratigraphic record of the sediments. The initial vibracores placement will be conducted for reconnaissance purposes within promising sand deposits within the study areas. The reconnaissance cores will be split on the survey vessel and visually and texturally evaluated by a geologist with expertise in borrow area delineation to judge the quality of the sediments. From the results of the field evaluation of the reconnaissance cores, the geologists will readjust the placement of the remaining vibracores, as necessary, to optimize core placement. The remaining cores will be taken in areas having the highest potential for borrow area development.

4. Geotechnical Data Analysis

a. Vibracore Sediment Sample Analysis

Upon completion of vibracoring field operations, all vibracores will be transported to a laboratory for analysis. The vibracores will be logged in detail by describing sedimentary properties by layer in terms of layer thickness, color, texture (grain size), composition and presence of clay, silt, gravel, or shells and any other identifying features. The sedimentary appearance of each vibracore will be documented through photography in 2.0 ft intervals. Sediment samples will be extracted from the vibracores at irregular intervals based on distinct stratigraphic layers in the sediment sequence. The vibracores will then be wrapped and archived. Cores will be stored until completion of the shore protection project.

b. Mechanical Sieve Analysis

The sediment samples will be analyzed to determine color and grain size distribution. During sieve analysis, any obvious uncharacteristically large fragments (such as whole shell or large shell fragments) will be removed and the description (weight and size) of the material will be determined. The wet, dry and washed Munsell colors will be noted. Sieve analysis of the sediment samples will be performed in accordance with the American Society for Testing and Materials (ASTM) Standard Methods Designation D 422-63 for particle size analysis of soils. This method includes the quantitative determination of the distribution of sand size particles. For sediment finer than the No. 230 sieve (4.0 phi) the ASTM Standard Test Method, Designation D 1140-00 will be followed. The sieve stack used for mechanical analysis is provided in Table 1 and will follow the sieve analysis conducted for the eastern end of Dauphin Island.

Weights retained on each sieve will be recorded cumulatively. During sieve analysis the visually estimated percentage of shell retained on the ¾" sieve through the #7 sieves will be determined. Grain size results will be entered into a software program which computes the mean and median grain size, sorting and silt/clay percentages for each sample using the moment method.

Table 1. *Mesh sizes to be used for granularmetric analysis.*

Sieve No.	Size (phi)	Size (mm)
5/8	-4.0	16.00
7/16	-3.5	11.20
5/16	-3.0	8.00
3 ½	-2.5	5.60
5	-2.0	4.00
7	-1.5	2.80
10	-1.0	2.00
14	-0.5	1.40
18	0.0	1.00
25	0.5	0.71
35	1.0	0.50
40	1.25	0.42
45	1.5	0.36
50	1.75	0.30
60	2.0	0.25
70	2.25	0.21
80	2.5	0.18
120	3.0	0.13
170	3.5	0.09
200	3.75	0.08
230	4.0	0.06

5. Sediment Compatibility Evaluation and Sand Source Selection

The composite characteristics of the borrow areas will be evaluated for compatibility with native beach sand. Granulometric measures will be composited by using weighted averages. Composite mean grain size, percent silt, and sorting for each core will be computed by weighted average. The sieve analysis results for each sample will be weighted by the length of the core represented by that sample. The average weighted mean grain size, percent silt, and sorting for the borrow area will be computed by averaging the weighted results for all cores within the limits of the borrow area. Composite calculation summary tables, composite grain size distribution curves/histograms and composite gradation analysis reports will be provided.

Using the geotechnical information, potential borrow area(s) will be designed. The borrow areas will be designed to provide beach compatible sediment for the project. The borrow areas will also be designed to be efficiently excavated by dredging equipment, providing a scenario which promotes higher production rates for material placement on the beach resulting in a lower unit cost for fill placement. The selected borrow area will be located as close as possible (within accepted engineering standards) to the project area to limit the sediment pumping distance, also helping to reduce project costs. The borrow area volume will include a factor of safety, taking into consideration sediment losses in the dredging process and allowing for the availability of additional material in the event that additional fill is required to address recent erosion events on Dauphin Island.

C. Geotechnical Results Report Development

The draft Geotechnical report will be prepared and submitted in both digital and hardcopy format. A review process will identify any revisions that may be desirable or necessary and provide recommendations for the final report. A final report summarizing the results of the geotechnical investigation will be prepared. This report will include project results, including bathymetric and isopachous (sediment thickness) maps, sub-bottom (seismic) survey profiles, vibracore logs, vibracore photographs, granularmetric reports and grain size distribution curves and will be provided to the regulatory agencies during the permitting process.

Task IV. Cultural Resource Survey

After the collection and analysis of vibracores and identification of potential borrow areas, a cultural resource investigation will be conducted. This investigation will supplement the data acquired during the reconnaissance geophysical investigation in order to provide the 30 meter line spacing required to perform the cultural resource assessment. The cultural resources investigation will consists of two elements, field study and report preparation. A densified magnetometer survey will be conducted to locate and provide sufficient data to evaluate magnetic anomalies within the potential borrow areas. The State of Alabama requires a magnetometer survey to locate all magnetic anomalies in or near borrow areas in order to avoid sites that may be of historical or archeological significance, such as historic shipwrecks. A magnetometer, integrated with DGPS will be towed by the survey vessel. Survey tracklines will be run across the potential borrow area to locate any magnetic anomalies. Those anomalies, which are judged by a professional marine archeologist to be of potential historical or archeological significance will be excluded from the borrow area to be used for beach nourishment. The establishment of a buffer zone around sites of potential importance may be required. The cultural resource study information will also be provided to the selected dredge contractor for their consideration in dredging the borrow area and constructing the beach nourishment project, and will include not only cultural resources, but any magnetic anomaly target which may affect excavation operations. This survey will also be used to confirm the location of any petroleum industry infrastructure, such as pipelines, in the vicinity of the borrow areas. At the conclusion of the field studies and identification of each magnetic anomaly, a report will be prepared and provided to the State.

Task V. Preliminary Engineering Design

In the preliminary phase of the design effort, available information will be considered in the development of the project size and scope for the west end of Dauphin Island (Gulf of Mexico beaches west of where Pelican Island is now attached as a peninsula). This Task will provide a level of design equivalent to that being produced for the east end by the presently ongoing study effort.

Preliminary project considerations will be addressed in communication with State and Federal agencies to develop an acceptable restoration project. Alternatives will include beach nourishment and may also consider the use of structures in specific circumstances where beach nourishment alone may not be sufficient to provide shore protection. A project design will be prepared for incorporation into the design document and permit applications. A cost estimate will be developed for the most feasible alternatives.

A. Existing Data Evaluation:

Data obtained from the conceptual studies conducted for the east end restoration project will be evaluated when addressing engineering issues for the west end project. Evaluation of beach and bathymetric survey information, beach volumetric change information, and geotechnical information will be conducted. The information gathered during this phase will be evaluated to determine the adequacy of information for project formulation and design, and will include an evaluation of any additional data requirement.

B. Coastal Littoral Process Analysis and Sediment Budget Development

The littoral processes that control the beaches and dunes of Dauphin Island will be analyzed. Historic survey data and the historic shoreline database will be used to provide the basis for analyzing coastal processes. Shoreline change and volumetric trends will be compared and analyzed in order to determine recent trends. In addition, the change in beach characteristics, including beach profile shape, slopes, equilibrium profile characteristics, depth of closure, and changes in the nearshore contours and island overwash will be evaluated, if sufficient information is available. The results of the shoreline and volumetric change analysis will be used to develop a sediment budget for Dauphin Island. The sediment budget analysis will be used to develop and evalulate conceptual beach fill projects.

C. Borrow Area Engineering Analysis

An estimate of the volume and dredge area for each potential borrow area will be evaluated. The compatibility of the sediment within the borrow areas will be compared to the beach sand samples collected during the field investigation. The compatibility will be judged using sediment characteristics as compared with the native beach sand and Dean's equilibrium profile method. The beach sand samples collected during the field investigations will provide the basis for the analysis and comparison to geotechnical investigation results for borrow area development.

D. Project Performance Expectation & Constraints

A design criteria and performance objective will be developed for the project that can be reviewed by Town officials. The design criteria will include not only project alternatives, but also proposed dimensions of the beach (and possibly if required, structures proposed to remediate the erosion problem). The alternatives proposed for evaluation in the feasibility study are beach nourishment, and beach nourishment with structural intervention. Project performance expectation will be evaluated using accepted methods incorporating cross-shore storm-induced erosion modeling such as SBEACH or EDUNE and longshore transport modeling based on the CERC equation and historical "losses" of sand from the project limits. The results of this task will be summarized in a report to the Town.

Task VI. Environmental Investigations and Biological Opinion Preparation

In order to satisfy Section 7 Consultation requirements in compliance with the Endangered Species Act (ESA) of 1973, as amended (16 U.S.C. 1531 *et seq.*), and the Fish and Wildlife Coordination Act of 1958, as amended (48 Stat. 401; 16 U.S.C. 661 *et seq.*), a current Biological Opinion (BO) issued by appropriate federal agencies is required with all JCP applications. This document is essential to initiating action on the permit by the federal resource agencies. An existing Regional Biological Opinion for Dredging of Gulf of Mexico Navigation Channels and Sand Mining (Borrow) Areas Using Hopper Dredges by COE Galveston, New Orleans, Mobile, and Jacksonville Districts (Consultation Number F/SER/2000/01287) issued by National Oceanic and Atmospheric Administration (NOAA) National Marine Fisheries Service (NMFS) may be applied to the project if hopper dredging is used. However, to receive a BO from the US Fish and Wildlife Service (USFWS) for listed species under that agency's jurisdiction, or to satisfy any additional consultation requirements of NMFS, a Biological Assessment (BA) is proposed.

Additionally, in compliance with the Magnuson-Stevens Fishery Conservation and Management Act of 1976, as amended (16 U.S.C. 1801), federal agencies must consult with NMFS to fulfill Essential Fish Habitat (EFH) consultations for federal agency actions that may adversely affect EFH.

In support of these documents, biologists will conduct a literature review to investigate the environmental setting of Dauphin Island and determine the environmental resources present in the project vicinity. Areas of interest will include the benthic habitats in the nearshore zone (in the area of fill placement and fill equilibration) and in the vicinity of the borrow areas. Each area will be assessed for containing essential fish habitats and potential for listed species (threatened and endangered species). Habitats of concern will be identified and considered in the development of the shore protection project. The environmental information obtained through the literature review will be incorporated into the permit applications and environmental documentation in support of obtaining a BO.

This task also includes an initial meeting with the USFWS and NMFS to obtain additional information and guidance on document development. This effort will include extensive agency

coordination, as well as conducting the necessary research and supportive data acquisition required to compile and submit the BA and EFH assessment. The documents prepared by CPE will serve as the basis for the USFWS and/or NMFS issuance of the Dauphin Island Beach Nourishment Project BO and permit approval. Each document will be prepared based on agency guidance in an effort to accelerate the federal agency schedule, and allow the USFWS and NMFS to expedite their review and approval.

Processing of the permit applications and/or the BO may result in regulatory requests to conduct field studies. Environmental field studies are not proposed in this scope of services but will be addressed in a separate scope of services if required by the regulatory agencies.

Task VII. Federal and State Permit Application, Processing and Coordination

Permits and project approvals will be required from the U.S. Army Corps of Engineers (USACE) and related federal regulatory agencies, and the Alabama Department of Environmental Management (ADEM). After the completion of geotechnical investigations and development of the preliminary engineering design, we will prepare for, and meet with the regulatory agencies to present our geotechnical information and preliminary design for Dauphin Island. The meetings will be held before the permit applications are prepared and submitted to the agencies. The purpose of the pre-submittal meetings will be to obtain input from the agencies before the formal permitting process is initiated, allowing the opportunity to proactively address potential permit concerns, to expedite the permitting and approval process. Separate meetings will be held with the USACE and the ADEM. Other meetings with other agencies will be held as needed (e.g. USFWS, NMFS, Alabama Historical Commission).

Permit application documents will be submitted to the Mobile District U.S. Army Corps of Engineers (USACE) and the State of Alabama for the barrier island and beach restoration project. Basic project information will be provided in the permit application for the project. Items contained within the initial application will include geotechnical investigation results (report), environmental information, project design details, fill placement volume, project justification and borrow area locations. Input from other Federal agencies will be solicited by the Mobile District USACE based on the information provided in the application. In addition to the information provided in the initial application, we will respond to another request from the Corps of Engineers and the State for information regarding the project. Upon receipt of the draft Federal permit, we will review the draft with the Town, specifically evaluating permit conditions. The Town will be advised regarding the permit conditions. The scope of services includes two meetings, one with the Corps of Engineers and other Federal regulatory agencies and one with the State of Alabama.

Task VIII. Final Design

The final design phase will include refinement of the preliminary engineering design. Offshore borrow areas will be further evaluated to utilize the best available sand from the borrow areas for nourishment purposes. Numerical modeling will be utilized to refine the project design, which

will optimize the fill to maximize storm protection benefit. The design berm, slope of the material, offshore construction toe of fill, and equilibrium toe of fill will be developed in the final design phase.

The modeling will include a detailed investigation of the impact of dredging the borrow area on the wave transformation and any resulting implications for sediment transport. Wave transformation modeling will be with either the Simulating Waves Nearshore (SWAN) model or the STWAVE model. Both models account for refraction, diffraction, and bottom friction of spectral waves. The model will use several nested grids with different cell spacing. A widely spaced grid will be used to simulate regional wave transformation from deep water to shallower water. A tighter grid will be used to simulate wave transformation along the inner shelf into the project area. Finally, a detailed grid will be used to simulate the water levels, currents, waves, sediment transport, and bathymetric changes. The wave transformation model will use existing hydrographic information previously for the study site, assuming that bathymetric data is available.

The final product will be the optimized shore protection project selected from three alternatives. Final design will provide the sediment volumes, beach widths, and elevation slopes to interception with the existing bottom beach tapers and other beach features throughout the project area, as well as structural features should structures be part of the optimized project. Based on this information, a final cost estimate will be developed for the shore protection project.

Task IX. Construction Plans and Specifications

Construction plans and specifications will be prepared for the project. The construction plans will include plan view and cross-sections for the construction of the beach renourishment project. Borrow area(s) will be delineated and the allowable depth of dredging indicated for each borrow area in order to place the appropriate quality and quantity of sand on the beach. Structures, if required, will also be addressed in the plans and specifications.

The specifications to be developed for the project will be divided into two general categories. The first section will include bidding requirements and basic contract forms supplied by the Town for retention of construction contractors. Bidding requirements will include the Invitation to Bid, Instructions to Bidders, Bid Form and other appropriate documents. The second part of the first section will include the contract forms. The Town form of contract will be included in this section. The section will include such items as the Certificate of Corporate Authority, Acknowledgements of the Contractor, Performance and Payment Bonds, Final Receipt and any special instructions.

The second section of the specifications will include General Conditions, Technical Provisions and Environmental Protection Measures. The General Conditions portion of the contract will include information related to the commencement, prosecution and completion of the work. It will address such issues as liquidated damages, performance of work by the contractor and subcontractors, and a designation of certain contractor personnel for tasks such as project

superintendent. The General Conditions will describe the basic layout of the shore protection project, address mobilization and demobilization from the project area and requirements for the acceptance sections of the beach fill. It will identify the method of payment to the contractor and the clauses for liquidated damages, if necessary. Project elements of a general nature will be included in this section. Lastly, this section includes the Town's right to terminate the contract, liability insurance, liens and legal issues.

The Technical Provisions will identify the details of the work to be accomplished. It will include the order of work, the project schedule, excavation requirements, beach fill requirements, structural construction requirements (if necessary), clean-up requirements, and other detailed issues related to construction. It will address issues such as nighttime operations, staging areas, access areas, hazardous material storage, and similar topics.

A section on environmental protection will be included within the specifications. This section will identify the important clauses contained in the permits, including a copy of the permits received for the project. The contractor will be advised that he/she is required by law to abide by all the conditions provided by Federal and State permits for the project. Issues to be addressed in this section include turbidity control, protection of environmental resources, restoration of landscape damage, maintenance of pollution control facilities, and a requirement for an environmental protection plan.

Task X. Quality Assurance and Peer Review Services

Coastal Technology Corporation (Coastal Tech) will provide Quality Assurance oversight for various study investigation task procedures, methods and assumptions (e.g., field work, numerical modeling and/or environmental sampling protocols), and Peer Review of draft design documents and other technical work products prepared by CPE/WRSCompass for South Coast Engineers. Coastal Tech's involvement as an independent oversight and review entity will help to ensure that those products prepared and produced to serve as a subsequent basis for State and Federal regulatory reviews [e.g., NEPA consultations] and to support decision-making about various Project design and construction options by the Town and its stakeholders will be well-grounded in the science and defensible as state-of-practice.

Coastal Tech's involvement will also help the Town ensure that critical budget targets and schedules are met. The experience, judgment and - most importantly – the independent perspective of a peer reviewer is invaluable in identifying potential pitfalls and/or likely areas where the Project's design scope tasks might result in ambiguous initial results requiring additional services and unbudgeted cost. This insight, guidance and counsel more than offsets the cost of involving a designated Peer Reviewer from the beginning of a technical study, rather than simply reviewing products "after it is too late." The following is the basic approach to the oversight role:

A. <u>Meeting/Workshops for Technical Review and Task Guidance</u>:

The Quality Assurance oversight and Peer Review process will include a series of regularly scheduled face-to-face meetings/workshops at which comments and suggestions will be offered

on technical work completed through the time of the workshop and on plans for follow-on tasks which are intended to be performed during the next period. Coastal Tech will meet with South Coast Engineers and CPE/WRSCompass and other stakeholders as might be identified by the Town to discuss and review the Workplan. The need and importance of the face-to-face collaborative dialog offered by these meeting/workshops in addressing the Workplan and comments is emphasized. Coastal Tech will summarize the results of each meeting and provide review comments, plus notes of the dialog and any conclusions reached and/or Scope modifications proposed. Coastal Tech will request, receive and review specific Workplans on a task-by-task basis from CPE for major scope items in advance of beginning substantial work on each of those tasks. These Workplans are intended to expand on the detail provided in the overall Project Scope of Work by identifying such specifics as relevant literature consulted, technical approaches, standards of practice to be applied, assumption made, resources to be used, proposed schedules and identification of any interim and final deliverables. Coastal Tech will provide technical comments on the Workplan provided and suggestions /feedback as to what areas of the approach, if any, might be strengthened and where potential time, budget and ambiguous results (traps) might be encountered.. As noted, the comments will be provided in the spirit of acting as a peer 'sounding board' to help clarify the results and strengthen the products.

It is proposed that the meeting schedule begin with a preliminary scoping/planning effort followed by the workshops as described above on a monthly basis for the duration of the Study period. It is emphasized that this is a planning-level schedule based on past experience and is intended to be flexible. The workshop locations also may be varied as desired from the Town, to the offices of South Coast Engineers, or CPE, or if appropriate to the content of a particular task, to a field location or regulatory agency office.

B. Peer Review of Specific Technical Milestones:

At four critical points in the Study, substantial technical deliverables will be produced by the primary design team upon which will rest major decisions and which will undergo significant external scrutiny. A level of professional, technical peer review is necessary and appropriate beyond that provided by the on-going meetings/workshops as described above. Coastal Tech's deliverables for each of the Peer Reviews outlined below will be annotated documents/work products along with a summary letter report from the Coastal Tech subject matter expert explaining the comments and providing any specific recommendation for further clarifications and/or documentation. Coastal Tech will review:

1. Geotechnical Field Work Plan

   Coastal Tech will work with the design team (CPE/WRSCompass and South Coast Engineers) prior to mobilization and initiation of the field investigations for development of the borrow source to provide technical comments on the density, distribution and protocols proposed for the field sampling (geophysical data collection, vibracores, etc). Following completion of the field investigation, Coastal Tech will review the data, draft results and recommendations of the Study's Geotechnical work as it addresses the identification, investigation and design of a borrow source. Specifically, Coastal Tech's Coastal Geologist will review the geophysical data and associated interpretations, the vibracore logs and the laboratory tests on the proposed borrow area sediments and native beach sand. Coastal Tech will comment on the CP&E's characterization of the borrow

source(s) to include such points as suitability of sediments, volumes present and potential hindrances to their excavation and use. The deliverable for this sub-task will be annotated documents/work products along with a summary letter report from Coastal Tech's Coastal Geologist for each of the Field Work Plan and the final Geotechnical Investigation Report.

2. Numerical Modeling and Beach Fill Design

   Coastal Tech will work with the design team prior to initiation of the numerical modeling and beach fill design task to confirm that the overarching project goals will be addressed and to identify which design alternatives, including use of supplemental structures, which will be modeled and analyzed. Coastal Tech's coastal engineering staff will offer technical comments on the proposed model application and implementation, including areas such as appropriateness of data to be used, assumptions and boundary conditions proposed, expectations for calibration and verification phases and characterization by the Consultant of typical "error limits" which might be expected in the results. Following completion of the modeling and characterization of design alternatives, Coastal Tech will provide further technical review of those recommendations and comments addressing relative potential for meeting Project goals, permittability and constructability. The deliverable for this sub-task will be annotated documents/work products along with a summary letter report from Coastal Tech's Coastal Engineer for each of the proposed modeling/analysis approach and the final Design Recommendations Report.

3. Permit Applications

   Coastal Tech will review and provide technical comments on the draft regulatory agency requests/permit applications prior to their submittal to the Agencies. Coastal Tech's Environmental Permitting staff and Biologist will offer technical comments on the appropriateness and completeness of the environmental data, analyses and conclusions proposed to be submitted for the State and Federal regulatory reviews. Coastal Tech will identify areas based on extensive prior experience with the regulatory process where there are likely to be Agency requests for additional information and/or design alterations or mitigation. The deliverable for this sub-task will be annotated documents/work products along with a summary letter report from Coastal Tech's Permit Specialist.

4. Plans and Specifications

   Coastal Tech will review the Final Plans and construction Technical Specifications. Coastal Tech's engineering staff will provide technical comments on the plans and proposed construction addressing such items as Project phasing, contractor access/mobilization issues, environmental monitoring and permit compliance during construction and likely construction schedule/duration. A formal Peer Review of the Technical Specification will be completed. All work under this task will be performed by and/or under the direction of an Alabama-registered Professional Engineer who will

provide as a deliverable the annotated documents/work products along with a summary letter report.

APPENDIX 2
Survey Report

GPS CONTROL INFORMATION

A temporary bench mark (TBM) *BOBBY PK NAIL* was set on end of the pier in the project area in order to achieve uninterrupted RTK GPS radio correction range offshore. The TBM was set using Real Time Kinematic methods controlled from the National Geodetic Survey 2nd order Monument network. Due to relatively large distances between the survey vessel and the base station vertical measurements and real time tide corrections must be adjusted. Coastal Planning and engineering utilize the NGS Geoid 09 model (g2009u07) to correct for undulation "on the fly" allowing real time tide monitoring relative to the project datum (NAVD 88). All reconnaissance work was performed using DGPS.

CPE conducted reconnaissance work using (DGPS) on January 26-27, 2010; CPE conducted sand search operations using RTK GPS on September 3-8, 2010, November 17-18, 2010, January 4 and 14, 2011, and February 22-23, 2011.

The following monuments were set and/or used by Coastal Planning and Engineering, Inc.

CONTROL MONUMENT SET BY CPE for SAND SEARCH OPERATIONS 2010	
DATUMS: NAD83/90 / NAVD1988 FEET	
DESIGNATION	BOBBY PK NAIL
STAMPING	Coastal Planning and Engineering
NORTHING	90067.199
EASTING	1770733.695
HORIZONTAL Root Mean Square Error	
ELEVATION	15.465
VERTICAL Root Mean Square Error	
DESCRIPTION	LOCATED ON THE END OF THE DAUPHIN ISLAND PIER ON BIENVILLE BOULEVARD.

CONTROL MONUMENT USED BY CPE for SAND SEARCH OPERATIONS 2010	
DATUMS: NAD83/90 / NAVD1988 FEET	
DESIGNATION	873 5180 B TIDAL
STAMPING	873 5180 B TIDAL
NORTHING	91259.145
EASTING	1786626.051
HORIZONTAL Root Mean Square Error	
ELEVATION	8.55
VERTICAL Root Mean Square Error	
DESCRIPTION	LOCATED ON THE EAST END OF BIENVILLE ROAD NEAR THE FENCE AT FORT GAINES

CONTROL MONUMENT USED BY CPE for SAND SEARCH OPERATIONS 2010	
DATUMS: NAD83/90 / NAVD1988 FEET	
DESIGNATION	873 5180 TIDAL 1
STAMPING	873 5180 TIDAL 1
NORTHING	91225.498
EASTING	1786793.922
HORIZONTAL Root Mean Square Error	
ELEVATION	17.5
VERTICAL Root Mean Square Error	
DESCRIPTION	LOCATED ON THE NORTHERN PORTION OF FORT GAINES

APPENDIX 3
2010 CPE Individual Beach Granularmetric Reports

Granularmetric Report

Depths and elevations based on measured values

Project Name: Dauphin Island Existing Beach

Sample Name: DI-2 (5.5ft)

Analysis Date: 10-27-10

Analyzed By: KG

Coastal Planning & Engineering
2481 NW Boca Raton Blvd, Boca Raton
FL 33431
ph (561) 391-8102
fax (561) 391-9116

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
1,750,231	90,947	Alabama State Plane West	5.5 NAVD 88

USCS:	Munsell:	Comments:
SP	Wet - 2.5Y-7/3 Dry - 2.5Y-8/2 Washed - 2.5Y-8/2	West end beach sample.

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
110.38	109.45	0.01	0.00	#200 - 0.85 #230 - 0.84			0

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
5/8"	-4.00	16.00	0.00	0.00	0.00	0.00
7/16"	-3.50	11.31	0.00	0.00	0.00	0.00
5/16"	-3.00	8.00	0.00	0.00	0.00	0.00
3.5	-2.50	5.66	0.00	0.00	0.00	0.00
5	-2.00	4.00	0.09	0.08	0.09	0.08
7	-1.50	2.83	0.09	0.08	0.18	0.16
10	-1.00	2.00	0.11	0.10	0.29	0.26
14	-0.50	1.41	0.20	0.18	0.49	0.44
18	0.00	1.00	0.95	0.86	1.44	1.30
25	0.50	0.71	4.78	4.33	6.22	5.63
35	1.00	0.50	23.10	20.93	29.32	26.56
40	1.25	0.42	16.53	14.98	45.85	41.54
45	1.50	0.35	21.89	19.83	67.74	61.37
50	1.75	0.30	25.57	23.17	93.31	84.54
60	2.00	0.25	11.17	10.12	104.48	94.66
70	2.25	0.21	3.32	3.01	107.80	97.67
80	2.50	0.18	1.26	1.14	109.06	98.81
120	3.00	0.13	0.34	0.31	109.40	99.12
170	3.50	0.09	0.02	0.02	109.42	99.14
200	3.75	0.07	0.01	0.01	109.43	99.15
230	4.00	0.06	0.01	0.01	109.44	99.16

Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.03	1.74	1.65	1.36	0.96	0.75	0.43

Moment Statistics	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
	1.28	0.41	0.52	-0.86	6.18

ALABAMA_BEACH_SAMPLES_OCTOBER_2010.GPJ FL DEP ROSS.GDT 5/13/11

Granularmetric Report

Depths and elevations based on measured values

Project Name: Dauphin Island Existing Beach

Sample Name: DI-2 (1.0ft)

Analysis Date: 10-27-10

Analyzed By: KG

Coastal Planning & Engineering
2481 NW Boca Raton Blvd, Boca Raton
FL 33431
ph (561) 391-8102
fax (561) 391-9116

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
1,750,231	90,913	Alabama State Plane West	1.0 NAVD 88

USCS:	Munsell:	Comments:
SP	Wet - 2.5Y-7/3 Dry - 2.5Y-8/2 Washed - 2.5Y-8/2	West end beach sample.

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
116.86	115.84	0.01	0.00	#200 - 0.90 #230 - 0.89			0

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
5/8"	-4.00	16.00	0.00	0.00	0.00	0.00
7/16"	-3.50	11.31	0.00	0.00	0.00	0.00
5/16"	-3.00	8.00	0.00	0.00	0.00	0.00
3.5	-2.50	5.66	0.00	0.00	0.00	0.00
5	-2.00	4.00	0.27	0.23	0.27	0.23
7	-1.50	2.83	0.04	0.03	0.31	0.26
10	-1.00	2.00	0.07	0.06	0.38	0.32
14	-0.50	1.41	0.16	0.14	0.54	0.46
18	0.00	1.00	0.27	0.23	0.81	0.69
25	0.50	0.71	1.45	1.24	2.26	1.93
35	1.00	0.50	11.78	10.08	14.04	12.01
40	1.25	0.42	11.06	9.46	25.10	21.47
45	1.50	0.35	25.31	21.66	50.41	43.13
50	1.75	0.30	34.49	29.51	84.90	72.64
60	2.00	0.25	20.03	17.14	104.93	89.78
70	2.25	0.21	6.84	5.85	111.77	95.63
80	2.50	0.18	3.08	2.64	114.85	98.27
120	3.00	0.13	0.94	0.80	115.79	99.07
170	3.50	0.09	0.02	0.02	115.81	99.09
200	3.75	0.07	0.01	0.01	115.82	99.10
230	4.00	0.06	0.01	0.01	115.83	99.11

Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.22	1.92	1.78	1.56	1.29	1.11	0.65

Moment	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
Statistics	1.5	0.35	0.48	-1.64	12.82

ALABAMA_BEACH_SAMPLES_OCTOBER_2010.GPJ FL DEP ROSS.GDT 5/13/11

Granularmetric Report

Depths and elevations based on measured values

Project Name: Dauphin Island Existing Beach

Sample Name: DI-2 (-0.2ft)

Analysis Date: 10-27-10

Analyzed By: KG

Coastal Planning & Engineering
2481 NW Boca Raton Blvd, Boca Raton
FL 33431
ph (561) 391-8102
fax (561) 391-9116

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
1,750,231	90,905	Alabama State Plane West	-0.2 NAVD 88

USCS:	Munsell:	Comments:
SP	Wet - 2.5Y-6/2 Dry - 2.5Y-7/2 Washed - 2.5Y-8/2	West end beach sample.

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
131.92	130.39	0.01	0.01	#200 - 1.16 #230 - 1.16			0

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
5/8"	-4.00	16.00	0.00	0.00	0.00	0.00
7/16"	-3.50	11.31	0.00	0.00	0.00	0.00
5/16"	-3.00	8.00	0.00	0.00	0.00	0.00
3.5	-2.50	5.66	0.00	0.00	0.00	0.00
5	-2.00	4.00	0.00	0.00	0.00	0.00
7	-1.50	2.83	0.00	0.00	0.00	0.00
10	-1.00	2.00	0.00	0.00	0.00	0.00
14	-0.50	1.41	0.11	0.08	0.11	0.08
18	0.00	1.00	0.37	0.28	0.48	0.36
25	0.50	0.71	1.09	0.83	1.57	1.19
35	1.00	0.50	6.99	5.30	8.56	6.49
40	1.25	0.42	7.82	5.93	16.38	12.42
45	1.50	0.35	26.26	19.91	42.64	32.33
50	1.75	0.30	48.42	36.70	91.06	69.03
60	2.00	0.25	27.72	21.01	118.78	90.04
70	2.25	0.21	7.81	5.92	126.59	95.96
80	2.50	0.18	2.70	2.05	129.29	98.01
120	3.00	0.13	1.01	0.77	130.30	98.78
170	3.50	0.09	0.06	0.05	130.36	98.83
200	3.75	0.07	0.01	0.01	130.37	98.84
230	4.00	0.06	0.00	0.00	130.37	98.84

Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.21	1.93	1.82	1.62	1.41	1.29	0.86

Moment Statistics	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
	1.59	0.33	0.39	-0.84	6.63

ALABAMA_BEACH_SAMPLES_OCTOBER_2010.GPJ FL DEP ROSS.GDT 5/13/11

Granularmetric Report

Depths and elevations based on measured values

Project Name: Dauphin Island Existing Beach

Sample Name: DI-2 (-5.5ft)

Analysis Date: 10-27-10

Analyzed By: KG

Coastal Planning & Engineering
2481 NW Boca Raton Blvd, Boca Raton
FL 33431
ph (561) 391-8102
fax (561) 391-9116

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
1,750,225	90,767	Alabama State Plane West	-5.5 NAVD 88

USCS:	Munsell:	Comments:
SP	Wet - 2.5Y-5/2 Dry - 2.5Y-7/2 Washed - 2.5Y-7/2	West end beach sample.

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
143.92	142.06	0.00	0.00	#200 - 1.30 #230 - 1.29			0

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
5/8"	-4.00	16.00	0.00	0.00	0.00	0.00
7/16"	-3.50	11.31	0.00	0.00	0.00	0.00
5/16"	-3.00	8.00	0.00	0.00	0.00	0.00
3.5	-2.50	5.66	0.00	0.00	0.00	0.00
5	-2.00	4.00	0.00	0.00	0.00	0.00
7	-1.50	2.83	0.04	0.03	0.04	0.03
10	-1.00	2.00	0.02	0.01	0.06	0.04
14	-0.50	1.41	0.17	0.12	0.23	0.16
18	0.00	1.00	0.51	0.35	0.74	0.51
25	0.50	0.71	1.50	1.04	2.24	1.55
35	1.00	0.50	7.43	5.16	9.67	6.71
40	1.25	0.42	5.09	3.54	14.76	10.25
45	1.50	0.35	11.16	7.75	25.92	18.00
50	1.75	0.30	20.64	14.34	46.56	32.34
60	2.00	0.25	23.33	16.21	69.89	48.55
70	2.25	0.21	17.98	12.49	87.87	61.04
80	2.50	0.18	19.51	13.56	107.38	74.60
120	3.00	0.13	29.96	20.82	137.34	95.42
170	3.50	0.09	4.60	3.20	141.94	98.62
200	3.75	0.07	0.11	0.08	142.05	98.70
230	4.00	0.06	0.01	0.01	142.06	98.71

Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.99	2.73	2.51	2.03	1.62	1.44	0.83

Moment Statistics	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
	2.02	0.25	0.65	-0.55	3.72

ALABAMA_BEACH_SAMPLES_OCTOBER_2010.GPJ FL DEP ROSS.GDT 5/13/11

Granularmetric Report

Depths and elevations based on measured values

Project Name: Dauphin Island Existing Beach

Sample Name: DI-2 (-8.3ft)

Analysis Date: 10-27-10

Analyzed By: KG

Coastal Planning & Engineering
2481 NW Boca Raton Blvd, Boca Raton
FL 33431
ph (561) 391-8102
fax (561) 391-9116

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
1,750,243	90,623	Alabama State Plane West	-8.3 NAVD 88

USCS:	Munsell:	Comments:
SP	Wet - 2.5Y-5/2 Dry - 2.5Y-7/2 Washed - 2.5Y-7/2	West end beach sample.

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
110.11	108.68	0.02	0.00	#200 - 1.32 #230 - 1.31			0

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
5/8"	-4.00	16.00	0.00	0.00	0.00	0.00
7/16"	-3.50	11.31	0.00	0.00	0.00	0.00
5/16"	-3.00	8.00	0.00	0.00	0.00	0.00
3.5	-2.50	5.66	0.00	0.00	0.00	0.00
5	-2.00	4.00	0.00	0.00	0.00	0.00
7	-1.50	2.83	0.00	0.00	0.00	0.00
10	-1.00	2.00	0.00	0.00	0.00	0.00
14	-0.50	1.41	0.22	0.20	0.22	0.20
18	0.00	1.00	0.88	0.80	1.10	1.00
25	0.50	0.71	3.58	3.25	4.68	4.25
35	1.00	0.50	14.90	13.53	19.58	17.78
40	1.25	0.42	9.00	8.17	28.58	25.95
45	1.50	0.35	14.68	13.33	43.26	39.28
50	1.75	0.30	18.88	17.15	62.14	56.43
60	2.00	0.25	14.64	13.30	76.78	69.73
70	2.25	0.21	9.29	8.44	86.07	78.17
80	2.50	0.18	8.85	8.04	94.92	86.21
120	3.00	0.13	11.34	10.30	106.26	96.51
170	3.50	0.09	2.30	2.09	108.56	98.60
200	3.75	0.07	0.09	0.08	108.65	98.68
230	4.00	0.06	0.01	0.01	108.66	98.69

Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.93	2.43	2.16	1.66	1.22	0.93	0.53

Moment Statistics	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
	1.66	0.32	0.71	-0.06	2.89

ALABAMA_BEACH_SAMPLES_OCTOBER_2010.GPJ FL DEP ROSS.GDT 5/13/11

Granularmetric Report

Depths and elevations based on measured values

Project Name: Dauphin Island Existing Beach

Sample Name: DI-2 (-6.5ft)

Analysis Date: 10-27-10

Analyzed By: KG

Coastal Planning & Engineering
2481 NW Boca Raton Blvd, Boca Raton
FL 33431
ph (561) 391-8102
fax (561) 391-9116

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
1,750,236	90,486	Alabama State Plane West	-6.5 NAVD 88

USCS:	Munsell:	Comments:
SP	Wet - 2.5Y-5/2 Dry - 2.5Y-7/2 Washed - 2.5Y-7/2	West end beach sample.

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
136.89	135.05	0.01	0.01	#200 - 1.37 #230 - 1.36			0

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
5/8"	-4.00	16.00	0.00	0.00	0.00	0.00
7/16"	-3.50	11.31	0.00	0.00	0.00	0.00
5/16"	-3.00	8.00	0.00	0.00	0.00	0.00
3.5	-2.50	5.66	0.00	0.00	0.00	0.00
5	-2.00	4.00	0.00	0.00	0.00	0.00
7	-1.50	2.83	0.00	0.00	0.00	0.00
10	-1.00	2.00	0.01	0.01	0.01	0.01
14	-0.50	1.41	0.10	0.07	0.11	0.08
18	0.00	1.00	0.31	0.23	0.42	0.31
25	0.50	0.71	1.13	0.83	1.55	1.14
35	1.00	0.50	7.38	5.39	8.93	6.53
40	1.25	0.42	5.34	3.90	14.27	10.43
45	1.50	0.35	11.60	8.47	25.87	18.90
50	1.75	0.30	18.89	13.80	44.76	32.70
60	2.00	0.25	19.56	14.29	64.32	46.99
70	2.25	0.21	16.25	11.87	80.57	58.86
80	2.50	0.18	18.07	13.20	98.64	72.06
120	3.00	0.13	29.78	21.75	128.42	93.81
170	3.50	0.09	6.37	4.65	134.79	98.46
200	3.75	0.07	0.23	0.17	135.02	98.63
230	4.00	0.06	0.01	0.01	135.03	98.64

Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
3.13	2.77	2.57	2.06	1.61	1.41	0.86

Moment Statistics	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
	2.04	0.24	0.66	-0.37	3.02

ALABAMA_BEACH_SAMPLES_OCTOBER_2010.GPJ FL DEP ROSS.GDT 5/13/11

Granularmetric Report

Depths and elevations based on measured values

Project Name: Dauphin Island Existing Beach

Sample Name: DI-2 (-12.5ft)

Analysis Date: 10-27-10

Analyzed By: KG

Coastal Planning & Engineering
2481 NW Boca Raton Blvd, Boca Raton
FL 33431
ph (561) 391-8102
fax (561) 391-9116

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
1,750,222	90,276	Alabama State Plane West	-12.5 NAVD 88

USCS:	Munsell:	Comments:
SP	Wet - 2.5Y-5/2 Dry - 2.5Y-6/2 Washed - 2.5Y-7/2	West end beach sample.

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
107.98	105.99	0.04	0.01	#200 - 2.04 #230 - 1.88			0

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
5/8"	-4.00	16.00	0.00	0.00	0.00	0.00
7/16"	-3.50	11.31	0.00	0.00	0.00	0.00
5/16"	-3.00	8.00	0.00	0.00	0.00	0.00
3.5	-2.50	5.66	0.00	0.00	0.00	0.00
5	-2.00	4.00	0.00	0.00	0.00	0.00
7	-1.50	2.83	0.01	0.01	0.01	0.01
10	-1.00	2.00	0.00	0.00	0.01	0.01
14	-0.50	1.41	0.13	0.12	0.14	0.13
18	0.00	1.00	0.12	0.11	0.26	0.24
25	0.50	0.71	0.55	0.51	0.81	0.75
35	1.00	0.50	2.49	2.31	3.30	3.06
40	1.25	0.42	1.70	1.57	5.00	4.63
45	1.50	0.35	3.12	2.89	8.12	7.52
50	1.75	0.30	5.98	5.54	14.10	13.06
60	2.00	0.25	8.27	7.66	22.37	20.72
70	2.25	0.21	9.73	9.01	32.10	29.73
80	2.50	0.18	16.30	15.10	48.40	44.83
120	3.00	0.13	44.08	40.82	92.48	85.65
170	3.50	0.09	12.60	11.67	105.08	97.32
200	3.75	0.07	0.69	0.64	105.77	97.96
230	4.00	0.06	0.17	0.16	105.94	98.12

Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
3.40	2.98	2.87	2.56	2.12	1.85	1.28

Moment Statistics	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
	2.44	0.18	0.61	-1.12	5.01

ALABAMA_BEACH_SAMPLES_OCTOBER_2010.GPJ FL DEP ROSS.GDT 5/13/11

Granularmetric Report

Depths and elevations based on measured values

Project Name: Dauphin Island Existing Beach

Sample Name: DI-8 (5.5ft)

Analysis Date: 10-27-10

Analyzed By: KG

Coastal Planning & Engineering
2481 NW Boca Raton Blvd, Boca Raton
FL 33431
ph (561) 391-8102
fax (561) 391-9116

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
1,755,234	91,299	Alabama State Plane West	5.5 NAVD 88

USCS:	Munsell:	Comments:
SP	Wet - 2.5Y-7/3 Dry - 2.5Y-7/2 Washed - 2.5Y-7/2	2 Rock Fragments removed prior to sieving [(0.5"x0.5"),(1"x1")= 8.31g]

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
127.81	126.80	0.05	0.03	#200 - 0.92 #230 - 0.87			0

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
5/8"	-4.00	16.00	0.00	0.00	0.00	0.00
7/16"	-3.50	11.31	0.00	0.00	0.00	0.00
5/16"	-3.00	8.00	0.00	0.00	0.00	0.00
3.5	-2.50	5.66	1.25	0.98	1.25	0.98
5	-2.00	4.00	0.21	0.16	1.46	1.14
7	-1.50	2.83	0.20	0.16	1.66	1.30
10	-1.00	2.00	0.32	0.25	1.98	1.55
14	-0.50	1.41	0.23	0.18	2.21	1.73
18	0.00	1.00	0.35	0.27	2.56	2.00
25	0.50	0.71	1.76	1.38	4.32	3.38
35	1.00	0.50	11.00	8.61	15.32	11.99
40	1.25	0.42	9.87	7.72	25.19	19.71
45	1.50	0.35	21.03	16.45	46.22	36.16
50	1.75	0.30	34.55	27.03	80.77	63.19
60	2.00	0.25	25.95	20.30	106.72	83.49
70	2.25	0.21	11.31	8.85	118.03	92.34
80	2.50	0.18	5.64	4.41	123.67	96.75
120	3.00	0.13	2.63	2.06	126.30	98.81
170	3.50	0.09	0.29	0.23	126.59	99.04
200	3.75	0.07	0.05	0.04	126.64	99.08
230	4.00	0.06	0.07	0.05	126.71	99.13

Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.40	2.01	1.90	1.63	1.33	1.13	0.59

Moment	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
Statistics	1.54	0.34	0.7	-2.91	18.28

ALABAMA_BEACH_SAMPLES_OCTOBER_2010.GPJ FL DEP ROSS.GDT 5/13/11

Granularmetric Report

Depths and elevations based on measured values

Project Name: Dauphin Island Existing Beach

Sample Name: DI-8 (1.0ft)

Analysis Date: 10-27-10

Analyzed By: JF

Coastal Planning & Engineering
2481 NW Boca Raton Blvd, Boca Raton
FL 33431
ph (561) 391-8102
fax (561) 391-9116

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
1,755,234	91,267	Alabama State Plane West	1.0 NAVD 88

USCS:	Munsell:	Comments:
SP	Wet - 2.5Y-7/3 Dry - 2.5Y-8/2 Washed - 2.5Y-8/2	West end beach sample.

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
111.75	110.67	0.00	0.00	#200 - 0.97 #230 - 0.97			

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
5/8"	-4.00	16.00	0.00	0.00	0.00	0.00
7/16"	-3.50	11.31	0.00	0.00	0.00	0.00
5/16"	-3.00	8.00	0.00	0.00	0.00	0.00
3.5	-2.50	5.66	0.00	0.00	0.00	0.00
5	-2.00	4.00	0.00	0.00	0.00	0.00
7	-1.50	2.83	0.00	0.00	0.00	0.00
10	-1.00	2.00	0.00	0.00	0.00	0.00
14	-0.50	1.41	0.00	0.00	0.00	0.00
18	0.00	1.00	0.00	0.00	0.00	0.00
25	0.50	0.71	0.05	0.04	0.05	0.04
35	1.00	0.50	2.21	1.98	2.26	2.02
40	1.25	0.42	4.26	3.81	6.52	5.83
45	1.50	0.35	19.96	17.86	26.48	23.69
50	1.75	0.30	44.94	40.21	71.42	63.90
60	2.00	0.25	28.86	25.83	100.28	89.73
70	2.25	0.21	8.25	7.38	108.53	97.11
80	2.50	0.18	2.11	1.89	110.64	99.00
120	3.00	0.13	0.03	0.03	110.67	99.03
170	3.50	0.09	0.00	0.00	110.67	99.03
200	3.75	0.07	0.00	0.00	110.67	99.03
230	4.00	0.06	0.00	0.00	110.67	99.03

Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.18	1.94	1.86	1.66	1.51	1.39	1.20

Moment Statistics	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
	1.66	0.32	0.29	-0.38	4.36

ALABAMA_BEACH_SAMPLES_OCTOBER_2010.GPJ FL DEP ROSS.GDT 5/13/11

Granularmetric Report

Depths and elevations based on measured values

Project Name: Dauphin Island Existing Beach

Sample Name: DI-8 (-0.2ft)

Analysis Date: 10-28-10

Analyzed By: KG

Coastal Planning & Engineering
2481 NW Boca Raton Blvd, Boca Raton
FL 33431
ph (561) 391-8102
fax (561) 391-9116

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
1,755,234	91,258	Alabama State Plane West	-0.2 NAVD 88

USCS:	Munsell:	Comments:
SP	Wet - 2.5Y-7/3 Dry - 2.5Y-8/2 Washed - 2.5Y-8/2	West end beach sample.

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
133.02	132.23	0.01	0.03	#200 - 0.62 #230 - 0.62			0

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
5/8"	-4.00	16.00	0.00	0.00	0.00	0.00
7/16"	-3.50	11.31	0.00	0.00	0.00	0.00
5/16"	-3.00	8.00	0.43	0.32	0.43	0.32
3.5	-2.50	5.66	0.17	0.13	0.60	0.45
5	-2.00	4.00	0.30	0.23	0.90	0.68
7	-1.50	2.83	0.04	0.03	0.94	0.71
10	-1.00	2.00	0.02	0.02	0.96	0.73
14	-0.50	1.41	0.32	0.24	1.28	0.97
18	0.00	1.00	1.62	1.22	2.90	2.19
25	0.50	0.71	8.60	6.47	11.50	8.66
35	1.00	0.50	40.65	30.56	52.15	39.22
40	1.25	0.42	24.72	18.58	76.87	57.80
45	1.50	0.35	28.42	21.37	105.29	79.17
50	1.75	0.30	19.00	14.28	124.29	93.45
60	2.00	0.25	5.99	4.50	130.28	97.95
70	2.25	0.21	1.38	1.04	131.66	98.99
80	2.50	0.18	0.43	0.32	132.09	99.31
120	3.00	0.13	0.08	0.06	132.17	99.37
170	3.50	0.09	0.01	0.01	132.18	99.38
200	3.75	0.07	0.00	0.00	132.18	99.38
230	4.00	0.06	0.00	0.00	132.18	99.38

Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
1.84	1.58	1.45	1.15	0.77	0.62	0.22

Moment Statistics	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
	1.08	0.47	0.57	-2.4	17.73

ALABAMA_BEACH_SAMPLES_OCTOBER_2010.GPJ FL DEP ROSS.GDT 5/13/11

Granularmetric Report

Depths and elevations based on measured values

Project Name: Dauphin Island Existing Beach

Sample Name: DI-8 (-4.3ft)

Analysis Date: 10-28-10

Analyzed By: KG

Coastal Planning & Engineering
2481 NW Boca Raton Blvd, Boca Raton
FL 33431
ph (561) 391-8102
fax (561) 391-9116

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
1,755,267	91,139	Alabama State Plane West	-4.3 NAVD 88

USCS:	Munsell:	Comments:
SP	Wet - 2.5Y-5/2 Dry - 2.5Y-7/2 Washed - 2.5Y-8/2	West end beach sample.

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
107.98	106.53	0.01	0.01	#200 - 1.36 #230 - 1.35			0

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
5/8"	-4.00	16.00	0.00	0.00	0.00	0.00
7/16"	-3.50	11.31	0.00	0.00	0.00	0.00
5/16"	-3.00	8.00	0.00	0.00	0.00	0.00
3.5	-2.50	5.66	0.00	0.00	0.00	0.00
5	-2.00	4.00	0.00	0.00	0.00	0.00
7	-1.50	2.83	0.00	0.00	0.00	0.00
10	-1.00	2.00	0.00	0.00	0.00	0.00
14	-0.50	1.41	0.05	0.05	0.05	0.05
18	0.00	1.00	0.13	0.12	0.18	0.17
25	0.50	0.71	0.51	0.47	0.69	0.64
35	1.00	0.50	2.34	2.17	3.03	2.81
40	1.25	0.42	2.05	1.90	5.08	4.71
45	1.50	0.35	5.30	4.91	10.38	9.62
50	1.75	0.30	14.93	13.83	25.31	23.45
60	2.00	0.25	20.31	18.81	45.62	42.26
70	2.25	0.21	18.88	17.48	64.50	59.74
80	2.50	0.18	22.38	20.73	86.88	80.47
120	3.00	0.13	18.97	17.57	105.85	98.04
170	3.50	0.09	0.62	0.57	106.47	98.61
200	3.75	0.07	0.03	0.03	106.50	98.64
230	4.00	0.06	0.01	0.01	106.51	98.65

Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.91	2.60	2.43	2.11	1.77	1.62	1.26

Moment	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
Statistics	2.08	0.24	0.5	-0.67	4.3

ALABAMA_BEACH_SAMPLES_OCTOBER_2010.GPJ FL DEP ROSS.GDT 5/13/11

Granularmetric Report

Depths and elevations based on measured values

Project Name: Dauphin Island Existing Beach

Sample Name: DI-8 (-6.6ft)

Analysis Date: 10-28-10

Analyzed By: KG

Coastal Planning & Engineering
2481 NW Boca Raton Blvd, Boca Raton
FL 33431
ph (561) 391-8102
fax (561) 391-9116

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
1,755,215	91,019	Alabama State Plane West	-6.6 NAVD 88

USCS:	Munsell:	Comments:
SP	Wet - 2.5Y-6/3 Dry - 2.5Y-7/2 Washed - 2.5Y-8/2	West end beach sample.

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
122.55	120.78	0.01	0.00	#200 - 1.46 #230 - 1.45			0

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
5/8"	-4.00	16.00	0.00	0.00	0.00	0.00
7/16"	-3.50	11.31	0.00	0.00	0.00	0.00
5/16"	-3.00	8.00	0.00	0.00	0.00	0.00
3.5	-2.50	5.66	0.00	0.00	0.00	0.00
5	-2.00	4.00	0.00	0.00	0.00	0.00
7	-1.50	2.83	0.00	0.00	0.00	0.00
10	-1.00	2.00	0.00	0.00	0.00	0.00
14	-0.50	1.41	0.04	0.03	0.04	0.03
18	0.00	1.00	0.25	0.20	0.29	0.23
25	0.50	0.71	0.96	0.78	1.25	1.01
35	1.00	0.50	6.38	5.21	7.63	6.22
40	1.25	0.42	5.95	4.86	13.58	11.08
45	1.50	0.35	12.46	10.17	26.04	21.25
50	1.75	0.30	22.49	18.35	48.53	39.60
60	2.00	0.25	22.97	18.74	71.50	58.34
70	2.25	0.21	16.31	13.31	87.81	71.65
80	2.50	0.18	15.01	12.25	102.82	83.90
120	3.00	0.13	16.42	13.40	119.24	97.30
170	3.50	0.09	1.46	1.19	120.70	98.49
200	3.75	0.07	0.06	0.05	120.76	98.54
230	4.00	0.06	0.01	0.01	120.77	98.55

Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.91	2.50	2.32	1.89	1.55	1.37	0.88

Moment Statistics	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
	1.89	0.27	0.58	-0.25	3.26

ALABAMA_BEACH_SAMPLES_OCTOBER_2010.GPJ FL DEP ROSS.GDT 5/13/11

Granularmetric Report

Depths and elevations based on measured values

Project Name: Dauphin Island Existing Beach

Sample Name: DI-8 (-6.0ft)

Analysis Date: 10-28-10

Analyzed By: KG

Coastal Planning & Engineering
2481 NW Boca Raton Blvd, Boca Raton
FL 33431
ph (561) 391-8102
fax (561) 391-9116

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
1,755,233	90,917	Alabama State Plane West	-6.0 NAVD 88

USCS:	Munsell:	Comments:
SP	Wet - 2.5Y-5/2 Dry - 2.5Y-7/2 Washed - 2.5Y-8/2	West end beach sample.

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
106.60	105.01	0.02	0.00	#200 - 1.51 #230 - 1.50			0

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
5/8"	-4.00	16.00	0.00	0.00	0.00	0.00
7/16"	-3.50	11.31	0.00	0.00	0.00	0.00
5/16"	-3.00	8.00	0.00	0.00	0.00	0.00
3.5	-2.50	5.66	0.00	0.00	0.00	0.00
5	-2.00	4.00	0.00	0.00	0.00	0.00
7	-1.50	2.83	0.00	0.00	0.00	0.00
10	-1.00	2.00	0.02	0.02	0.02	0.02
14	-0.50	1.41	0.12	0.11	0.14	0.13
18	0.00	1.00	0.39	0.37	0.53	0.50
25	0.50	0.71	1.30	1.22	1.83	1.72
35	1.00	0.50	7.12	6.68	8.95	8.40
40	1.25	0.42	5.49	5.15	14.44	13.55
45	1.50	0.35	11.23	10.53	25.67	24.08
50	1.75	0.30	20.41	19.15	46.08	43.23
60	2.00	0.25	20.00	18.76	66.08	61.99
70	2.25	0.21	13.10	12.29	79.18	74.28
80	2.50	0.18	11.70	10.98	90.88	85.26
120	3.00	0.13	12.51	11.74	103.39	97.00
170	3.50	0.09	1.56	1.46	104.95	98.46
200	3.75	0.07	0.03	0.03	104.98	98.49
230	4.00	0.06	0.01	0.01	104.99	98.50

Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.91	2.47	2.27	1.84	1.51	1.31	0.75

Moment Statistics	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
	1.84	0.28	0.61	-0.33	3.6

ALABAMA_BEACH_SAMPLES_OCTOBER_2010.GPJ FL DEP ROSS.GDT 5/13/11

Granularmetric Report

Depths and elevations based on measured values

Project Name: Dauphin Island Existing Beach

Sample Name: DI-8 (-10.4ft)

Analysis Date: 10-28-10

Analyzed By: KG

Coastal Planning & Engineering
2481 NW Boca Raton Blvd, Boca Raton
FL 33431
ph (561) 391-8102
fax (561) 391-9116

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
1,755,234	90,748	Alabama State Plane West	-10.4 NAVD 88

USCS:	Munsell:	Comments:
SP	Wet - 2.5Y-5/2 Dry - 2.5Y-7/2 Washed - 2.5Y-7/2	West end beach sample.

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
115.29	112.39	0.06	0.00	#200 - 2.77 #230 - 2.57			0

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
5/8"	-4.00	16.00	0.00	0.00	0.00	0.00
7/16"	-3.50	11.31	0.00	0.00	0.00	0.00
5/16"	-3.00	8.00	0.00	0.00	0.00	0.00
3.5	-2.50	5.66	0.00	0.00	0.00	0.00
5	-2.00	4.00	0.00	0.00	0.00	0.00
7	-1.50	2.83	0.00	0.00	0.00	0.00
10	-1.00	2.00	0.07	0.06	0.07	0.06
14	-0.50	1.41	0.13	0.11	0.20	0.17
18	0.00	1.00	0.58	0.50	0.78	0.67
25	0.50	0.71	1.34	1.16	2.12	1.83
35	1.00	0.50	4.21	3.65	6.33	5.48
40	1.25	0.42	2.98	2.58	9.31	8.06
45	1.50	0.35	5.14	4.46	14.45	12.52
50	1.75	0.30	10.28	8.92	24.73	21.44
60	2.00	0.25	12.83	11.13	37.56	32.57
70	2.25	0.21	12.22	10.60	49.78	43.17
80	2.50	0.18	17.35	15.05	67.13	58.22
120	3.00	0.13	34.57	29.99	101.70	88.21
170	3.50	0.09	9.57	8.30	111.27	96.51
200	3.75	0.07	0.83	0.72	112.10	97.23
230	4.00	0.06	0.23	0.20	112.33	97.43

Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
3.41	2.93	2.78	2.36	1.83	1.60	0.93

Moment Statistics	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
	2.24	0.21	0.7	-0.85	4.14

ALABAMA_BEACH_SAMPLES_OCTOBER_2010.GPJ FL DEP ROSS.GDT 5/13/11

Granularmetric Report

Depths and elevations based on measured values

Project Name: Dauphin Island Existing Beach

Sample Name: DI-8 (-18.3ft)

Analysis Date: 10-28-10

Analyzed By: KG

Coastal Planning & Engineering
2481 NW Boca Raton Blvd, Boca Raton
FL 33431
ph (561) 391-8102
fax (561) 391-9116

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
1,755,245	90,052	Alabama State Plane West	-18.3 NAVD 88

USCS:	Munsell:	Comments:
CL	Wet - 2.5Y-3/1 Dry - 2.5Y-5/2 Washed - 2.5Y-7/1	West end beach sample.

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
152.51	58.80	0.16	0.00	#200 - 62.21 #230 - 61.54			0

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
5/8"	-4.00	16.00	0.00	0.00	0.00	0.00
7/16"	-3.50	11.31	0.00	0.00	0.00	0.00
5/16"	-3.00	8.00	0.00	0.00	0.00	0.00
3.5	-2.50	5.66	0.00	0.00	0.00	0.00
5	-2.00	4.00	0.00	0.00	0.00	0.00
7	-1.50	2.83	0.00	0.00	0.00	0.00
10	-1.00	2.00	0.01	0.01	0.01	0.01
14	-0.50	1.41	0.05	0.03	0.06	0.04
18	0.00	1.00	0.07	0.05	0.13	0.09
25	0.50	0.71	0.17	0.11	0.30	0.20
35	1.00	0.50	2.26	1.48	2.56	1.68
40	1.25	0.42	2.74	1.80	5.30	3.48
45	1.50	0.35	6.98	4.58	12.28	8.06
50	1.75	0.30	11.19	7.34	23.47	15.40
60	2.00	0.25	7.81	5.12	31.28	20.52
70	2.25	0.21	4.41	2.89	35.69	23.41
80	2.50	0.18	4.58	3.00	40.27	26.41
120	3.00	0.13	11.04	7.24	51.31	33.65
170	3.50	0.09	4.97	3.26	56.28	36.91
200	3.75	0.07	1.34	0.88	57.62	37.79
230	4.00	0.06	1.02	0.67	58.64	38.46

Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
				2.38	1.78	1.33

Moment Statistics	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
	2.09	0.23	0.75	0.26	2.71

ALABAMA_BEACH_SAMPLES_OCTOBER_2010.GPJ FL DEP ROSS.GDT 5/13/11

Granularmetric Report

Depths and elevations based on measured values

Project Name: Dauphin Island Existing Beach

Sample Name: DI-8 (-17.4ft)

Analysis Date: 10-28-10

Analyzed By: KG

Coastal Planning & Engineering
2481 NW Boca Raton Blvd, Boca Raton
FL 33431
ph (561) 391-8102
fax (561) 391-9116

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
1,755,219	90,402	Alabama State Plane West	-17.4 NAVD 88

USCS:	Munsell:	Comments:
CL	Wet - 2.5Y-3/1 Dry - 2.5Y-5/2 Washed - 2.5Y-6/1	West end beach sample.

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
102.96	18.17	0.12	0.00	#200 - 83.14 #230 - 82.46			0

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
5/8"	-4.00	16.00	0.00	0.00	0.00	0.00
7/16"	-3.50	11.31	0.00	0.00	0.00	0.00
5/16"	-3.00	8.00	0.00	0.00	0.00	0.00
3.5	-2.50	5.66	0.00	0.00	0.00	0.00
5	-2.00	4.00	0.00	0.00	0.00	0.00
7	-1.50	2.83	0.00	0.00	0.00	0.00
10	-1.00	2.00	0.01	0.01	0.01	0.01
14	-0.50	1.41	0.02	0.02	0.03	0.03
18	0.00	1.00	0.03	0.03	0.06	0.06
25	0.50	0.71	0.02	0.02	0.08	0.08
35	1.00	0.50	0.04	0.04	0.12	0.12
40	1.25	0.42	0.04	0.04	0.16	0.16
45	1.50	0.35	0.11	0.11	0.27	0.27
50	1.75	0.30	0.18	0.17	0.45	0.44
60	2.00	0.25	0.42	0.41	0.87	0.85
70	2.25	0.21	0.58	0.56	1.45	1.41
80	2.50	0.18	1.16	1.13	2.61	2.54
120	3.00	0.13	8.06	7.83	10.67	10.37
170	3.50	0.09	5.58	5.42	16.25	15.79
200	3.75	0.07	1.10	1.07	17.35	16.86
230	4.00	0.06	0.70	0.68	18.05	17.54

Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
					3.55	2.66

Moment Statistics	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
	2.9	0.13	0.52	-1.51	10.66

ALABAMA_BEACH_SAMPLES_OCTOBER_2010.GPJ FL DEP ROSS.GDT 5/13/11

Granularmetric Report

Depths and elevations based on measured values

Project Name: Dauphin Island Existing Beach

Sample Name: DI-10 (5.5ft)

Analysis Date: 10-28-10

Analyzed By: KG

Coastal Planning & Engineering
2481 NW Boca Raton Blvd, Boca Raton
FL 33431
ph (561) 391-8102
fax (561) 391-9116

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
1,759,585	91,521	Alabama State Plane West	5.5 NAVD 88

USCS:	Munsell:	Comments:
SP	Wet - 2.5Y-7/3 Dry - 2.5Y-8/2 Washed - 2.5Y-8/2	West end beach sample.

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
102.74	102.26	0.01	0.05	#200 - 0.53 #230 - 0.52			0

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
5/8"	-4.00	16.00	0.00	0.00	0.00	0.00
7/16"	-3.50	11.31	0.00	0.00	0.00	0.00
5/16"	-3.00	8.00	0.00	0.00	0.00	0.00
3.5	-2.50	5.66	0.00	0.00	0.00	0.00
5	-2.00	4.00	0.00	0.00	0.00	0.00
7	-1.50	2.83	0.00	0.00	0.00	0.00
10	-1.00	2.00	0.02	0.02	0.02	0.02
14	-0.50	1.41	0.01	0.01	0.03	0.03
18	0.00	1.00	0.24	0.23	0.27	0.26
25	0.50	0.71	2.83	2.75	3.10	3.01
35	1.00	0.50	17.75	17.28	20.85	20.29
40	1.25	0.42	8.89	8.65	29.74	28.94
45	1.50	0.35	19.39	18.87	49.13	47.81
50	1.75	0.30	27.08	26.36	76.21	74.17
60	2.00	0.25	17.06	16.61	93.27	90.78
70	2.25	0.21	5.79	5.64	99.06	96.42
80	2.50	0.18	2.34	2.28	101.40	98.70
120	3.00	0.13	0.72	0.70	102.12	99.40
170	3.50	0.09	0.06	0.06	102.18	99.46
200	3.75	0.07	0.01	0.01	102.19	99.47
230	4.00	0.06	0.01	0.01	102.20	99.48

Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.19	1.90	1.76	1.52	1.14	0.88	0.56

Moment Statistics	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
	1.44	0.37	0.49	-0.38	3.33

ALABAMA_BEACH_SAMPLES_OCTOBER_2010.GPJ FL DEP ROSS.GDT 5/13/11

Granularmetric Report

Depths and elevations based on measured values

Project Name: Dauphin Island Existing Beach

Sample Name: DI-10 (1.0ft)

Analysis Date: 10-28-10

Analyzed By: KG

Coastal Planning & Engineering
2481 NW Boca Raton Blvd, Boca Raton
FL 33431
ph (561) 391-8102
fax (561) 391-9116

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
1,759,585	91,484	Alabama State Plane West	1.0 NAVD 88

USCS:	Munsell:	Comments:
SP	Wet - 2.5Y-7/3 Dry - 2.5Y-8/2 Washed - 2.5Y-8/2	West end beach sample.

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
98.32	97.13	0.00	0.01	#200 - 1.22 #230 - 1.22			0

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
5/8"	-4.00	16.00	0.00	0.00	0.00	0.00
7/16"	-3.50	11.31	0.00	0.00	0.00	0.00
5/16"	-3.00	8.00	0.00	0.00	0.00	0.00
3.5	-2.50	5.66	0.00	0.00	0.00	0.00
5	-2.00	4.00	0.00	0.00	0.00	0.00
7	-1.50	2.83	0.00	0.00	0.00	0.00
10	-1.00	2.00	0.00	0.00	0.00	0.00
14	-0.50	1.41	0.02	0.02	0.02	0.02
18	0.00	1.00	0.01	0.01	0.03	0.03
25	0.50	0.71	0.07	0.07	0.10	0.10
35	1.00	0.50	1.63	1.66	1.73	1.76
40	1.25	0.42	3.43	3.49	5.16	5.25
45	1.50	0.35	11.00	11.19	16.16	16.44
50	1.75	0.30	30.06	30.57	46.22	47.01
60	2.00	0.25	28.65	29.14	74.87	76.15
70	2.25	0.21	14.33	14.57	89.20	90.72
80	2.50	0.18	6.29	6.40	95.49	97.12
120	3.00	0.13	1.61	1.64	97.10	98.76
170	3.50	0.09	0.02	0.02	97.12	98.78
200	3.75	0.07	0.00	0.00	97.12	98.78
230	4.00	0.06	0.00	0.00	97.12	98.78

Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.42	2.13	1.99	1.78	1.57	1.49	1.23

Moment Statistics	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
	1.78	0.29	0.35	-0.17	4.64

ALABAMA_BEACH_SAMPLES_OCTOBER_2010.GPJ FL DEP ROSS.GDT 5/13/11

Granularmetric Report

Depths and elevations based on measured values

Project Name: Dauphin Island Existing Beach

Sample Name: DI-10 (-0.2ft)

Analysis Date: 10-28-10

Analyzed By: JF

Coastal Planning & Engineering
2481 NW Boca Raton Blvd, Boca Raton
FL 33431
ph (561) 391-8102
fax (561) 391-9116

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
1,759,585	91,478	Alabama State Plane West	-0.2 NAVD 88

USCS:	Munsell:	Comments:
SP	Wet - 2.5Y-7/3 Dry - 2.5Y-8/2 Washed - 2.5Y-8/2	West end beach sample.

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
101.21	100.32	0.00	0.00	#200 - 0.89 #230 - 0.89			0

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
5/8"	-4.00	16.00	0.00	0.00	0.00	0.00
7/16"	-3.50	11.31	0.00	0.00	0.00	0.00
5/16"	-3.00	8.00	0.00	0.00	0.00	0.00
3.5	-2.50	5.66	0.00	0.00	0.00	0.00
5	-2.00	4.00	0.00	0.00	0.00	0.00
7	-1.50	2.83	0.00	0.00	0.00	0.00
10	-1.00	2.00	0.00	0.00	0.00	0.00
14	-0.50	1.41	0.00	0.00	0.00	0.00
18	0.00	1.00	0.00	0.00	0.00	0.00
25	0.50	0.71	0.09	0.09	0.09	0.09
35	1.00	0.50	2.57	2.54	2.66	2.63
40	1.25	0.42	6.69	6.61	9.35	9.24
45	1.50	0.35	18.39	18.17	27.74	27.41
50	1.75	0.30	36.42	35.98	64.16	63.39
60	2.00	0.25	23.06	22.78	87.22	86.17
70	2.25	0.21	8.45	8.35	95.67	94.52
80	2.50	0.18	3.81	3.76	99.48	98.28
120	3.00	0.13	0.81	0.80	100.29	99.08
170	3.50	0.09	0.03	0.03	100.32	99.11
200	3.75	0.07	0.00	0.00	100.32	99.11
230	4.00	0.06	0.00	0.00	100.32	99.11

Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.28	1.98	1.88	1.66	1.47	1.34	1.09

Moment Statistics	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
	1.66	0.32	0.34	0	4.12

ALABAMA_BEACH_SAMPLES_OCTOBER_2010.GPJ FL DEP ROSS.GDT 5/13/11

Granularmetric Report

Depths and elevations based on measured values

Project Name: Dauphin Island Existing Beach

Sample Name: DI-10 (-5.3ft)

Analysis Date: 10-28-10

Analyzed By: JF

Coastal Planning & Engineering
2481 NW Boca Raton Blvd, Boca Raton
FL 33431
ph (561) 391-8102
fax (561) 391-9116

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
1,759,599	91,310	Alabama State Plane West	-5.3 NAVD 88

USCS:	Munsell:	Comments:
SP	Wet - 2.5Y-5/2 Dry - 2.5Y-7/2 Washed - 2.5Y-8/2	West end beach sample.

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
103.89	102.60	0.00	0.03	#200 - 1.28 #230 - 1.28			0

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
5/8"	-4.00	16.00	0.00	0.00	0.00	0.00
7/16"	-3.50	11.31	0.00	0.00	0.00	0.00
5/16"	-3.00	8.00	0.00	0.00	0.00	0.00
3.5	-2.50	5.66	0.00	0.00	0.00	0.00
5	-2.00	4.00	0.00	0.00	0.00	0.00
7	-1.50	2.83	0.00	0.00	0.00	0.00
10	-1.00	2.00	0.00	0.00	0.00	0.00
14	-0.50	1.41	0.08	0.08	0.08	0.08
18	0.00	1.00	0.20	0.19	0.28	0.27
25	0.50	0.71	0.71	0.68	0.99	0.95
35	1.00	0.50	3.62	3.48	4.61	4.43
40	1.25	0.42	3.10	2.98	7.71	7.41
45	1.50	0.35	8.12	7.82	15.83	15.23
50	1.75	0.30	18.74	18.04	34.57	33.27
60	2.00	0.25	22.18	21.35	56.75	54.62
70	2.25	0.21	17.50	16.84	74.25	71.46
80	2.50	0.18	15.97	15.37	90.22	86.83
120	3.00	0.13	11.25	10.83	101.47	97.66
170	3.50	0.09	1.08	1.04	102.55	98.70
200	3.75	0.07	0.02	0.02	102.57	98.72
230	4.00	0.06	0.00	0.00	102.57	98.72

Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.88	2.45	2.31	1.95	1.64	1.51	1.05

Moment Statistics	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
	1.94	0.26	0.52	-0.48	4.26

ALABAMA_BEACH_SAMPLES_OCTOBER_2010.GPJ FL DEP ROSS.GDT 5/13/11

Granularmetric Report

Depths and elevations based on measured values

Project Name: Dauphin Island Existing Beach

Sample Name: DI-10 (-7.6ft)

Analysis Date: 10-28-10

Analyzed By: KG

Coastal Planning & Engineering
2481 NW Boca Raton Blvd, Boca Raton
FL 33431
ph (561) 391-8102
fax (561) 391-9116

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
1,759,593	91,168	Alabama State Plane West	-7.6 NAVD 88

USCS:	Munsell:	Comments:
SP	Wet - 2.5Y-5/2 Dry - 2.5Y-7/2 Washed - 2.5Y-7/2	West end beach sample.

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
88.74	87.46	0.01	0.03	#200 - 1.52 #230 - 1.50			0

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
5/8"	-4.00	16.00	0.00	0.00	0.00	0.00
7/16"	-3.50	11.31	0.00	0.00	0.00	0.00
5/16"	-3.00	8.00	0.00	0.00	0.00	0.00
3.5	-2.50	5.66	0.00	0.00	0.00	0.00
5	-2.00	4.00	0.00	0.00	0.00	0.00
7	-1.50	2.83	0.00	0.00	0.00	0.00
10	-1.00	2.00	0.02	0.02	0.02	0.02
14	-0.50	1.41	0.10	0.11	0.12	0.13
18	0.00	1.00	0.32	0.36	0.44	0.49
25	0.50	0.71	1.19	1.34	1.63	1.83
35	1.00	0.50	4.87	5.49	6.50	7.32
40	1.25	0.42	3.37	3.80	9.87	11.12
45	1.50	0.35	6.18	6.96	16.05	18.08
50	1.75	0.30	12.32	13.88	28.37	31.96
60	2.00	0.25	13.43	15.13	41.80	47.09
70	2.25	0.21	11.19	12.61	52.99	59.70
80	2.50	0.18	13.56	15.28	66.55	74.98
120	3.00	0.13	18.64	21.01	85.19	95.99
170	3.50	0.09	2.15	2.42	87.34	98.41
200	3.75	0.07	0.06	0.07	87.40	98.48
230	4.00	0.06	0.02	0.02	87.42	98.50

Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.98	2.71	2.50	2.06	1.62	1.43	0.79

Moment	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
Statistics	2.01	0.25	0.65	-0.61	3.53

ALABAMA_BEACH_SAMPLES_OCTOBER_2010.GPJ FL DEP ROSS.GDT 5/13/11

Granularmetric Report

Depths and elevations based on measured values

Project Name: Dauphin Island Existing Beach

Sample Name: DI-10 (-6.7ft)

Analysis Date: 10-29-10

Analyzed By: KG

Coastal Planning & Engineering
2481 NW Boca Raton Blvd, Boca Raton
FL 33431
ph (561) 391-8102
fax (561) 391-9116

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
1,759,595	91,061	Alabama State Plane West	-6.7 NAVD 88

USCS:	Munsell:	Comments:
SP	Wet - 2.5Y-5/2 Dry - 2.5Y-7/2 Washed - 2.5Y-8/2	West end beach sample.

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
98.68	97.32	0.02	0.02	#200 - 1.45 #230 - 1.42			0

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
5/8"	-4.00	16.00	0.00	0.00	0.00	0.00
7/16"	-3.50	11.31	0.00	0.00	0.00	0.00
5/16"	-3.00	8.00	0.00	0.00	0.00	0.00
3.5	-2.50	5.66	0.00	0.00	0.00	0.00
5	-2.00	4.00	0.00	0.00	0.00	0.00
7	-1.50	2.83	0.04	0.04	0.04	0.04
10	-1.00	2.00	0.05	0.05	0.09	0.09
14	-0.50	1.41	0.24	0.24	0.33	0.33
18	0.00	1.00	0.50	0.51	0.83	0.84
25	0.50	0.71	1.66	1.68	2.49	2.52
35	1.00	0.50	7.29	7.39	9.78	9.91
40	1.25	0.42	5.52	5.59	15.30	15.50
45	1.50	0.35	9.05	9.17	24.35	24.67
50	1.75	0.30	14.76	14.96	39.11	39.63
60	2.00	0.25	13.51	13.69	52.62	53.32
70	2.25	0.21	10.54	10.68	63.16	64.00
80	2.50	0.18	12.65	12.82	75.81	76.82
120	3.00	0.13	18.69	18.94	94.50	95.76
170	3.50	0.09	2.67	2.71	97.17	98.47
200	3.75	0.07	0.08	0.08	97.25	98.55
230	4.00	0.06	0.03	0.03	97.28	98.58

Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.98	2.69	2.46	1.94	1.51	1.26	0.67

Moment Statistics	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
	1.92	0.26	0.7	-0.52	3.51

ALABAMA_BEACH_SAMPLES_OCTOBER_2010.GPJ FL DEP ROSS.GDT 5/13/11

Granularmetric Report

Depths and elevations based on measured values

Project Name: Dauphin Island Existing Beach

Sample Name: DI-10 (-13.4ft)

Analysis Date: 10-29-10

Analyzed By: KG

Coastal Planning & Engineering
2481 NW Boca Raton Blvd, Boca Raton
FL 33431
ph (561) 391-8102
fax (561) 391-9116

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
1,759,613	90,867	Alabama State Plane West	-13.4 NAVD 88

USCS:	Munsell:	Comments:
SP	Wet - 2.5Y-4/2 Dry - 2.5Y-6/2 Washed - 2.5Y-7/2	West end beach sample.

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
92.09	88.27	0.01	0.00	#200 - 4.37 #230 - 4.15			0

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
5/8"	-4.00	16.00	0.00	0.00	0.00	0.00
7/16"	-3.50	11.31	0.00	0.00	0.00	0.00
5/16"	-3.00	8.00	0.00	0.00	0.00	0.00
3.5	-2.50	5.66	0.25	0.27	0.25	0.27
5	-2.00	4.00	0.00	0.00	0.25	0.27
7	-1.50	2.83	0.00	0.00	0.25	0.27
10	-1.00	2.00	0.00	0.00	0.25	0.27
14	-0.50	1.41	0.02	0.02	0.27	0.29
18	0.00	1.00	0.10	0.11	0.37	0.40
25	0.50	0.71	0.53	0.58	0.90	0.98
35	1.00	0.50	3.13	3.40	4.03	4.38
40	1.25	0.42	2.93	3.18	6.96	7.56
45	1.50	0.35	4.55	4.94	11.51	12.50
50	1.75	0.30	7.08	7.69	18.59	20.19
60	2.00	0.25	7.74	8.40	26.33	28.59
70	2.25	0.21	8.00	8.69	34.33	37.28
80	2.50	0.18	15.14	16.44	49.47	53.72
120	3.00	0.13	30.60	33.23	80.07	86.95
170	3.50	0.09	7.31	7.94	87.38	94.89
200	3.75	0.07	0.68	0.74	88.06	95.63
230	4.00	0.06	0.20	0.22	88.26	95.85

Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
3.54	2.96	2.82	2.44	1.89	1.61	1.05

Moment Statistics	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
	2.28	0.21	0.71	-1.53	9.61

ALABAMA_BEACH_SAMPLES_OCTOBER_2010.GPJ FL DEP ROSS.GDT 5/13/11

Granularmetric Report

Depths and elevations based on measured values

Project Name: Dauphin Island Existing Beach

Sample Name: DI-10 (-17.4ft)

Analysis Date: 10-29-10

Analyzed By: KG

Coastal Planning & Engineering
2481 NW Boca Raton Blvd, Boca Raton
FL 33431
ph (561) 391-8102
fax (561) 391-9116

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
1,759,600	90,598	Alabama State Plane West	-17.4 NAVD 88

USCS:	Munsell:	Comments:
CL	Wet - 2.5Y-3/1 Dry - 2.5Y-5/2 Washed - 2.5Y-7/1	West end beach sample.

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
115.18	24.44	0.11	0.00	#200 - 79.58 #230 - 78.89			0

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
5/8"	-4.00	16.00	0.00	0.00	0.00	0.00
7/16"	-3.50	11.31	0.00	0.00	0.00	0.00
5/16"	-3.00	8.00	0.00	0.00	0.00	0.00
3.5	-2.50	5.66	0.00	0.00	0.00	0.00
5	-2.00	4.00	0.00	0.00	0.00	0.00
7	-1.50	2.83	0.00	0.00	0.00	0.00
10	-1.00	2.00	0.04	0.03	0.04	0.03
14	-0.50	1.41	0.06	0.05	0.10	0.08
18	0.00	1.00	0.08	0.07	0.18	0.15
25	0.50	0.71	0.07	0.06	0.25	0.21
35	1.00	0.50	0.14	0.12	0.39	0.33
40	1.25	0.42	0.10	0.09	0.49	0.42
45	1.50	0.35	0.15	0.13	0.64	0.55
50	1.75	0.30	0.27	0.23	0.91	0.78
60	2.00	0.25	0.52	0.45	1.43	1.23
70	2.25	0.21	0.69	0.60	2.12	1.83
80	2.50	0.18	2.67	2.32	4.79	4.15
120	3.00	0.13	13.53	11.75	18.32	15.90
170	3.50	0.09	4.24	3.68	22.56	19.58
200	3.75	0.07	0.97	0.84	23.53	20.42
230	4.00	0.06	0.80	0.69	24.33	21.11

Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
					3.01	2.54

Moment Statistics	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
	2.76	0.15	0.57	-2.09	13.98

ALABAMA_BEACH_SAMPLES_OCTOBER_2010.GPJ FL DEP ROSS.GDT 5/13/11

Granularmetric Report

Depths and elevations based on measured values

Project Name: Dauphin Island Existing Beach

Sample Name: DI-14 (5.5ft)

Analysis Date: 10-29-10

Analyzed By: KG

Coastal Planning & Engineering
2481 NW Boca Raton Blvd, Boca Raton
FL 33431
ph (561) 391-8102
fax (561) 391-9116

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
1,766,315	91,478	Alabama State Plane West	5.5 NAVD 88

USCS:	Munsell:	Comments:
SP	Wet - 2.5Y-7/2 Dry - 2.5Y-8/1 Washed - 2.5Y-8/1	West end beach sample.

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
97.95	97.89	0.00	0.00	#200 - 0.07 #230 - 0.07			0

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
5/8"	-4.00	16.00	0.00	0.00	0.00	0.00
7/16"	-3.50	11.31	0.00	0.00	0.00	0.00
5/16"	-3.00	8.00	0.00	0.00	0.00	0.00
3.5	-2.50	5.66	0.00	0.00	0.00	0.00
5	-2.00	4.00	0.00	0.00	0.00	0.00
7	-1.50	2.83	0.02	0.02	0.02	0.02
10	-1.00	2.00	0.00	0.00	0.02	0.02
14	-0.50	1.41	0.02	0.02	0.04	0.04
18	0.00	1.00	0.02	0.02	0.06	0.06
25	0.50	0.71	0.16	0.16	0.22	0.22
35	1.00	0.50	1.30	1.33	1.52	1.55
40	1.25	0.42	2.39	2.44	3.91	3.99
45	1.50	0.35	6.71	6.85	10.62	10.84
50	1.75	0.30	19.60	20.01	30.22	30.85
60	2.00	0.25	27.86	28.44	58.08	59.29
70	2.25	0.21	22.95	23.43	81.03	82.72
80	2.50	0.18	13.98	14.27	95.01	96.99
120	3.00	0.13	2.80	2.86	97.81	99.85
170	3.50	0.09	0.08	0.08	97.89	99.93
200	3.75	0.07	0.00	0.00	97.89	99.93
230	4.00	0.06	0.00	0.00	97.89	99.93

Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.47	2.27	2.17	1.92	1.68	1.56	1.29

Moment	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
Statistics	1.91	0.27	0.38	-0.66	6.33

ALABAMA_BEACH_SAMPLES_OCTOBER_2010.GPJ FL DEP ROSS.GDT 5/13/11

Granularmetric Report

Depths and elevations based on measured values

Project Name: Dauphin Island Existing Beach

Sample Name: DI-14 (1.0ft)

Analysis Date: 10-29-10

Analyzed By: KG

Coastal Planning & Engineering
2481 NW Boca Raton Blvd, Boca Raton
FL 33431
ph (561) 391-8102
fax (561) 391-9116

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
1,766,315	91,435	Alabama State Plane West	1.0 NAVD 88

USCS:	Munsell:	Comments:
SP	Wet - 2.5Y-7/3 Dry - 2.5Y-7/2 Washed - 2.5Y-8/2	West end beach sample.

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
91.04	90.56	0.01	0.00	#200 - 0.56 #230 - 0.55			0

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
5/8"	-4.00	16.00	0.00	0.00	0.00	0.00
7/16"	-3.50	11.31	0.00	0.00	0.00	0.00
5/16"	-3.00	8.00	0.00	0.00	0.00	0.00
3.5	-2.50	5.66	0.00	0.00	0.00	0.00
5	-2.00	4.00	0.00	0.00	0.00	0.00
7	-1.50	2.83	0.00	0.00	0.00	0.00
10	-1.00	2.00	0.01	0.01	0.01	0.01
14	-0.50	1.41	0.01	0.01	0.02	0.02
18	0.00	1.00	0.04	0.04	0.06	0.06
25	0.50	0.71	0.23	0.25	0.29	0.31
35	1.00	0.50	2.38	2.61	2.67	2.92
40	1.25	0.42	2.64	2.90	5.31	5.82
45	1.50	0.35	5.82	6.39	11.13	12.21
50	1.75	0.30	13.32	14.63	24.45	26.84
60	2.00	0.25	19.63	21.56	44.08	48.40
70	2.25	0.21	20.34	22.34	64.42	70.74
80	2.50	0.18	18.57	20.40	82.99	91.14
120	3.00	0.13	7.47	8.21	90.46	99.35
170	3.50	0.09	0.07	0.08	90.53	99.43
200	3.75	0.07	0.01	0.01	90.54	99.44
230	4.00	0.06	0.01	0.01	90.55	99.45

Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.74	2.41	2.30	2.02	1.72	1.56	1.18

Moment	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
Statistics	1.98	0.25	0.45	-0.64	4.22

ALABAMA BEACH_SAMPLES_OCTOBER_2010.GPJ FL DEP ROSS.GDT 5/13/11

Granularmetric Report

Depths and elevations based on measured values

Project Name: Dauphin Island Existing Beach

Sample Name: DI-14 (-0.2ft)

Analysis Date: 10-29-10

Analyzed By: KG

Coastal Planning & Engineering
2481 NW Boca Raton Blvd, Boca Raton
FL 33431
ph (561) 391-8102
fax (561) 391-9116

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
1,766,315	91,424	Alabama State Plane West	-0.2 NAVD 88

USCS:	Munsell:	Comments:
SP	Wet - 2.5Y-7/3 Dry - 2.5Y-7/2 Washed - 2.5Y-8/2	West end beach sample.

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
98.67	97.16	0.01	0.02	#200 - 1.57 #230 - 1.56			0

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
5/8"	-4.00	16.00	0.00	0.00	0.00	0.00
7/16"	-3.50	11.31	0.00	0.00	0.00	0.00
5/16"	-3.00	8.00	0.00	0.00	0.00	0.00
3.5	-2.50	5.66	0.00	0.00	0.00	0.00
5	-2.00	4.00	0.00	0.00	0.00	0.00
7	-1.50	2.83	0.00	0.00	0.00	0.00
10	-1.00	2.00	0.03	0.03	0.03	0.03
14	-0.50	1.41	0.14	0.14	0.17	0.17
18	0.00	1.00	0.42	0.43	0.59	0.60
25	0.50	0.71	1.66	1.68	2.25	2.28
35	1.00	0.50	6.77	6.86	9.02	9.14
40	1.25	0.42	4.40	4.46	13.42	13.60
45	1.50	0.35	5.82	5.90	19.24	19.50
50	1.75	0.30	10.26	10.40	29.50	29.90
60	2.00	0.25	13.39	13.57	42.89	43.47
70	2.25	0.21	16.09	16.31	58.98	59.78
80	2.50	0.18	23.68	24.00	82.66	83.78
120	3.00	0.13	14.10	14.29	96.76	98.07
170	3.50	0.09	0.35	0.35	97.11	98.42
200	3.75	0.07	0.01	0.01	97.12	98.43
230	4.00	0.06	0.01	0.01	97.13	98.44

Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.89	2.51	2.41	2.10	1.63	1.35	0.70

Moment Statistics	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
	1.96	0.26	0.63	-0.96	3.94

ALABAMA_BEACH_SAMPLES_OCTOBER_2010.GPJ FL DEP ROSS.GDT 5/13/11

Granularmetric Report

Depths and elevations based on measured values

Project Name: Dauphin Island Existing Beach

Sample Name: DI-14 (-5.6ft)

Analysis Date: 10-29-10

Analyzed By: TD

Coastal Planning & Engineering
2481 NW Boca Raton Blvd, Boca Raton
FL 33431
ph (561) 391-8102
fax (561) 391-9116

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
1,766,287	91,151	Alabama State Plane West	-5.6 NAVD 88

USCS:	Munsell:	Comments:
SP	Wet - 2.5Y-5/2 Dry - 2.5Y-7/2 Washed - 2.5Y-7/2	West end beach sample.

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
100.00	98.45	0.02	0.16	#200 - 1.73 #230 - 1.73			0

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
5/8"	-4.00	16.00	0.00	0.00	0.00	0.00
7/16"	-3.50	11.31	0.00	0.00	0.00	0.00
5/16"	-3.00	8.00	0.00	0.00	0.00	0.00
3.5	-2.50	5.66	0.00	0.00	0.00	0.00
5	-2.00	4.00	0.00	0.00	0.00	0.00
7	-1.50	2.83	0.00	0.00	0.00	0.00
10	-1.00	2.00	0.05	0.05	0.05	0.05
14	-0.50	1.41	0.07	0.07	0.12	0.12
18	0.00	1.00	0.29	0.29	0.41	0.41
25	0.50	0.71	1.13	1.13	1.54	1.54
35	1.00	0.50	5.28	5.28	6.82	6.82
40	1.25	0.42	4.41	4.41	11.23	11.23
45	1.50	0.35	7.76	7.76	18.99	18.99
50	1.75	0.30	13.93	13.93	32.92	32.92
60	2.00	0.25	16.28	16.28	49.20	49.20
70	2.25	0.21	14.16	14.16	63.36	63.36
80	2.50	0.18	17.04	17.04	80.40	80.40
120	3.00	0.13	16.70	16.70	97.10	97.10
170	3.50	0.09	1.14	1.14	98.24	98.24
200	3.75	0.07	0.03	0.03	98.27	98.27
230	4.00	0.06	0.00	0.00	98.27	98.27

Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.94	2.61	2.42	2.01	1.61	1.40	0.83

Moment	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
Statistics	1.97	0.26	0.61	-0.64	3.73

ALABAMA_BEACH_SAMPLES_OCTOBER_2010.GPJ FL DEP ROSS.GDT 5/13/11

Granularmetric Report

Depths and elevations based on measured values

Project Name: Dauphin Island Existing Beach

Sample Name: DI-14 (-12.1ft)

Analysis Date: 10-29-10

Analyzed By: JF

Coastal Planning & Engineering
2481 NW Boca Raton Blvd, Boca Raton
FL 33431
ph (561) 391-8102
fax (561) 391-9116

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
1,766,312	90,930	Alabama State Plane West	-12.1 NAVD 88

USCS:	Munsell:	Comments:
SP	Wet - 2.5Y-4/2 Dry - 2.5Y-6/2 Washed - 5Y-7/2	West end beach sample.

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
106.16	102.48	0.01	0.00	#200 - 3.49 #230 - 3.48			0

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
5/8"	-4.00	16.00	0.00	0.00	0.00	0.00
7/16"	-3.50	11.31	0.00	0.00	0.00	0.00
5/16"	-3.00	8.00	0.00	0.00	0.00	0.00
3.5	-2.50	5.66	0.00	0.00	0.00	0.00
5	-2.00	4.00	0.00	0.00	0.00	0.00
7	-1.50	2.83	0.00	0.00	0.00	0.00
10	-1.00	2.00	0.01	0.01	0.01	0.01
14	-0.50	1.41	0.05	0.05	0.06	0.06
18	0.00	1.00	0.14	0.13	0.20	0.19
25	0.50	0.71	0.46	0.43	0.66	0.62
35	1.00	0.50	2.33	2.19	2.99	2.81
40	1.25	0.42	1.83	1.72	4.82	4.53
45	1.50	0.35	4.88	4.60	9.70	9.13
50	1.75	0.30	11.43	10.77	21.13	19.90
60	2.00	0.25	17.95	16.91	39.08	36.81
70	2.25	0.21	20.87	19.66	59.95	56.47
80	2.50	0.18	21.81	20.54	81.76	77.01
120	3.00	0.13	19.06	17.95	100.82	94.96
170	3.50	0.09	1.56	1.47	102.38	96.43
200	3.75	0.07	0.08	0.08	102.46	96.51
230	4.00	0.06	0.01	0.01	102.47	96.52

Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
3.01	2.69	2.48	2.17	1.83	1.66	1.28

Moment Statistics	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
	2.12	0.23	0.51	-0.71	4.67

ALABAMA_BEACH_SAMPLES_OCTOBER_2010.GPJ FL DEP ROSS.GDT 5/13/11

Granularmetric Report

Depths and elevations based on measured values

Project Name: Dauphin Island Existing Beach

Sample Name: DI-14 (-18.2ft)

Analysis Date: 10-29-10

Analyzed By: JF

Coastal Planning & Engineering
2481 NW Boca Raton Blvd, Boca Raton
FL 33431
ph (561) 391-8102
fax (561) 391-9116

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
1,766,298	90,551	Alabama State Plane West	-18.2 NAVD 88

USCS:	Munsell:	Comments:
CL	Wet - 2.5Y-3/1 Dry - 2.5Y-5/2 Washed - 2.5Y-7/2	West end beach sample.

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
111.85	42.94	0.02	0.03	#200 - 61.71 #230 - 61.67			0

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
5/8"	-4.00	16.00	0.00	0.00	0.00	0.00
7/16"	-3.50	11.31	0.00	0.00	0.00	0.00
5/16"	-3.00	8.00	0.00	0.00	0.00	0.00
3.5	-2.50	5.66	0.00	0.00	0.00	0.00
5	-2.00	4.00	0.00	0.00	0.00	0.00
7	-1.50	2.83	0.00	0.00	0.00	0.00
10	-1.00	2.00	0.01	0.01	0.01	0.01
14	-0.50	1.41	0.04	0.04	0.05	0.05
18	0.00	1.00	0.05	0.04	0.10	0.09
25	0.50	0.71	0.08	0.07	0.18	0.16
35	1.00	0.50	0.35	0.31	0.53	0.47
40	1.25	0.42	0.46	0.41	0.99	0.88
45	1.50	0.35	1.49	1.33	2.48	2.21
50	1.75	0.30	5.01	4.48	7.49	6.69
60	2.00	0.25	9.13	8.16	16.62	14.85
70	2.25	0.21	10.44	9.33	27.06	24.18
80	2.50	0.18	10.34	9.24	37.40	33.42
120	3.00	0.13	4.74	4.24	42.14	37.66
170	3.50	0.09	0.60	0.54	42.74	38.20
200	3.75	0.07	0.10	0.09	42.84	38.29
230	4.00	0.06	0.05	0.04	42.89	38.33

Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
				2.27	2.03	1.66

Moment Statistics	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
	2.11	0.23	0.44	-0.55	7.07

ALABAMA_BEACH_SAMPLES_OCTOBER_2010.GPJ FL DEP ROSS.GDT 5/13/11

Granularmetric Report

Depths and elevations based on measured values

Project Name: Dauphin Island Existing Beach

Sample Name: DI-14 (-10.2ft)

Analysis Date: 10-29-10

Analyzed By: TD

Coastal Planning & Engineering
2481 NW Boca Raton Blvd, Boca Raton
FL 33431
ph (561) 391-8102
fax (561) 391-9116

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
1,766,312	90,336	Alabama State Plane West	-10.2 NAVD 88

USCS:	Munsell:	Comments:
SP	Wet - 2.5Y-4/2 Dry - 2.5Y-6/2 Washed - 2.5Y-7/2	West end beach sample.

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
90.58	87.85	0.02	0.03	#200 - 3.09 #230 - 3.06			0

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
5/8"	-4.00	16.00	0.00	0.00	0.00	0.00
7/16"	-3.50	11.31	0.00	0.00	0.00	0.00
5/16"	-3.00	8.00	0.00	0.00	0.00	0.00
3.5	-2.50	5.66	0.00	0.00	0.00	0.00
5	-2.00	4.00	0.00	0.00	0.00	0.00
7	-1.50	2.83	0.00	0.00	0.00	0.00
10	-1.00	2.00	0.07	0.08	0.07	0.08
14	-0.50	1.41	0.09	0.10	0.16	0.18
18	0.00	1.00	0.24	0.26	0.40	0.44
25	0.50	0.71	0.35	0.39	0.75	0.83
35	1.00	0.50	0.83	0.92	1.58	1.75
40	1.25	0.42	0.67	0.74	2.25	2.49
45	1.50	0.35	1.04	1.15	3.29	3.64
50	1.75	0.30	3.52	3.89	6.81	7.53
60	2.00	0.25	7.39	8.16	14.20	15.69
70	2.25	0.21	15.04	16.60	29.24	32.29
80	2.50	0.18	29.89	33.00	59.13	65.29
120	3.00	0.13	25.28	27.91	84.41	93.20
170	3.50	0.09	3.28	3.62	87.69	96.82
200	3.75	0.07	0.08	0.09	87.77	96.91
230	4.00	0.06	0.03	0.03	87.80	96.94

Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
3.25	2.84	2.67	2.38	2.14	2.00	1.59

Moment Statistics	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
	2.34	0.20	0.48	-1.71	10.68

ALABAMA_BEACH_SAMPLES_OCTOBER_2010.GPJ FL DEP ROSS.GDT 5/13/11

Granularmetric Report

Depths and elevations based on measured values

Project Name: Dauphin Island Existing Beach

Sample Name: DI-14 (-14.2ft)

Analysis Date: 10-29-10

Analyzed By: JF

Coastal Planning & Engineering
2481 NW Boca Raton Blvd, Boca Raton
FL 33431
ph (561) 391-8102
fax (561) 391-9116

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
1,766,328	90,103	Alabama State Plane West	-14.2 NAVD 88

USCS:	Munsell:	Comments:
SP-SC	Wet - 2.5Y-4/2 Dry - 2.5Y-6/2 Washed - 2.5Y-6/2	West end beach sample.

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
86.14	81.91	0.04	0.02	#200 - 5.07 #230 - 4.98			0

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
5/8"	-4.00	16.00	0.00	0.00	0.00	0.00
7/16"	-3.50	11.31	0.00	0.00	0.00	0.00
5/16"	-3.00	8.00	0.00	0.00	0.00	0.00
3.5	-2.50	5.66	0.00	0.00	0.00	0.00
5	-2.00	4.00	0.00	0.00	0.00	0.00
7	-1.50	2.83	0.00	0.00	0.00	0.00
10	-1.00	2.00	0.05	0.06	0.05	0.06
14	-0.50	1.41	0.12	0.14	0.17	0.20
18	0.00	1.00	0.31	0.36	0.48	0.56
25	0.50	0.71	0.42	0.49	0.90	1.05
35	1.00	0.50	0.85	0.99	1.75	2.04
40	1.25	0.42	0.53	0.62	2.28	2.66
45	1.50	0.35	0.90	1.04	3.18	3.70
50	1.75	0.30	2.38	2.76	5.56	6.46
60	2.00	0.25	4.69	5.44	10.25	11.90
70	2.25	0.21	9.03	10.48	19.28	22.38
80	2.50	0.18	22.30	25.89	41.58	48.27
120	3.00	0.13	33.73	39.16	75.31	87.43
170	3.50	0.09	6.18	7.17	81.49	94.60
200	3.75	0.07	0.28	0.33	81.77	94.93
230	4.00	0.06	0.08	0.09	81.85	95.02

Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
3.94	2.96	2.84	2.52	2.28	2.10	1.62

Moment Statistics	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
	2.46	0.18	0.52	-1.88	10.5

ALABAMA_BEACH_SAMPLES_OCTOBER_2010.GPJ FL DEP ROSS.GDT 5/13/11

Granularmetric Report

Depths and elevations based on measured values

Project Name: Dauphin Island Existing Beach

Sample Name: DI-14 (-18.1ft)

Analysis Date: 10-29-10

Analyzed By: JF

Coastal Planning & Engineering
2481 NW Boca Raton Blvd, Boca Raton
FL 33431
ph (561) 391-8102
fax (561) 391-9116

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
1,766,325	89,696	Alabama State Plane West	-18.1 NAVD 88

USCS:	Munsell:	Comments:
CL	Wet - 2.5Y-3/1 Dry - 2.5Y-5/2 Washed - 2.5Y-5/2	West end beach sample.

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
113.28	0.65	0.01	0.00	#200 - 99.44 #230 - 99.40			0

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
5/8"	-4.00	16.00	0.00	0.00	0.00	0.00
7/16"	-3.50	11.31	0.00	0.00	0.00	0.00
5/16"	-3.00	8.00	0.00	0.00	0.00	0.00
3.5	-2.50	5.66	0.00	0.00	0.00	0.00
5	-2.00	4.00	0.00	0.00	0.00	0.00
7	-1.50	2.83	0.00	0.00	0.00	0.00
10	-1.00	2.00	0.01	0.01	0.01	0.01
14	-0.50	1.41	0.02	0.02	0.03	0.03
18	0.00	1.00	0.01	0.01	0.04	0.04
25	0.50	0.71	0.01	0.01	0.05	0.05
35	1.00	0.50	0.02	0.02	0.07	0.07
40	1.25	0.42	0.01	0.01	0.08	0.08
45	1.50	0.35	0.02	0.02	0.10	0.10
50	1.75	0.30	0.03	0.03	0.13	0.13
60	2.00	0.25	0.02	0.02	0.15	0.15
70	2.25	0.21	0.03	0.03	0.18	0.18
80	2.50	0.18	0.03	0.03	0.21	0.21
120	3.00	0.13	0.11	0.10	0.32	0.31
170	3.50	0.09	0.19	0.17	0.51	0.48
200	3.75	0.07	0.09	0.08	0.60	0.56
230	4.00	0.06	0.04	0.04	0.64	0.60

Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95

Moment Statistics	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
	2.58	0.17	1.2	-1.47	4.64

ALABAMA_BEACH_SAMPLES_OCTOBER_2010.GPJ FL DEP ROSS.GDT 5/13/11

Granularmetric Report

Depths and elevations based on measured values

Project Name: Dauphin Island Existing Beach

Sample Name: DI-21 (4.9ft)

Analysis Date: 02-18-10

Analyzed By: GL

Coastal Planning & Engineering
2481 NW Boca Raton Blvd, Boca Raton
FL 33431
ph (561) 391-8102
fax (561) 391-9116

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
1,773,617	89,821	Alabama State Plane West	4.9 NAVD 88

USCS:	Munsell:	Comments:
SP	Wet - 2.5Y-7/2 Dry - 2.5Y-7/2 Washed - 2.5Y-7/2	East end beach sample.

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
102.20	101.66	0.00	0.02	#200 - 0.54 #230 - 0.54			0

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
5/8"	-4.00	16.00	0.00	0.00	0.00	0.00
7/16"	-3.50	11.31	0.00	0.00	0.00	0.00
5/16"	-3.00	8.00	0.00	0.00	0.00	0.00
3.5	-2.50	5.66	0.00	0.00	0.00	0.00
5	-2.00	4.00	0.17	0.17	0.17	0.17
7	-1.50	2.83	0.04	0.04	0.21	0.21
10	-1.00	2.00	0.15	0.15	0.36	0.36
14	-0.50	1.41	0.27	0.26	0.63	0.62
18	0.00	1.00	1.11	1.09	1.74	1.71
25	0.50	0.71	5.98	5.85	7.72	7.56
35	1.00	0.50	31.88	31.19	39.60	38.75
40	1.25	0.42	31.80	31.12	71.40	69.87
45	1.50	0.35	12.98	12.70	84.38	82.57
50	1.75	0.30	9.94	9.73	94.32	92.30
60	2.00	0.25	3.93	3.85	98.25	96.15
70	2.25	0.21	1.72	1.68	99.97	97.83
80	2.50	0.18	1.66	1.62	101.63	99.45
120	3.00	0.13	0.01	0.01	101.64	99.46
170	3.50	0.09	0.00	0.00	101.64	99.46
200	3.75	0.07	0.00	0.00	101.64	99.46
230	4.00	0.06	0.00	0.00	101.64	99.46

Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
1.93	1.54	1.35	1.09	0.78	0.64	0.28

Moment	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
Statistics	1.07	0.48	0.49	-0.64	7.72

ALABAMA BEACH_SAMPLES_FEBRUARY_2010.GPJ FL DEP ROSS.GDT 5/13/11

Granularmetric Report

Depths and elevations based on measured values

Project Name: Dauphin Island Existing Beach

Sample Name: DI-21 (2.6ft)

Analysis Date: 02-18-10

Analyzed By: GL

Coastal Planning & Engineering
2481 NW Boca Raton Blvd, Boca Raton
FL 33431
ph (561) 391-8102
fax (561) 391-9116

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
1,773,617	89,811	Alabama State Plane West	2.6 NAVD 88

USCS:	Munsell:	Comments:
SP	Wet - 2.5Y-8/2 Dry - 2.5Y-8/2 Washed - 2.5Y-8/2	East end beach sample.

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
113.07	113.00	0.00	0.00	#200 - 0.07 #230 - 0.07			0

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
5/8"	-4.00	16.00	0.00	0.00	0.00	0.00
7/16"	-3.50	11.31	0.00	0.00	0.00	0.00
5/16"	-3.00	8.00	0.00	0.00	0.00	0.00
3.5	-2.50	5.66	0.00	0.00	0.00	0.00
5	-2.00	4.00	0.00	0.00	0.00	0.00
7	-1.50	2.83	0.00	0.00	0.00	0.00
10	-1.00	2.00	0.00	0.00	0.00	0.00
14	-0.50	1.41	0.00	0.00	0.00	0.00
18	0.00	1.00	0.07	0.06	0.07	0.06
25	0.50	0.71	0.33	0.29	0.40	0.35
35	1.00	0.50	2.95	2.61	3.35	2.96
40	1.25	0.42	9.05	8.00	12.40	10.96
45	1.50	0.35	9.94	8.79	22.34	19.75
50	1.75	0.30	36.06	31.89	58.40	51.64
60	2.00	0.25	29.16	25.79	87.56	77.43
70	2.25	0.21	16.14	14.27	103.70	91.70
80	2.50	0.18	6.84	6.05	110.54	97.75
120	3.00	0.13	2.27	2.01	112.81	99.76
170	3.50	0.09	0.18	0.16	112.99	99.92
200	3.75	0.07	0.01	0.01	113.00	99.93
230	4.00	0.06	0.00	0.00	113.00	99.93

Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.39	2.12	1.98	1.74	1.54	1.39	1.06

Moment Statistics	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
	1.74	0.30	0.39	-0.21	4.37

ALABAMA_BEACH_SAMPLES_FEBRUARY_2010.GPJ FL_DEP ROSS.GDT 5/13/11

Granularmetric Report

Depths and elevations based on measured values

Project Name: Dauphin Island Existing Beach

Sample Name: DI-21 (0.9ft)

Analysis Date: 02-18-10

Analyzed By: GL

Coastal Planning & Engineering
2481 NW Boca Raton Blvd, Boca Raton
FL 33431
ph (561) 391-8102
fax (561) 391-9116

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
1,773,618	89,796	Alabama State Plane West	0.9 NAVD 88

USCS:	Munsell:	Comments:
SP	Wet - 2.5Y-6/2 Dry - 2.5Y-7/2 Washed - 2.5Y-8/2	East end beach sample.

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
98.89	98.70	0.00	0.00	#200 - 0.18 #230 - 0.18			0

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
5/8"	-4.00	16.00	0.00	0.00	0.00	0.00
7/16"	-3.50	11.31	0.00	0.00	0.00	0.00
5/16"	-3.00	8.00	0.00	0.00	0.00	0.00
3.5	-2.50	5.66	0.00	0.00	0.00	0.00
5	-2.00	4.00	0.00	0.00	0.00	0.00
7	-1.50	2.83	0.00	0.00	0.00	0.00
10	-1.00	2.00	0.00	0.00	0.00	0.00
14	-0.50	1.41	0.06	0.06	0.06	0.06
18	0.00	1.00	0.14	0.14	0.20	0.20
25	0.50	0.71	0.89	0.90	1.09	1.10
35	1.00	0.50	5.27	5.33	6.36	6.43
40	1.25	0.42	7.94	8.03	14.30	14.46
45	1.50	0.35	12.40	12.54	26.70	27.00
50	1.75	0.30	21.83	22.08	48.53	49.08
60	2.00	0.25	20.30	20.53	68.83	69.61
70	2.25	0.21	14.70	14.87	83.53	84.48
80	2.50	0.18	9.78	9.89	93.31	94.37
120	3.00	0.13	4.78	4.83	98.09	99.20
170	3.50	0.09	0.57	0.58	98.66	99.78
200	3.75	0.07	0.04	0.04	98.70	99.82
230	4.00	0.06	0.00	0.00	98.70	99.82

Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.57	2.24	2.09	1.76	1.46	1.28	0.87

Moment	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
Statistics	1.76	0.30	0.51	-0.24	3.83

ALABAMA_BEACH_SAMPLES_FEBRUARY_2010.GPJ FL DEP ROSS.GDT 5/13/11

Granularmetric Report

Depths and elevations based on measured values

Project Name: Dauphin Island Existing Beach

Sample Name: DI-21 (-0.1ft)

Analysis Date: 02-18-10

Analyzed By: GL

Coastal Planning & Engineering
2481 NW Boca Raton Blvd, Boca Raton
FL 33431
ph (561) 391-8102
fax (561) 391-9116

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
1,773,618	89,788	Alabama State Plane West	-0.1 NAVD 88

USCS:	Munsell:	Comments:
SP	Wet - 2.5Y-7/3 Dry - 2.5Y-8/2 Washed - 2.5Y-8/2	East end beach sample.

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
101.80	101.60	0.00	0.00	#200 - 0.19 #230 - 0.19			0

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
5/8"	-4.00	16.00	0.00	0.00	0.00	0.00
7/16"	-3.50	11.31	0.00	0.00	0.00	0.00
5/16"	-3.00	8.00	0.00	0.00	0.00	0.00
3.5	-2.50	5.66	0.00	0.00	0.00	0.00
5	-2.00	4.00	0.00	0.00	0.00	0.00
7	-1.50	2.83	0.00	0.00	0.00	0.00
10	-1.00	2.00	0.01	0.01	0.01	0.01
14	-0.50	1.41	0.01	0.01	0.02	0.02
18	0.00	1.00	0.01	0.01	0.03	0.03
25	0.50	0.71	0.09	0.09	0.12	0.12
35	1.00	0.50	1.84	1.81	1.96	1.93
40	1.25	0.42	2.78	2.73	4.74	4.66
45	1.50	0.35	4.80	4.72	9.54	9.38
50	1.75	0.30	19.13	18.79	28.67	28.17
60	2.00	0.25	27.72	27.23	56.39	55.40
70	2.25	0.21	25.03	24.59	81.42	79.99
80	2.50	0.18	19.26	18.92	100.68	98.91
120	3.00	0.13	0.59	0.58	101.27	99.49
170	3.50	0.09	0.33	0.32	101.60	99.81
200	3.75	0.07	0.00	0.00	101.60	99.81
230	4.00	0.06	0.00	0.00	101.60	99.81

Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.45	2.30	2.20	1.95	1.71	1.59	1.27

Moment	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
Statistics	1.93	0.26	0.37	-0.74	5.17

Granularmetric Report

Depths and elevations based on measured values

Project Name: Dauphin Island Existing Beach

Sample Name: DI-21 (-6.4ft)

Analysis Date: 02-25-10

Analyzed By: GL

Coastal Planning & Engineering
2481 NW Boca Raton Blvd, Boca Raton
FL 33431
ph (561) 391-8102
fax (561) 391-9116

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
1,773,643	89,525	Alabama State Plane West	-6.4 NAVD 88

USCS:	Munsell:	Comments:
SP	Wet - 5Y-3/1 Dry - 5Y-6/3 Washed - 5Y-7/2	East end beach sample.

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
134.83	132.92	0.01	0.00	#200 - 1.40 #230 - 1.39			0

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
5/8"	-4.00	16.00	0.00	0.00	0.00	0.00
7/16"	-3.50	11.31	0.00	0.00	0.00	0.00
5/16"	-3.00	8.00	0.00	0.00	0.00	0.00
3.5	-2.50	5.66	0.00	0.00	0.00	0.00
5	-2.00	4.00	0.00	0.00	0.00	0.00
7	-1.50	2.83	0.00	0.00	0.00	0.00
10	-1.00	2.00	0.02	0.01	0.02	0.01
14	-0.50	1.41	0.01	0.01	0.03	0.02
18	0.00	1.00	0.09	0.07	0.12	0.09
25	0.50	0.71	0.87	0.65	0.99	0.74
35	1.00	0.50	7.79	5.78	8.78	6.52
40	1.25	0.42	9.87	7.32	18.65	13.84
45	1.50	0.35	19.80	14.69	38.45	28.53
50	1.75	0.30	31.48	23.35	69.93	51.88
60	2.00	0.25	30.29	22.47	100.22	74.35
70	2.25	0.21	18.29	13.57	118.51	87.92
80	2.50	0.18	10.20	7.57	128.71	95.49
120	3.00	0.13	3.99	2.96	132.70	98.45
170	3.50	0.09	0.19	0.14	132.89	98.59
200	3.75	0.07	0.01	0.01	132.90	98.60
230	4.00	0.06	0.01	0.01	132.91	98.61

Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.48	2.18	2.01	1.73	1.44	1.29	0.87

Moment	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
Statistics	1.71	0.31	0.47	-0.28	3.82

Granularmetric Report

Depths and elevations based on measured values

Project Name: Dauphin Island Existing Beach

Sample Name: DI-21 (-8.5ft)

Analysis Date: 02-25-10

Analyzed By: GL

Coastal Planning & Engineering
2481 NW Boca Raton Blvd, Boca Raton
FL 33431
ph (561) 391-8102
fax (561) 391-9116

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
1,773,603	89,506	Alabama State Plane West	-8.5 NAVD 88

USCS:	Munsell:	Comments:
SP	Wet - 5Y-4/1 Dry - 5Y-6/1 Washed - 5Y-7/1	East end beach sample.

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
116.75	112.25	0.01	0.07	#200 - 3.94 #230 - 3.94			0

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
5/8"	-4.00	16.00	0.00	0.00	0.00	0.00
7/16"	-3.50	11.31	0.00	0.00	0.00	0.00
5/16"	-3.00	8.00	0.00	0.00	0.00	0.00
3.5	-2.50	5.66	0.00	0.00	0.00	0.00
5	-2.00	4.00	0.00	0.00	0.00	0.00
7	-1.50	2.83	0.00	0.00	0.00	0.00
10	-1.00	2.00	0.01	0.01	0.01	0.01
14	-0.50	1.41	0.01	0.01	0.02	0.02
18	0.00	1.00	0.06	0.05	0.08	0.07
25	0.50	0.71	0.34	0.29	0.42	0.36
35	1.00	0.50	3.41	2.92	3.83	3.28
40	1.25	0.42	6.94	5.94	10.77	9.22
45	1.50	0.35	12.79	10.96	23.56	20.18
50	1.75	0.30	26.34	22.56	49.90	42.74
60	2.00	0.25	28.09	24.06	77.99	66.80
70	2.25	0.21	18.15	15.55	96.14	82.35
80	2.50	0.18	11.05	9.46	107.19	91.81
120	3.00	0.13	4.66	3.99	111.85	95.80
170	3.50	0.09	0.27	0.23	112.12	96.03
200	3.75	0.07	0.04	0.03	112.16	96.06
230	4.00	0.06	0.00	0.00	112.16	96.06

Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.90	2.29	2.13	1.83	1.55	1.40	1.07

Moment	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
Statistics	1.8	0.29	0.44	-0.18	4.02

ALABAMA BEACH_SAMPLES_FEBRUARY_2010.GPJ FL DEP ROSS.GDT 5/13/11

Granularmetric Report

Depths and elevations based on measured values

Project Name: Dauphin Island Existing Beach

Sample Name: DI-21 (-11.7ft)

Analysis Date: 02-25-10

Analyzed By: GL

Coastal Planning & Engineering
2481 NW Boca Raton Blvd, Boca Raton
FL 33431
ph (561) 391-8102
fax (561) 391-9116

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
1,773,602	89,460	Alabama State Plane West	-11.7 NAVD 88

USCS:	Munsell:	Comments:
CL	Wet - 5Y-2.5/1 Dry - 5Y-4/1 Washed - 5Y-6/1	East end beach sample.

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
75.03	3.44	0.01	0.00	#200 - 95.45 #230 - 95.42			0

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
5/8"	-4.00	16.00	0.00	0.00	0.00	0.00
7/16"	-3.50	11.31	0.00	0.00	0.00	0.00
5/16"	-3.00	8.00	0.00	0.00	0.00	0.00
3.5	-2.50	5.66	0.00	0.00	0.00	0.00
5	-2.00	4.00	0.00	0.00	0.00	0.00
7	-1.50	2.83	0.00	0.00	0.00	0.00
10	-1.00	2.00	0.00	0.00	0.00	0.00
14	-0.50	1.41	0.00	0.00	0.00	0.00
18	0.00	1.00	0.00	0.00	0.00	0.00
25	0.50	0.71	0.02	0.03	0.02	0.03
35	1.00	0.50	0.03	0.04	0.05	0.07
40	1.25	0.42	0.12	0.16	0.17	0.23
45	1.50	0.35	0.17	0.23	0.34	0.46
50	1.75	0.30	0.35	0.47	0.69	0.93
60	2.00	0.25	0.48	0.64	1.17	1.57
70	2.25	0.21	0.49	0.65	1.66	2.22
80	2.50	0.18	0.63	0.84	2.29	3.06
120	3.00	0.13	0.90	1.20	3.19	4.26
170	3.50	0.09	0.18	0.24	3.37	4.50
200	3.75	0.07	0.04	0.05	3.41	4.55
230	4.00	0.06	0.02	0.03	3.43	4.58

Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95

Moment Statistics	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
	2.24	0.21	0.59	-0.2	3.28

ALABAMA_BEACH_SAMPLES_FEBRUARY_2010.GPJ FL_DEP ROSS.GDT 5/13/11

Granularmetric Report

Depths and elevations based on measured values

Project Name: Dauphin Island Existing Beach

Sample Name: DI-27 (5.1ft)

Analysis Date: 02-17-10

Analyzed By: GL

Coastal Planning & Engineering
2481 NW Boca Raton Blvd, Boca Raton
FL 33431
ph (561) 391-8102
fax (561) 391-9116

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
1,779,768	88,668	Alabama State Plane West	5.1 NAVD 88

USCS:	Munsell:	Comments:
SP	Wet - 2.5Y-7/2 Dry - 2.5Y-7/2 Washed - 2.5Y-8/2	East end beach sample.

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
108.73	108.66	0.01	0.00	#200 - 0.07 #230 - 0.07			0

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
5/8"	-4.00	16.00	0.00	0.00	0.00	0.00
7/16"	-3.50	11.31	0.00	0.00	0.00	0.00
5/16"	-3.00	8.00	0.00	0.00	0.00	0.00
3.5	-2.50	5.66	0.00	0.00	0.00	0.00
5	-2.00	4.00	0.00	0.00	0.00	0.00
7	-1.50	2.83	0.00	0.00	0.00	0.00
10	-1.00	2.00	0.00	0.00	0.00	0.00
14	-0.50	1.41	0.00	0.00	0.00	0.00
18	0.00	1.00	0.02	0.02	0.02	0.02
25	0.50	0.71	0.02	0.02	0.04	0.04
35	1.00	0.50	0.09	0.08	0.13	0.12
40	1.25	0.42	0.32	0.29	0.45	0.41
45	1.50	0.35	0.14	0.13	0.59	0.54
50	1.75	0.30	16.96	15.60	17.55	16.14
60	2.00	0.25	31.28	28.77	48.83	44.91
70	2.25	0.21	28.89	26.57	77.72	71.48
80	2.50	0.18	18.78	17.27	96.50	88.75
120	3.00	0.13	11.51	10.59	108.01	99.34
170	3.50	0.09	0.63	0.58	108.64	99.92
200	3.75	0.07	0.01	0.01	108.65	99.93
230	4.00	0.06	0.00	0.00	108.65	99.93

Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.80	2.43	2.30	2.05	1.83	1.75	1.57

Moment	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
Statistics	2.09	0.23	0.35	0.43	3.6

ALABAMA_BEACH_SAMPLES_FEBRUARY_2010.GPJ FL DEP ROSS.GDT 5/13/11

Granularmetric Report

Depths and elevations based on measured values

Project Name: Dauphin Island Existing Beach

Sample Name: DI-27 (2.2ft)

Analysis Date: 02-17-10

Analyzed By: GL

Coastal Planning & Engineering
2481 NW Boca Raton Blvd, Boca Raton
FL 33431
ph (561) 391-8102
fax (561) 391-9116

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
1,779,768	88,638	Alabama State Plane West	2.2 NAVD 88

USCS:	Munsell:	Comments:
SP	Wet - 2.5Y-7/2 Dry - 2.5Y-8/2 Washed - 2.5Y-8/2	East end beach sample.

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
106.20	105.93	0.00	0.01	#200 - 0.28 #230 - 0.27			0

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
5/8"	-4.00	16.00	0.00	0.00	0.00	0.00
7/16"	-3.50	11.31	0.00	0.00	0.00	0.00
5/16"	-3.00	8.00	0.00	0.00	0.00	0.00
3.5	-2.50	5.66	0.00	0.00	0.00	0.00
5	-2.00	4.00	0.00	0.00	0.00	0.00
7	-1.50	2.83	0.00	0.00	0.00	0.00
10	-1.00	2.00	0.00	0.00	0.00	0.00
14	-0.50	1.41	0.00	0.00	0.00	0.00
18	0.00	1.00	0.00	0.00	0.00	0.00
25	0.50	0.71	0.00	0.00	0.00	0.00
35	1.00	0.50	0.00	0.00	0.00	0.00
40	1.25	0.42	7.14	6.72	7.14	6.72
45	1.50	0.35	11.64	10.96	18.78	17.68
50	1.75	0.30	37.29	35.11	56.07	52.79
60	2.00	0.25	27.84	26.21	83.91	79.00
70	2.25	0.21	14.07	13.25	97.98	92.25
80	2.50	0.18	5.72	5.39	103.70	97.64
120	3.00	0.13	2.08	1.96	105.78	99.60
170	3.50	0.09	0.13	0.12	105.91	99.72
200	3.75	0.07	0.00	0.00	105.91	99.72
230	4.00	0.06	0.01	0.01	105.92	99.73

Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.38	2.09	1.96	1.73	1.55	1.46	-0.09

Moment Statistics	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
	1.76	0.30	0.34	0.49	3.88

ALABAMA_BEACH_SAMPLES_FEBRUARY_2010.GPJ FL_DEP ROSS.GDT 5/13/11

Granularmetric Report

Depths and elevations based on measured values

Project Name: Dauphin Island Existing Beach

Sample Name: DI-27 (0.9ft)

Analysis Date: 02-17-10

Analyzed By: PB

Coastal Planning & Engineering
2481 NW Boca Raton Blvd, Boca Raton
FL 33431
ph (561) 391-8102
fax (561) 391-9116

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
1,779,768	88,604	Alabama State Plane West	0.9 NAVD 88

USCS:	Munsell:	Comments:
SP	Wet - 2.5Y-7/3 Dry - 2.5Y-8/2 Washed - 2.5Y-8/2	East end beach sample.

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
140.10	139.92	0.00	0.01	#200 - 0.16 #230 - 0.15			0

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
5/8"	-4.00	16.00	0.00	0.00	0.00	0.00
7/16"	-3.50	11.31	0.00	0.00	0.00	0.00
5/16"	-3.00	8.00	0.00	0.00	0.00	0.00
3.5	-2.50	5.66	0.00	0.00	0.00	0.00
5	-2.00	4.00	0.00	0.00	0.00	0.00
7	-1.50	2.83	0.00	0.00	0.00	0.00
10	-1.00	2.00	0.00	0.00	0.00	0.00
14	-0.50	1.41	0.03	0.02	0.03	0.02
18	0.00	1.00	0.07	0.05	0.10	0.07
25	0.50	0.71	0.37	0.26	0.47	0.33
35	1.00	0.50	4.01	2.86	4.48	3.19
40	1.25	0.42	6.12	4.37	10.60	7.56
45	1.50	0.35	5.37	3.83	15.97	11.39
50	1.75	0.30	28.11	20.06	44.08	31.45
60	2.00	0.25	28.81	20.56	72.89	52.01
70	2.25	0.21	29.13	20.79	102.02	72.80
80	2.50	0.18	20.10	14.35	122.12	87.15
120	3.00	0.13	17.18	12.26	139.30	99.41
170	3.50	0.09	0.54	0.39	139.84	99.80
200	3.75	0.07	0.06	0.04	139.90	99.84
230	4.00	0.06	0.01	0.01	139.91	99.85

Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.82	2.45	2.29	1.98	1.67	1.56	1.10

Moment Statistics	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
	1.97	0.26	0.49	-0.35	3.67

ALABAMA_BEACH_SAMPLES_FEBRUARY_2010.GPJ FL_DEP ROSS.GDT 5/13/11

Granularmetric Report

Depths and elevations based on measured values

Project Name: Dauphin Island Existing Beach

Sample Name: DI-27 (0.0ft)

Analysis Date: 02-17-10

Analyzed By: GL

Coastal Planning & Engineering
2481 NW Boca Raton Blvd, Boca Raton
FL 33431
ph (561) 391-8102
fax (561) 391-9116

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
1,779,763	88,597	Alabama State Plane West	0.0 NAVD 88

USCS:	Munsell:	Comments:
SP	Wet - 2.5Y-7/3 Dry - 2.5Y-8/2 Washed - 2.5Y-8/2	East end beach sample.

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
107.47	107.22	0.01	0.00	#200 - 0.24 #230 - 0.24			1

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
5/8"	-4.00	16.00	0.00	0.00	0.00	0.00
7/16"	-3.50	11.31	0.00	0.00	0.00	0.00
5/16"	-3.00	8.00	0.00	0.00	0.00	0.00
3.5	-2.50	5.66	1.02	0.95	1.02	0.95
5	-2.00	4.00	0.35	0.33	1.37	1.28
7	-1.50	2.83	0.61	0.57	1.98	1.85
10	-1.00	2.00	0.28	0.26	2.26	2.11
14	-0.50	1.41	0.85	0.79	3.11	2.90
18	0.00	1.00	3.03	2.82	6.14	5.72
25	0.50	0.71	12.05	11.21	18.19	16.93
35	1.00	0.50	34.80	32.38	52.99	49.31
40	1.25	0.42	21.47	19.98	74.46	69.29
45	1.50	0.35	6.14	5.71	80.60	75.00
50	1.75	0.30	16.05	14.93	96.65	89.93
60	2.00	0.25	4.86	4.52	101.51	94.45
70	2.25	0.21	2.60	2.42	104.11	96.87
80	2.50	0.18	1.77	1.65	105.88	98.52
120	3.00	0.13	1.29	1.20	107.17	99.72
170	3.50	0.09	0.04	0.04	107.21	99.76
200	3.75	0.07	0.00	0.00	107.21	99.76
230	4.00	0.06	0.00	0.00	107.21	99.76

Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.06	1.65	1.50	1.01	0.62	0.46	-0.13

Moment	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
Statistics	0.97	0.51	0.76	-1.45	8.92

ALABAMA BEACH_SAMPLES_FEBRUARY_2010.GPJ FL DEP ROSS.GDT 5/13/11

Granularmetric Report

Depths and elevations based on measured values

Project Name: Dauphin Island Existing Beach

Sample Name: DI-27 (-4.7ft)

Analysis Date: 02-17-10

Analyzed By: GL

Coastal Planning & Engineering
2481 NW Boca Raton Blvd, Boca Raton
FL 33431
ph (561) 391-8102
fax (561) 391-9116

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
1,779,752	88,507	Alabama State Plane West	-4.7 NAVD 88

USCS:	Munsell:	Comments:
SP	Wet - 2.5Y-6/3 Dry - 5Y-7/2 Washed - 5Y-7/2	East end beach sample.

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
123.34	123.18	0.01	0.00	#200 - 0.17 #230 - 0.14			0

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
5/8"	-4.00	16.00	0.00	0.00	0.00	0.00
7/16"	-3.50	11.31	0.00	0.00	0.00	0.00
5/16"	-3.00	8.00	0.00	0.00	0.00	0.00
3.5	-2.50	5.66	0.00	0.00	0.00	0.00
5	-2.00	4.00	0.00	0.00	0.00	0.00
7	-1.50	2.83	0.00	0.00	0.00	0.00
10	-1.00	2.00	0.00	0.00	0.00	0.00
14	-0.50	1.41	0.07	0.06	0.07	0.06
18	0.00	1.00	0.16	0.13	0.23	0.19
25	0.50	0.71	0.42	0.34	0.65	0.53
35	1.00	0.50	1.89	1.53	2.54	2.06
40	1.25	0.42	3.54	2.87	6.08	4.93
45	1.50	0.35	7.70	6.24	13.78	11.17
50	1.75	0.30	16.77	13.60	30.55	24.77
60	2.00	0.25	11.52	9.34	42.07	34.11
70	2.25	0.21	30.91	25.06	72.98	59.17
80	2.50	0.18	21.15	17.15	94.13	76.32
120	3.00	0.13	25.85	20.96	119.98	97.28
170	3.50	0.09	3.11	2.52	123.09	99.80
200	3.75	0.07	0.04	0.03	123.13	99.83
230	4.00	0.06	0.04	0.03	123.17	99.86

Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.95	2.68	2.48	2.16	1.76	1.59	1.25

Moment	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
Statistics	2.13	0.23	0.53	-0.52	3.91

ALABAMA_BEACH_SAMPLES_FEBRUARY_2010.GPJ FL_DEP ROSS.GDT 5/13/11

Granularmetric Report

Depths and elevations based on measured values

Project Name: Dauphin Island Existing Beach

Sample Name: DI-27 (-8.8ft)

Analysis Date: 02-17-10

Analyzed By: GL

Coastal Planning & Engineering
2481 NW Boca Raton Blvd, Boca Raton
FL 33431
ph (561) 391-8102
fax (561) 391-9116

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
1,779,757	88,412	Alabama State Plane West	-8.8 NAVD 88

USCS:	Munsell:	Comments:
SC	Wet - 5Y-3/1 Dry - 5Y-5/2 Washed - 5Y-5/2	East end beach sample.

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
103.48	73.30	0.01	0.00	#200 - 29.39 #230 - 29.17			0

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
5/8"	-4.00	16.00	0.00	0.00	0.00	0.00
7/16"	-3.50	11.31	0.00	0.00	0.00	0.00
5/16"	-3.00	8.00	0.00	0.00	0.00	0.00
3.5	-2.50	5.66	0.00	0.00	0.00	0.00
5	-2.00	4.00	0.00	0.00	0.00	0.00
7	-1.50	2.83	0.00	0.00	0.00	0.00
10	-1.00	2.00	0.03	0.03	0.03	0.03
14	-0.50	1.41	0.07	0.07	0.10	0.10
18	0.00	1.00	0.12	0.12	0.22	0.22
25	0.50	0.71	0.29	0.28	0.51	0.50
35	1.00	0.50	1.26	1.22	1.77	1.72
40	1.25	0.42	2.59	2.50	4.36	4.22
45	1.50	0.35	3.76	3.63	8.12	7.85
50	1.75	0.30	9.96	9.63	18.08	17.48
60	2.00	0.25	12.47	12.05	30.55	29.53
70	2.25	0.21	12.72	12.29	43.27	41.82
80	2.50	0.18	10.65	10.29	53.92	52.11
120	3.00	0.13	14.88	14.38	68.80	66.49
170	3.50	0.09	3.85	3.72	72.65	70.21
200	3.75	0.07	0.41	0.40	73.06	70.61
230	4.00	0.06	0.23	0.22	73.29	70.83

Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
			2.45	1.91	1.71	1.30

Moment	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
Statistics	2.14	0.23	0.59	-0.28	4.13

ALABAMA BEACH_SAMPLES_FEBRUARY_2010.GPJ FL DEP ROSS.GDT 5/13/11

Granularmetric Report

Depths and elevations based on measured values

Project Name: Dauphin Island Existing Beach

Sample Name: DI-27 (-12.6ft)

Analysis Date: 02-17-10

Analyzed By: GL

Coastal Planning & Engineering
2481 NW Boca Raton Blvd, Boca Raton
FL 33431
ph (561) 391-8102
fax (561) 391-9116

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
1,779,780	87,492	Alabama State Plane West	-12.6 NAVD 88

USCS:	Munsell:	Comments:
CL	Wet - 5Y-3/2 Dry - 5Y-4/2 Washed - 5Y-4/2	East end beach sample.

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
55.38	0.78	0.01	0.02	#200 - 98.66 #230 - 98.61			0

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
5/8"	-4.00	16.00	0.00	0.00	0.00	0.00
7/16"	-3.50	11.31	0.00	0.00	0.00	0.00
5/16"	-3.00	8.00	0.00	0.00	0.00	0.00
3.5	-2.50	5.66	0.00	0.00	0.00	0.00
5	-2.00	4.00	0.00	0.00	0.00	0.00
7	-1.50	2.83	0.00	0.00	0.00	0.00
10	-1.00	2.00	0.00	0.00	0.00	0.00
14	-0.50	1.41	0.01	0.02	0.01	0.02
18	0.00	1.00	0.00	0.00	0.01	0.02
25	0.50	0.71	0.01	0.02	0.02	0.04
35	1.00	0.50	0.02	0.04	0.04	0.08
40	1.25	0.42	0.01	0.02	0.05	0.10
45	1.50	0.35	0.02	0.04	0.07	0.14
50	1.75	0.30	0.07	0.13	0.14	0.27
60	2.00	0.25	0.09	0.16	0.23	0.43
70	2.25	0.21	0.12	0.22	0.35	0.65
80	2.50	0.18	0.27	0.49	0.62	1.14
120	3.00	0.13	0.02	0.04	0.64	1.18
170	3.50	0.09	0.05	0.09	0.69	1.27
200	3.75	0.07	0.04	0.07	0.73	1.34
230	4.00	0.06	0.03	0.05	0.76	1.39

Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95

Moment Statistics	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
	2.25	0.21	0.78	-0.49	5.45

ALABAMA_BEACH_SAMPLES_FEBRUARY_2010.GPJ FL_DEP ROSS.GDT 5/13/11

Granularmetric Report

Depths and elevations based on measured values

Project Name: Dauphin Island Existing Beach

Sample Name: DI-32 (7.0ft)

Analysis Date: 02-17-10

Analyzed By: GL

Coastal Planning & Engineering
2481 NW Boca Raton Blvd, Boca Raton
FL 33431
ph (561) 391-8102
fax (561) 391-9116

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
1,785,900	90,145	Alabama State Plane West	7.0 NAVD 88

USCS:	Munsell:	Comments:
SP	Wet - 2.5Y-6/2 Dry - 2.5Y-7/1 Washed - 2.5Y-7/1	East end beach sample.

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
114.61	114.29	0.00	0.00	#200 - 0.29 #230 - 0.29			0

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
5/8"	-4.00	16.00	0.00	0.00	0.00	0.00
7/16"	-3.50	11.31	0.00	0.00	0.00	0.00
5/16"	-3.00	8.00	0.00	0.00	0.00	0.00
3.5	-2.50	5.66	0.00	0.00	0.00	0.00
5	-2.00	4.00	0.11	0.10	0.11	0.10
7	-1.50	2.83	0.03	0.03	0.14	0.13
10	-1.00	2.00	0.04	0.03	0.18	0.16
14	-0.50	1.41	0.02	0.02	0.20	0.18
18	0.00	1.00	0.01	0.01	0.21	0.19
25	0.50	0.71	0.13	0.11	0.34	0.30
35	1.00	0.50	2.40	2.09	2.74	2.39
40	1.25	0.42	9.84	8.59	12.58	10.98
45	1.50	0.35	20.60	17.97	33.18	28.95
50	1.75	0.30	34.89	30.44	68.07	59.39
60	2.00	0.25	20.45	17.84	88.52	77.23
70	2.25	0.21	12.65	11.04	101.17	88.27
80	2.50	0.18	7.51	6.55	108.68	94.82
120	3.00	0.13	5.06	4.41	113.74	99.23
170	3.50	0.09	0.55	0.48	114.29	99.71
200	3.75	0.07	0.00	0.00	114.29	99.71
230	4.00	0.06	0.00	0.00	114.29	99.71

Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.52	2.15	1.97	1.67	1.45	1.32	1.08

Moment	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
Statistics	1.72	0.30	0.46	-0.41	10.12

ALABAMA BEACH_SAMPLES_FEBRUARY_2010.GPJ FL DEP ROSS.GDT 5/13/11

Granularmetric Report

Depths and elevations based on measured values

Project Name: Dauphin Island Existing Beach

Sample Name: DI-32 (3.1ft)

Analysis Date: 02-18-10

Analyzed By: GL

Coastal Planning & Engineering
2481 NW Boca Raton Blvd, Boca Raton
FL 33431
ph (561) 391-8102
fax (561) 391-9116

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
1,785,899	90,109	Alabama State Plane West	3.1 NAVD 88

USCS:	Munsell:	Comments:
SP	Wet - 2.5Y-7/2 Dry - 2.5Y-8/2 Washed - 2.5Y-8/2	East end beach sample.

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
110.05	109.85	0.00	0.00	#200 - 0.18 #230 - 0.18			0

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
5/8"	-4.00	16.00	0.00	0.00	0.00	0.00
7/16"	-3.50	11.31	0.00	0.00	0.00	0.00
5/16"	-3.00	8.00	0.00	0.00	0.00	0.00
3.5	-2.50	5.66	0.00	0.00	0.00	0.00
5	-2.00	4.00	0.00	0.00	0.00	0.00
7	-1.50	2.83	0.02	0.02	0.02	0.02
10	-1.00	2.00	0.00	0.00	0.02	0.02
14	-0.50	1.41	0.01	0.01	0.03	0.03
18	0.00	1.00	0.05	0.05	0.08	0.08
25	0.50	0.71	0.21	0.19	0.29	0.27
35	1.00	0.50	2.46	2.24	2.75	2.51
40	1.25	0.42	9.82	8.92	12.57	11.43
45	1.50	0.35	12.51	11.37	25.08	22.80
50	1.75	0.30	34.34	31.20	59.42	54.00
60	2.00	0.25	25.87	23.51	85.29	77.51
70	2.25	0.21	13.22	12.01	98.51	89.52
80	2.50	0.18	6.65	6.04	105.16	95.56
120	3.00	0.13	4.37	3.97	109.53	99.53
170	3.50	0.09	0.32	0.29	109.85	99.82
200	3.75	0.07	0.00	0.00	109.85	99.82
230	4.00	0.06	0.00	0.00	109.85	99.82

Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.48	2.14	1.97	1.72	1.52	1.35	1.07

Moment Statistics	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
	1.74	0.30	0.42	0.07	4.83

ALABAMA_BEACH_SAMPLES_FEBRUARY_2010.GPJ FL DEP ROSS.GDT 5/13/11

Granularmetric Report

Depths and elevations based on measured values

Project Name: Dauphin Island Existing Beach

Sample Name: DI-32 (0.9ft)

Analysis Date: 02-18-10

Analyzed By: GL

Coastal Planning & Engineering
2481 NW Boca Raton Blvd, Boca Raton
FL 33431
ph (561) 391-8102
fax (561) 391-9116

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
1,785,898	90,081	Alabama State Plane West	0.9 NAVD 88

USCS:	Munsell:	Comments:
SP	Wet - 2.5Y-6/3 Dry - 5Y-7/2 Washed - 5Y-7/2	East end beach sample.

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
133.22	132.43	0.00	0.00	#200 - 0.59 #230 - 0.58			0

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
5/8"	-4.00	16.00	0.00	0.00	0.00	0.00
7/16"	-3.50	11.31	0.00	0.00	0.00	0.00
5/16"	-3.00	8.00	0.00	0.00	0.00	0.00
3.5	-2.50	5.66	0.00	0.00	0.00	0.00
5	-2.00	4.00	0.00	0.00	0.00	0.00
7	-1.50	2.83	0.00	0.00	0.00	0.00
10	-1.00	2.00	0.02	0.02	0.02	0.02
14	-0.50	1.41	0.01	0.01	0.03	0.03
18	0.00	1.00	0.05	0.04	0.08	0.07
25	0.50	0.71	0.29	0.22	0.37	0.29
35	1.00	0.50	2.06	1.55	2.43	1.84
40	1.25	0.42	2.98	2.24	5.41	4.08
45	1.50	0.35	3.59	2.69	9.00	6.77
50	1.75	0.30	15.66	11.75	24.66	18.52
60	2.00	0.25	17.82	13.38	42.48	31.90
70	2.25	0.21	20.32	15.25	62.80	47.15
80	2.50	0.18	21.56	16.18	84.36	63.33
120	3.00	0.13	44.27	33.23	128.63	96.56
170	3.50	0.09	3.78	2.84	132.41	99.40
200	3.75	0.07	0.01	0.01	132.42	99.41
230	4.00	0.06	0.01	0.01	132.43	99.42

Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.98	2.81	2.68	2.29	1.87	1.70	1.34

Moment	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
Statistics	2.24	0.21	0.53	-0.64	3.54

ALABAMA BEACH_SAMPLES_FEBRUARY_2010.GPJ FL DEP ROSS.GDT 5/13/11

Granularmetric Report

Depths and elevations based on measured values

Project Name: Dauphin Island Existing Beach

Sample Name: DI-32 (-4.2ft)

Analysis Date: 02-25-10

Analyzed By: GL

Coastal Planning & Engineering
2481 NW Boca Raton Blvd, Boca Raton
FL 33431
ph (561) 391-8102
fax (561) 391-9116

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
1,785,827	89,608	Alabama State Plane West	-4.2 NAVD 88

USCS:	Munsell:	Comments:
SP	Wet - 5Y-5/1 Dry - 5Y-6/2 Washed - 5Y-7/2	East end beach sample.

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
113.32	112.52	0.03	0.00	#200 - 0.75 #230 - 0.72			0

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
5/8"	-4.00	16.00	0.00	0.00	0.00	0.00
7/16"	-3.50	11.31	0.00	0.00	0.00	0.00
5/16"	-3.00	8.00	0.00	0.00	0.00	0.00
3.5	-2.50	5.66	0.00	0.00	0.00	0.00
5	-2.00	4.00	0.00	0.00	0.00	0.00
7	-1.50	2.83	0.04	0.04	0.04	0.04
10	-1.00	2.00	0.01	0.01	0.05	0.05
14	-0.50	1.41	0.05	0.04	0.10	0.09
18	0.00	1.00	0.08	0.07	0.18	0.16
25	0.50	0.71	0.14	0.12	0.32	0.28
35	1.00	0.50	0.54	0.48	0.86	0.76
40	1.25	0.42	0.68	0.60	1.54	1.36
45	1.50	0.35	1.11	0.98	2.65	2.34
50	1.75	0.30	4.37	3.86	7.02	6.20
60	2.00	0.25	7.18	6.34	14.20	12.54
70	2.25	0.21	12.30	10.85	26.50	23.39
80	2.50	0.18	21.72	19.17	48.22	42.56
120	3.00	0.13	56.07	49.48	104.29	92.04
170	3.50	0.09	7.98	7.04	112.27	99.08
200	3.75	0.07	0.19	0.17	112.46	99.25
230	4.00	0.06	0.03	0.03	112.49	99.28

Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
3.21	2.92	2.83	2.58	2.27	2.08	1.67

Moment Statistics	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
	2.51	0.18	0.46	-1.48	9.21

ALABAMA_BEACH_SAMPLES_FEBRUARY_2010.GPJ FL_DEP ROSS.GDT 5/13/11

Granularmetric Report

Depths and elevations based on measured values

Project Name: Dauphin Island Existing Beach

Sample Name: DI-32 (-0.1ft)

Analysis Date: 02-18-10

Analyzed By: GL

Coastal Planning & Engineering
2481 NW Boca Raton Blvd, Boca Raton
FL 33431
ph (561) 391-8102
fax (561) 391-9116

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
1,785,899	90,073	Alabama State Plane West	-0.1 NAVD 88

USCS:	Munsell:	Comments:
SW	Wet - 2.5Y-6/2 Dry - 2.5Y-7/2 Washed - 2.5Y-7/2	East end beach sample.

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
111.56	111.01	0.00	0.00	#200 - 0.50 #230 - 0.49			3

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
5/8"	-4.00	16.00	0.00	0.00	0.00	0.00
7/16"	-3.50	11.31	0.00	0.00	0.00	0.00
5/16"	-3.00	8.00	2.82	2.53	2.82	2.53
3.5	-2.50	5.66	3.76	3.37	6.58	5.90
5	-2.00	4.00	4.12	3.69	10.70	9.59
7	-1.50	2.83	2.20	1.97	12.90	11.56
10	-1.00	2.00	1.48	1.33	14.38	12.89
14	-0.50	1.41	1.51	1.35	15.89	14.24
18	0.00	1.00	2.46	2.21	18.35	16.45
25	0.50	0.71	5.32	4.77	23.67	21.22
35	1.00	0.50	9.65	8.65	33.32	29.87
40	1.25	0.42	6.73	6.03	40.05	35.90
45	1.50	0.35	9.37	8.40	49.42	44.30
50	1.75	0.30	14.08	12.62	63.50	56.92
60	2.00	0.25	12.34	11.06	75.84	67.98
70	2.25	0.21	10.44	9.36	86.28	77.34
80	2.50	0.18	11.00	9.86	97.28	87.20
120	3.00	0.13	12.34	11.06	109.62	98.26
170	3.50	0.09	1.34	1.20	110.96	99.46
200	3.75	0.07	0.04	0.04	111.00	99.50
230	4.00	0.06	0.01	0.01	111.01	99.51

Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.85	2.42	2.19	1.61	0.72	-0.10	-2.63

Moment	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
Statistics	1.13	0.46	1.58	-1.38	4.08

Granularmetric Report

Depths and elevations based on measured values

Project Name: Dauphin Island Existing Beach

Sample Name: DI-32 (-7.7ft)

Analysis Date: 02-25-10

Analyzed By: GL

Coastal Planning & Engineering
2481 NW Boca Raton Blvd, Boca Raton
FL 33431
ph (561) 391-8102
fax (561) 391-9116

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
1,785,945	89,505	Alabama State Plane West	-7.7 NAVD 88

USCS:	Munsell:	Comments:
SP	Wet - 5Y-5/2 Dry - 5Y-6/2 Washed - 5Y-6/2	East end beach sample.

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
115.98	111.85	0.03	0.00	#200 - 3.67 #230 - 3.58			0

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
5/8"	-4.00	16.00	0.00	0.00	0.00	0.00
7/16"	-3.50	11.31	0.00	0.00	0.00	0.00
5/16"	-3.00	8.00	0.00	0.00	0.00	0.00
3.5	-2.50	5.66	0.00	0.00	0.00	0.00
5	-2.00	4.00	0.08	0.07	0.08	0.07
7	-1.50	2.83	0.03	0.03	0.11	0.10
10	-1.00	2.00	0.04	0.03	0.15	0.13
14	-0.50	1.41	0.08	0.07	0.23	0.20
18	0.00	1.00	0.19	0.16	0.42	0.36
25	0.50	0.71	0.38	0.33	0.80	0.69
35	1.00	0.50	1.46	1.26	2.26	1.95
40	1.25	0.42	1.87	1.61	4.13	3.56
45	1.50	0.35	3.33	2.87	7.46	6.43
50	1.75	0.30	6.85	5.91	14.31	12.34
60	2.00	0.25	9.34	8.05	23.65	20.39
70	2.25	0.21	9.95	8.58	33.60	28.97
80	2.50	0.18	15.47	13.34	49.07	42.31
120	3.00	0.13	52.42	45.20	101.49	87.51
170	3.50	0.09	9.90	8.54	111.39	96.05
200	3.75	0.07	0.32	0.28	111.71	96.33
230	4.00	0.06	0.11	0.09	111.82	96.42

Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
3.44	2.96	2.86	2.59	2.13	1.86	1.38

Moment	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
Statistics	2.43	0.19	0.59	-1.54	8.38

ALABAMA BEACH_SAMPLES_FEBRUARY_2010.GPJ FL DEP ROSS.GDT 5/13/11

Granularmetric Report

Depths and elevations based on measured values

Project Name: Dauphin Island Existing Beach

Sample Name: DI-32 (-11.9ft)

Analysis Date: 02-25-10

Analyzed By: GL

Coastal Planning & Engineering
2481 NW Boca Raton Blvd, Boca Raton
FL 33431
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fax (561) 391-9116

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
1,785,924	85,825	Alabama State Plane West	-11.9 NAVD 88

USCS:	Munsell:	Comments:
SP-SM	Wet - 5Y-4/2 Dry - 5Y-6/2 Washed - 5Y-7/2	East end beach sample.

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
115.84	109.95	0.02	0.00	#200 - 5.16 #230 - 5.12			0

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
5/8"	-4.00	16.00	0.00	0.00	0.00	0.00
7/16"	-3.50	11.31	0.00	0.00	0.00	0.00
5/16"	-3.00	8.00	0.00	0.00	0.00	0.00
3.5	-2.50	5.66	0.00	0.00	0.00	0.00
5	-2.00	4.00	0.00	0.00	0.00	0.00
7	-1.50	2.83	0.00	0.00	0.00	0.00
10	-1.00	2.00	0.03	0.03	0.03	0.03
14	-0.50	1.41	0.04	0.03	0.07	0.06
18	0.00	1.00	0.11	0.09	0.18	0.15
25	0.50	0.71	0.51	0.44	0.69	0.59
35	1.00	0.50	4.63	4.00	5.32	4.59
40	1.25	0.42	9.46	8.17	14.78	12.76
45	1.50	0.35	14.59	12.59	29.37	25.35
50	1.75	0.30	24.02	20.74	53.39	46.09
60	2.00	0.25	16.01	13.82	69.40	59.91
70	2.25	0.21	8.45	7.29	77.85	67.20
80	2.50	0.18	11.55	9.97	89.40	77.17
120	3.00	0.13	18.41	15.89	107.81	93.06
170	3.50	0.09	1.96	1.69	109.77	94.75
200	3.75	0.07	0.11	0.09	109.88	94.84
230	4.00	0.06	0.05	0.04	109.93	94.88

Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
	2.71	2.45	1.82	1.49	1.31	1.01

Moment Statistics	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
	1.88	0.27	0.61	0.09	2.84

ALABAMA_BEACH_SAMPLES_FEBRUARY_2010.GPJ FL_DEP ROSS.GDT 5/13/11

Granularmetric Report

Depths and elevations based on measured values

Project Name: Dauphin Island Existing Beach

Sample Name: DI-32 (-16.2ft)

Analysis Date: 02-25-10

Analyzed By: GL

Coastal Planning & Engineering
2481 NW Boca Raton Blvd, Boca Raton
FL 33431
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fax (561) 391-9116

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
1,785,897	84,340	Alabama State Plane West	-16.2 NAVD 88

USCS:	Munsell:	Comments:
CL	Wet - 5Y-4/1 Dry - 5Y-4/1 Washed - 5Y-6/1	East end beach sample.

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
87.75	22.83	0.02	0.00	#200 - 74.28 #230 - 74.02			0

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
5/8"	-4.00	16.00	0.00	0.00	0.00	0.00
7/16"	-3.50	11.31	0.00	0.00	0.00	0.00
5/16"	-3.00	8.00	0.00	0.00	0.00	0.00
3.5	-2.50	5.66	0.28	0.32	0.28	0.32
5	-2.00	4.00	0.24	0.27	0.52	0.59
7	-1.50	2.83	0.10	0.11	0.62	0.70
10	-1.00	2.00	0.09	0.10	0.71	0.80
14	-0.50	1.41	0.12	0.14	0.83	0.94
18	0.00	1.00	0.12	0.14	0.95	1.08
25	0.50	0.71	0.13	0.15	1.08	1.23
35	1.00	0.50	0.21	0.24	1.29	1.47
40	1.25	0.42	0.19	0.22	1.48	1.69
45	1.50	0.35	0.32	0.36	1.80	2.05
50	1.75	0.30	0.58	0.66	2.38	2.71
60	2.00	0.25	0.89	1.01	3.27	3.72
70	2.25	0.21	1.25	1.42	4.52	5.14
80	2.50	0.18	2.40	2.74	6.92	7.88
120	3.00	0.13	9.63	10.97	16.55	18.85
170	3.50	0.09	5.43	6.19	21.98	25.04
200	3.75	0.07	0.60	0.68	22.58	25.72
230	4.00	0.06	0.23	0.26	22.81	25.98

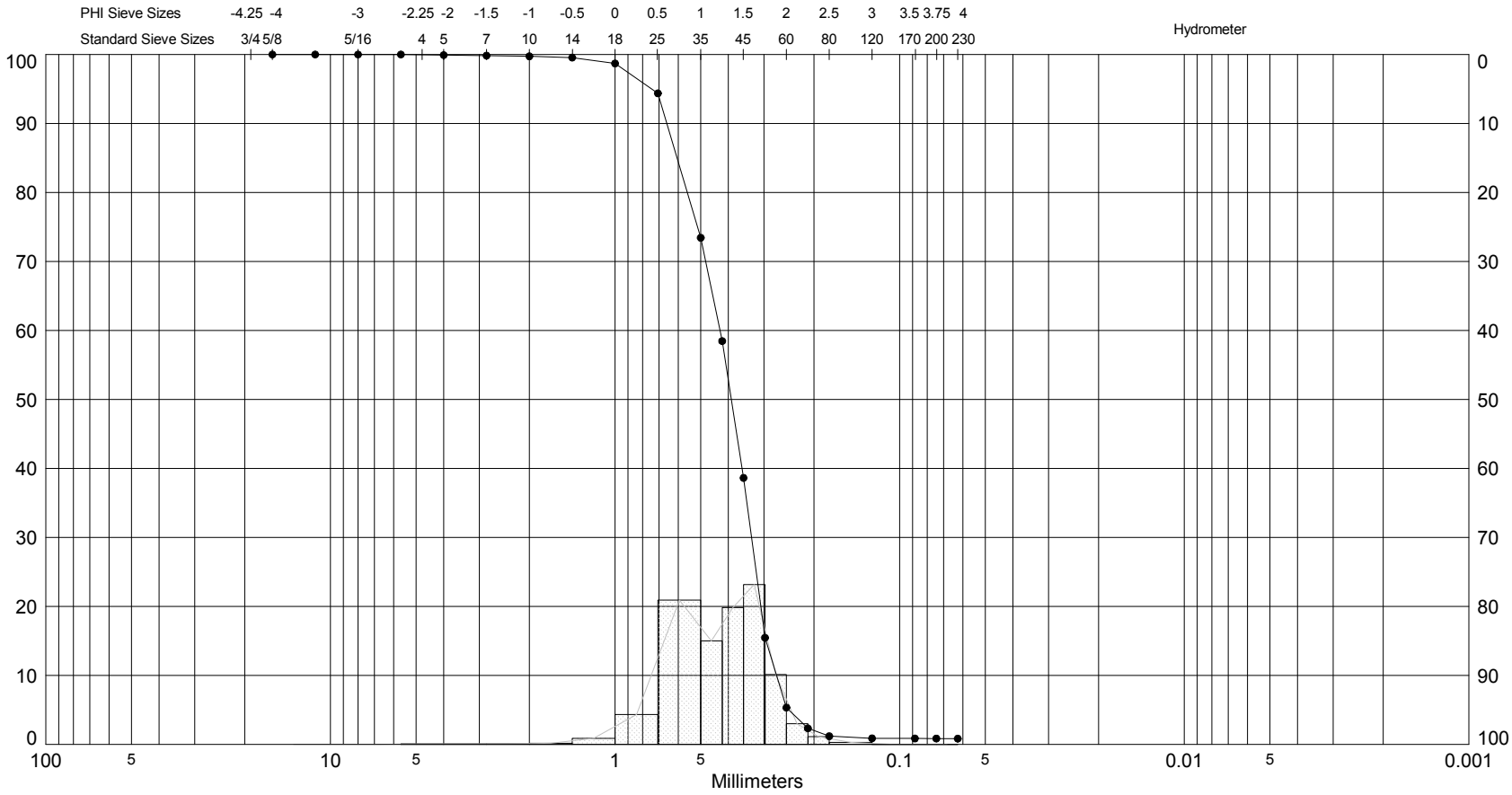
Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
				3.50	2.87	2.23

Moment	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
Statistics	2.51	0.18	1.07	-3.06	13.86

ALABAMA_BEACH_SAMPLES_FEBRUARY_2010.GPJ FL_DEP ROSS.GDT 5/13/11

APPENDIX 4
2010 CPE Individual Beach Grain Size Distribution Curves/Histograms



Gravel		Sand			Silt and Clay
Coarse	Fine	Coarse	Medium	Fine	

Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
DI-2 (5.5ft)	—●—	5.5	SP	#200 - 0.85 #230 - 0.84			1.36	1.28	-0.86	6.18	0.52

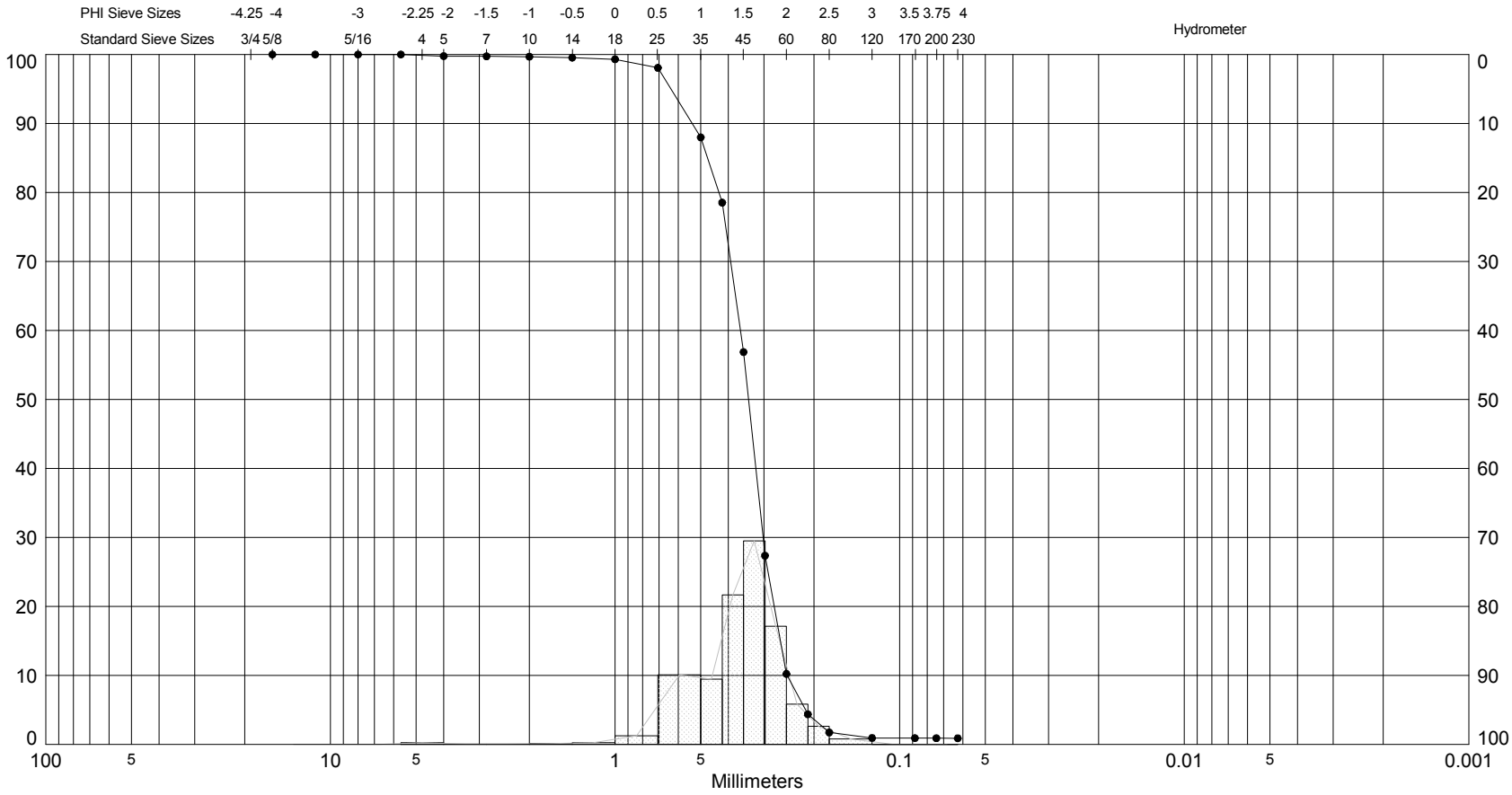
Comments: West end beach sample.

Depths and elevations based on measured values

Sample Information	
Project Name:	Dauphin Island Existing Beach
Analysis Date:	10-27-10
Analyzed By:	KG
Easting (X, ft):	1,750,231
Northing (Y, ft):	90,947
Horizontal System:	NAD 1983
Vertical System:	NAVD 88

Coastal Planning & Engineering
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SIEVE ANALYSIS BEACH_SAMPLES_OCTOBER_2010.GPJ JPBRAZIL.GDT 5/13/11



Gravel		Sand			Silt and Clay
Coarse	Fine	Coarse	Medium	Fine	

Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
DI-2 (1.0ft)	—●—	1.0	SP	#200 - 0.90 #230 - 0.89			1.56	1.5	-1.64	12.82	0.48

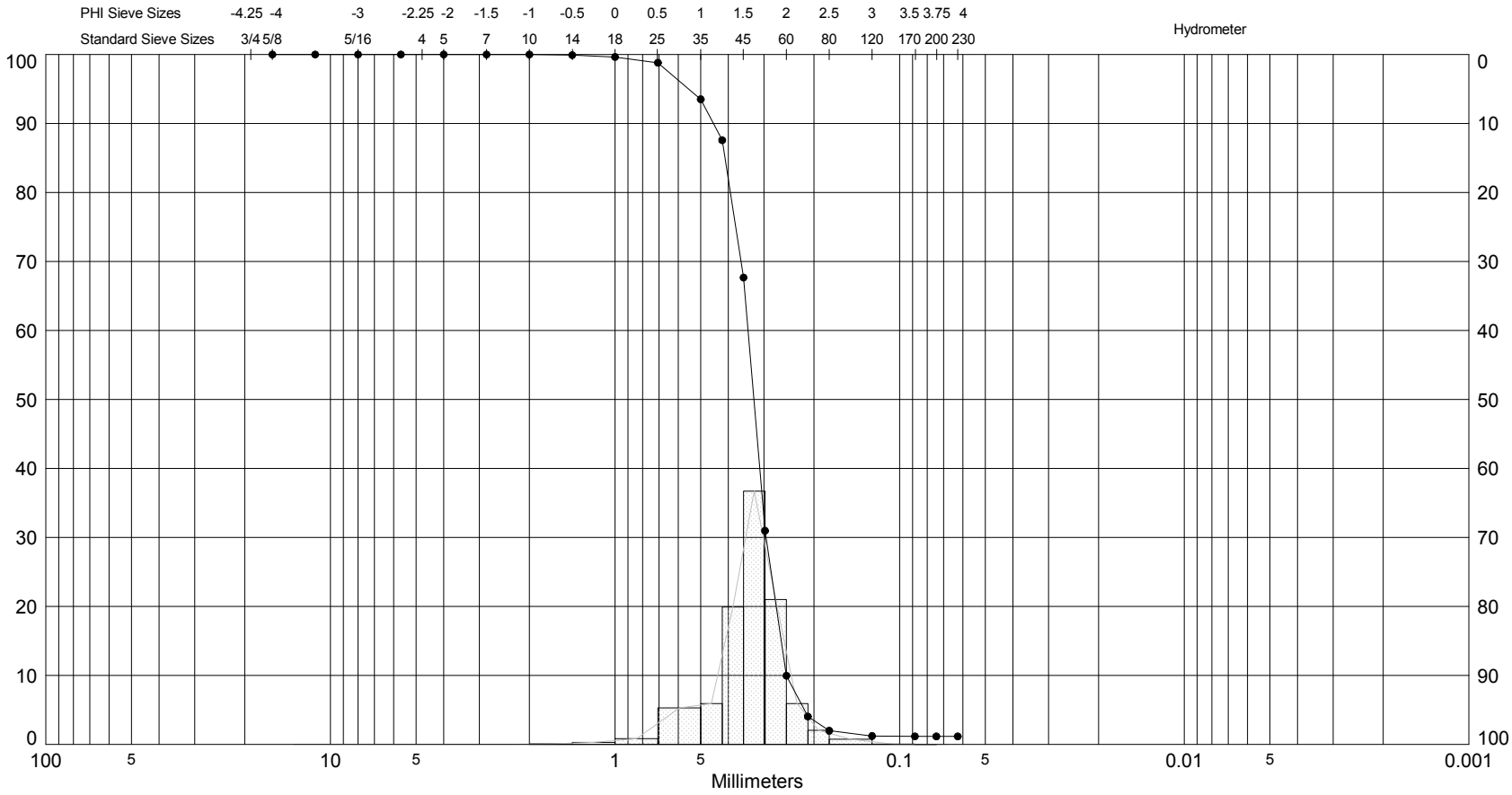
Comments: West end beach sample.

Depths and elevations based on measured values

Sample Information	
Project Name:	Dauphin Island Existing Beach
Analysis Date:	10-27-10
Analyzed By:	KG
Easting (X, ft):	1,750,231
Northing (Y, ft):	90,913
Horizontal System:	NAD 1983
Vertical System:	NAVD 88

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SIEVE ANALYSIS BEACH_SAMPLES_OCTOBER_2010.GPJ JPBRAZIL.GDT 5/13/11



Gravel		Sand			Silt and Clay
Coarse	Fine	Coarse	Medium	Fine	

Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
DI-2 (-0.2ft)	—●—	-0.2	SP	#200 - 1.16 #230 - 1.16			1.62	1.59	-0.84	6.63	0.39

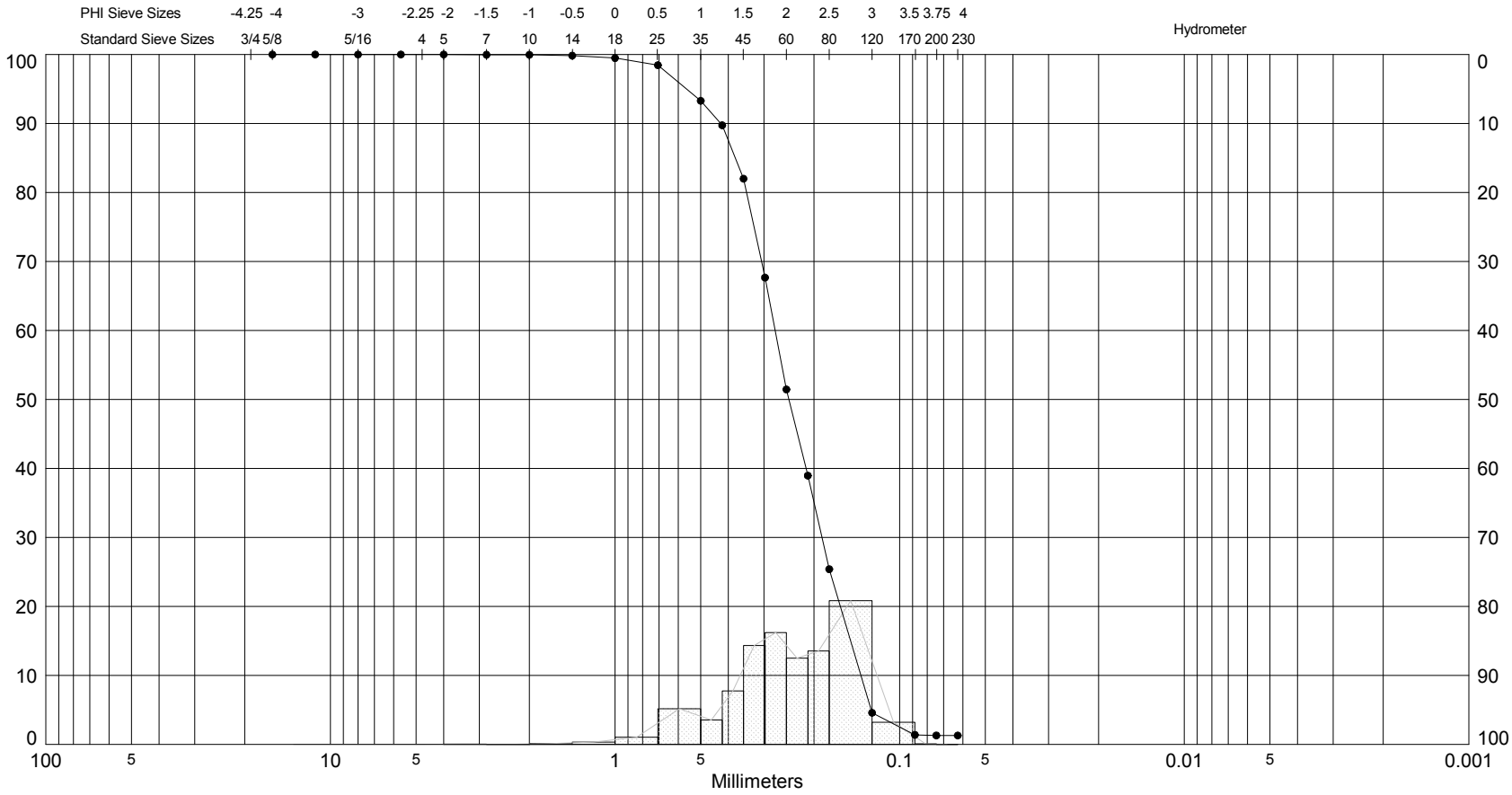
Comments: West end beach sample.

Depths and elevations based on measured values

Sample Information	
Project Name:	Dauphin Island Existing Beach
Analysis Date:	10-27-10
Analyzed By:	KG
Easting (X, ft):	1,750,231
Northing (Y, ft):	90,905
Horizontal System:	NAD 1983
Vertical System:	NAVD 88

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SIEVE ANALYSIS BEACH_SAMPLES_OCTOBER_2010.GPJ JPBRAZIL.GDT 5/13/11



Gravel		Sand			Silt and Clay
Coarse	Fine	Coarse	Medium	Fine	

Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
DI-2 (-5.5ft)	—●—	-5.5	SP	#200 - 1.30 #230 - 1.29			2.03	2.02	-0.55	3.72	0.65

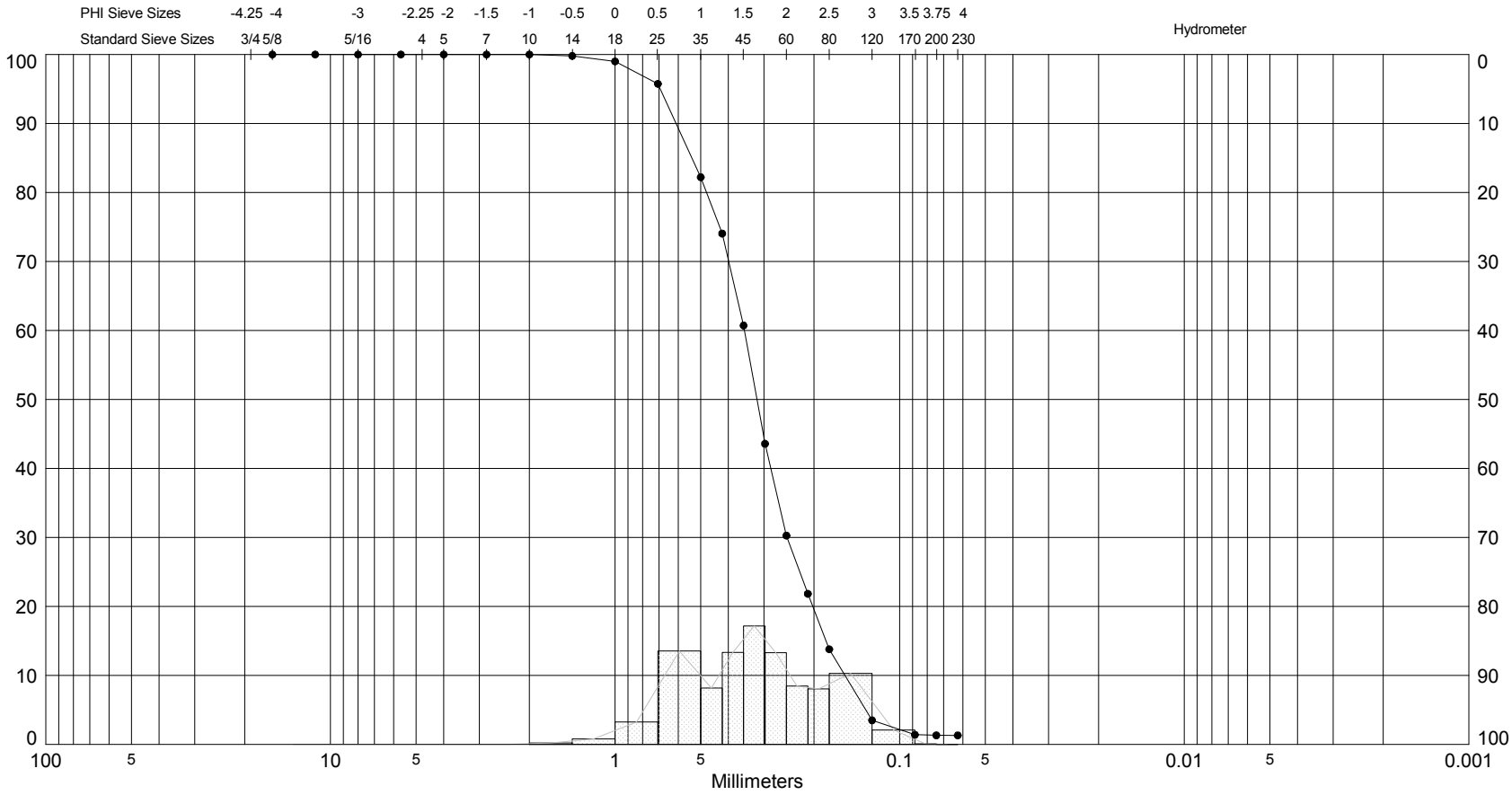
Comments: West end beach sample.

Depths and elevations based on measured values

Sample Information	
Project Name:	Dauphin Island Existing Beach
Analysis Date:	10-27-10
Analyzed By:	KG
Easting (X, ft):	1,750,225
Northing (Y, ft):	90,767
Horizontal System:	NAD 1983
Vertical System:	NAVD 88

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SIEVE ANALYSIS BEACH_SAMPLES_OCTOBER_2010.GPJ JPBRAZIL.GDT 5/13/11



Gravel		Sand			Silt and Clay
Coarse	Fine	Coarse	Medium	Fine	

Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
DI-2 (-8.3ft)	—●—	-8.3	SP	#200 - 1.32 #230 - 1.31			1.66	1.66	-0.06	2.89	0.71

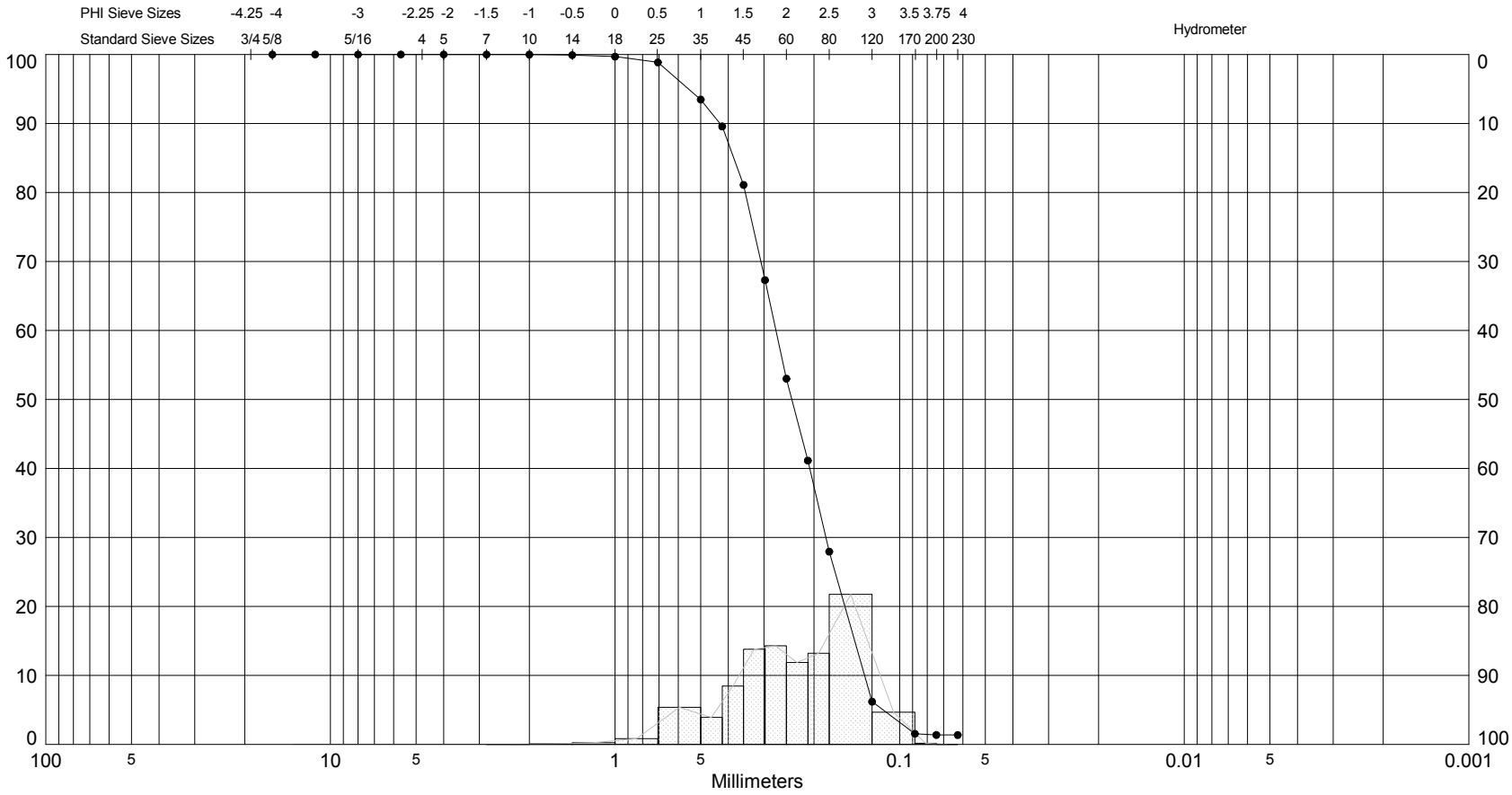
Comments: West end beach sample.

Depths and elevations based on measured values

Sample Information	
Project Name:	Dauphin Island Existing Beach
Analysis Date:	10-27-10
Analyzed By:	KG
Easting (X, ft):	1,750,243
Northing (Y, ft):	90,623
Horizontal System:	NAD 1983
Vertical System:	NAVD 88

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SIEVE ANALYSIS BEACH_SAMPLES_OCTOBER_2010.GPJ JPBRAZIL.GDT 5/13/11



Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
DI-2 (-6.5ft)	—●—	-6.5	SP	#200 - 1.37 #230 - 1.36			2.06	2.04	-0.37	3.02	0.66

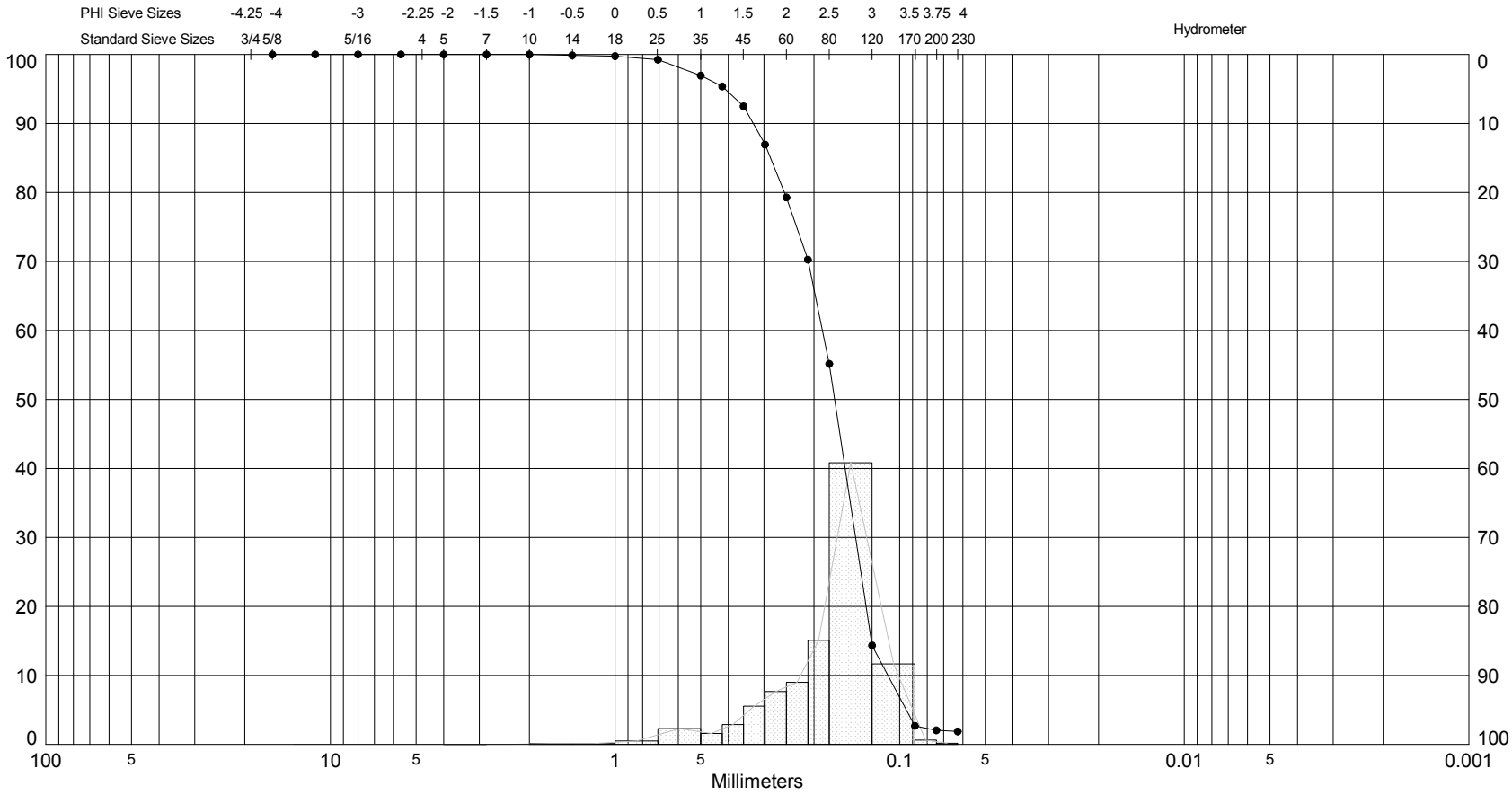
Comments: West end beach sample.

Depths and elevations based on measured values

Sample Information	
Project Name:	Dauphin Island Existing Beach
Analysis Date:	10-27-10
Analyzed By:	KG
Easting (X, ft):	1,750,236
Northing (Y, ft):	90,486
Horizontal System:	NAD 1983
Vertical System:	NAVD 88

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SIEVE ANALYSIS BEACH_SAMPLES_OCTOBER_2010.GPJ JPBRAZIL.GDT 5/13/11



Gravel		Sand			Silt and Clay
Coarse	Fine	Coarse	Medium	Fine	

Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
DI-2 (-12.5ft)	—●—	-12.5	SP	#200 - 2.04 #230 - 1.88			2.56	2.44	-1.12	5.01	0.61

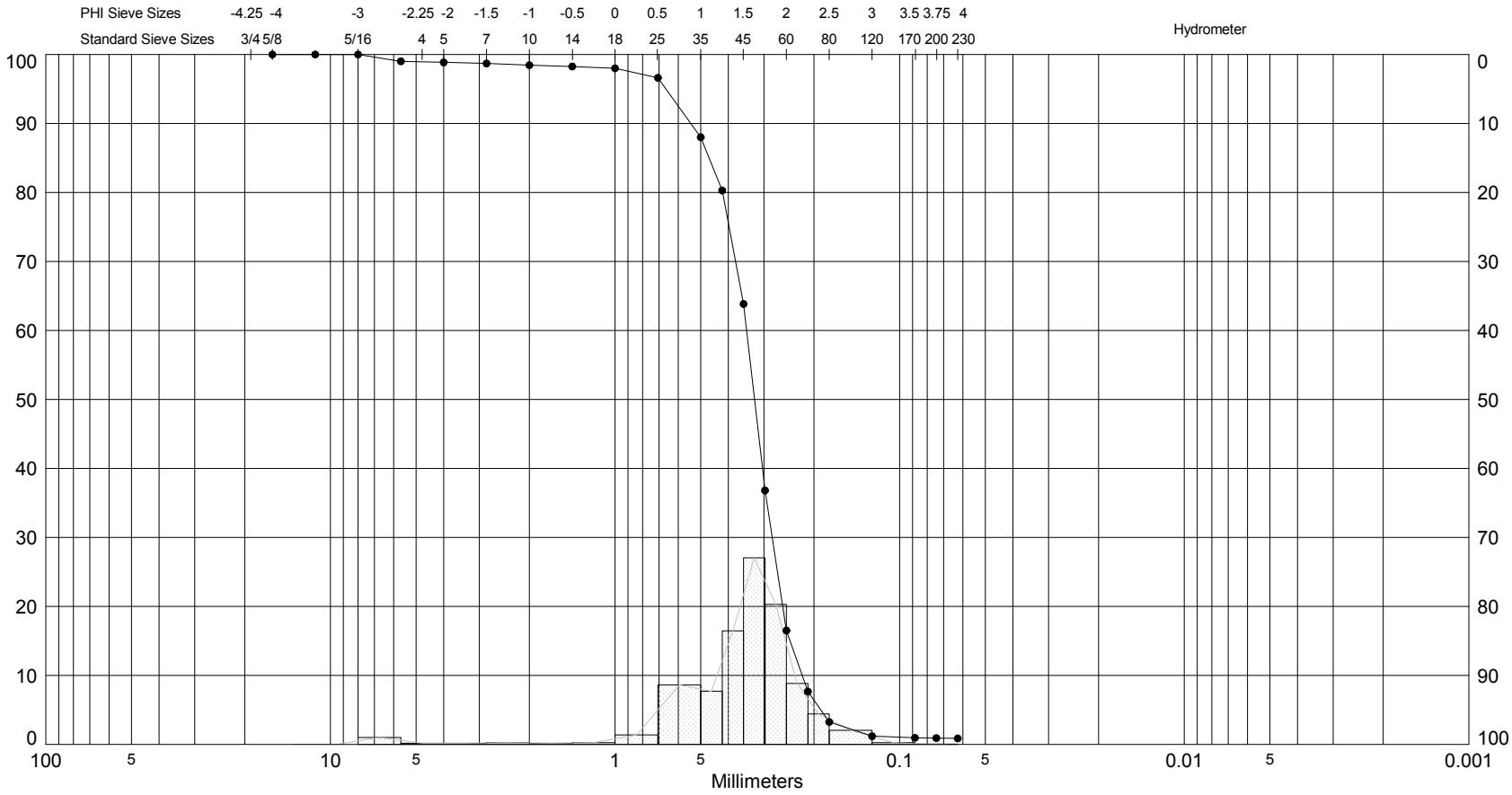
Comments: West end beach sample.

Depths and elevations based on measured values

Sample Information	
Project Name:	Dauphin Island Existing Beach
Analysis Date:	10-27-10
Analyzed By:	KG
Easting (X, ft):	1,750,222
Northing (Y, ft):	90,276
Horizontal System:	NAD 1983
Vertical System:	NAVD 88

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SIEVE ANALYSIS BEACH_SAMPLES_OCTOBER_2010.GPJ JPBRAZIL.GDT 5/13/11



Gravel		Sand			Silt and Clay
Coarse	Fine	Coarse	Medium	Fine	

Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
DI-8 (5.5ft)	—●—	5.5	SP	#200 - 0.92 #230 - 0.87			1.63	1.54	-2.91	18.28	0.7

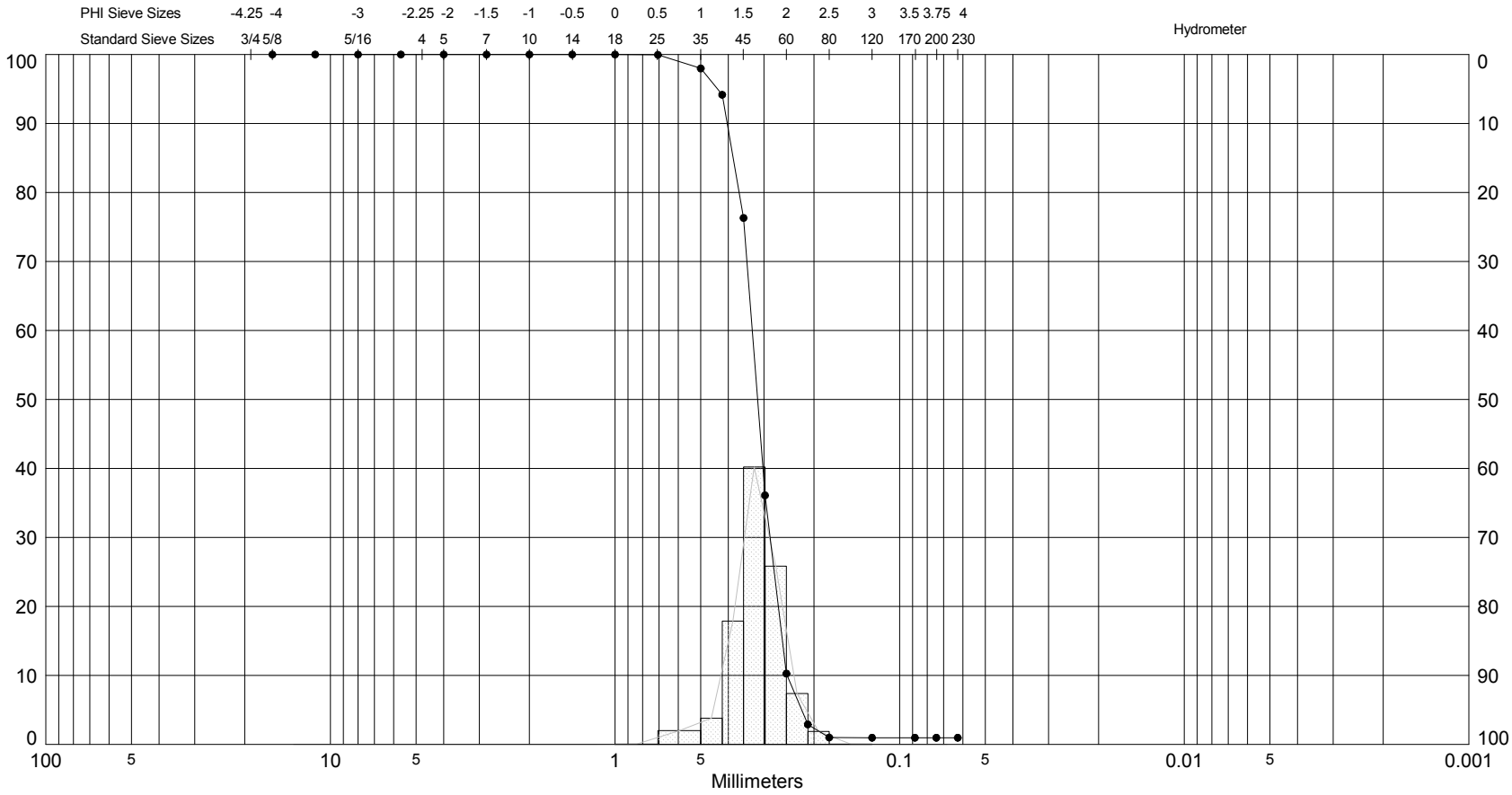
Comments: 2 Rock Fragments removed prior to sieving [(0.5"x0.5"),(1"x1")= 8.31g]

Depths and elevations based on measured values

Sample Information	
Project Name:	Dauphin Island Existing Beach
Analysis Date:	10-27-10
Analyzed By:	KG
Easting (X, ft):	1,755,234
Northing (Y, ft):	91,299
Horizontal System:	NAD 1983
Vertical System:	NAVD 88

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SIEVE ANALYSIS BEACH_SAMPLES_OCTOBER_2010.GPJ JPBRAZIL.GDT 5/13/11



Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
DI-8 (1.0ft)	—●—	1.0	SP	#200 - 0.97 #230 - 0.97			1.66	1.66	-0.38	4.36	0.29

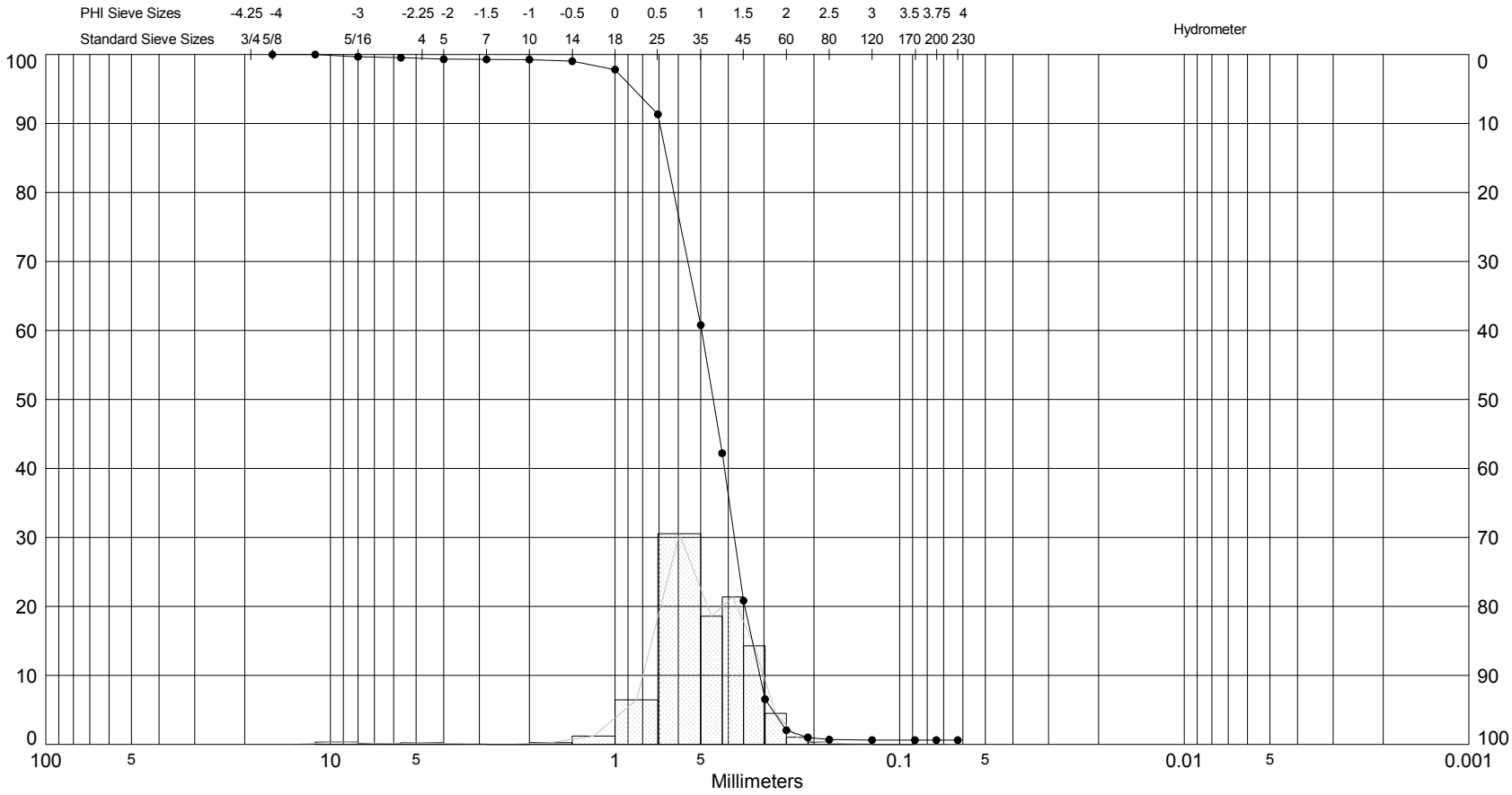
Comments: West end beach sample.

Depths and elevations based on measured values

Sample Information	
Project Name:	Dauphin Island Existing Beach
Analysis Date:	10-27-10
Analyzed By:	JF
Easting (X, ft):	1,755,234
Northing (Y, ft):	91,267
Horizontal System:	NAD 1983
Vertical System:	NAVD 88

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SIEVE ANALYSIS BEACH_SAMPLES_OCTOBER_2010.GPJ JPBRAZIL.GDT 5/13/11



Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
DI-8 (-0.2ft)	—●—	-0.2	SP	#200 - 0.62 #230 - 0.62			1.15	1.08	-2.4	17.73	0.57

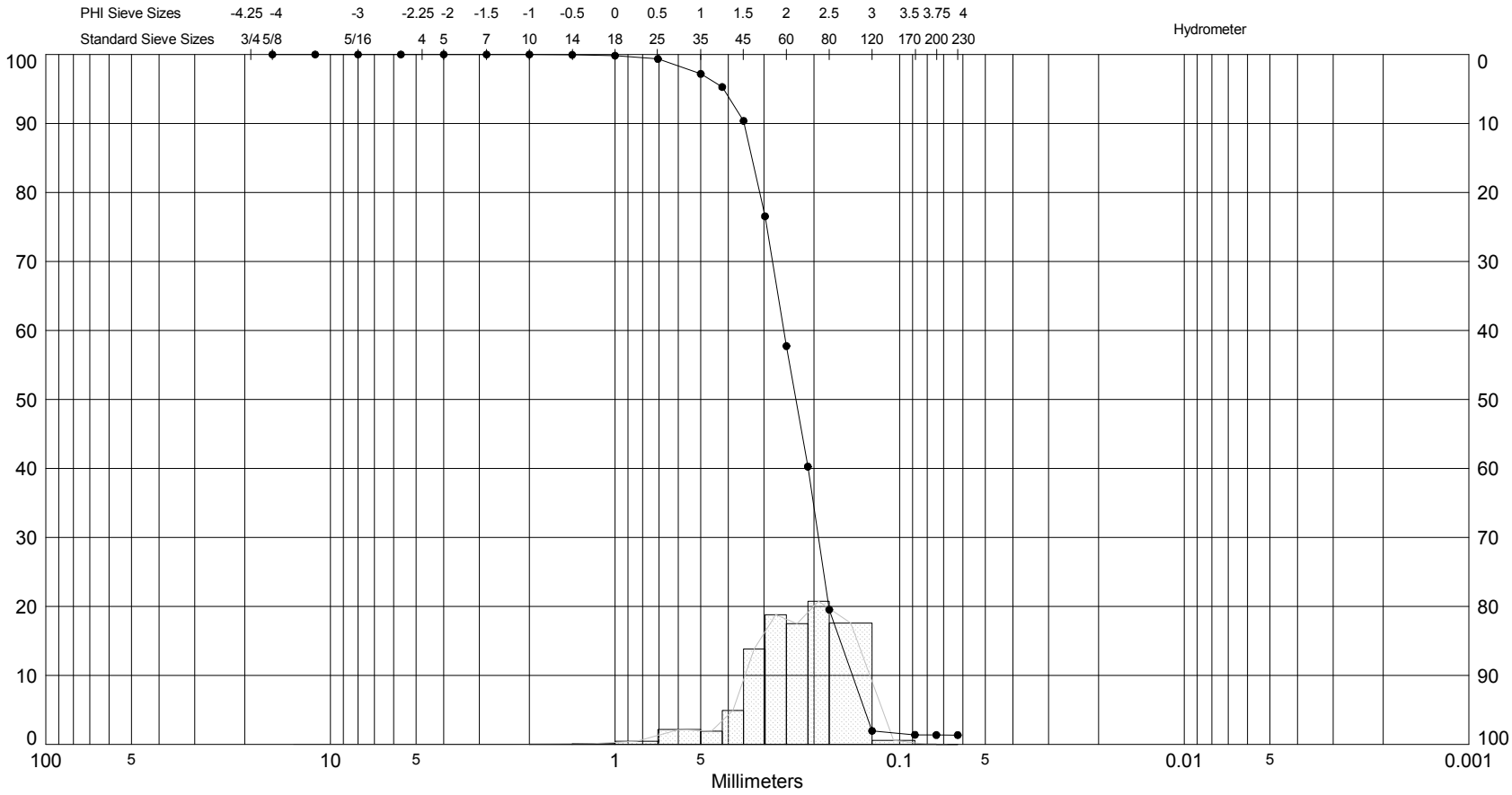
Comments: West end beach sample.

Depths and elevations based on measured values

Sample Information	
Project Name:	Dauphin Island Existing Beach
Analysis Date:	10-28-10
Analyzed By:	KG
Easting (X, ft):	1,755,234
Northing (Y, ft):	91,258
Horizontal System:	NAD 1983
Vertical System:	NAVD 88

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SIEVE ANALYSIS BEACH_SAMPLES_OCTOBER_2010.GPJ JPBRAZIL.GDT 5/13/11



Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
DI-8 (-4.3ft)	—●—	-4.3	SP	#200 - 1.36 #230 - 1.35			2.11	2.08	-0.67	4.3	0.5

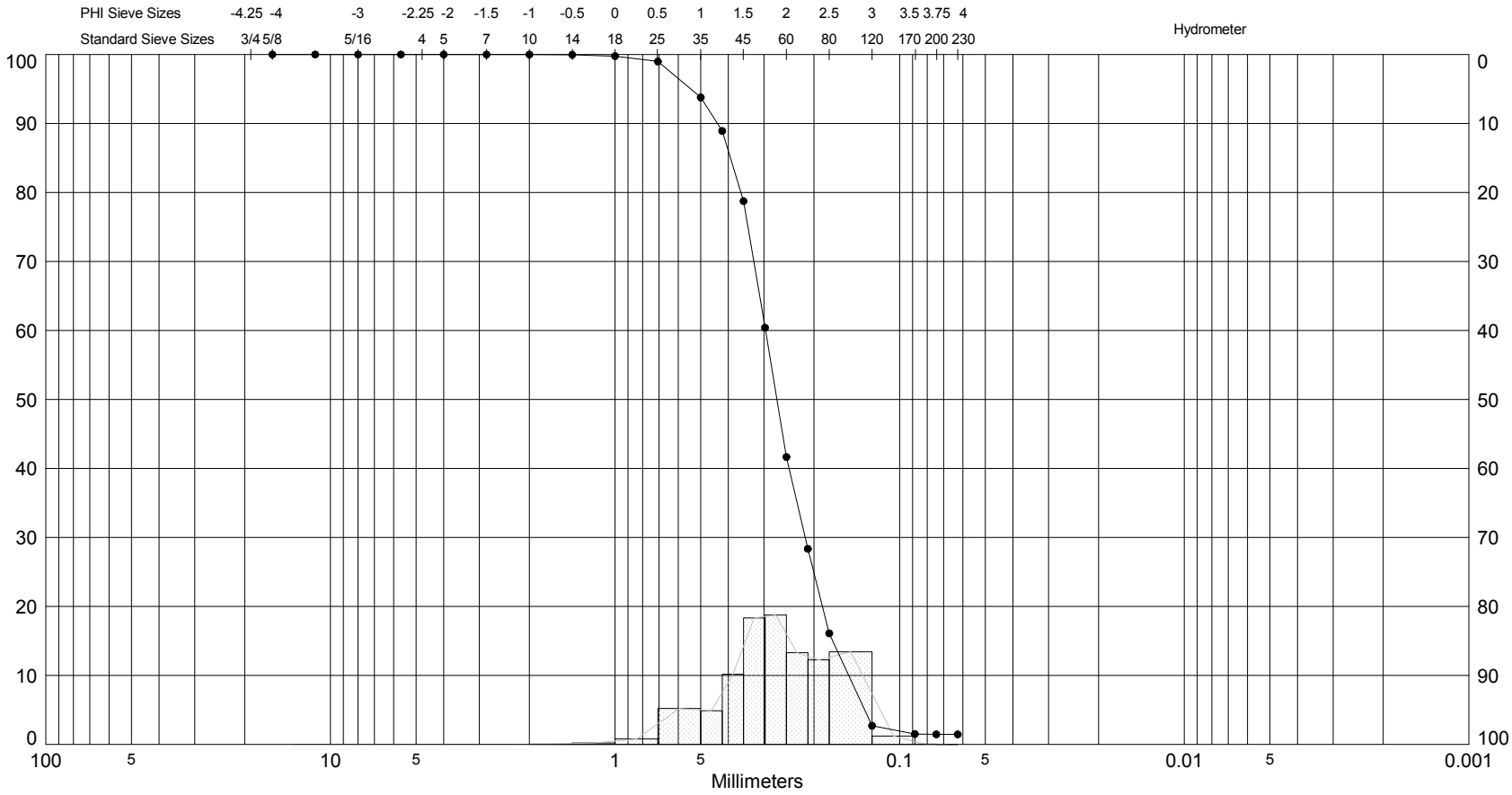
Comments: West end beach sample.

Depths and elevations based on measured values

Sample Information	
Project Name:	Dauphin Island Existing Beach
Analysis Date:	10-28-10
Analyzed By:	KG
Easting (X, ft):	1,755,267
Northing (Y, ft):	91,139
Horizontal System:	NAD 1983
Vertical System:	NAVD 88

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SIEVE ANALYSIS BEACH_SAMPLES_OCTOBER_2010.GPJ JPBRAZIL.GDT 5/13/11



Gravel		Sand			Silt and Clay
Coarse	Fine	Coarse	Medium	Fine	

Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
DI-8 (-6.6ft)	—●—	-6.6	SP	#200 - 1.46 #230 - 1.45			1.89	1.89	-0.25	3.26	0.58

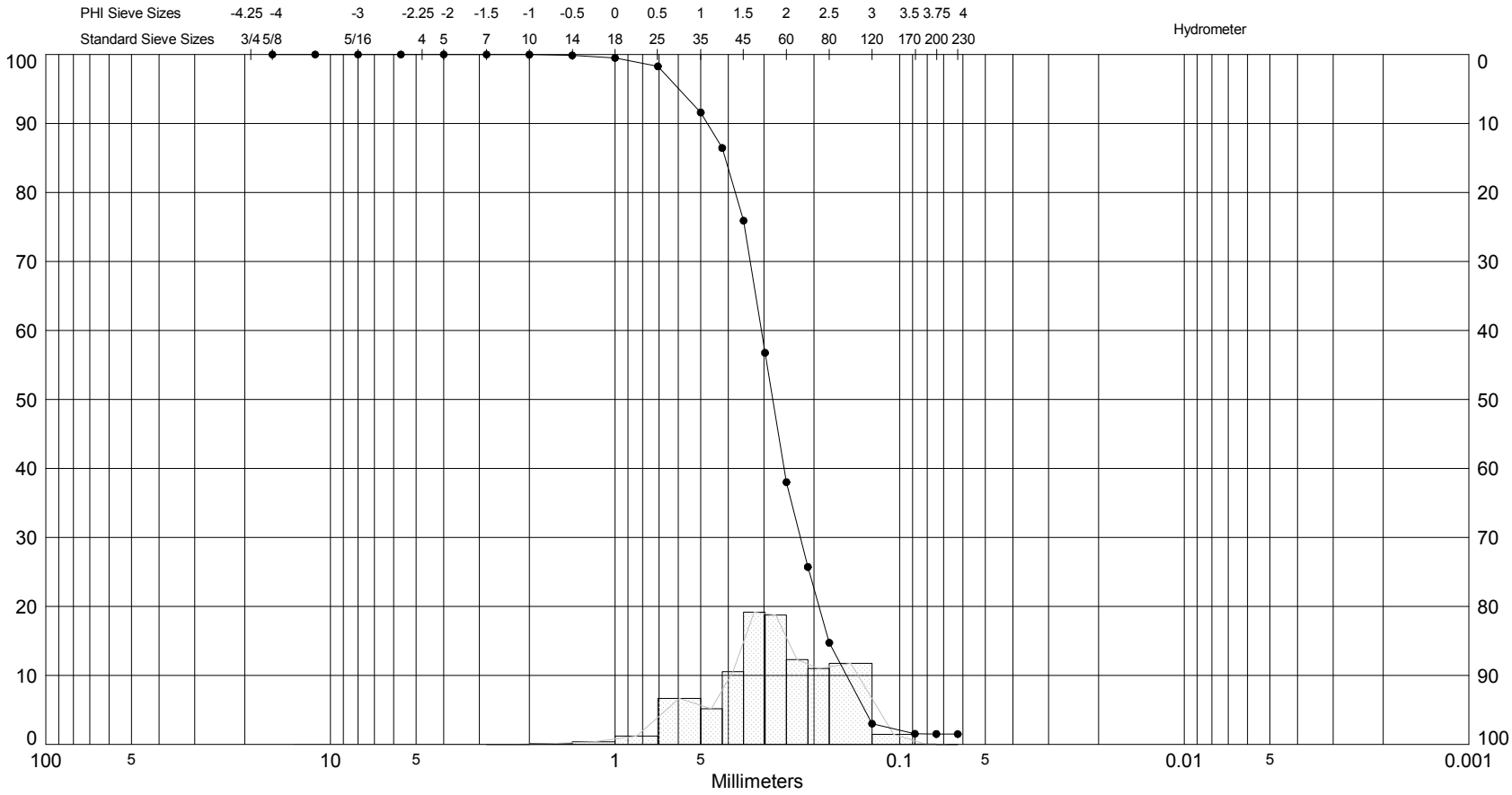
Comments: West end beach sample.

Depths and elevations based on measured values

Sample Information	
Project Name:	Dauphin Island Existing Beach
Analysis Date:	10-28-10
Analyzed By:	KG
Easting (X, ft):	1,755,215
Northing (Y, ft):	91,019
Horizontal System:	NAD 1983
Vertical System:	NAVD 88

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SIEVE ANALYSIS BEACH_SAMPLES_OCTOBER_2010.GPJ JPBRAZIL.GDT 5/13/11



Gravel		Sand			Silt and Clay
Coarse	Fine	Coarse	Medium	Fine	

Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
DI-8 (-6.0ft)	—●—	-6.0	SP	#200 - 1.51 #230 - 1.50			1.84	1.84	-0.33	3.6	0.61

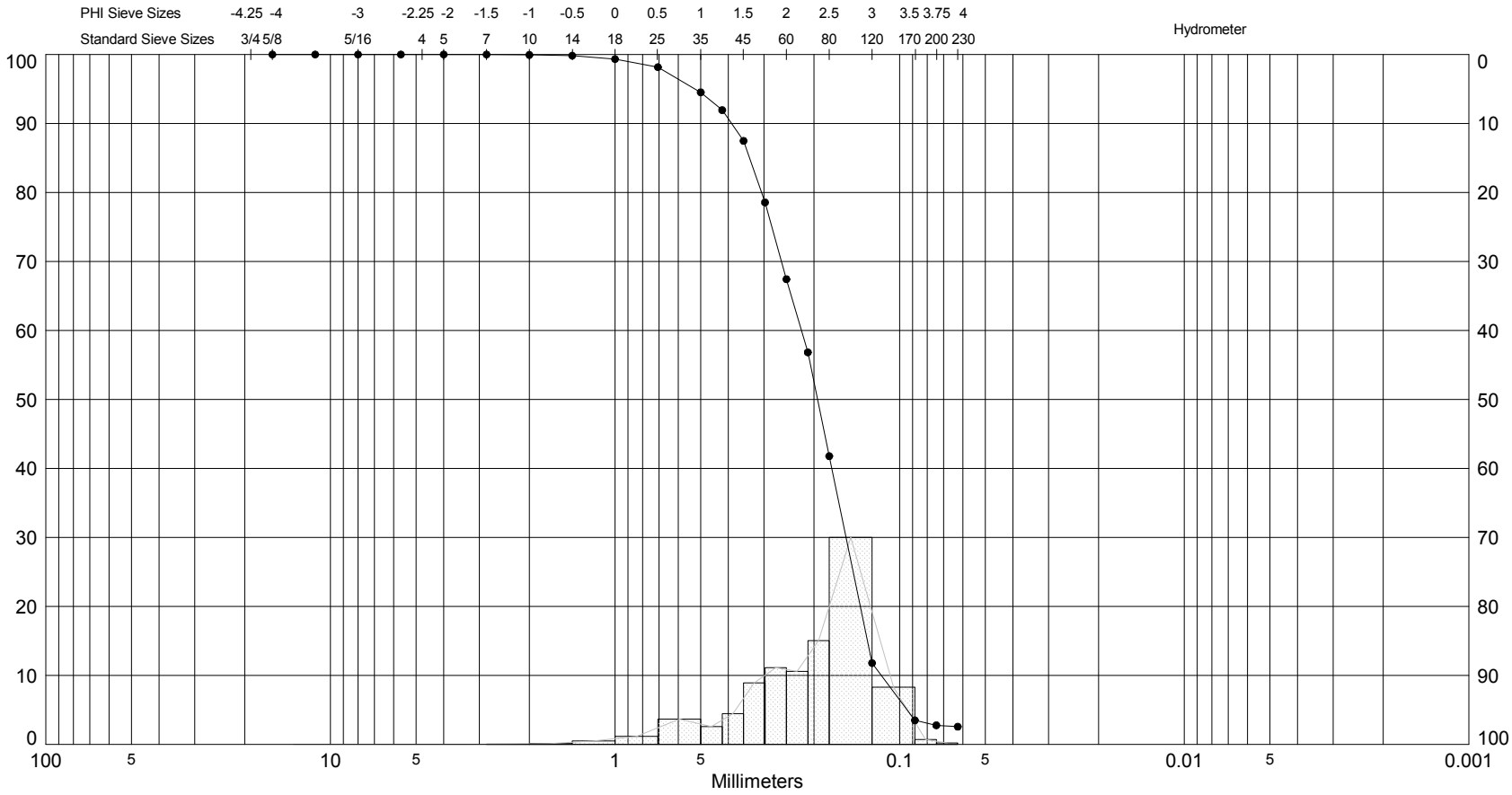
Comments: West end beach sample.

Depths and elevations based on measured values

Sample Information	
Project Name:	Dauphin Island Existing Beach
Analysis Date:	10-28-10
Analyzed By:	KG
Easting (X, ft):	1,755,233
Northing (Y, ft):	90,917
Horizontal System:	NAD 1983
Vertical System:	NAVD 88

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SIEVE ANALYSIS BEACH_SAMPLES_OCTOBER_2010.GPJ JPBRAZIL.GDT 5/13/11



Gravel		Sand			Silt and Clay
Coarse	Fine	Coarse	Medium	Fine	

Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
DI-8 (-10.4ft)	—●—	-10.4	SP	#200 - 2.77 #230 - 2.57			2.36	2.24	-0.85	4.14	0.7

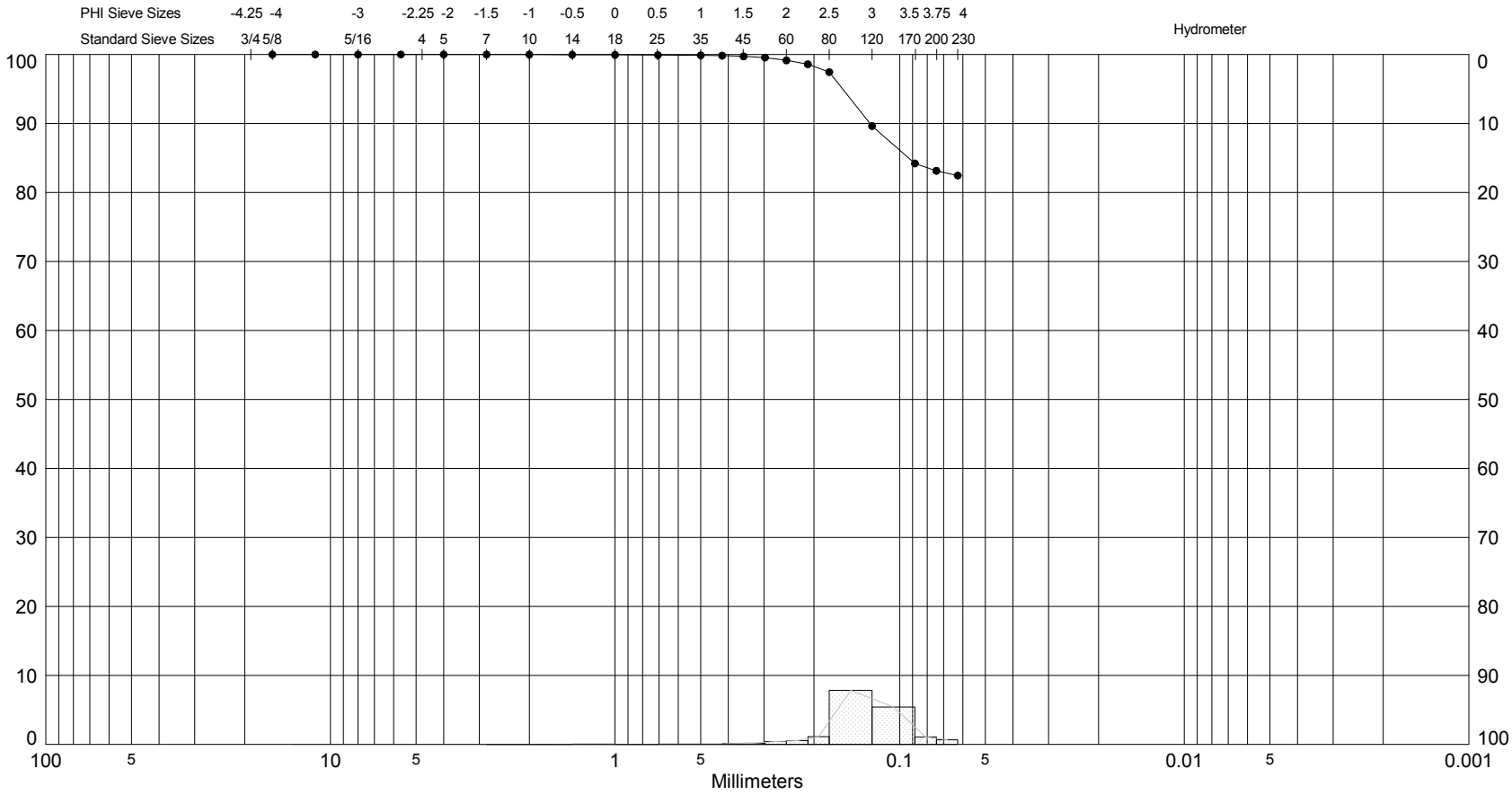
Comments: West end beach sample.

Depths and elevations based on measured values

Sample Information	
Project Name:	Dauphin Island Existing Beach
Analysis Date:	10-28-10
Analyzed By:	KG
Easting (X, ft):	1,755,234
Northing (Y, ft):	90,748
Horizontal System:	NAD 1983
Vertical System:	NAVD 88

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SIEVE ANALYSIS BEACH_SAMPLES_OCTOBER_2010.GPJ JPBRAZIL.GDT 5/13/11



Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
DI-8 (-17.4ft)	—●—	-17.4	CL	#200 - 83.14 #230 - 82.46				2.9	-1.51	10.66	0.52

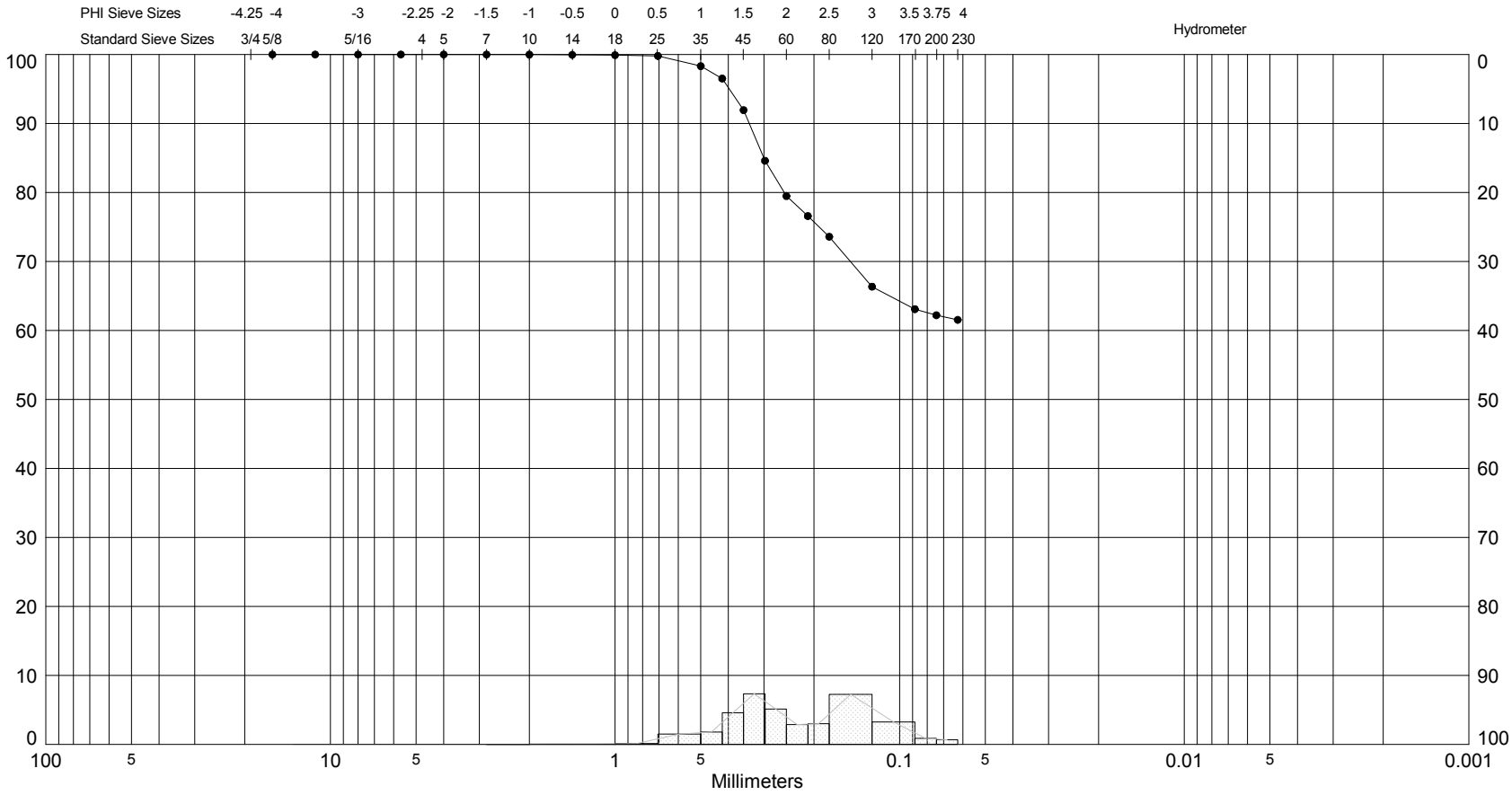
Comments: West end beach sample.

Depths and elevations based on measured values

Sample Information	
Project Name:	Dauphin Island Existing Beach
Analysis Date:	10-28-10
Analyzed By:	KG
Easting (X, ft):	1,755,219
Northing (Y, ft):	90,402
Horizontal System:	NAD 1983
Vertical System:	NAVD 88

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SIEVE ANALYSIS BEACH_SAMPLES_OCTOBER_2010.GPJ JPBRAZIL.GDT 5/13/11



Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
DI-8 (-18.3ft)	—●—	-18.3	CL	#200 - 62.21 #230 - 61.54				2.09	0.26	2.71	0.75

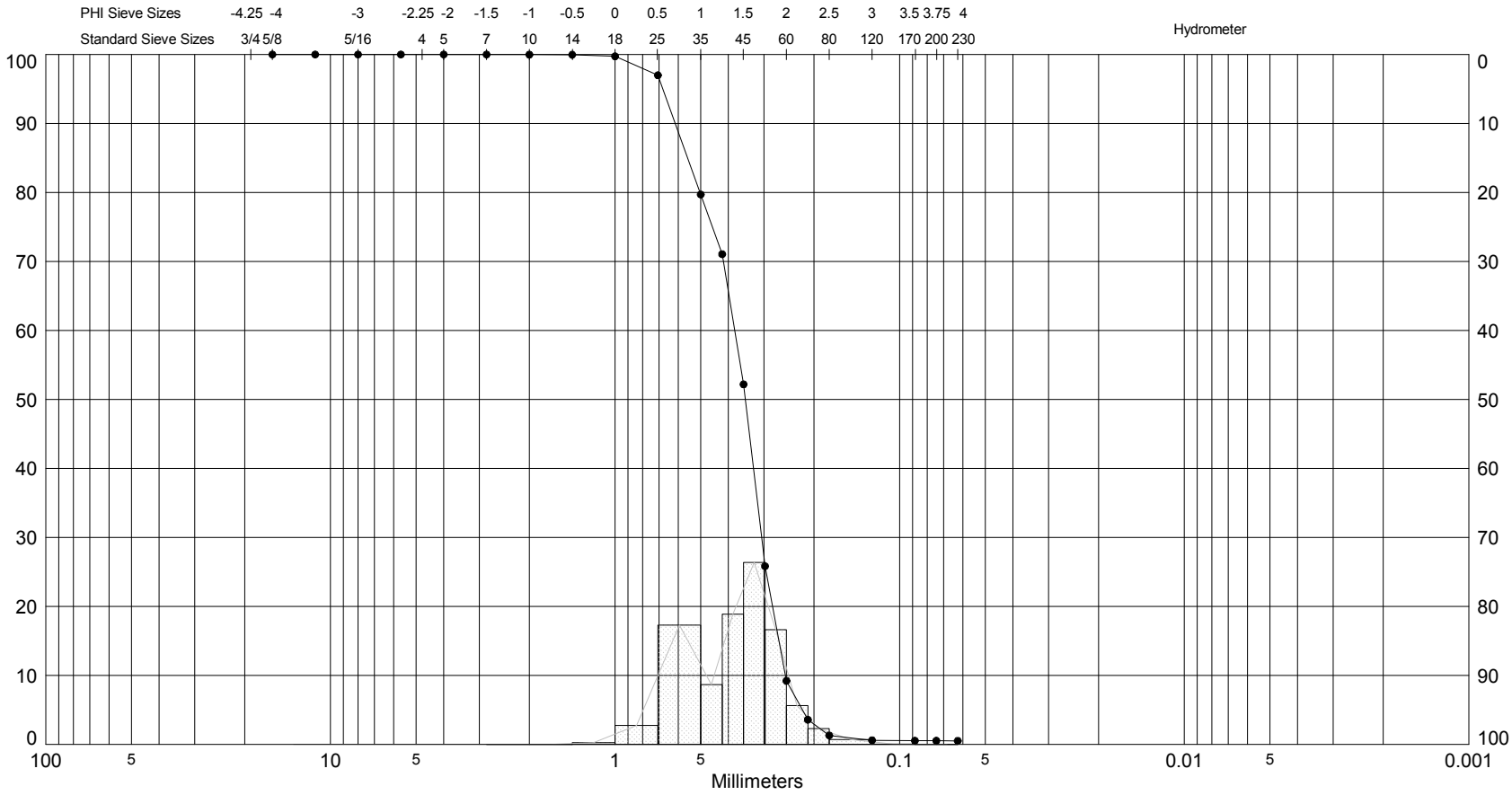
Comments: West end beach sample.

Depths and elevations based on measured values

Sample Information	
Project Name:	Dauphin Island Existing Beach
Analysis Date:	10-28-10
Analyzed By:	KG
Easting (X, ft):	1,755,245
Northing (Y, ft):	90,052
Horizontal System:	NAD 1983
Vertical System:	NAVD 88

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SIEVE ANALYSIS BEACH_SAMPLES_OCTOBER_2010.GPJ JPBRAZIL.GDT 5/13/11



Gravel		Sand			Silt and Clay
Coarse	Fine	Coarse	Medium	Fine	

Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
DI-10 (5.5ft)	—●—	5.5	SP	#200 - 0.53 #230 - 0.52			1.52	1.44	-0.38	3.33	0.49

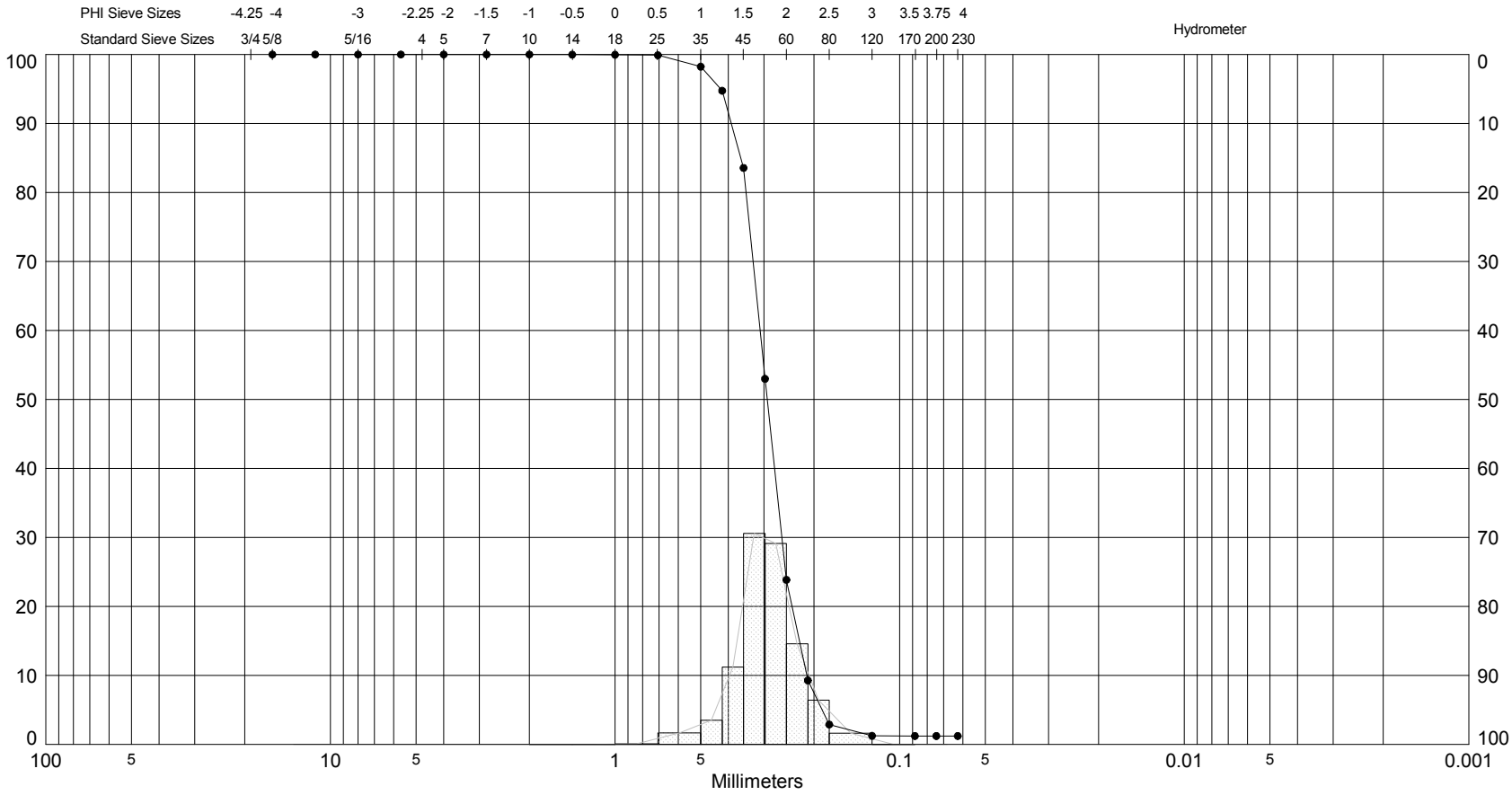
Comments: West end beach sample.

Depths and elevations based on measured values

Sample Information	
Project Name:	Dauphin Island Existing Beach
Analysis Date:	10-28-10
Analyzed By:	KG
Easting (X, ft):	1,759,585
Northing (Y, ft):	91,521
Horizontal System:	NAD 1983
Vertical System:	NAVD 88

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SIEVE ANALYSIS BEACH_SAMPLES_OCTOBER_2010.GPJ JPBRAZIL.GDT 5/13/11



Gravel		Sand			Silt and Clay
Coarse	Fine	Coarse	Medium	Fine	

Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
DI-10 (1.0ft)	—●—	1.0	SP	#200 - 1.22 #230 - 1.22			1.78	1.78	-0.17	4.64	0.35

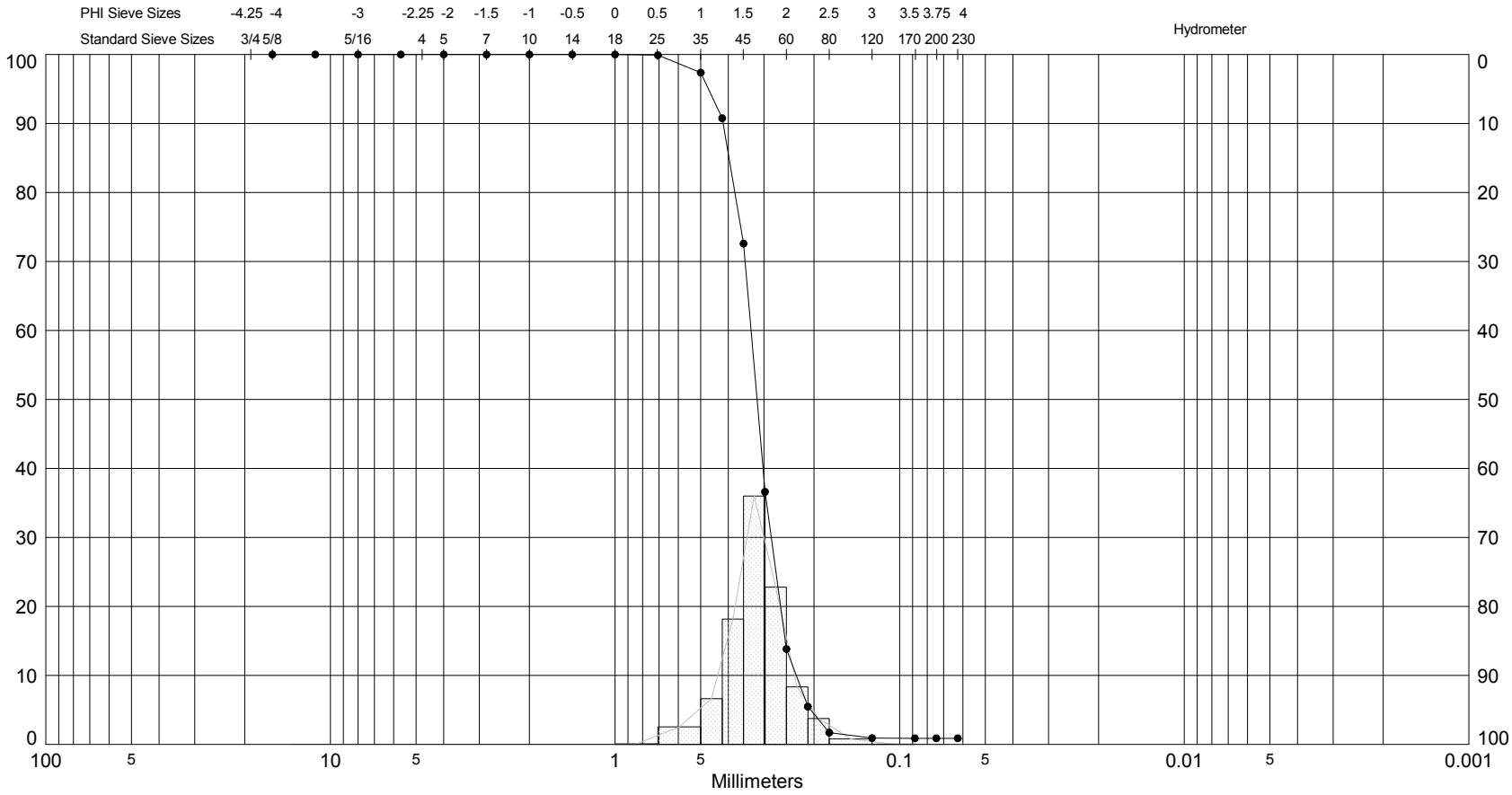
Comments: West end beach sample.

Depths and elevations based on measured values

Sample Information	
Project Name:	Dauphin Island Existing Beach
Analysis Date:	10-28-10
Analyzed By:	KG
Easting (X, ft):	1,759,585
Northing (Y, ft):	91,484
Horizontal System:	NAD 1983
Vertical System:	NAVD 88

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SIEVE ANALYSIS BEACH_SAMPLES_OCTOBER_2010.GPJ JPBRAZIL.GDT 5/13/11



Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
DI-10 (-0.2ft)	—●—	-0.2	SP	#200 - 0.89 #230 - 0.89			1.66	1.66	0	4.12	0.34

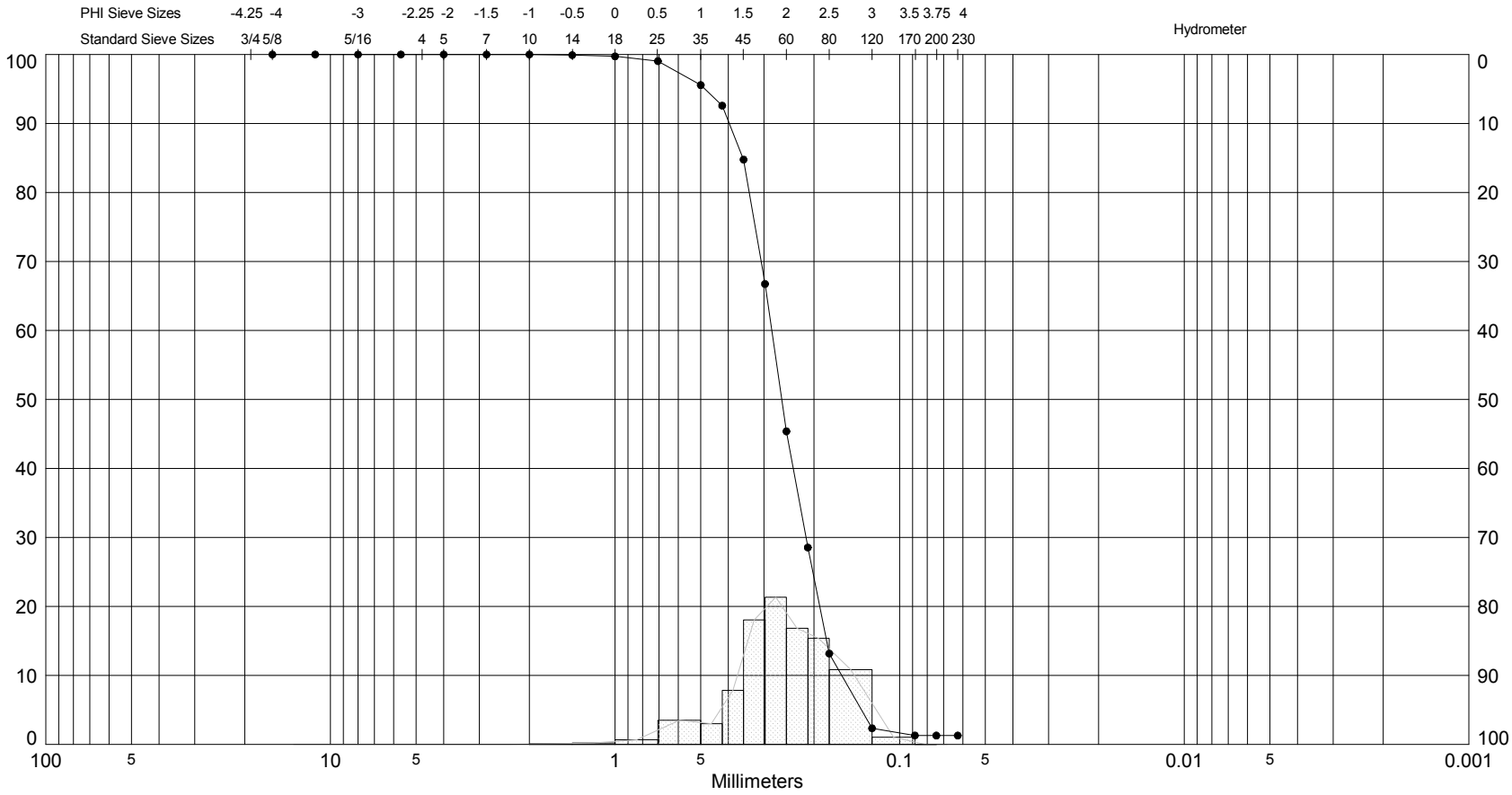
Comments: West end beach sample.

Depths and elevations based on measured values

Sample Information	
Project Name:	Dauphin Island Existing Beach
Analysis Date:	10-28-10
Analyzed By:	JF
Easting (X, ft):	1,759,585
Northing (Y, ft):	91,478
Horizontal System:	NAD 1983
Vertical System:	NAVD 88

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SIEVE ANALYSIS BEACH_SAMPLES_OCTOBER_2010.GPJ JPBRAZIL.GDT 5/13/11



Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
DI-10 (-5.3ft)	—●—	-5.3	SP	#200 - 1.28 #230 - 1.28			1.95	1.94	-0.48	4.26	0.52

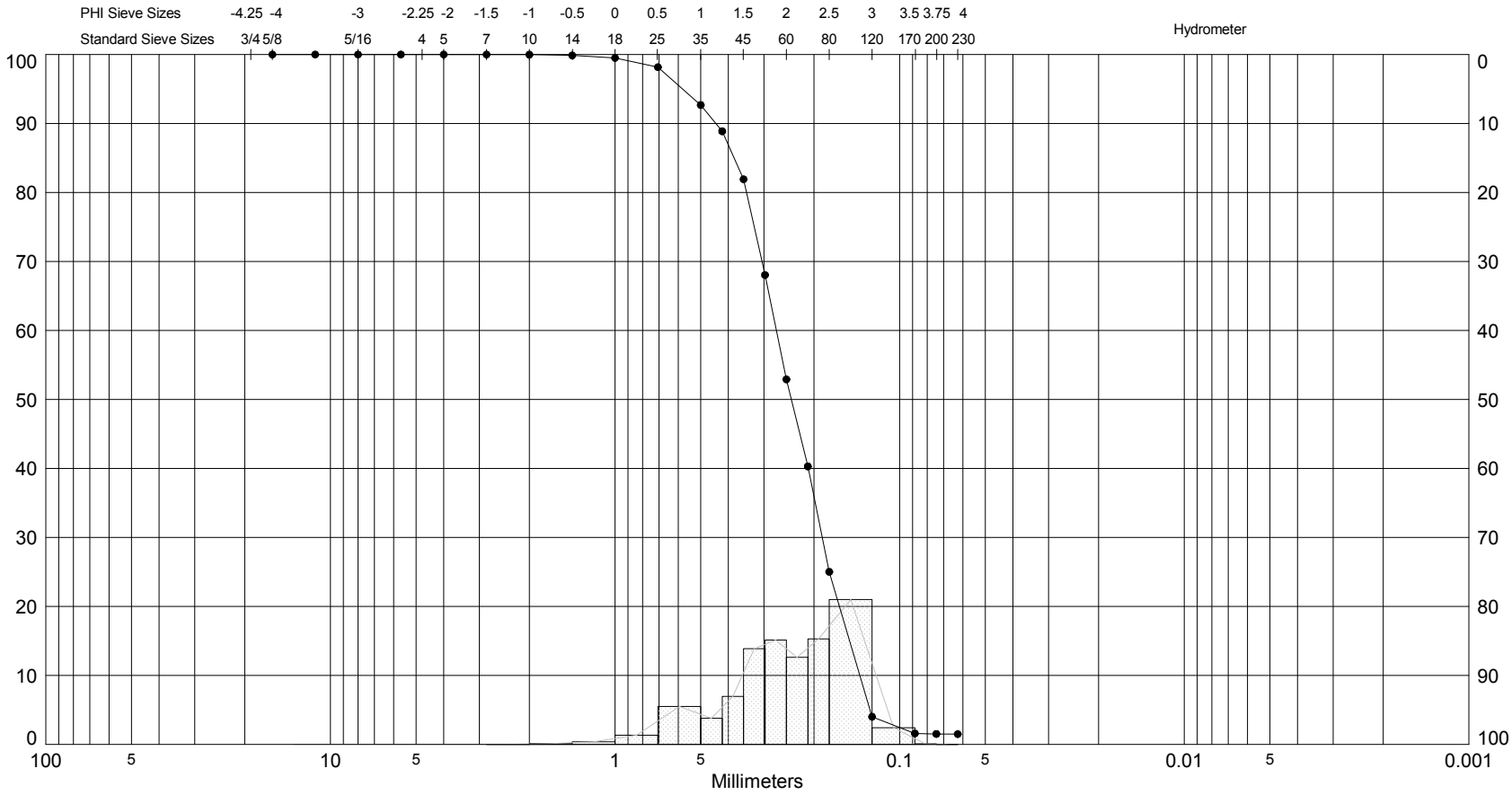
Comments: West end beach sample.

Depths and elevations based on measured values

Sample Information	
Project Name:	Dauphin Island Existing Beach
Analysis Date:	10-28-10
Analyzed By:	JF
Easting (X, ft):	1,759,599
Northing (Y, ft):	91,310
Horizontal System:	NAD 1983
Vertical System:	NAVD 88

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SIEVE ANALYSIS BEACH_SAMPLES_OCTOBER_2010.GPJ JPBRAZIL.GDT 5/13/11



Gravel		Sand			Silt and Clay
Coarse	Fine	Coarse	Medium	Fine	

Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
DI-10 (-7.6ft)	—●—	-7.6	SP	#200 - 1.52 #230 - 1.50			2.06	2.01	-0.61	3.53	0.65

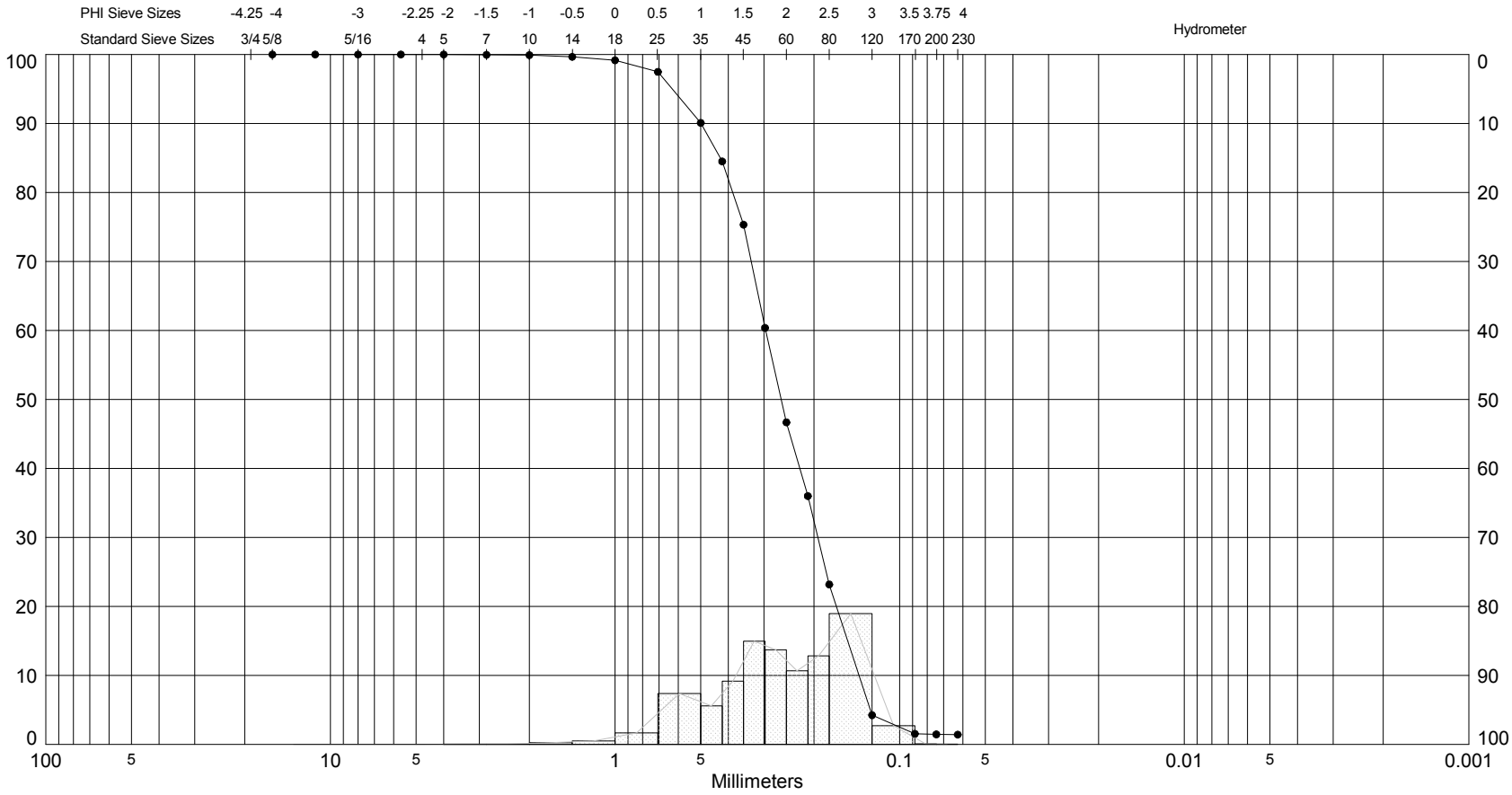
Comments: West end beach sample.

Depths and elevations based on measured values

Sample Information	
Project Name:	Dauphin Island Existing Beach
Analysis Date:	10-28-10
Analyzed By:	KG
Easting (X, ft):	1,759,593
Northing (Y, ft):	91,168
Horizontal System:	NAD 1983
Vertical System:	NAVD 88

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SIEVE ANALYSIS BEACH_SAMPLES_OCTOBER_2010.GPJ JPBRAZIL.GDT 5/13/11



Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
DI-10 (-6.7ft)	—●—	-6.7	SP	#200 - 1.45 #230 - 1.42			1.94	1.92	-0.52	3.51	0.7

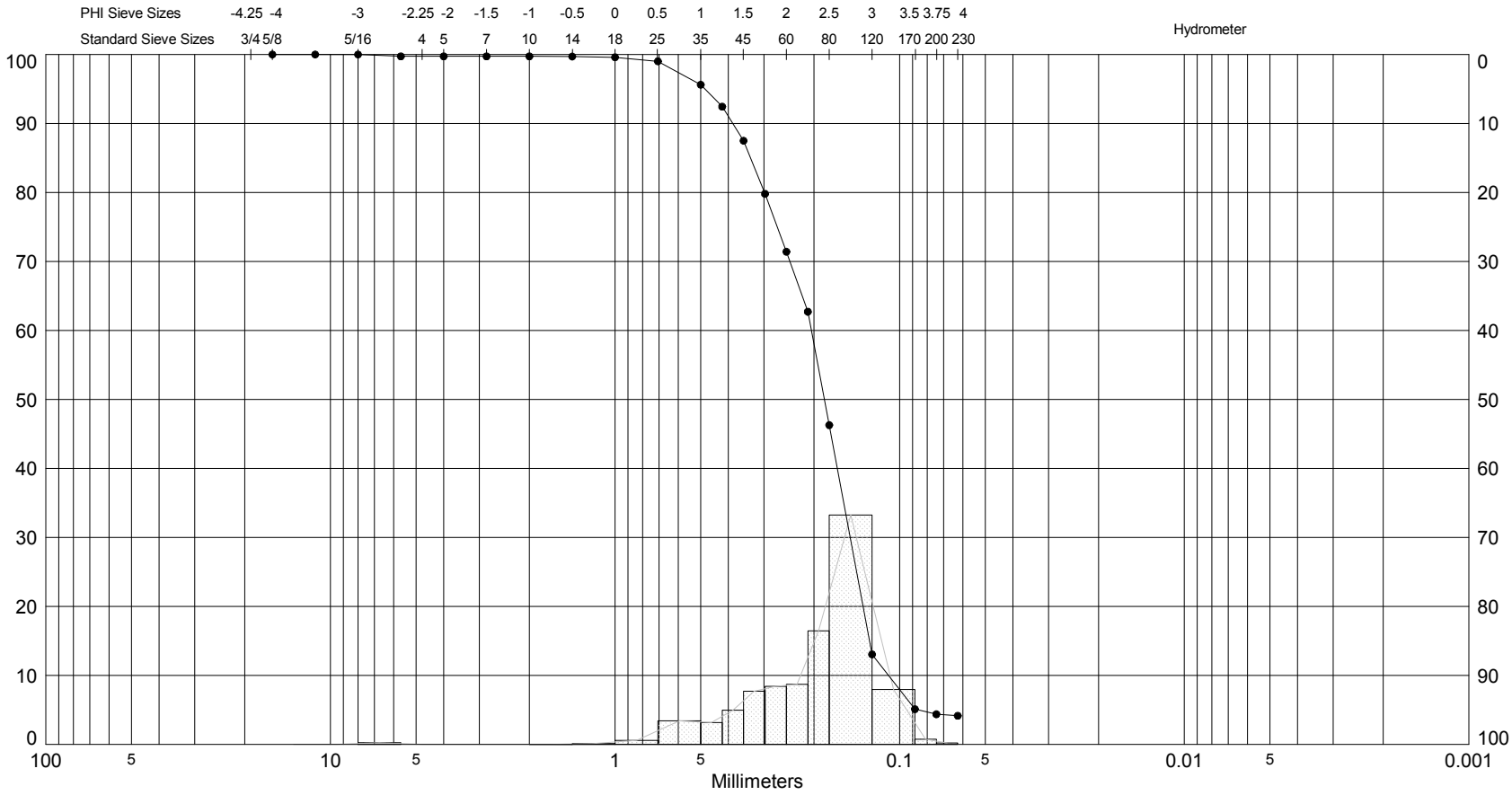
Comments: West end beach sample.

Depths and elevations based on measured values

Sample Information	
Project Name:	Dauphin Island Existing Beach
Analysis Date:	10-29-10
Analyzed By:	KG
Easting (X, ft):	1,759,595
Northing (Y, ft):	91,061
Horizontal System:	NAD 1983
Vertical System:	NAVD 88

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SIEVE ANALYSIS BEACH_SAMPLES_OCTOBER_2010.GPJ JPBRAZIL.GDT 5/13/11



Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
DI-10 (-13.4ft)	—●—	-13.4	SP	#200 - 4.37 #230 - 4.15			2.44	2.28	-1.53	9.61	0.71

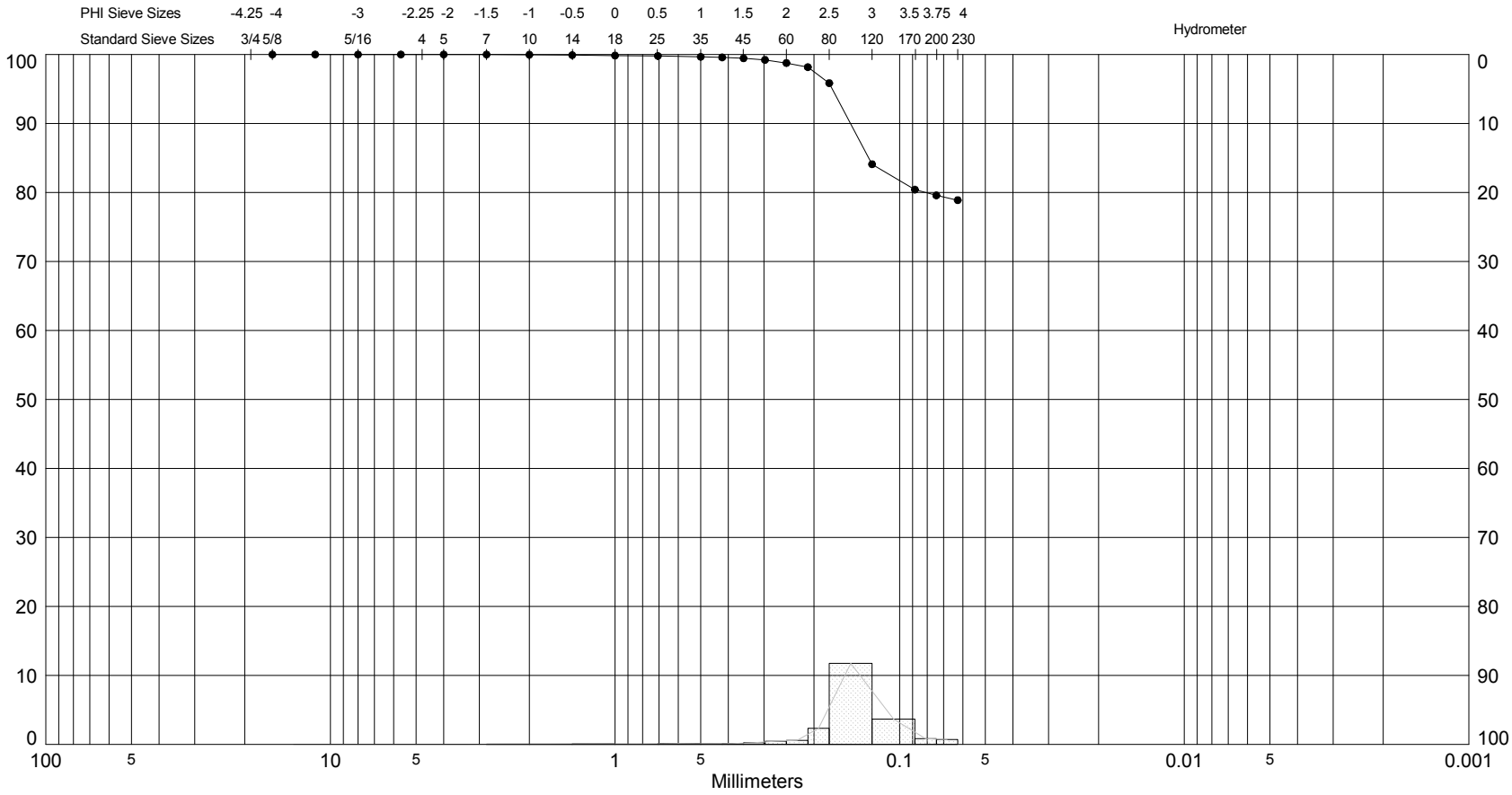
Comments: West end beach sample.

Depths and elevations based on measured values

Sample Information	
Project Name:	Dauphin Island Existing Beach
Analysis Date:	10-29-10
Analyzed By:	KG
Easting (X, ft):	1,759,613
Northing (Y, ft):	90,867
Horizontal System:	NAD 1983
Vertical System:	NAVD 88

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Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
DI-10 (-17.4ft)	—●—	-17.4	CL	#200 - 79.58 #230 - 78.89				2.76	-2.09	13.98	0.57

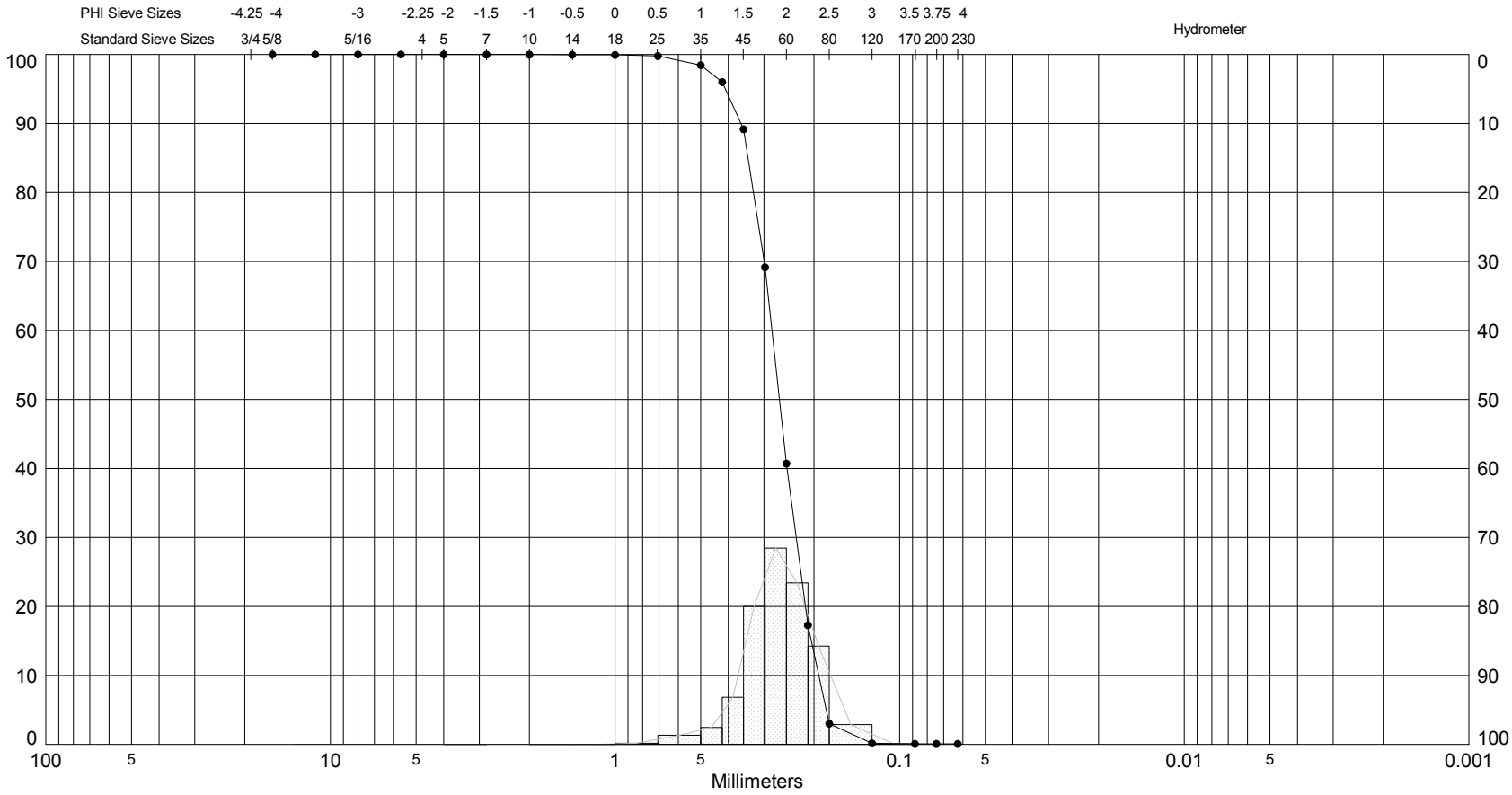
Comments: West end beach sample.

Depths and elevations based on measured values

Sample Information	
Project Name:	Dauphin Island Existing Beach
Analysis Date:	10-29-10
Analyzed By:	KG
Easting (X, ft):	1,759,600
Northing (Y, ft):	90,598
Horizontal System:	NAD 1983
Vertical System:	NAVD 88

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SIEVE ANALYSIS BEACH_SAMPLES_OCTOBER_2010.GPJ JPBRAZIL.GDT 5/13/11



Gravel		Sand			Silt and Clay
Coarse	Fine	Coarse	Medium	Fine	

Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
DI-14 (5.5ft)	—●—	5.5	SP	#200 - 0.07 #230 - 0.07			1.92	1.91	-0.66	6.33	0.38

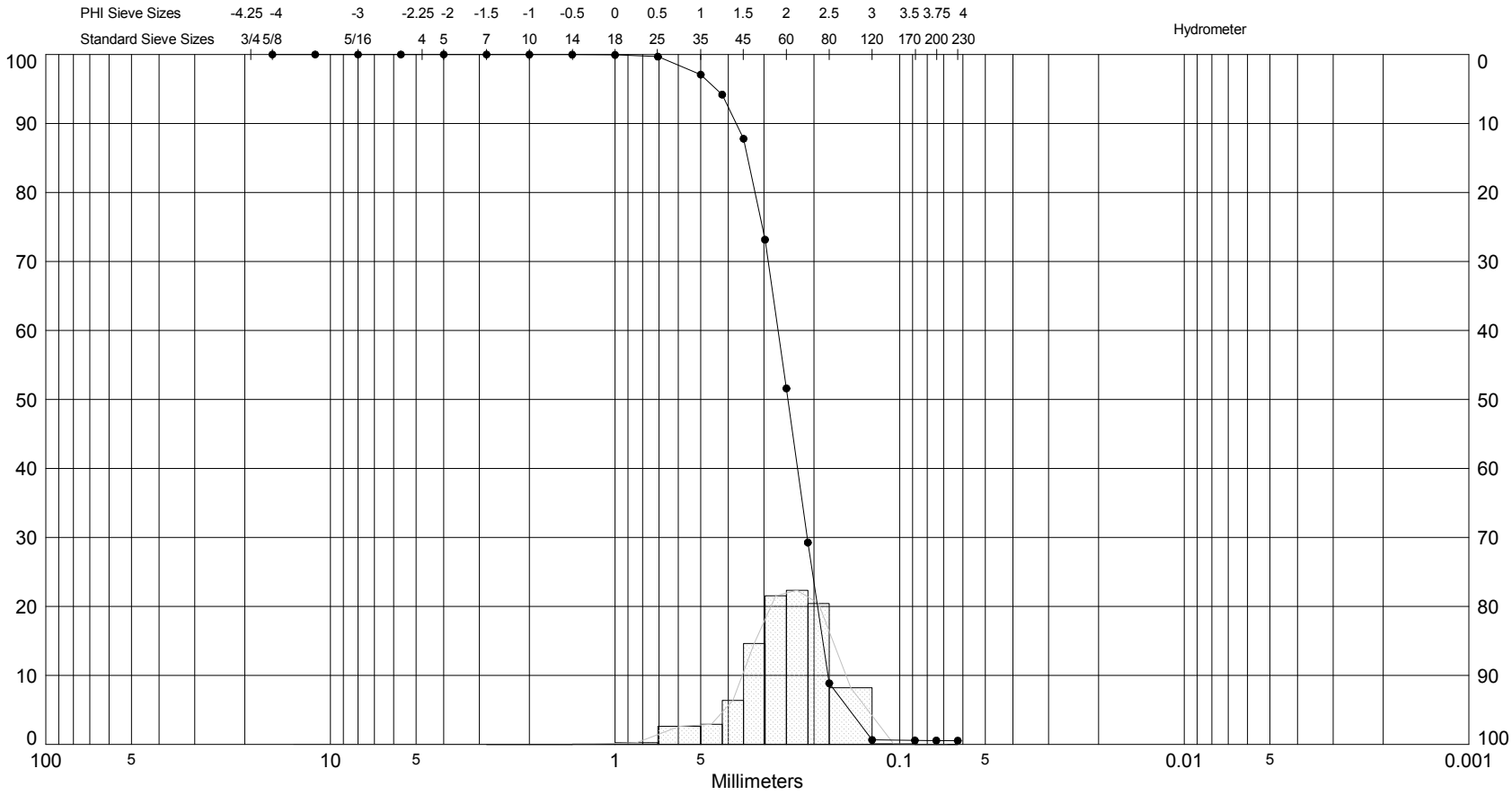
Comments: West end beach sample.

Depths and elevations based on measured values

Sample Information	
Project Name:	Dauphin Island Existing Beach
Analysis Date:	10-29-10
Analyzed By:	KG
Easting (X, ft):	1,766,315
Northing (Y, ft):	91,478
Horizontal System:	NAD 1983
Vertical System:	NAVD 88

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SIEVE ANALYSIS BEACH_SAMPLES_OCTOBER_2010.GPJ JPBRAZIL.GDT 5/13/11



Gravel		Sand			Silt and Clay
Coarse	Fine	Coarse	Medium	Fine	

Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
DI-14 (1.0ft)	—●—	1.0	SP	#200 - 0.56 #230 - 0.55			2.02	1.98	-0.64	4.22	0.45

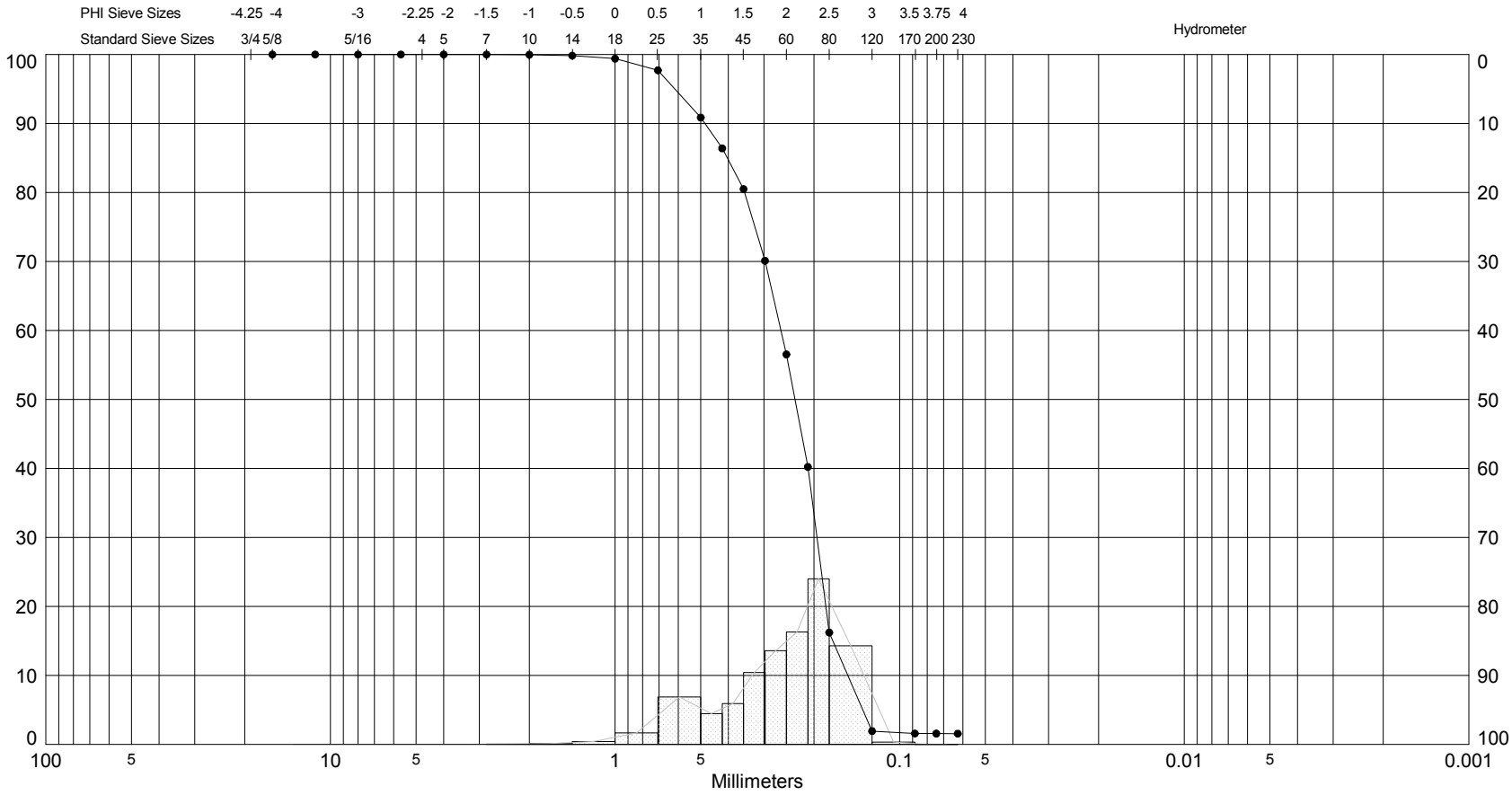
Comments: West end beach sample.

Depths and elevations based on measured values

Sample Information	
Project Name:	Dauphin Island Existing Beach
Analysis Date:	10-29-10
Analyzed By:	KG
Easting (X, ft):	1,766,315
Northing (Y, ft):	91,435
Horizontal System:	NAD 1983
Vertical System:	NAVD 88

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SIEVE ANALYSIS BEACH_SAMPLES_OCTOBER_2010.GPJ JPBRAZIL.GDT 5/13/11



Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
DI-14 (-0.2ft)	—●—	-0.2	SP	#200 - 1.57 #230 - 1.56			2.1	1.96	-0.96	3.94	0.63

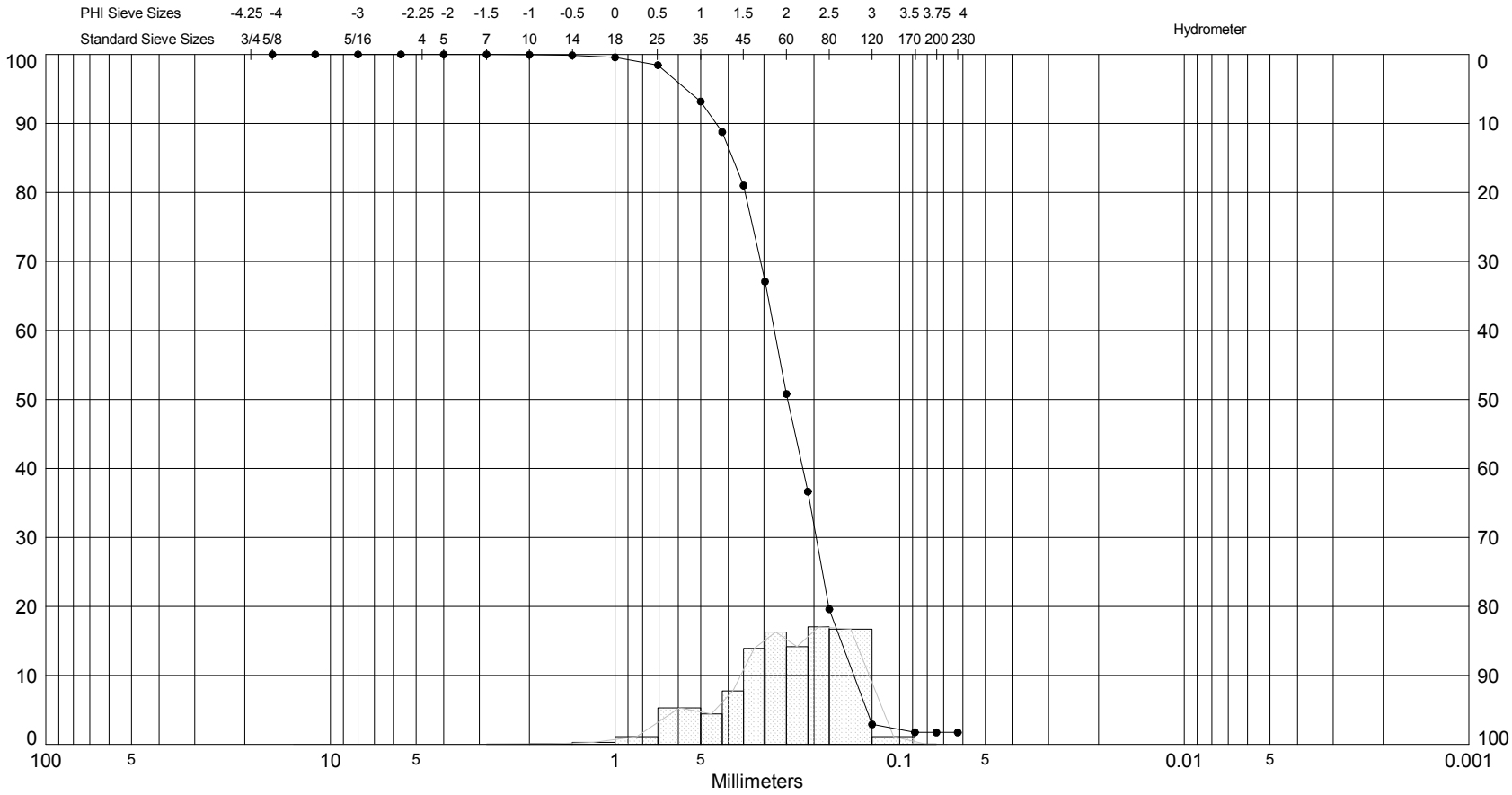
Comments: West end beach sample.

Depths and elevations based on measured values

Sample Information	
Project Name:	Dauphin Island Existing Beach
Analysis Date:	10-29-10
Analyzed By:	KG
Easting (X, ft):	1,766,315
Northing (Y, ft):	91,424
Horizontal System:	NAD 1983
Vertical System:	NAVD 88

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SIEVE ANALYSIS BEACH_SAMPLES_OCTOBER_2010.GPJ JPBRAZIL.GDT 5/13/11



Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
DI-14 (-5.6ft)	—●—	-5.6	SP	#200 - 1.73 #230 - 1.73			2.01	1.97	-0.64	3.73	0.61

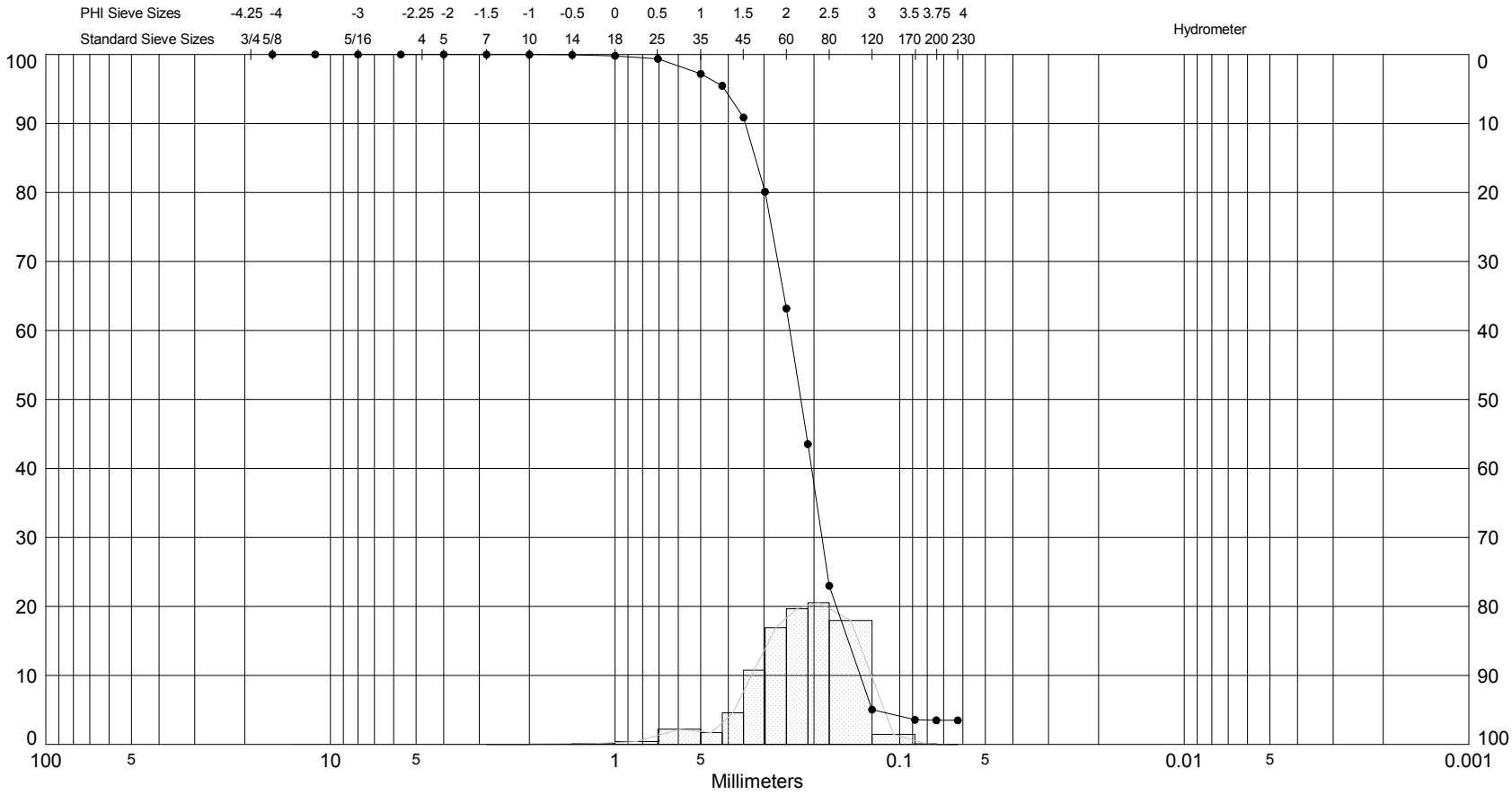
Comments: West end beach sample.

Depths and elevations based on measured values

Sample Information	
Project Name:	Dauphin Island Existing Beach
Analysis Date:	10-29-10
Analyzed By:	TD
Easting (X, ft):	1,766,287
Northing (Y, ft):	91,151
Horizontal System:	NAD 1983
Vertical System:	NAVD 88

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Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
DI-14 (-12.1ft)	—●—	-12.1	SP	#200 - 3.49 #230 - 3.48			2.17	2.12	-0.71	4.67	0.51

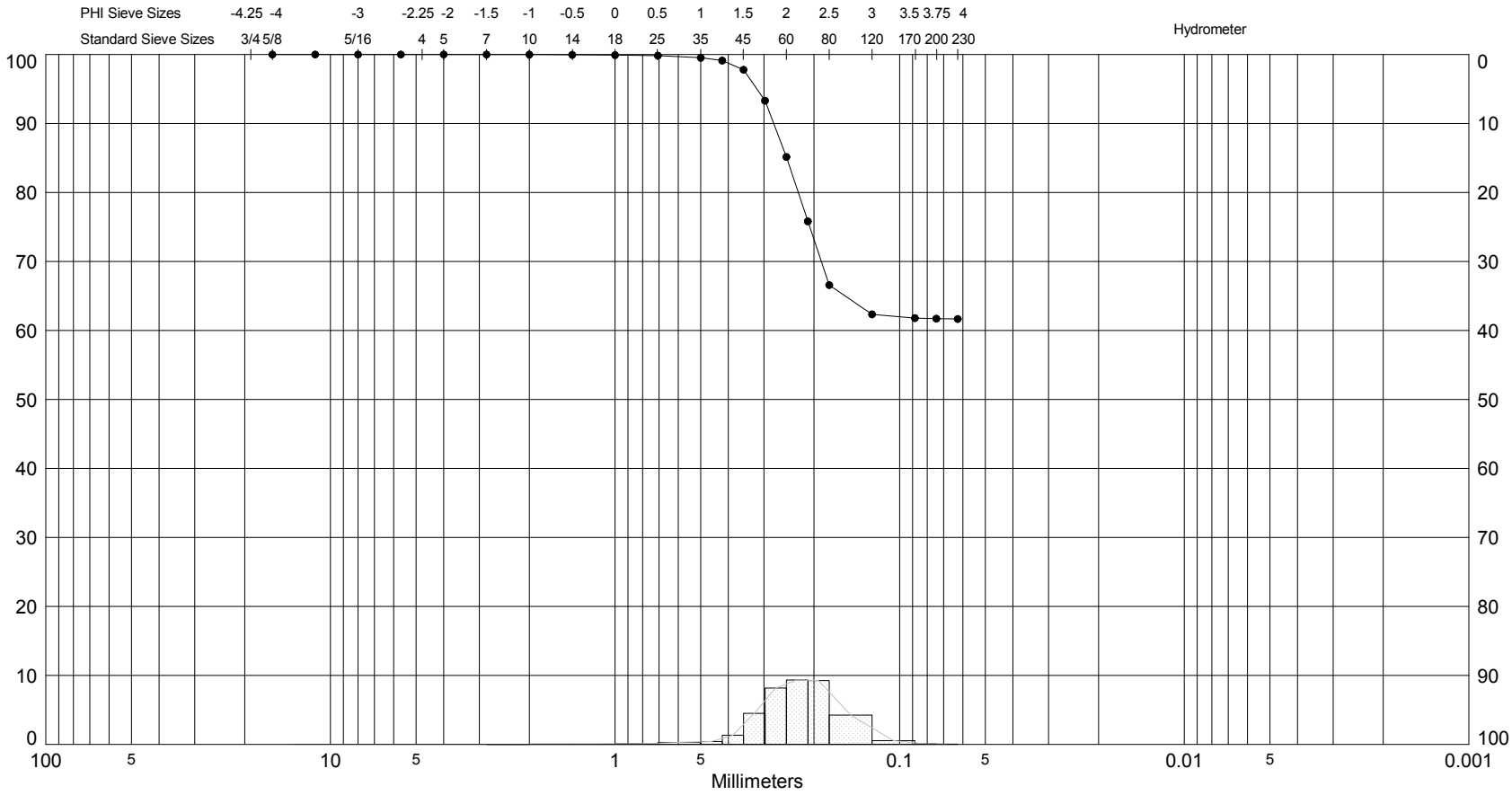
Comments: West end beach sample.

Depths and elevations based on measured values

Sample Information	
Project Name:	Dauphin Island Existing Beach
Analysis Date:	10-29-10
Analyzed By:	JF
Easting (X, ft):	1,766,312
Northing (Y, ft):	90,930
Horizontal System:	NAD 1983
Vertical System:	NAVD 88

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SIEVE ANALYSIS BEACH_SAMPLES_OCTOBER_2010.GPJ JPBRAZIL.GDT 5/13/11



Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
DI-14 (-18.2ft)	—●—	-18.2	CL	#200 - 61.71 #230 - 61.67				2.11	-0.55	7.07	0.44

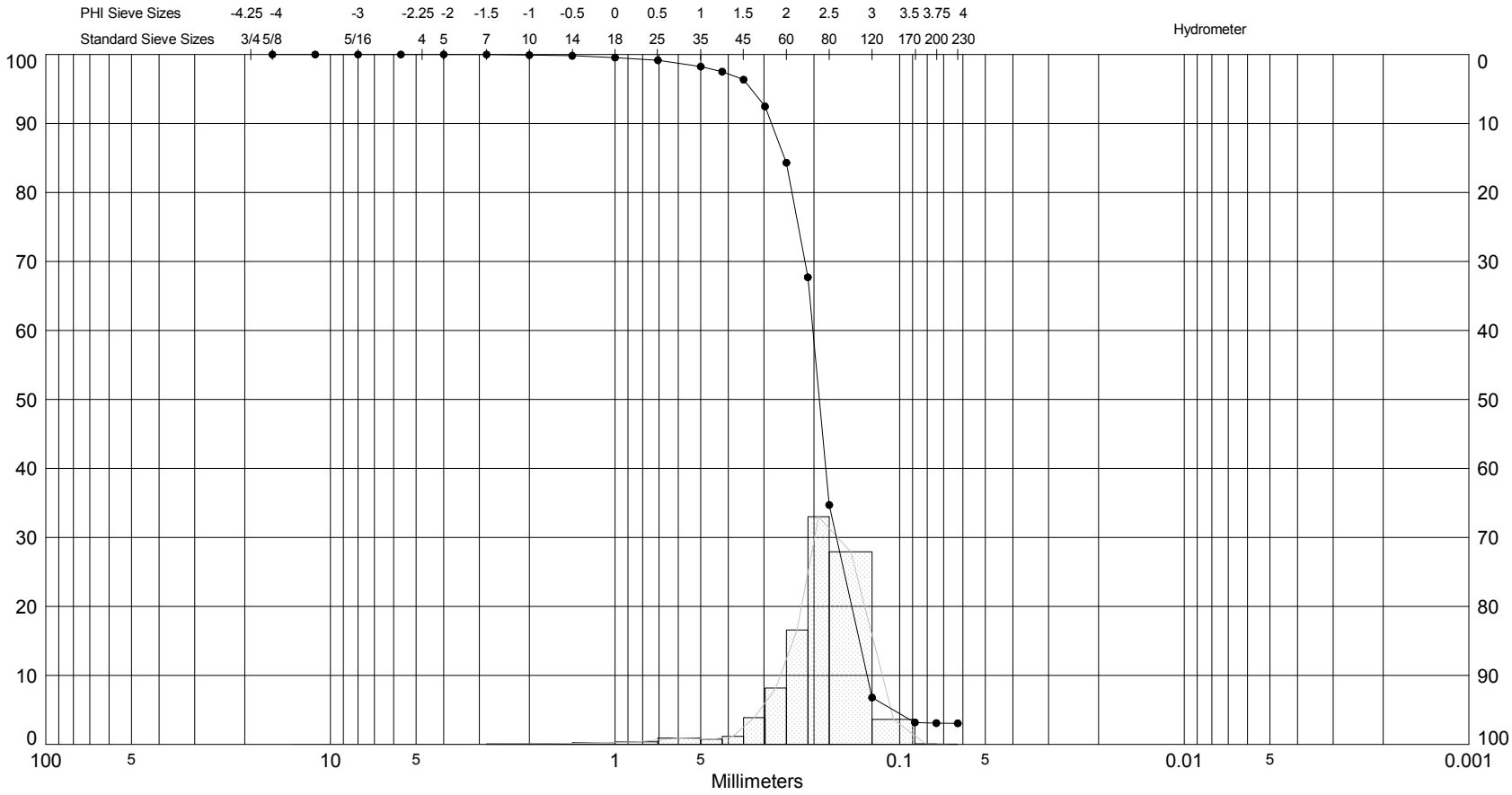
Comments: West end beach sample.

Depths and elevations based on measured values

Sample Information	
Project Name:	Dauphin Island Existing Beach
Analysis Date:	10-29-10
Analyzed By:	JF
Easting (X, ft):	1,766,298
Northing (Y, ft):	90,551
Horizontal System:	NAD 1983
Vertical System:	NAVD 88

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SIEVE ANALYSIS BEACH_SAMPLES_OCTOBER_2010.GPJ JPBRAZIL.GDT 5/13/11



Gravel		Sand			Silt and Clay
Coarse	Fine	Coarse	Medium	Fine	

Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
DI-14 (-10.2ft)	—●—	-10.2	SP	#200 - 3.09 #230 - 3.06			2.38	2.34	-1.71	10.68	0.48

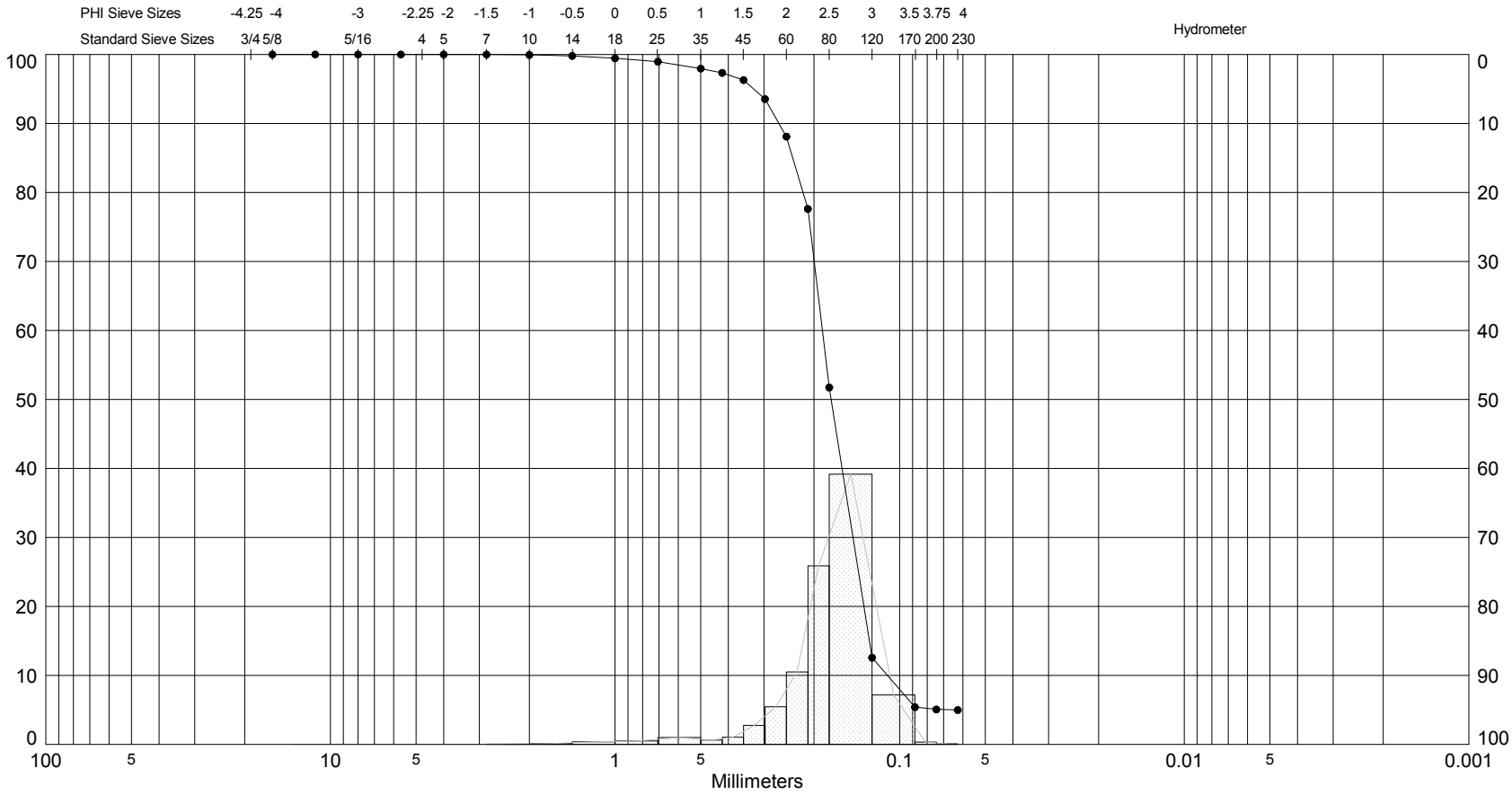
Comments: West end beach sample.

Depths and elevations based on measured values

Sample Information	
Project Name:	Dauphin Island Existing Beach
Analysis Date:	10-29-10
Analyzed By:	TD
Easting (X, ft):	1,766,312
Northing (Y, ft):	90,336
Horizontal System:	NAD 1983
Vertical System:	NAVD 88

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SIEVE ANALYSIS BEACH_SAMPLES_OCTOBER_2010.GPJ JPBRAZIL.GDT 5/13/11



Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
DI-14 (-14.2ft)	—●—	-14.2	SP-SC	#200 - 5.07 #230 - 4.98			2.52	2.46	-1.88	10.5	0.52

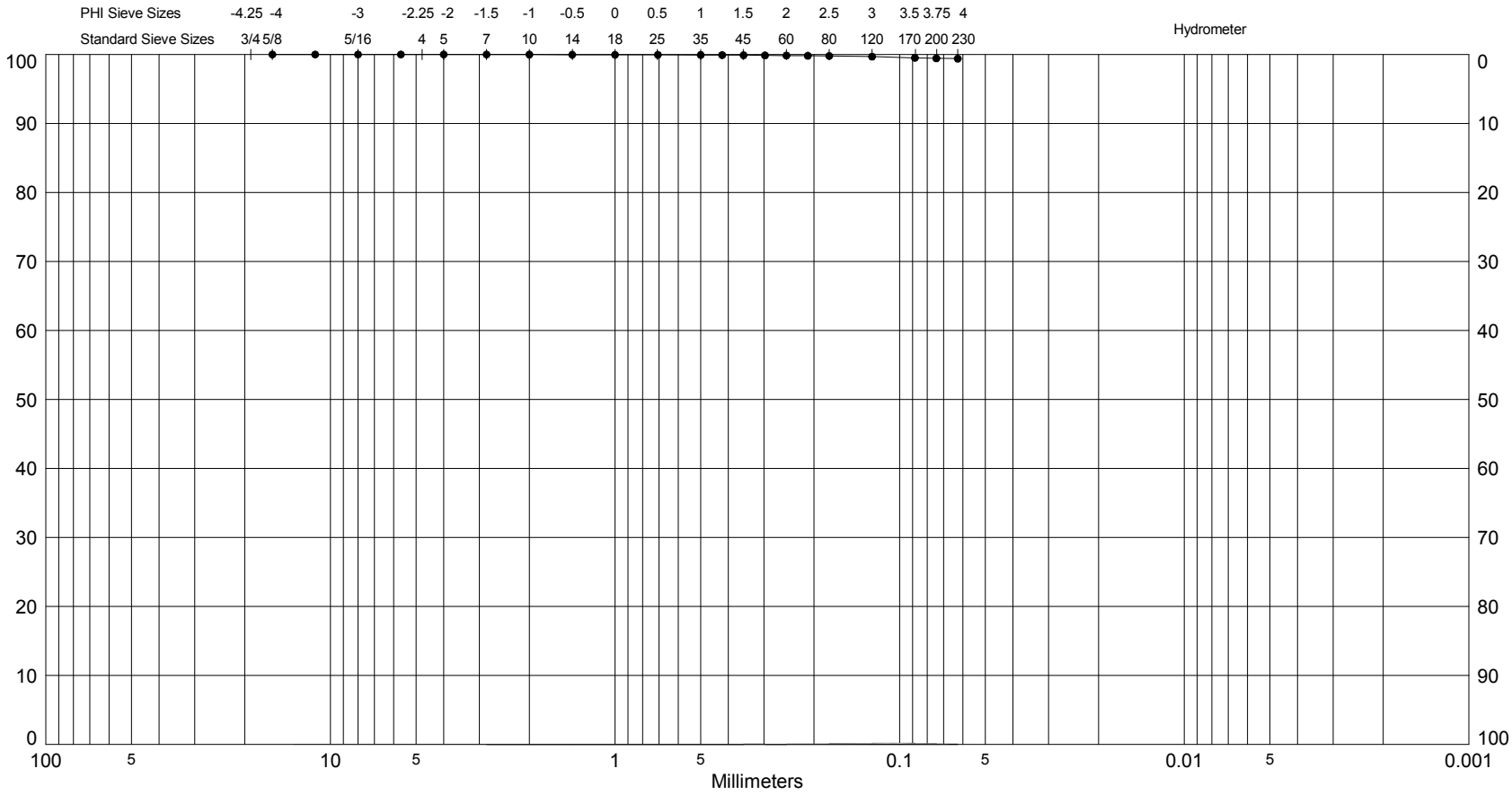
Comments: West end beach sample.

Depths and elevations based on measured values

Sample Information	
Project Name:	Dauphin Island Existing Beach
Analysis Date:	10-29-10
Analyzed By:	JF
Easting (X, ft):	1,766,328
Northing (Y, ft):	90,103
Horizontal System:	NAD 1983
Vertical System:	NAVD 88

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Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
DI-14 (-18.1ft)	—●—	-18.1	CL	#200 - 99.44 #230 - 99.40				2.58	-1.47	4.64	1.2

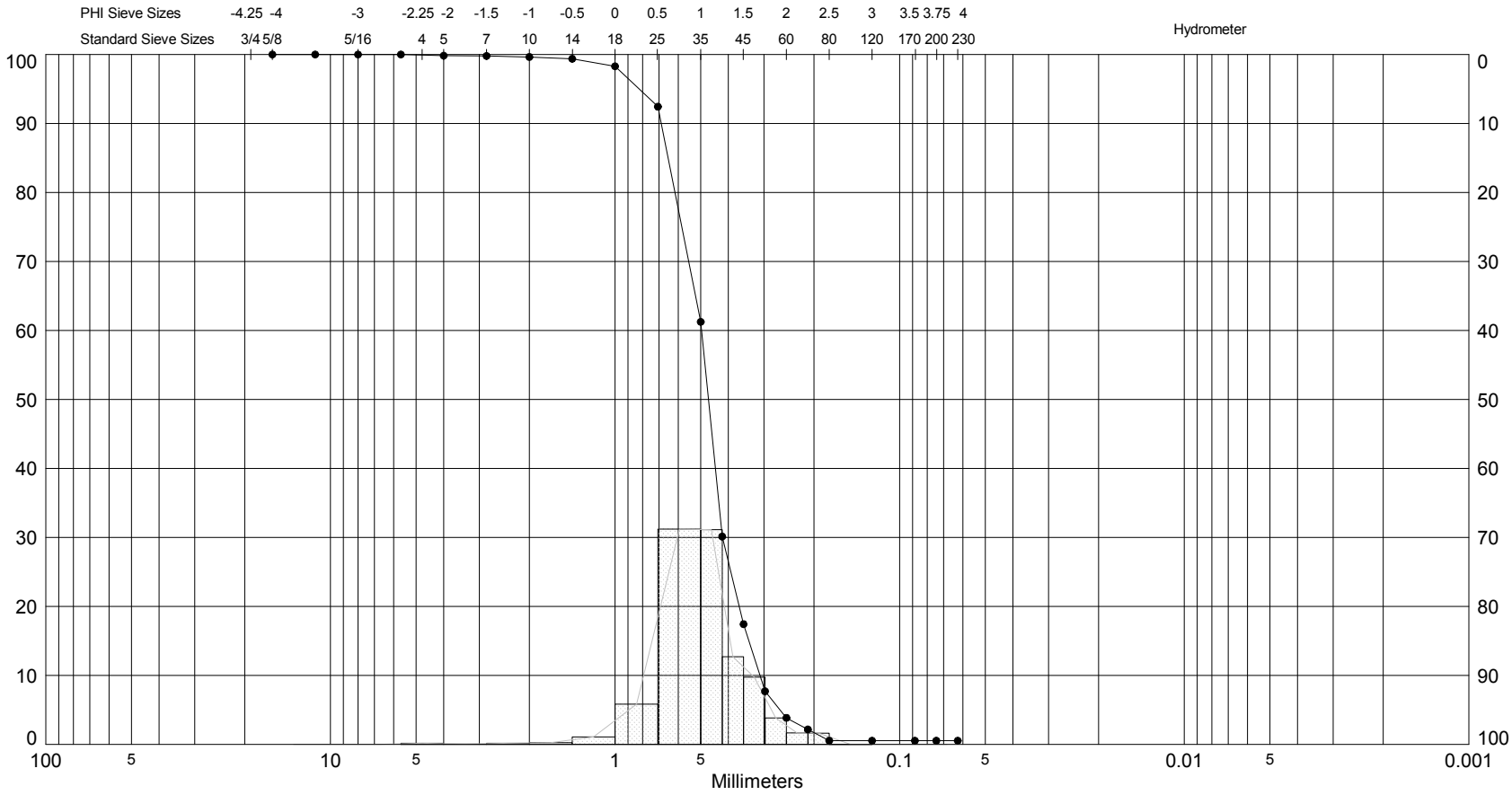
Comments: West end beach sample.

Depths and elevations based on measured values

Sample Information	
Project Name:	Dauphin Island Existing Beach
Analysis Date:	10-29-10
Analyzed By:	JF
Easting (X, ft):	1,766,325
Northing (Y, ft):	89,696
Horizontal System:	NAD 1983
Vertical System:	NAVD 88

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Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
DI-21 (4.9ft)	—●—	4.9	SP	#200 - 0.54 #230 - 0.54			1.09	1.07	-0.64	7.72	0.49

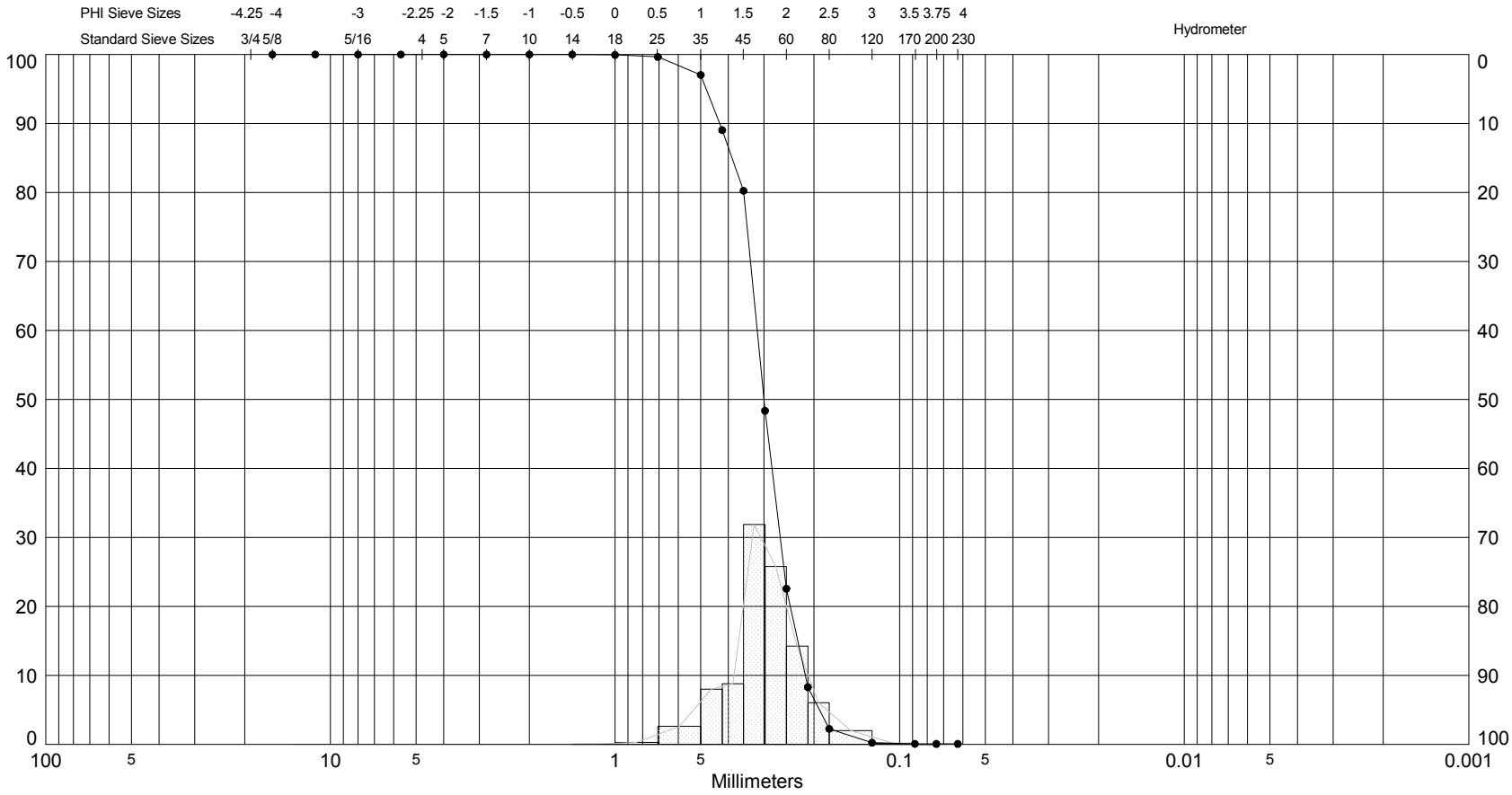
Comments: East end beach sample.

Depths and elevations based on measured values

Sample Information	
Project Name:	Dauphin Island Existing Beach
Analysis Date:	02-18-10
Analyzed By:	GL
Easting (X, ft):	1,773,617
Northing (Y, ft):	89,821
Horizontal System:	NAD 1983
Vertical System:	NAVD 88

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SIEVE ANALYSIS BEACH_SAMPLES_FEBRUARY_2010.GPJ JPBRAZIL.GDT 5/13/11



Gravel		Sand			Silt and Clay
Coarse	Fine	Coarse	Medium	Fine	

Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
DI-21 (2.6ft)	—●—	2.6	SP	#200 - 0.07 #230 - 0.07			1.74	1.74	-0.21	4.37	0.39

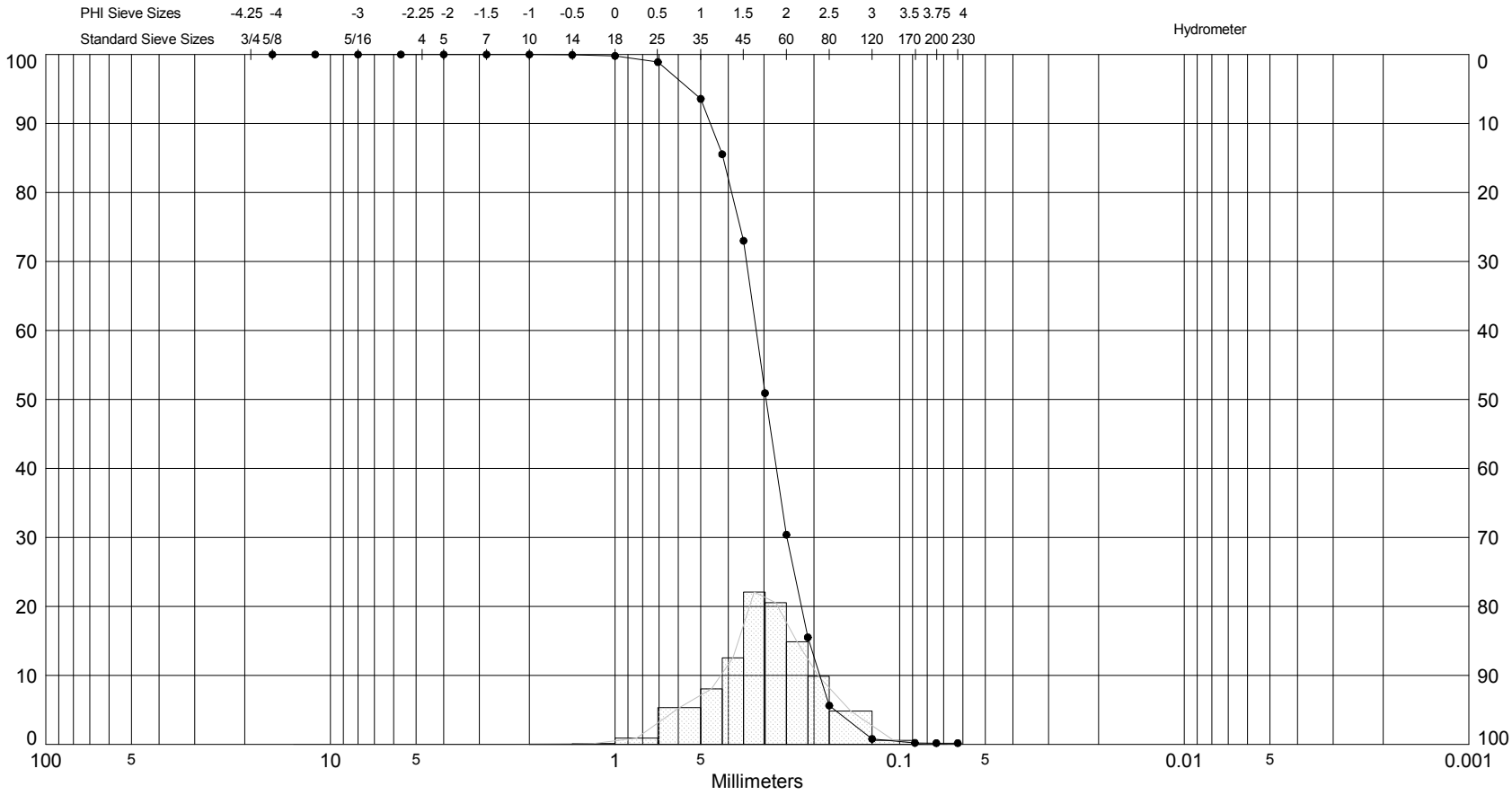
Comments: East end beach sample.

Depths and elevations based on measured values

Sample Information	
Project Name:	Dauphin Island Existing Beach
Analysis Date:	02-18-10
Analyzed By:	GL
Easting (X, ft):	1,773,617
Northing (Y, ft):	89,811
Horizontal System:	NAD 1983
Vertical System:	NAVD 88

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SIEVE ANALYSIS BEACH_SAMPLES_FEBRUARY_2010.GPJ JPBRAZIL.GDT 5/13/11



Gravel		Sand			Silt and Clay
Coarse	Fine	Coarse	Medium	Fine	

Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
DI-21 (0.9ft)	—●—	0.9	SP	#200 - 0.18 #230 - 0.18			1.76	1.76	-0.24	3.83	0.51

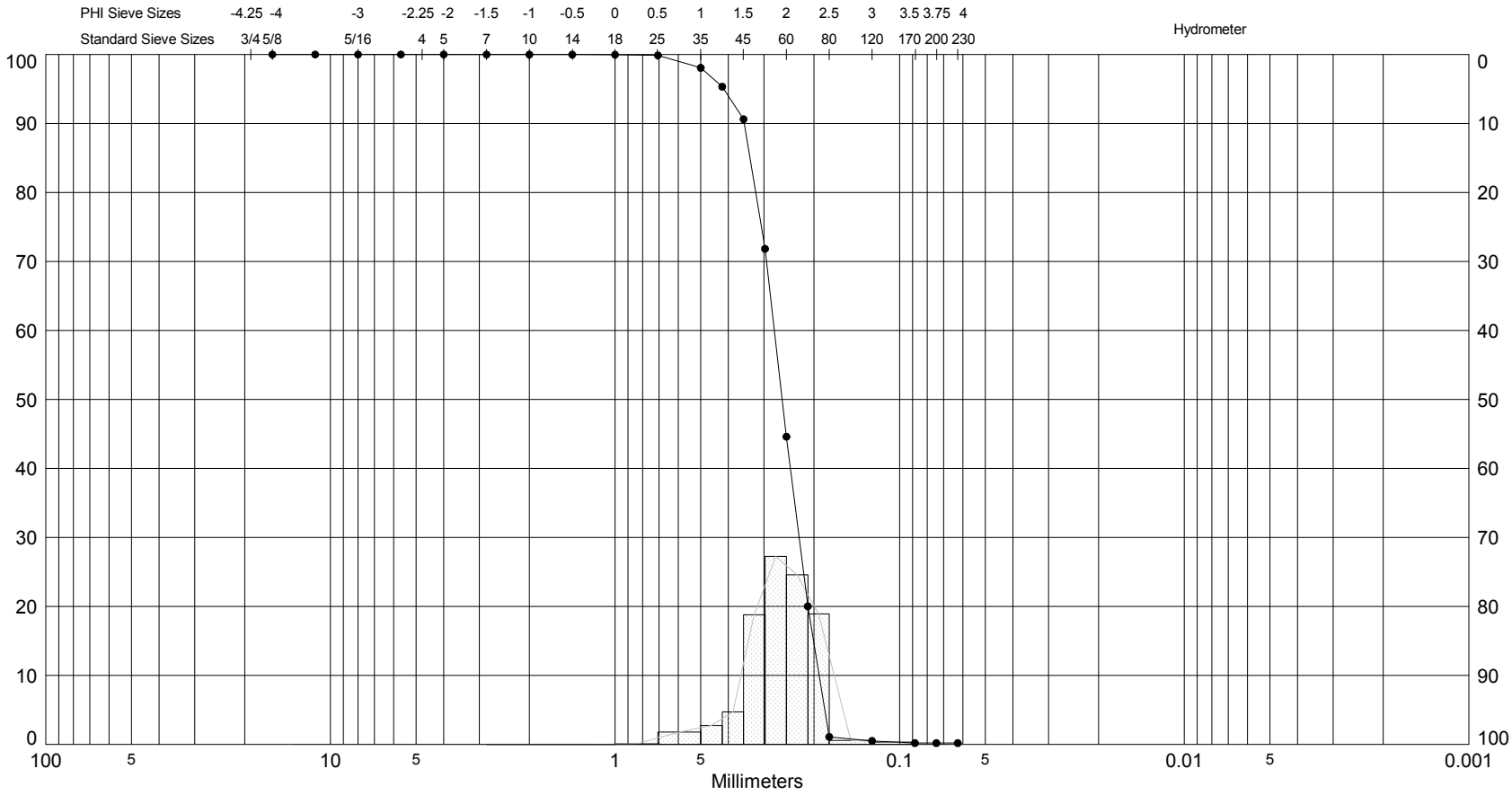
Comments: East end beach sample.

Depths and elevations based on measured values

Sample Information	
Project Name:	Dauphin Island Existing Beach
Analysis Date:	02-18-10
Analyzed By:	GL
Easting (X, ft):	1,773,618
Northing (Y, ft):	89,796
Horizontal System:	NAD 1983
Vertical System:	NAVD 88

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SIEVE ANALYSIS BEACH_SAMPLES_FEBRUARY_2010.GPJ JPBRAZIL.GDT 5/13/11



Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
DI-21 (-0.1ft)	—●—	-0.1	SP	#200 - 0.19 #230 - 0.19			1.95	1.93	-0.74	5.17	0.37

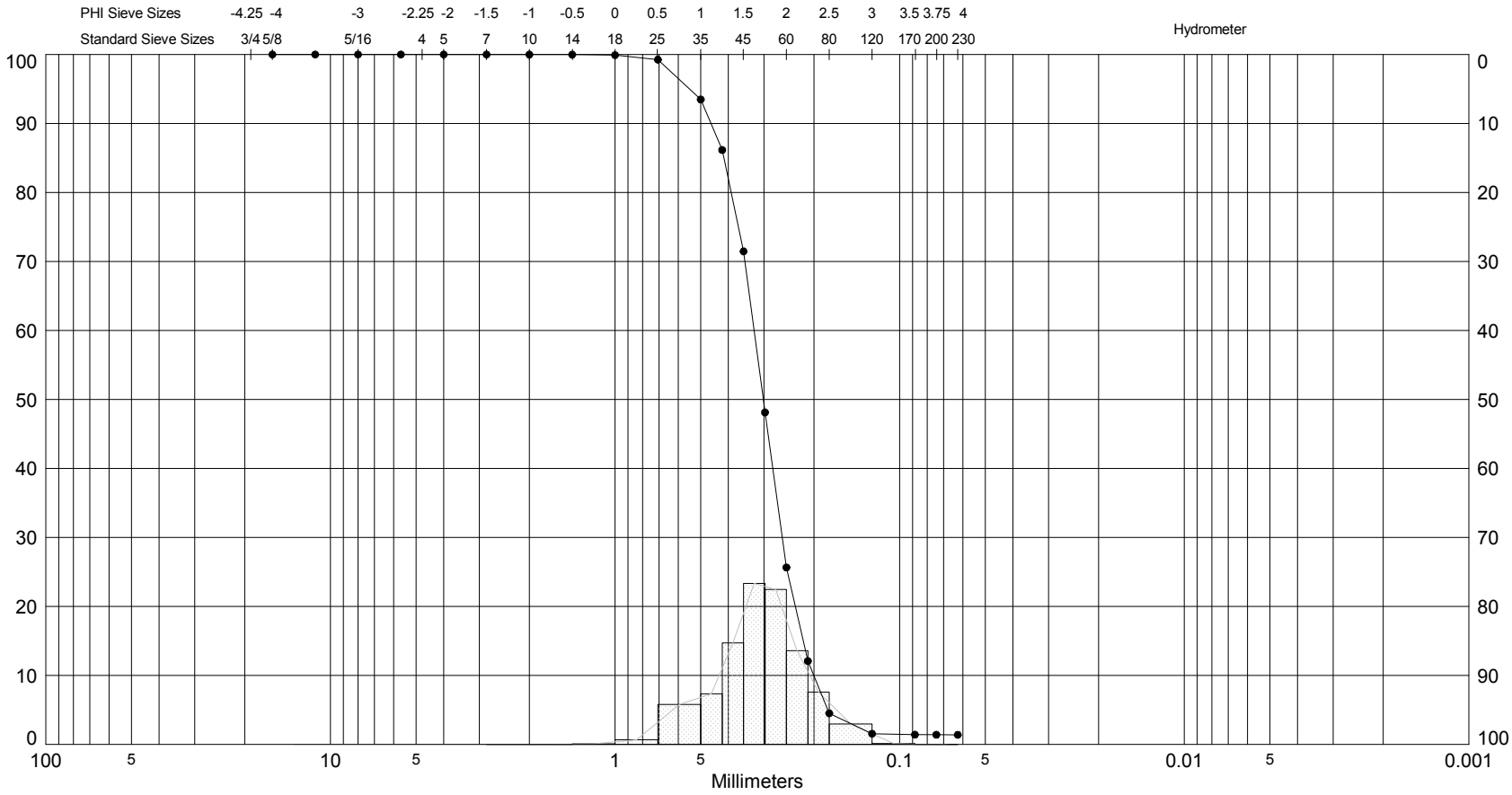
Comments: East end beach sample.

Depths and elevations based on measured values

Sample Information	
Project Name:	Dauphin Island Existing Beach
Analysis Date:	02-18-10
Analyzed By:	GL
Easting (X, ft):	1,773,618
Northing (Y, ft):	89,788
Horizontal System:	NAD 1983
Vertical System:	NAVD 88

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SIEVE ANALYSIS BEACH_SAMPLES_FEBRUARY_2010.GPJ JPBRAZIL.GDT 5/13/11



Gravel		Sand			Silt and Clay
Coarse	Fine	Coarse	Medium	Fine	

Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
DI-21 (-6.4ft)	—●—	-6.4	SP	#200 - 1.40 #230 - 1.39			1.73	1.71	-0.28	3.82	0.47

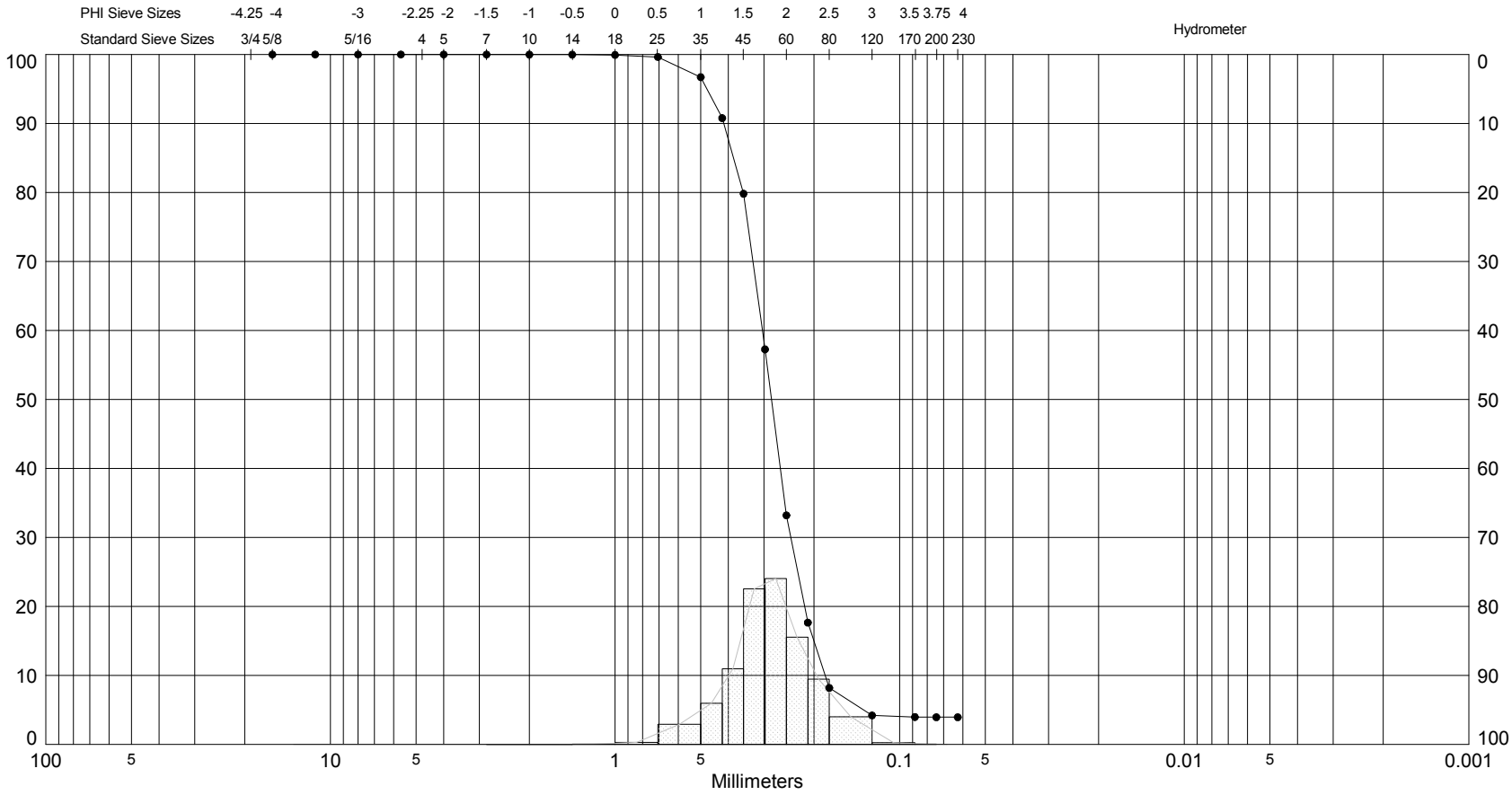
Comments: East end beach sample.

Depths and elevations based on measured values

Sample Information	
Project Name:	Dauphin Island Existing Beach
Analysis Date:	02-25-10
Analyzed By:	GL
Easting (X, ft):	1,773,643
Northing (Y, ft):	89,525
Horizontal System:	NAD 1983
Vertical System:	NAVD 88

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SIEVE ANALYSIS BEACH_SAMPLES_FEBRUARY_2010.GPJ JPBRAZIL.GDT 5/13/11



Gravel		Sand			Silt and Clay
Coarse	Fine	Coarse	Medium	Fine	

Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
DI-21 (-8.5ft)	—●—	-8.5	SP	#200 - 3.94 #230 - 3.94			1.83	1.8	-0.18	4.02	0.44

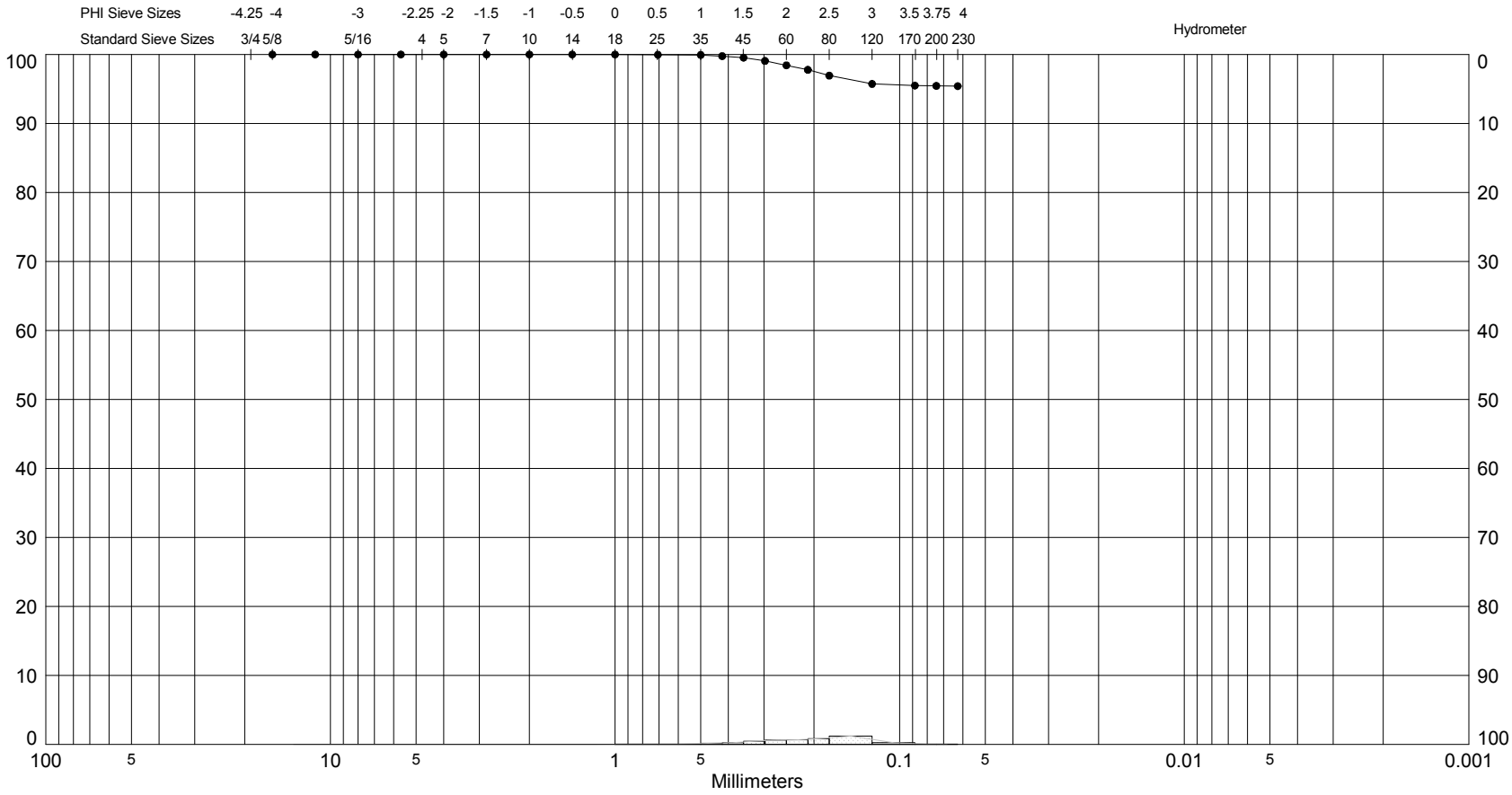
Comments: East end beach sample.

Depths and elevations based on measured values

Sample Information	
Project Name:	Dauphin Island Existing Beach
Analysis Date:	02-25-10
Analyzed By:	GL
Easting (X, ft):	1,773,603
Northing (Y, ft):	89,506
Horizontal System:	NAD 1983
Vertical System:	NAVD 88

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SIEVE ANALYSIS BEACH_SAMPLES_FEBRUARY_2010.GPJ JPBRAZIL.GDT 5/13/11



Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
DI-21 (-11.7ft)	—●—	-11.7	CL	#200 - 95.45 #230 - 95.42				2.24	-0.2	3.28	0.59

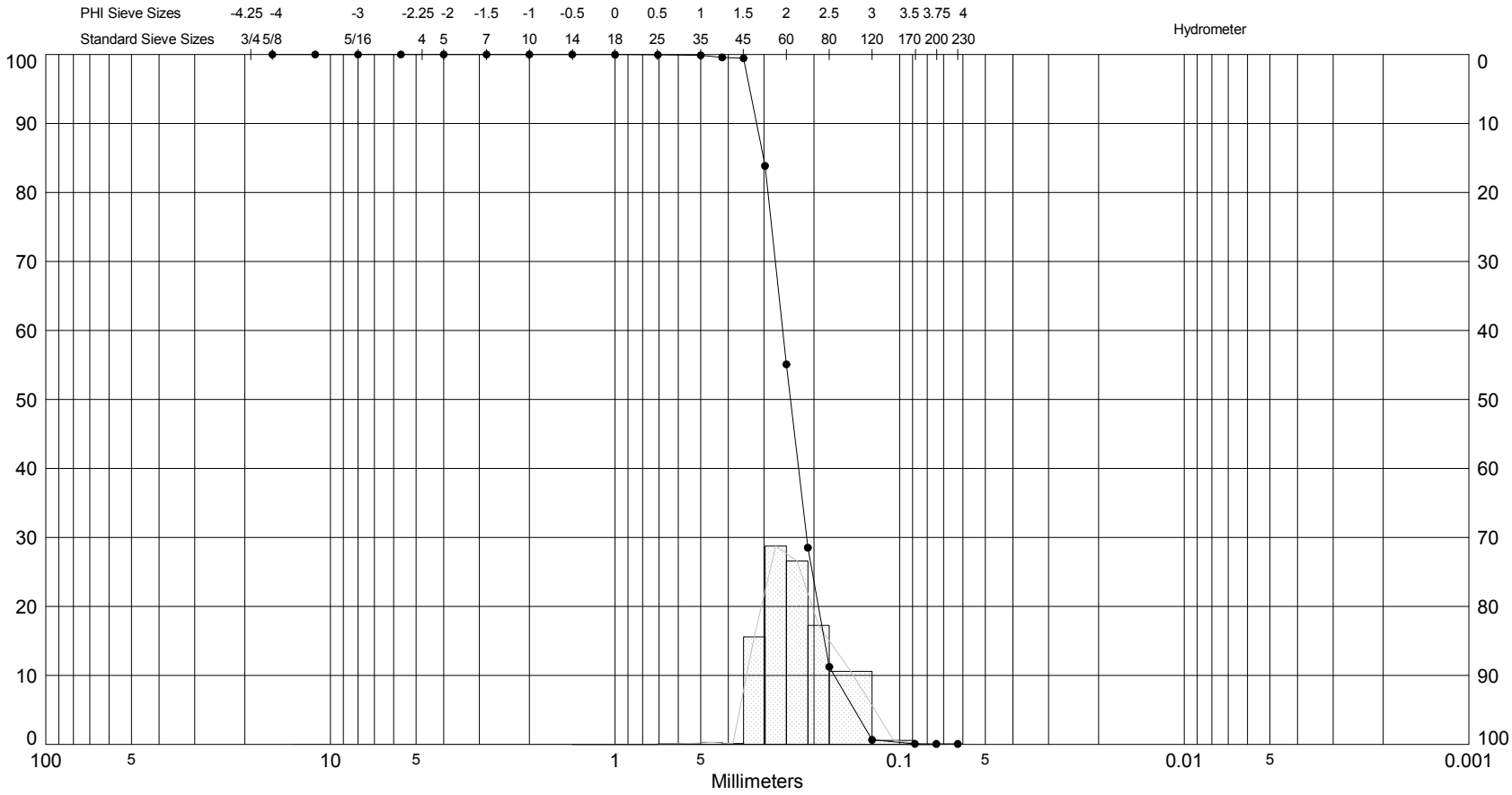
Comments: East end beach sample.

Depths and elevations based on measured values

Sample Information	
Project Name:	Dauphin Island Existing Beach
Analysis Date:	02-25-10
Analyzed By:	GL
Easting (X, ft):	1,773,602
Northing (Y, ft):	89,460
Horizontal System:	NAD 1983
Vertical System:	NAVD 88

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SIEVE ANALYSIS BEACH_SAMPLES_FEBRUARY_2010.GPJ JPBRAZIL.GDT 5/13/11



Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
DI-27 (5.1ft)	—●—	5.1	SP	#200 - 0.07 #230 - 0.07			2.05	2.09	0.43	3.6	0.35

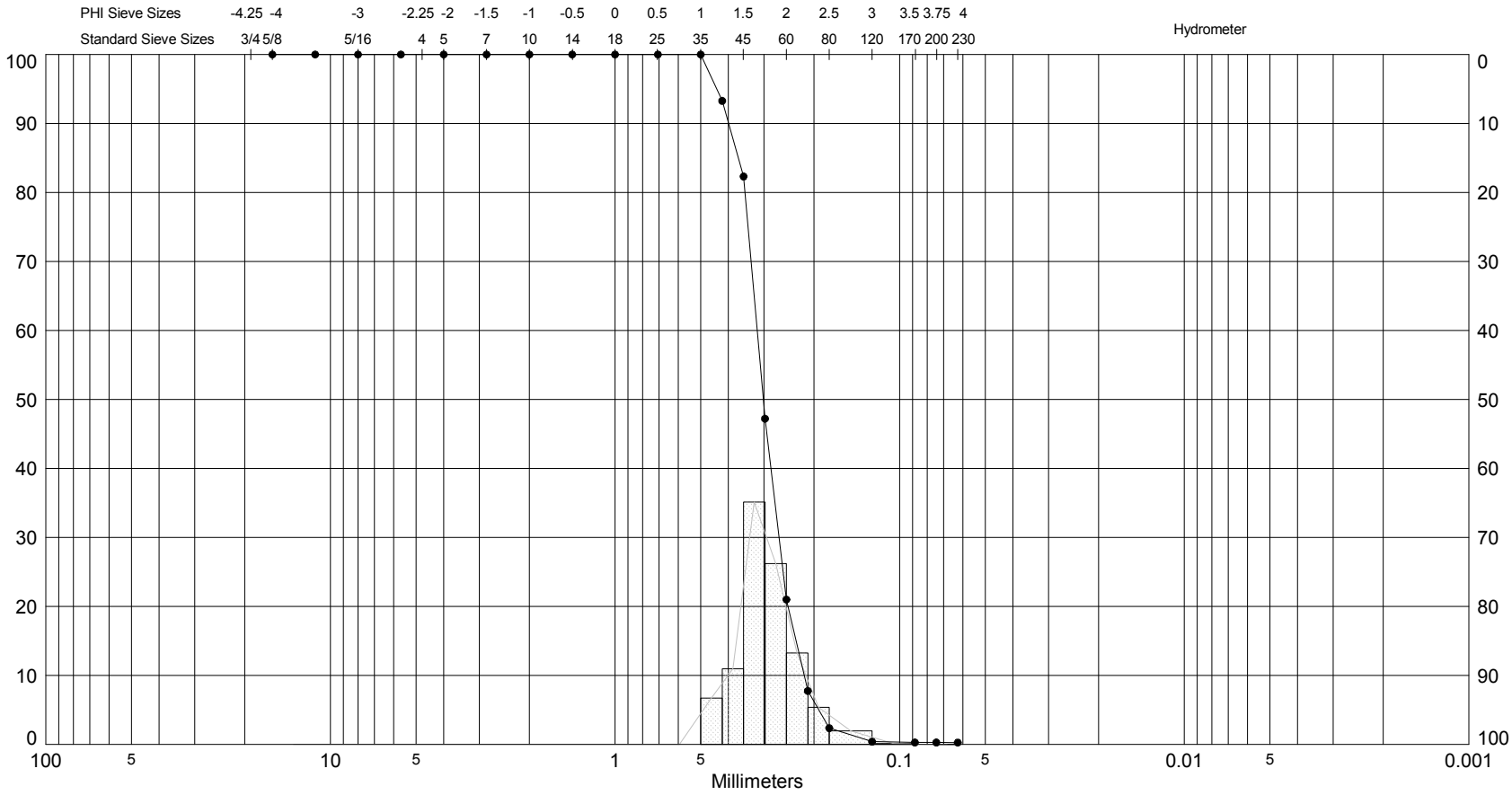
Comments: East end beach sample.

Depths and elevations based on measured values

Sample Information	
Project Name:	Dauphin Island Existing Beach
Analysis Date:	02-17-10
Analyzed By:	GL
Easting (X, ft):	1,779,768
Northing (Y, ft):	88,668
Horizontal System:	NAD 1983
Vertical System:	NAVD 88

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SIEVE ANALYSIS BEACH_SAMPLES_FEBRUARY_2010.GPJ JPBRAZIL.GDT 5/13/11



Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
DI-27 (2.2ft)	—●—	2.2	SP	#200 - 0.28 #230 - 0.27			1.73	1.76	0.49	3.88	0.34

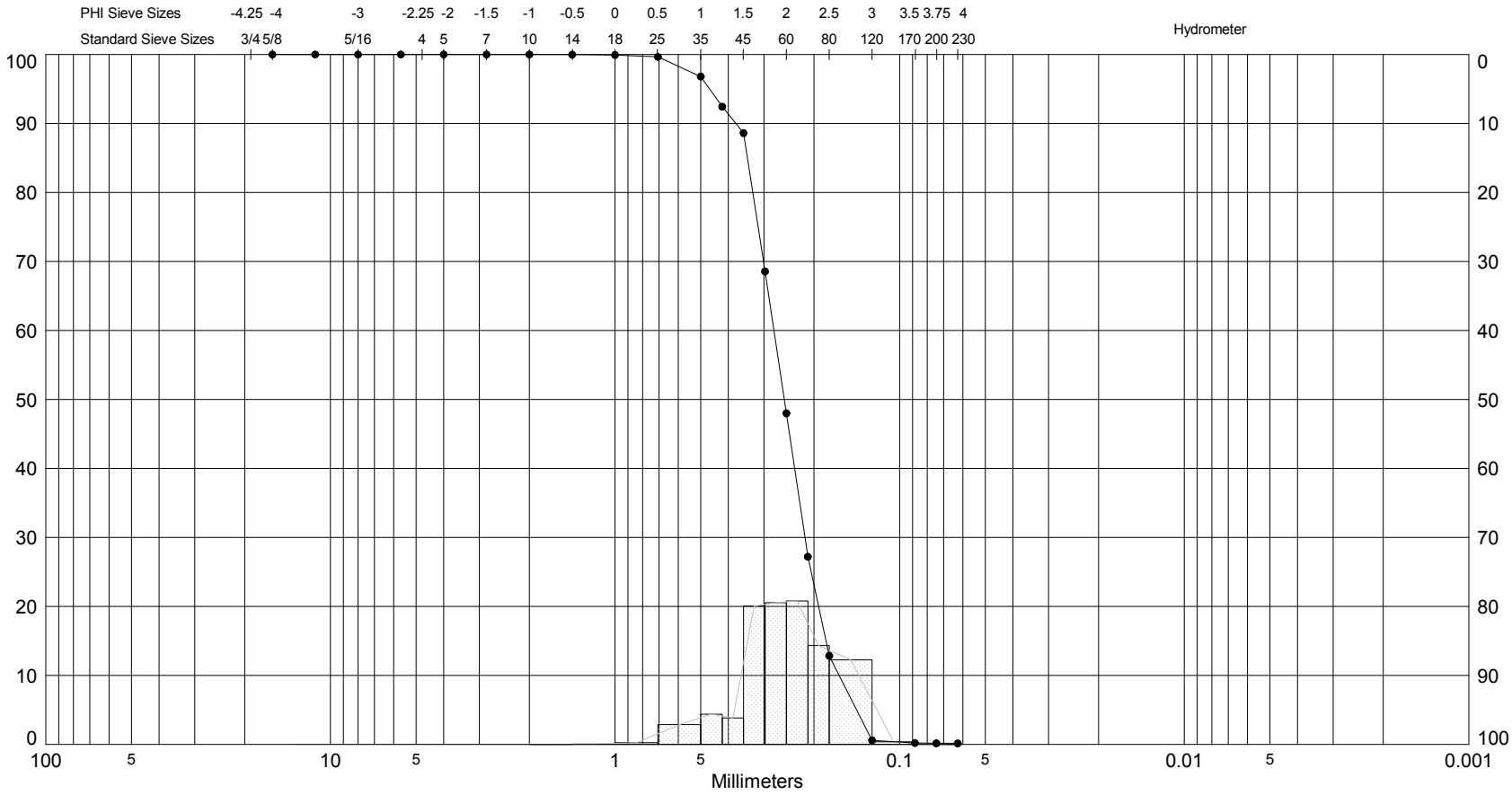
Comments: East end beach sample.

Depths and elevations based on measured values

Sample Information	
Project Name:	Dauphin Island Existing Beach
Analysis Date:	02-17-10
Analyzed By:	GL
Easting (X, ft):	1,779,768
Northing (Y, ft):	88,638
Horizontal System:	NAD 1983
Vertical System:	NAVD 88

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SIEVE ANALYSIS BEACH_SAMPLES_FEBRUARY_2010.GPJ JPBRAZIL.GDT 5/13/11



Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
DI-27 (0.9ft)	—●—	0.9	SP	#200 - 0.16 #230 - 0.15			1.98	1.97	-0.35	3.67	0.49

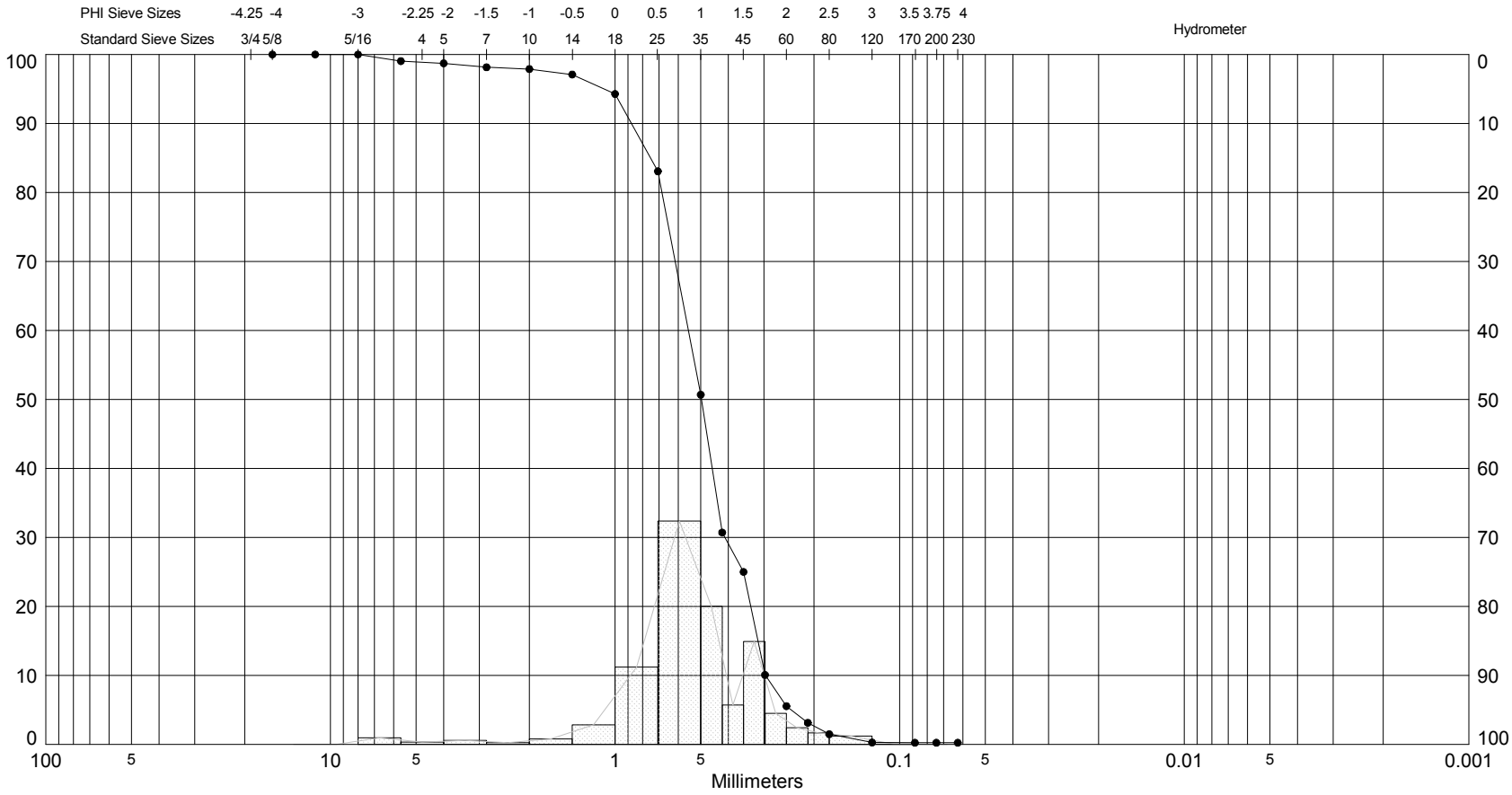
Comments: East end beach sample.

Depths and elevations based on measured values

Sample Information	
Project Name:	Dauphin Island Existing Beach
Analysis Date:	02-17-10
Analyzed By:	PB
Easting (X, ft):	1,779,768
Northing (Y, ft):	88,604
Horizontal System:	NAD 1983
Vertical System:	NAVD 88

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SIEVE ANALYSIS BEACH_SAMPLES_FEBRUARY_2010.GPJ JPBRAZIL.GDT 5/13/11



Gravel		Sand			Silt and Clay
Coarse	Fine	Coarse	Medium	Fine	

Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
DI-27 (0.0ft)	—●—	0.0	SP	#200 - 0.24 #230 - 0.24			1.01	0.97	-1.45	8.92	0.76

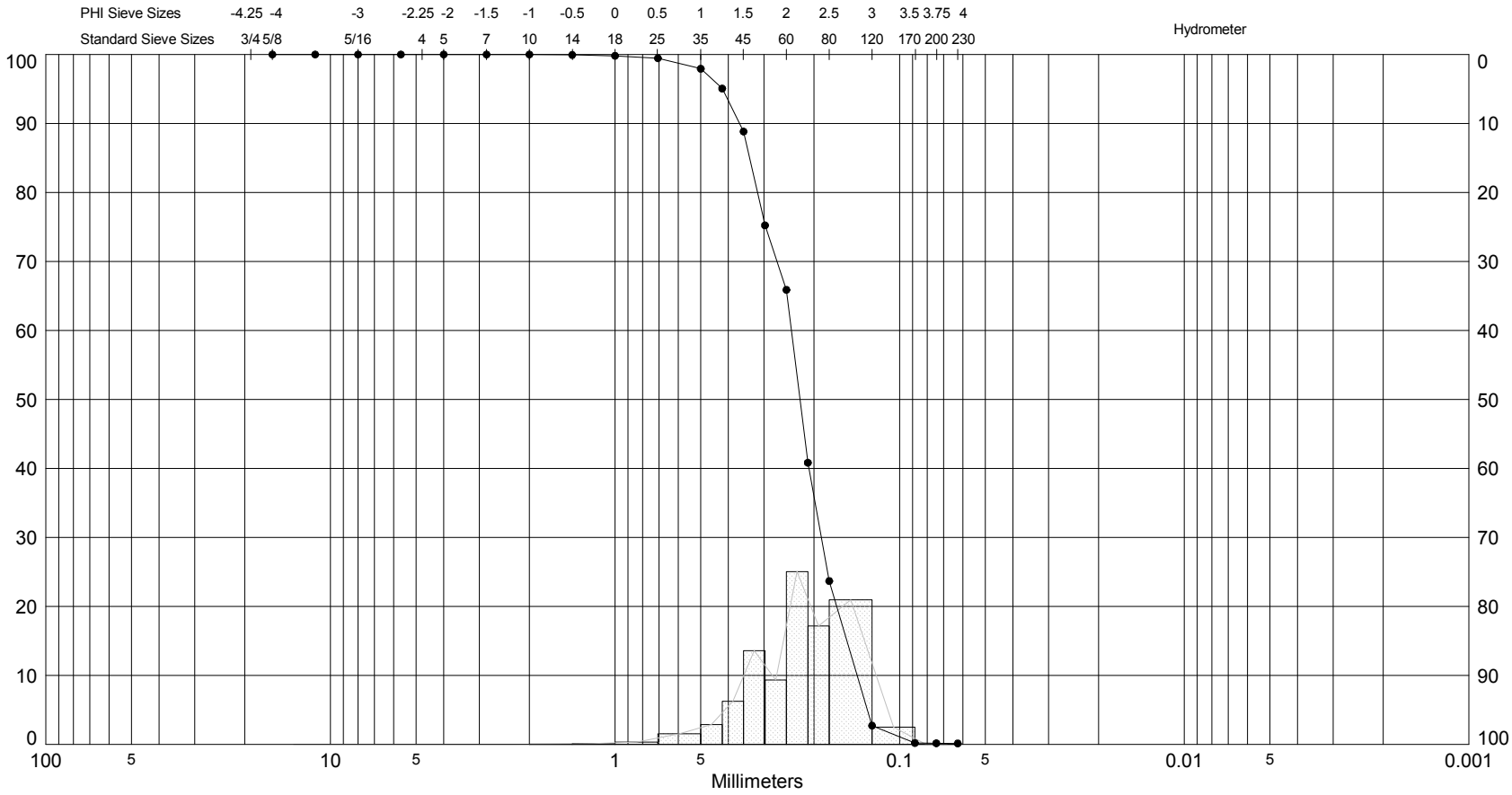
Comments: East end beach sample.

Depths and elevations based on measured values

Sample Information	
Project Name:	Dauphin Island Existing Beach
Analysis Date:	02-17-10
Analyzed By:	GL
Easting (X, ft):	1,779,763
Northing (Y, ft):	88,597
Horizontal System:	NAD 1983
Vertical System:	NAVD 88

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SIEVE ANALYSIS BEACH_SAMPLES_FEBRUARY_2010.GPJ JPBRAZIL.GDT 5/13/11



Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
DI-27 (-4.7ft)	—●—	-4.7	SP	#200 - 0.17 #230 - 0.14			2.16	2.13	-0.52	3.91	0.53

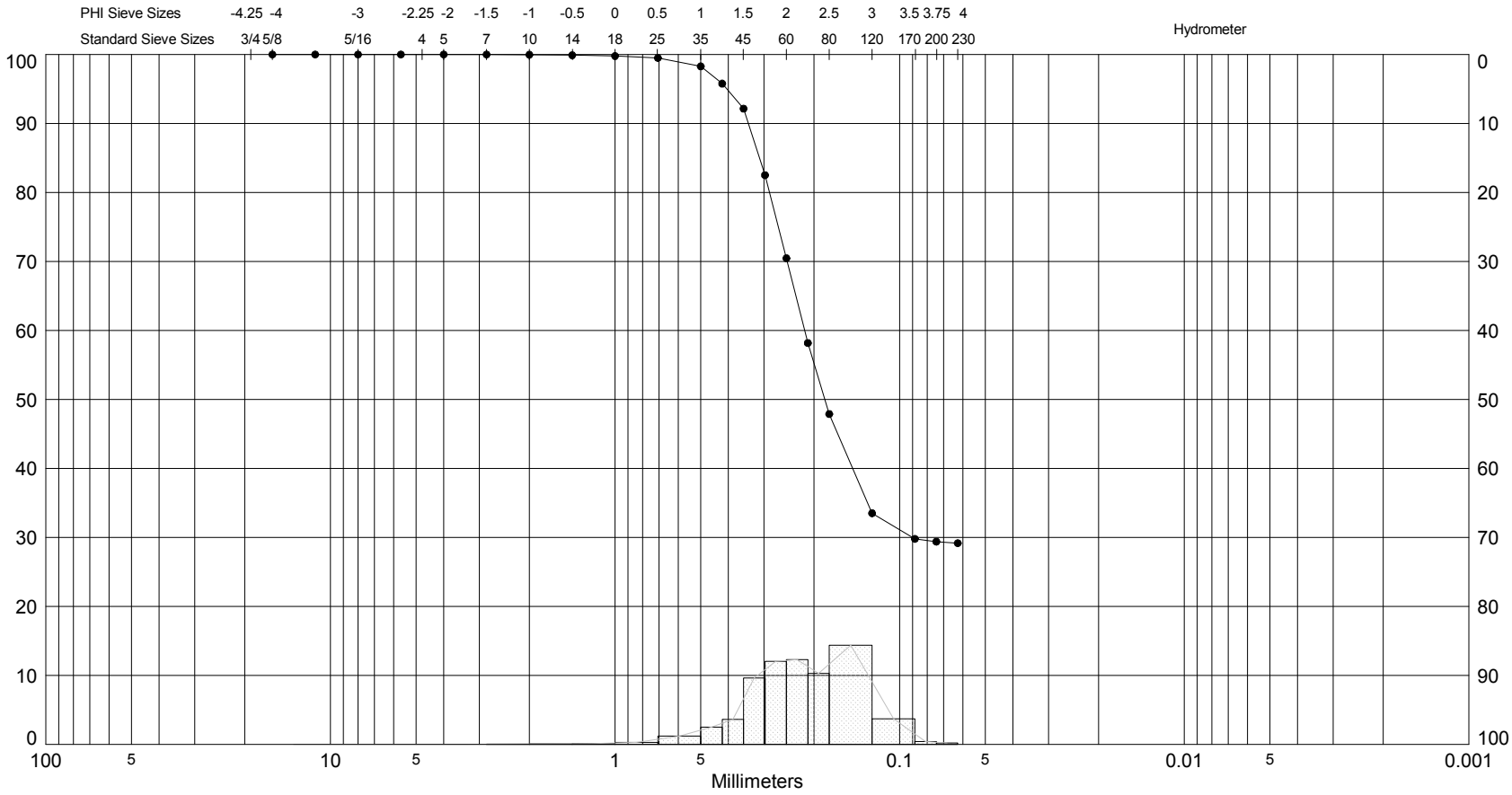
Comments: East end beach sample.

Depths and elevations based on measured values

Sample Information	
Project Name:	Dauphin Island Existing Beach
Analysis Date:	02-17-10
Analyzed By:	GL
Easting (X, ft):	1,779,752
Northing (Y, ft):	88,507
Horizontal System:	NAD 1983
Vertical System:	NAVD 88

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SIEVE ANALYSIS BEACH_SAMPLES_FEBRUARY_2010.GPJ JPBRAZIL.GDT 5/13/11



Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
DI-27 (-8.8ft)	—●—	-8.8	SC	#200 - 29.39 #230 - 29.17			2.45	2.14	-0.28	4.13	0.59

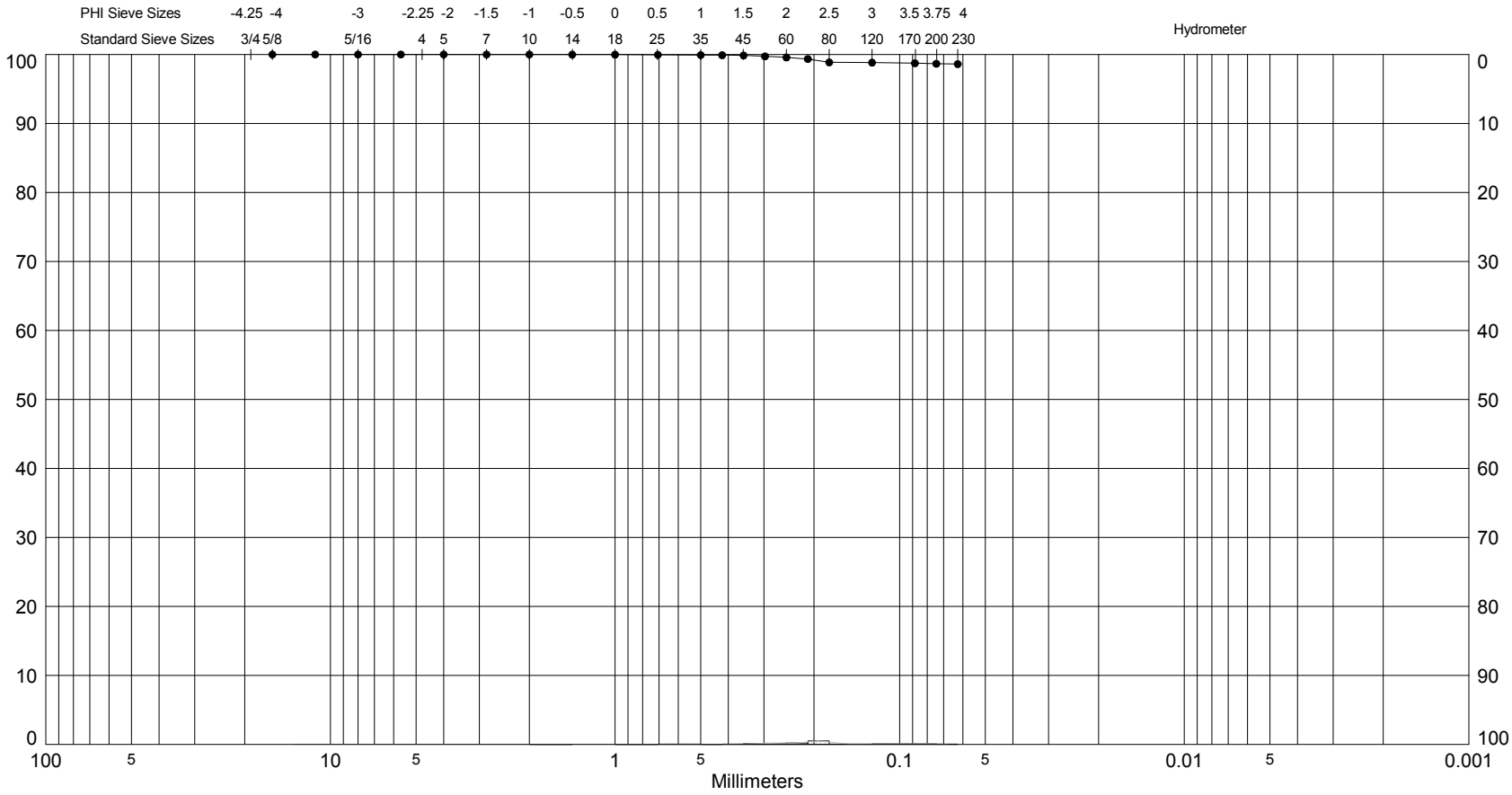
Comments: East end beach sample.

Depths and elevations based on measured values

Sample Information	
Project Name:	Dauphin Island Existing Beach
Analysis Date:	02-17-10
Analyzed By:	GL
Easting (X, ft):	1,779,757
Northing (Y, ft):	88,412
Horizontal System:	NAD 1983
Vertical System:	NAVD 88

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SIEVE ANALYSIS BEACH_SAMPLES_FEBRUARY_2010.GPJ JPBRAZIL.GDT 5/13/11



Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
DI-27 (-12.6ft)	—●—	-12.6	CL	#200 - 98.66 #230 - 98.61				2.25	-0.49	5.45	0.78

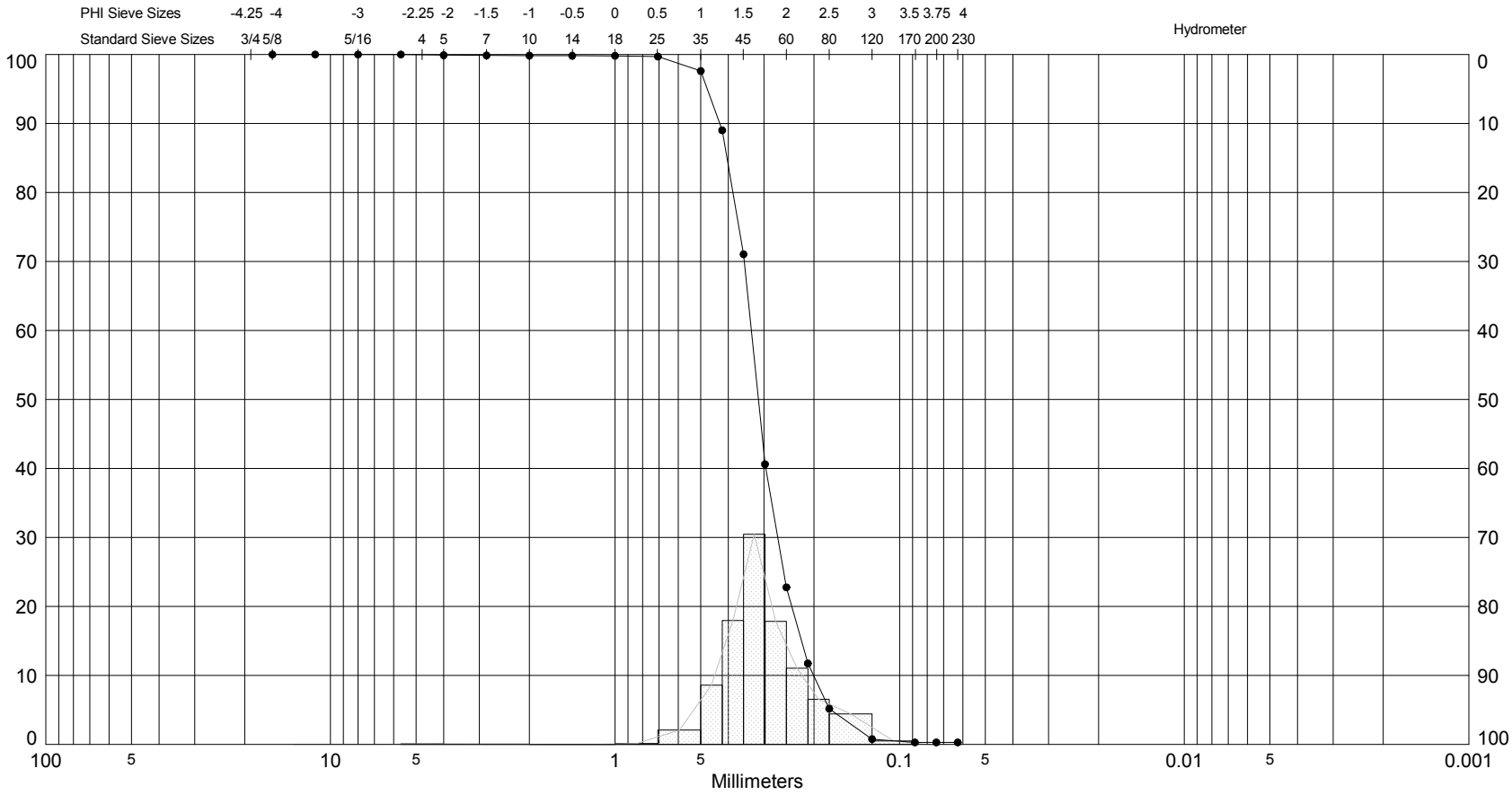
Comments: East end beach sample.

Depths and elevations based on measured values

Sample Information	
Project Name:	Dauphin Island Existing Beach
Analysis Date:	02-17-10
Analyzed By:	GL
Easting (X, ft):	1,779,780
Northing (Y, ft):	87,492
Horizontal System:	NAD 1983
Vertical System:	NAVD 88

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SIEVE ANALYSIS BEACH_SAMPLES_FEBRUARY_2010.GPJ JPBRAZIL.GDT 5/13/11



Gravel		Sand			Silt and Clay
Coarse	Fine	Coarse	Medium	Fine	

Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
DI-32 (7.0ft)	—●—	7.0	SP	#200 - 0.29 #230 - 0.29			1.67	1.72	-0.41	10.12	0.46

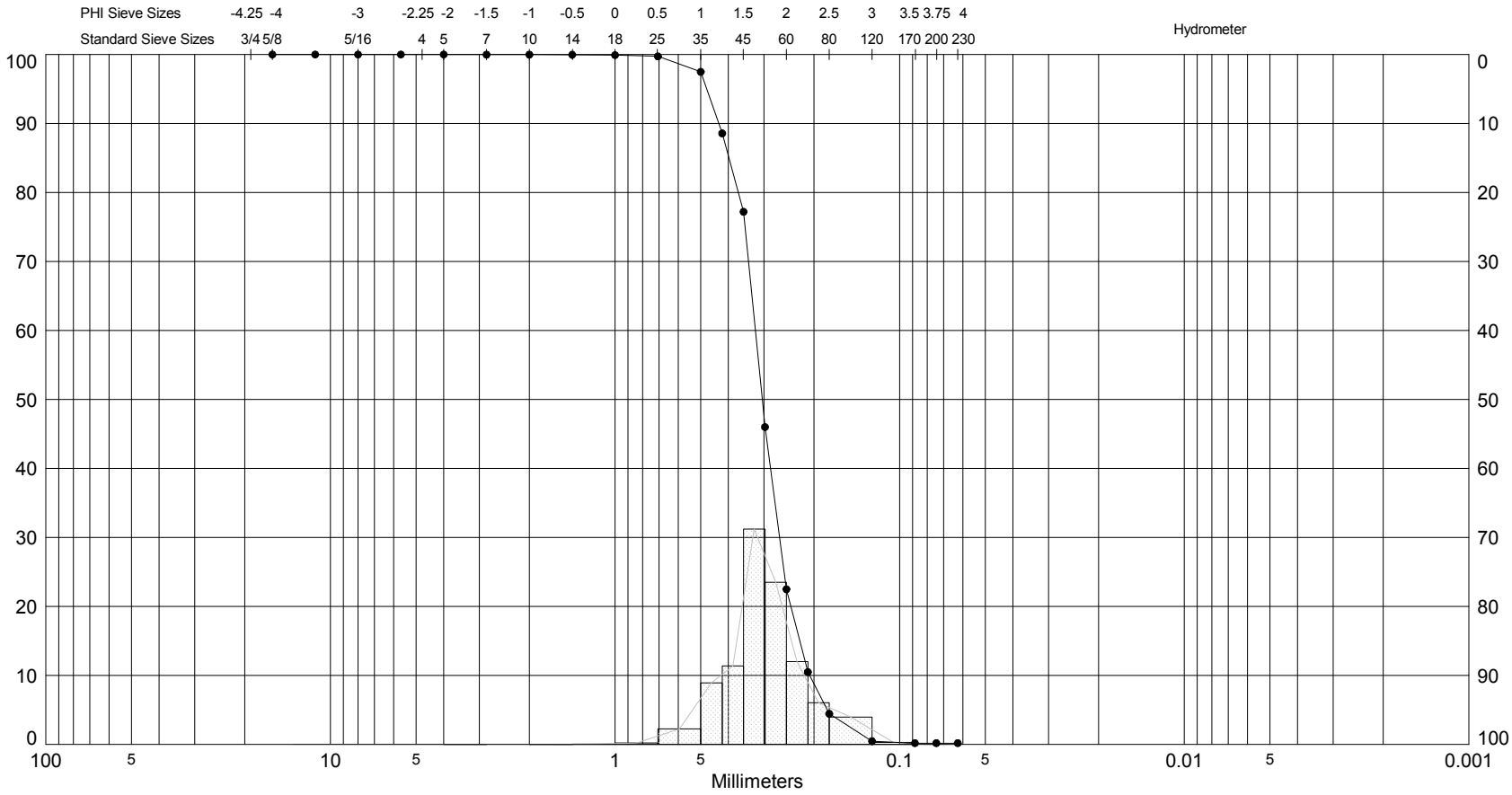
Comments: East end beach sample.

Depths and elevations based on measured values

Sample Information	
Project Name:	Dauphin Island Existing Beach
Analysis Date:	02-17-10
Analyzed By:	GL
Easting (X, ft):	1,785,900
Northing (Y, ft):	90,145
Horizontal System:	NAD 1983
Vertical System:	NAVD 88

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SIEVE ANALYSIS BEACH_SAMPLES_FEBRUARY_2010.GPJ JPBRAZIL.GDT 5/13/11



Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
DI-32 (3.1ft)	—●—	3.1	SP	#200 - 0.18 #230 - 0.18			1.72	1.74	0.07	4.83	0.42

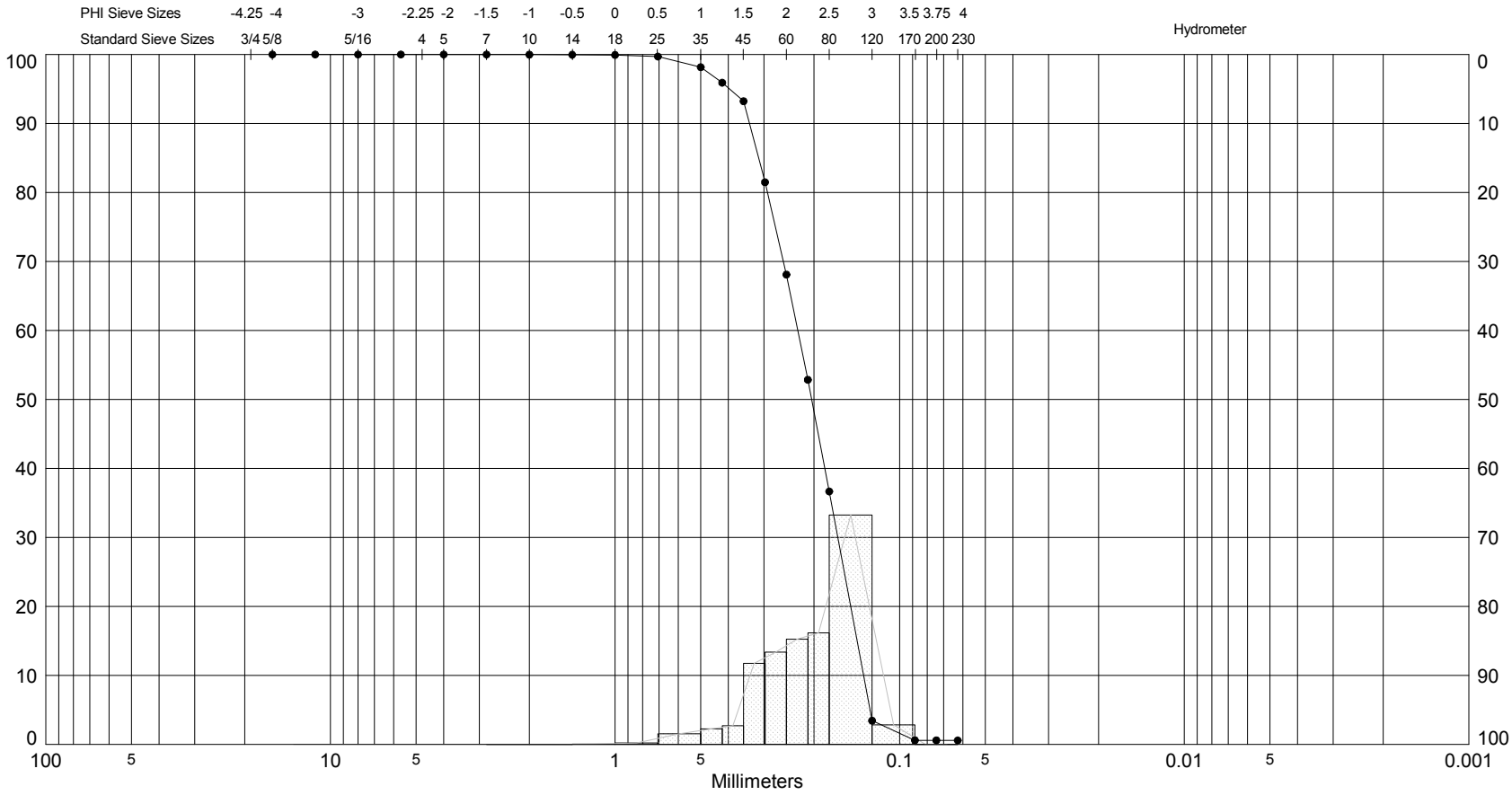
Comments: East end beach sample.

Depths and elevations based on measured values

Sample Information	
Project Name:	Dauphin Island Existing Beach
Analysis Date:	02-18-10
Analyzed By:	GL
Easting (X, ft):	1,785,899
Northing (Y, ft):	90,109
Horizontal System:	NAD 1983
Vertical System:	NAVD 88

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SIEVE ANALYSIS BEACH_SAMPLES_FEBRUARY_2010.GPJ JPBRAZIL.GDT 5/13/11



Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
DI-32 (0.9ft)	—●—	0.9	SP	#200 - 0.59 #230 - 0.58			2.29	2.24	-0.64	3.54	0.53

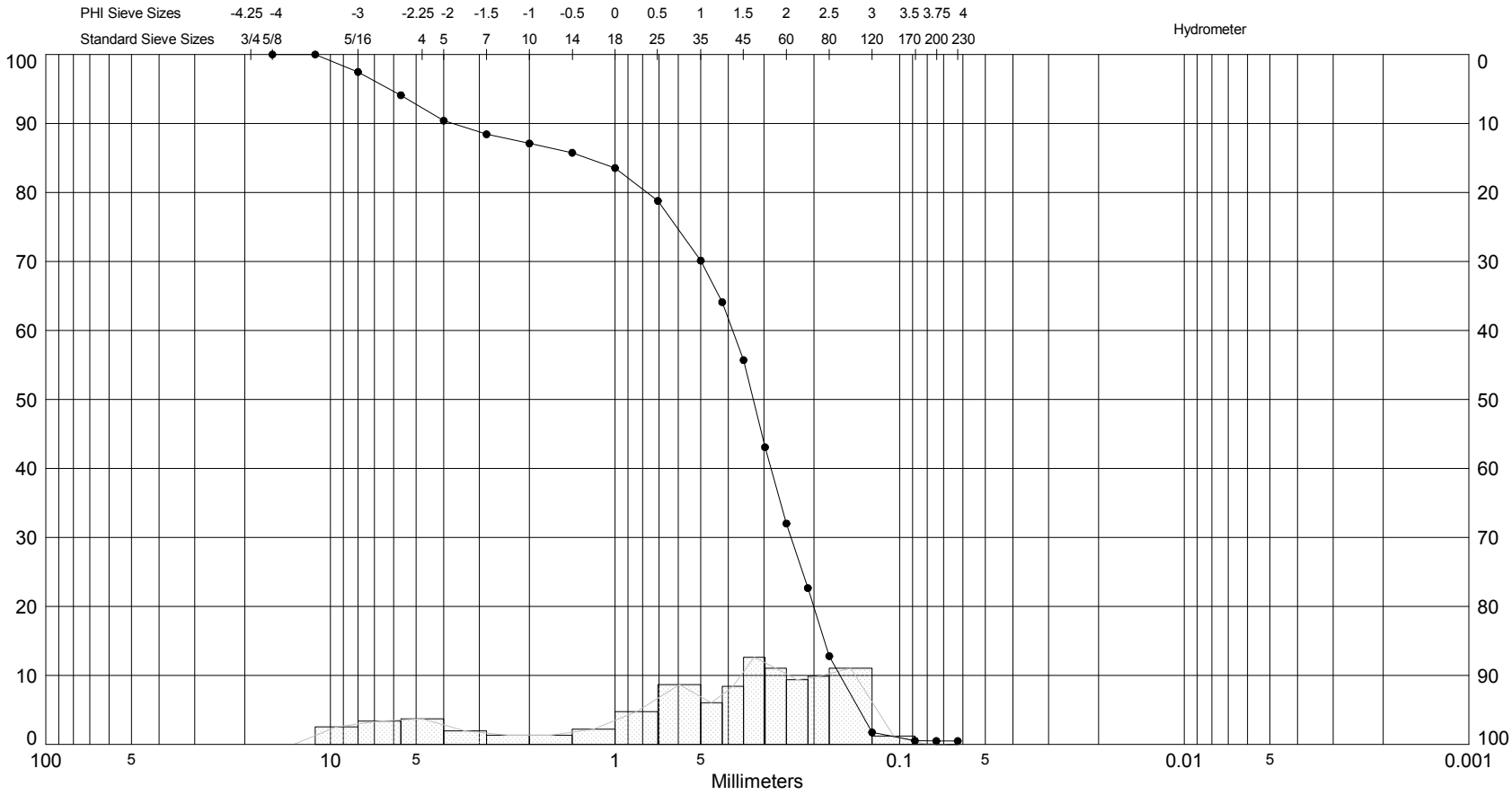
Comments: East end beach sample.

Depths and elevations based on measured values

Sample Information	
Project Name:	Dauphin Island Existing Beach
Analysis Date:	02-18-10
Analyzed By:	GL
Easting (X, ft):	1,785,898
Northing (Y, ft):	90,081
Horizontal System:	NAD 1983
Vertical System:	NAVD 88

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SIEVE ANALYSIS BEACH_SAMPLES_FEBRUARY_2010.GPJ JPBRAZIL.GDT 5/13/11



Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
DI-32 (-0.1ft)	—●—	-0.1	SW	#200 - 0.50 #230 - 0.49			1.61	1.13	-1.38	4.08	1.58

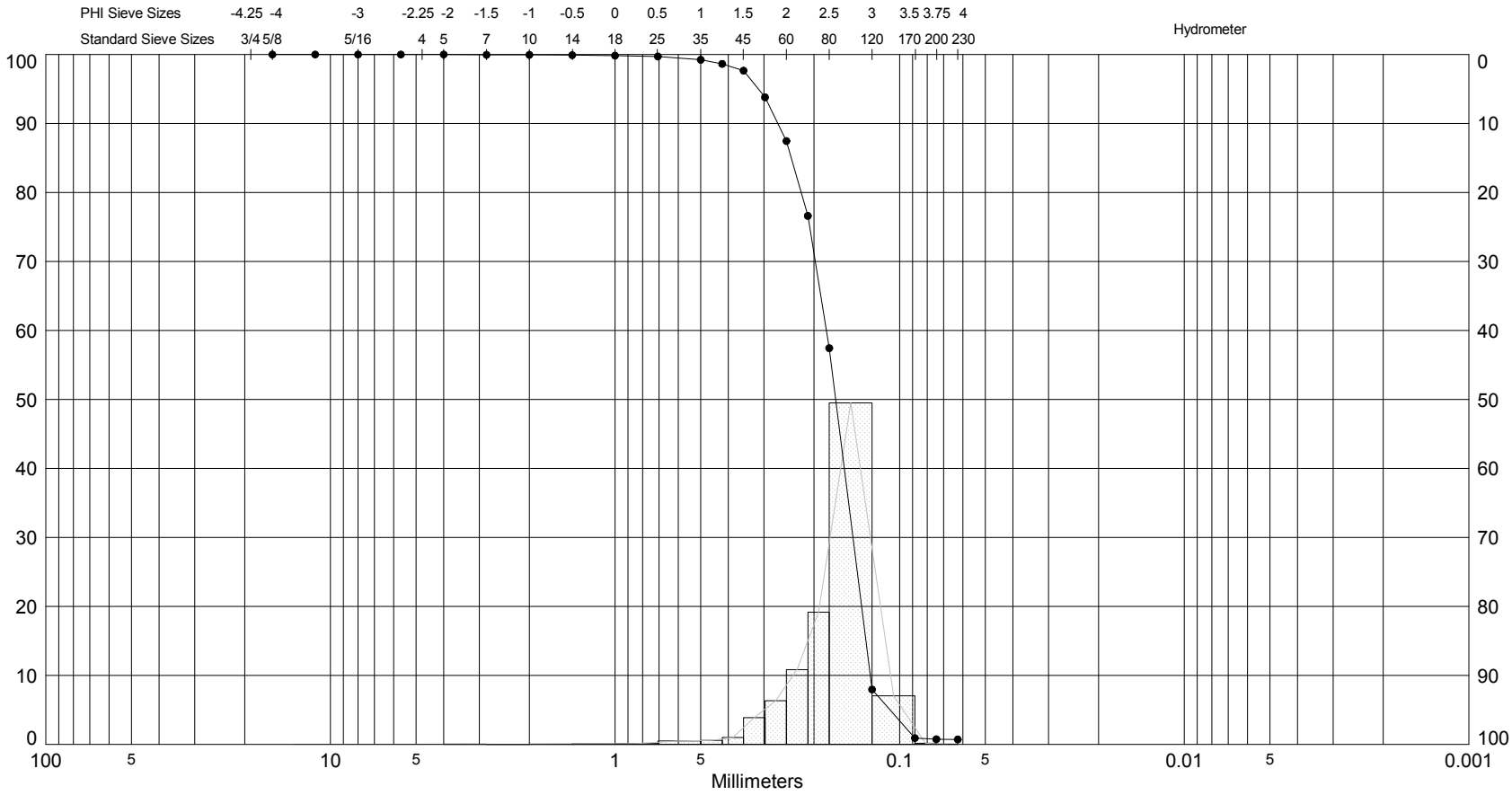
Comments: East end beach sample.

Depths and elevations based on measured values

Sample Information	
Project Name:	Dauphin Island Existing Beach
Analysis Date:	02-18-10
Analyzed By:	GL
Easting (X, ft):	1,785,899
Northing (Y, ft):	90,073
Horizontal System:	NAD 1983
Vertical System:	NAVD 88

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SIEVE ANALYSIS BEACH_SAMPLES_FEBRUARY_2010.GPJ JPBRAZIL.GDT 5/13/11



Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
DI-32 (-4.2ft)	—●—	-4.2	SP	#200 - 0.75 #230 - 0.72			2.58	2.51	-1.48	9.21	0.46

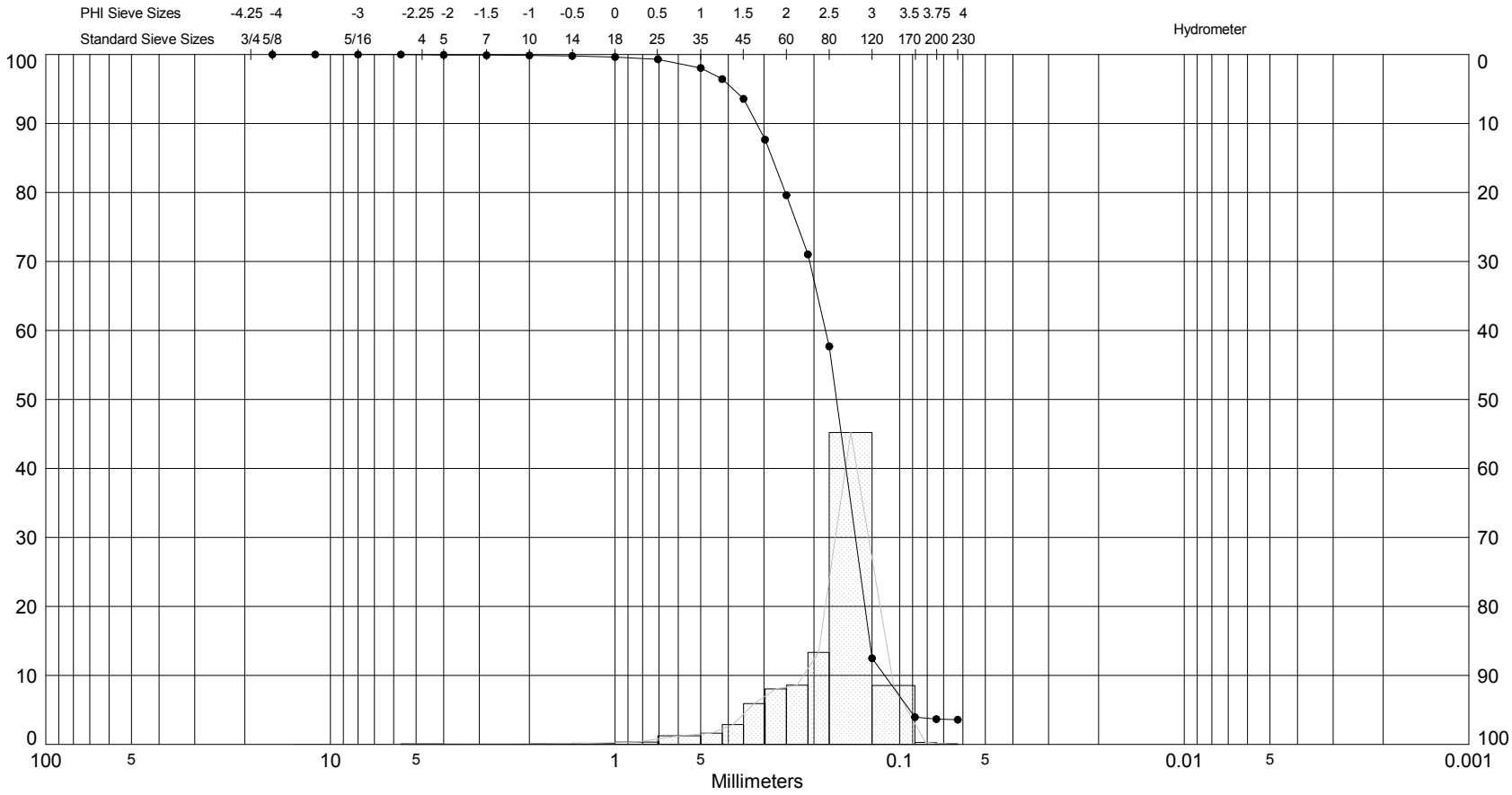
Comments: East end beach sample.

Depths and elevations based on measured values

Sample Information	
Project Name:	Dauphin Island Existing Beach
Analysis Date:	02-25-10
Analyzed By:	GL
Easting (X, ft):	1,785,827
Northing (Y, ft):	89,608
Horizontal System:	NAD 1983
Vertical System:	NAVD 88

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SIEVE ANALYSIS BEACH_SAMPLES_FEBRUARY_2010.GPJ JPBRAZIL.GDT 5/13/11



Gravel		Sand			Silt and Clay
Coarse	Fine	Coarse	Medium	Fine	

Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
DI-32 (-7.7ft)	—●—	-7.7	SP	#200 - 3.67 #230 - 3.58			2.59	2.43	-1.54	8.38	0.59

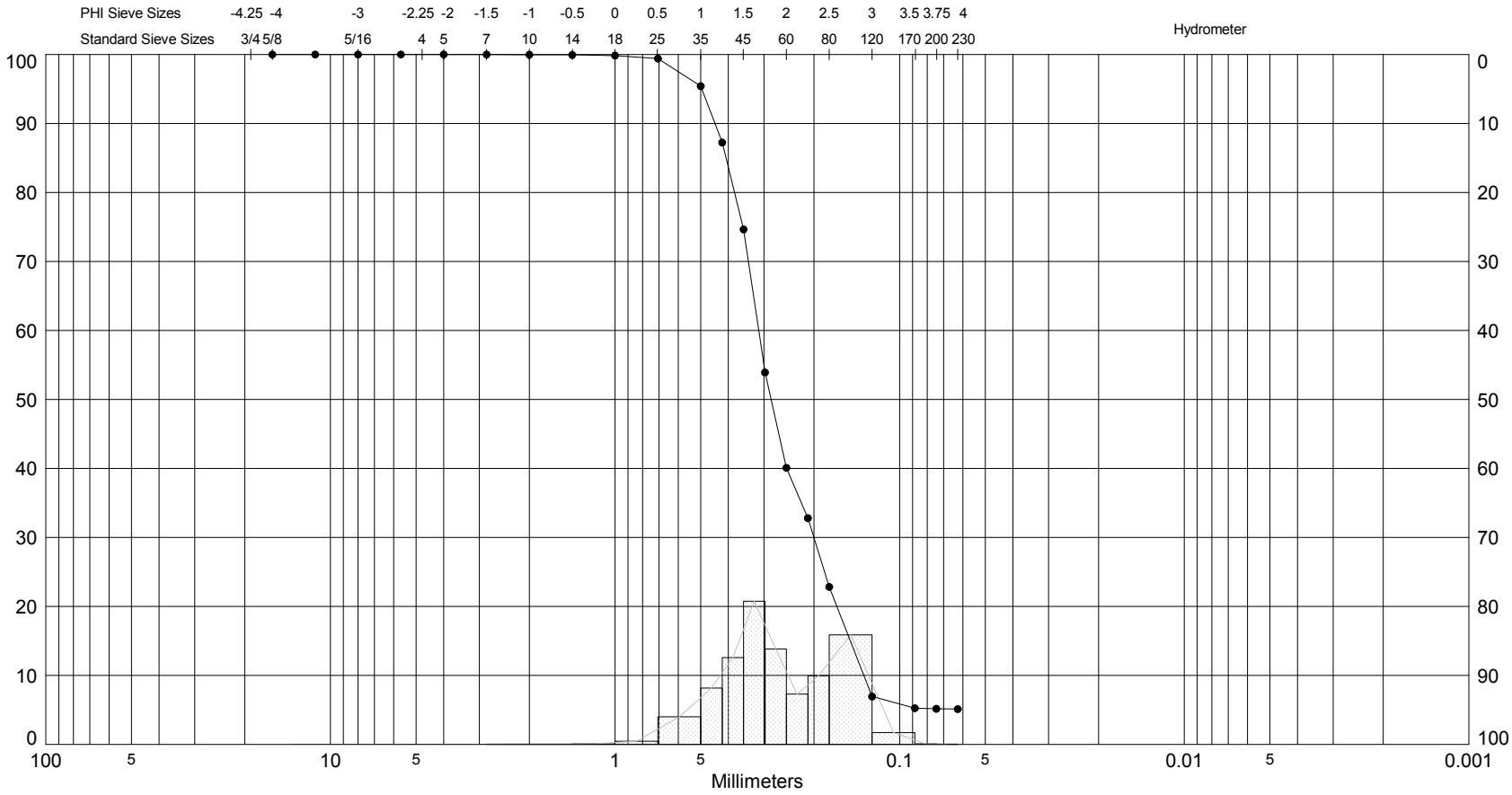
Comments: East end beach sample.

Depths and elevations based on measured values

Sample Information	
Project Name:	Dauphin Island Existing Beach
Analysis Date:	02-25-10
Analyzed By:	GL
Easting (X, ft):	1,785,945
Northing (Y, ft):	89,505
Horizontal System:	NAD 1983
Vertical System:	NAVD 88

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SIEVE ANALYSIS BEACH_SAMPLES_FEBRUARY_2010.GPJ JPBRAZIL.GDT 5/13/11



Gravel		Sand			Silt and Clay
Coarse	Fine	Coarse	Medium	Fine	

Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
DI-32 (-11.9ft)	—●—	-11.9	SP-SM	#200 - 5.16 #230 - 5.12			1.82	1.88	0.09	2.84	0.61

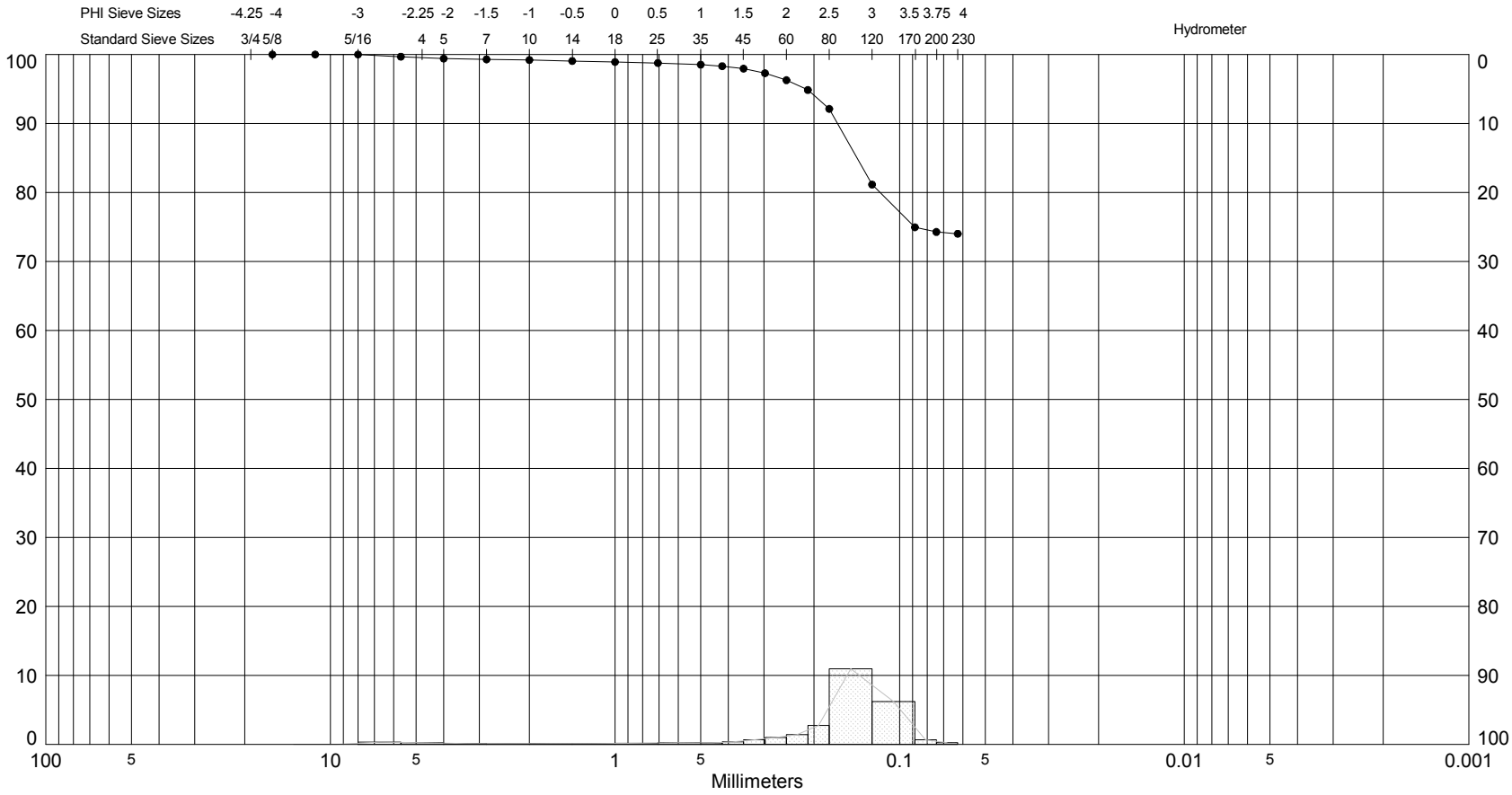
Comments: East end beach sample.

Depths and elevations based on measured values

Sample Information	
Project Name:	Dauphin Island Existing Beach
Analysis Date:	02-25-10
Analyzed By:	GL
Easting (X, ft):	1,785,924
Northing (Y, ft):	85,825
Horizontal System:	NAD 1983
Vertical System:	NAVD 88

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SIEVE ANALYSIS BEACH_SAMPLES_FEBRUARY_2010.GPJ JPBRAZIL.GDT 5/13/11



Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
DI-32 (-16.2ft)	—●—	-16.2	CL	#200 - 74.28 #230 - 74.02				2.51	-3.06	13.86	1.07

Comments: East end beach sample.

Depths and elevations based on measured values

Sample Information	
Project Name:	Dauphin Island Existing Beach
Analysis Date:	02-25-10
Analyzed By:	GL
Easting (X, ft):	1,785,897
Northing (Y, ft):	84,340
Horizontal System:	NAD 1983
Vertical System:	NAVD 88

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SIEVE ANALYSIS BEACH_SAMPLES_FEBRUARY_2010.GPJ JPBRAZIL.GDT 5/13/11

APPENDIX 5
Beach Composite Summary Tables

COMPOSITE SUMMARY TABLE
DAUPHIN ISLAND
2010 BEACH SAMPLES

SAMPLE I.D.	MEAN (mm)	PHI MEAN	PHI SORTING	% SILT	DRY MUNSELL VALUE
DI-2 COMPOSITE	0.28	1.83	0.68	1.27	7
DI-8 COMPOSITE	0.28	1.83	0.70	1.51	7
DI-10 COMPOSITE	0.27	1.91	0.63	1.86	7
DI-14 COMPOSITE	0.25	2.01	0.55	1.88	7
DI-21 COMPOSITE	0.3	1.74	0.48	1.20	7
DI-27 COMPOSITE	0.28	1.84	0.71	7.50	7
DI-32 COMPOSITE	0.25	1.99	0.87	1.98	7
WEST END TOTAL	0.27	1.89	0.65	1.63	7
EAST END TOTAL	0.28	1.86	0.69	3.56	7

CUMULATIVE PERCENTS AND COMPUTED COMPOSITE DISTRIBUTION FOR R-MONUMENTS
DAUPHIN ISLAND 2010 BEACH SAMPLES

SAMPLE I.D. NAVD88 (FT)	MEAN (mm)	PHI MEAN	PHI SORTING	% SILT	DRY MUNSELL VALUE	PHI SIZES -4.0	-3.5	-3.0	-2.5	-2.0	-1.5	-1.0	-0.5	0.0	0.5	1.0	1.25	1.5	1.75	2.0	2.25	2.5	3.0	3.5	3.75	4.0	PAN
DI-2 COMPOSITE	0.28	1.83	0.68	1.27	7	0.00	0.00	0.00	0.00	0.04	0.06	0.08	0.20	0.57	2.08	10.11	16.29	29.05	48.72	63.31	71.90	80.52	95.29	98.56	98.71	98.73	100.00
DI-8 COMPOSITE	0.28	1.83	0.7	1.51	7	0.00	0.00	0.04	0.17	0.21	0.24	0.29	0.39	0.79	2.38	10.09	15.86	26.92	45.56	61.54	71.72	82.03	95.56	98.21	98.43	98.49	99.99
DI-10 COMPOSITE	0.27	1.91	0.63	1.86	7	0.00	0.00	0.00	0.06	0.06	0.07	0.08	0.15	0.34	1.26	6.53	11.19	21.48	41.21	58.51	69.51	80.63	95.22	97.89	98.08	98.14	99.98
DI-14 COMPOSITE	0.25	2.01	0.55	1.88	7	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.09	0.29	1.06	4.85	8.02	14.24	27.42	45.54	63.87	83.24	97.22	98.07	98.11	98.12	99.95
DI-21 COMPOSITE	0.3	1.7	0.5	1.20	7	0.00	0.00	0.00	0.00	0.01	0.02	0.03	0.07	0.20	1.02	6.81	14.74	25.21	47.30	70.05	85.95	96.16	98.55	98.78	98.79	98.79	99.99
DI-27 COMPOSITE	0.28	1.84	0.71	7.50	7	0.00	0.00	0.00	0.17	0.23	0.33	0.38	0.56	1.13	3.29	9.95	16.13	21.51	37.83	51.79	67.91	78.85	90.58	92.33	92.44	92.50	100.00
DI-32 COMPOSITE	0.25	1.99	0.87	1.98	7	0.00	0.00	0.31	0.72	1.20	1.45	1.64	1.83	2.17	2.98	5.80	10.85	18.64	34.39	47.22	57.27	69.07	94.27	97.88	97.99	98.02	100.00
WEST END TOTAL	0.27	1.89	0.65	1.63	7	0.00	0.00	0.01	0.06	0.08	0.09	0.12	0.21	0.50	1.70	7.89	12.84	22.92	40.73	57.22	69.25	81.60	95.82	98.18	98.33	98.37	99.98
EAST END TOTAL	0.28	1.86	0.69	3.56	7	0.00	0.00	0.10	0.30	0.48	0.60	0.68	0.82	1.17	2.43	7.52	13.91	21.79	39.84	56.35	70.37	81.36	94.47	96.33	96.41	96.44	99.99

CUMULATIVE PERCENTS AND COMPUTED COMPOSITE DISTRIBUTION FOR R-MONUMENTS
DAUPHIN ISLAND 2010 BEACH SAMPLES

SAMPLE I.D. NAVD88 (FT)	WEIGHTING VALUE	MEAN (mm)	PHI MEAN	PHI SORTING	% SILT	DRY MUNSELL VALUE	PHI SIZES -4.0	-3.5	-3.0	-2.5	-2.0	-1.5	-1.0	-0.5	0.0	0.5	1.0	1.25	1.5	1.75	2.0	2.25	2.5	3.0	3.5	3.75	4.0	PAN
DI-2 (5.5ft)	2.3	0.41	1.28	0.52	0.84	8	0.00	0.00	0.00	0.00	0.08	0.16	0.26	0.44	1.30	5.63	26.56	41.54	61.37	84.54	94.66	97.67	98.81	99.12	99.14	99.15	99.16	100.00
DI-2 (1.0ft)	2.9	0.35	1.50	0.48	0.89	8	0.00	0.00	0.00	0.00	0.23	0.26	0.32	0.46	0.69	1.93	12.01	21.47	43.13	72.64	89.78	95.63	98.27	99.07	99.09	99.10	99.11	100.00
DI-2 (-0.2ft)	3.3	0.33	1.59	0.39	1.16	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.36	1.19	6.49	12.42	32.33	69.03	90.04	95.96	98.01	98.78	98.83	98.84	98.84	99.99
DI-2 (-5.5ft)	4.1	0.25	2.02	0.65	1.29	7	0.00	0.00	0.00	0.00	0.00	0.03	0.04	0.16	0.51	1.55	6.71	10.25	18.00	32.34	48.55	61.04	74.60	95.42	98.62	98.70	98.71	100.00
DI-2 (-8.3ft)	2.3	0.32	1.66	0.71	1.31	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.20	1.00	4.25	17.78	25.95	39.28	56.43	69.73	78.17	86.21	96.51	98.60	98.68	98.69	100.00
DI-2 (-6.5ft)	3.9	0.24	2.04	0.66	1.36	7	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.08	0.31	1.14	6.53	10.43	18.90	32.70	46.99	58.86	72.06	93.81	98.46	98.63	98.64	99.99
DI-2 (-12.5ft)	3.0	0.18	2.44	0.61	1.88	6	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.13	0.24	0.75	3.06	4.63	7.52	13.06	20.72	29.73	44.83	85.65	97.32	97.96	98.12	99.99
DI-2 COMPOSITE	**21.8**	**0.28**	**1.83**	**0.68**	**1.27**	**7**	**0.00**	**0.00**	**0.00**	**0.00**	**0.04**	**0.06**	**0.08**	**0.20**	**0.57**	**2.08**	**10.11**	**16.29**	**29.05**	**48.72**	**63.31**	**71.90**	**80.52**	**95.29**	**98.56**	**98.71**	**98.73**	**100.00**
DI-8 (5.5ft)	2.3	0.34	1.54	0.70	0.87	7	0.00	0.00	0.00	0.98	1.14	1.30	1.55	1.73	2.00	3.38	11.99	19.71	36.16	63.19	83.49	92.34	96.75	98.81	99.04	99.08	99.13	99.97
DI-8 (1.0ft)	2.9	0.32	1.66	0.29	0.97	8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	2.02	5.83	23.69	63.90	89.73	97.11	99.00	99.03	99.03	99.03	99.03	100.00
DI-8 (-0.2ft)	2.7	0.47	1.08	0.57	0.62	8	0.00	0.00	0.32	0.45	0.68	0.71	0.73	0.97	2.19	8.66	39.22	57.80	79.17	93.45	97.95	98.99	99.31	99.37	99.38	99.38	99.38	99.97
DI-8 (-4.3ft)	3.2	0.24	2.08	0.50	1.35	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.17	0.64	2.81	4.71	9.62	23.45	42.26	59.74	80.47	98.04	98.61	98.64	98.65	99.99
DI-8 (-6.6ft)	1.5	0.27	1.89	0.58	1.45	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.23	1.01	6.22	11.08	21.25	39.60	58.34	71.65	83.90	97.30	98.49	98.54	98.55	100.00
DI-8 (-6.0ft)	2.5	0.28	1.84	0.61	1.50	7	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.13	0.50	1.72	8.40	13.55	24.08	43.23	61.99	74.28	85.26	97.00	98.46	98.49	98.50	100.00
DI-8 (-10.4ft)	5.7	0.21	2.24	0.70	2.57	7	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.17	0.67	1.83	5.48	8.06	12.52	21.44	32.57	43.17	58.22	88.21	96.51	97.23	97.43	100.00
DI-8 (-17.4ft)	0.0	0.13	2.90	0.52	82.46	5	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.03	0.06	0.08	0.12	0.16	0.27	0.44	0.85	1.41	2.54	10.37	15.79	16.86	17.54	100.00
DI-8 (-18.3ft)	0.0	0.23	2.09	0.75	61.54	5	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.04	0.09	0.20	1.68	3.48	8.06	15.40	20.52	23.41	26.41	33.65	36.91	37.79	38.46	100.00
DI-8 COMPOSITE	**20.8**	**0.28**	**1.83**	**0.70**	**1.51**	**7**	**0.00**	**0.00**	**0.04**	**0.17**	**0.21**	**0.24**	**0.29**	**0.39**	**0.79**	**2.38**	**10.09**	**15.86**	**26.92**	**45.56**	**61.54**	**71.72**	**82.03**	**95.56**	**98.21**	**98.43**	**98.49**	**99.99**
DI-10 (5.5ft)	2.3	0.37	1.44	0.49	0.52	8	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.03	0.26	3.01	20.29	28.94	47.81	74.17	90.78	96.42	98.70	99.40	99.46	99.47	99.48	99.95
DI-10 (1.0ft)	2.9	0.29	1.78	0.35	1.22	8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.03	0.10	1.76	5.25	16.44	47.01	76.15	90.72	97.12	98.76	98.78	98.78	98.78	99.99
DI-10 (-0.2ft)	3.2	0.32	1.66	0.34	0.89	8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	2.63	9.24	27.41	63.39	86.17	94.52	98.28	99.08	99.11	99.11	99.11	100.00
DI-10 (-5.3ft)	3.7	0.26	1.94	0.52	1.28	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.27	0.95	4.43	7.41	15.23	33.27	54.62	71.46	86.83	97.66	98.70	98.72	98.72	99.97
DI-10 (-7.6ft)	1.6	0.25	2.01	0.65	1.50	7	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.13	0.49	1.83	7.32	11.12	18.08	31.96	47.09	59.70	74.98	95.99	98.41	98.48	98.50	99.97
DI-10 (-6.7ft)	3.8	0.26	1.92	0.70	1.42	7	0.00	0.00	0.00	0.00	0.00	0.04	0.09	0.33	0.84	2.52	9.91	15.50	24.67	39.63	53.32	64.00	76.82	95.76	98.47	98.55	98.58	99.98
DI-10 (-13.4ft)	5.4	0.21	2.28	0.71	4.15	6	0.00	0.00	0.00	0.27	0.27	0.27	0.27	0.29	0.40	0.98	4.38	7.56	12.50	20.19	28.59	37.28	53.72	86.95	94.89	95.63	95.85	100.00
DI-10 (-17.4ft)	0.0	0.15	2.76	0.57	78.89	5	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.08	0.15	0.21	0.33	0.42	0.55	0.78	1.23	1.83	4.15	15.90	19.58	20.42	21.11	100.00
DI-10 COMPOSITE	**22.9**	**0.27**	**1.91**	**0.63**	**1.86**	**7**	**0.00**	**0.00**	**0.00**	**0.06**	**0.06**	**0.07**	**0.08**	**0.15**	**0.34**	**1.26**	**6.53**	**11.19**	**21.48**	**41.21**	**58.51**	**69.51**	**80.63**	**95.22**	**97.89**	**98.08**	**98.14**	**99.98**
DI-14 (5.5ft)	2.3	0.27	1.91	0.38	0.07	8	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.04	0.06	0.22	1.55	3.99	10.84	30.85	59.29	82.72	96.99	99.85	99.93	99.93	99.93	100.00
DI-14 (1.0ft)	2.9	0.25	1.98	0.45	0.55	7	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.02	0.06	0.31	2.92	5.82	12.21	26.84	48.40	70.74	91.14	99.35	99.43	99.44	99.45	100.00
DI-14 (-0.2ft)	3.3	0.26	1.96	0.63	1.56	7	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.17	0.60	2.28	9.14	13.60	19.50	29.90	43.47	59.78	83.78	98.07	98.42	98.43	98.44	99.98
DI-14 (-5.6ft)	6.0	0.26	1.97	0.61	1.73	7	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.12	0.41	1.54	6.82	11.23	18.99	32.92	49.20	63.36	80.40	97.10	98.24	98.27	98.27	99.84
DI-14 (-12.1ft)	6.3	0.23	2.12	0.51	3.48	6	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.06	0.19	0.62	2.81	4.53	9.13	19.90	36.81	56.47	77.01	94.96	96.43	96.51	96.52	100.00
DI-14 (-18.2ft)	0.0	0.23	2.11	0.44	61.67	5	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.05	0.09	0.16	0.47	0.88	2.21	6.69	14.85	24.18	33.42	37.66	38.20	38.29	38.33	99.97
DI-14 (-10.2ft)	0.0	0.20	2.34	0.48	3.06	6	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.18	0.44	0.83	1.75	2.49	3.64	7.53	15.69	32.29	65.29	93.20	96.82	96.91	96.94	99.97
DI-14 (-14.2ft)	0.0	0.18	2.46	0.52	4.98	6	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.20	0.56	1.05	2.04	2.66	3.70	6.46	11.90	22.38	48.27	87.43	94.60	94.93	95.02	99.98
DI-14 (-18.1ft)	0.0	0.17	2.58	1.20	99.40	5	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.03	0.04	0.05	0.07	0.08	0.10	0.13	0.15	0.18	0.21	0.31	0.48	0.56	0.60	100.00
DI-14 COMPOSITE	**20.8**	**0.25**	**2.01**	**0.55**	**1.88**	**7**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.03**	**0.09**	**0.29**	**1.06**	**4.85**	**8.02**	**14.24**	**27.42**	**45.54**	**63.87**	**83.24**	**97.22**	**98.07**	**98.11**	**98.12**	**99.95**

CUMULATIVE PERCENTS AND COMPUTED COMPOSITE DISTRIBUTION FOR R-MONUMENTS
DAUPHIN ISLAND 2010 BEACH SAMPLES

SAMPLE I.D. NAVD88 (FT)	WEIGHTING VALUE	MEAN (mm)	PHI MEAN	PHI SORTING	% SILT	DRY MUNSELL VALUE	PHI SIZES -4.0	-3.5	-3.0	-2.5	-2.0	-1.5	-1.0	-0.5	0.0	0.5	1.0	1.25	1.5	1.75	2.0	2.25	2.5	3.0	3.5	3.75	4.0	PAN
DI-21 (4.9)	1.2	0.48	1.07	0.49	0.54	7	0.00	0.00	0.00	0.00	0.17	0.21	0.36	0.62	1.71	7.56	38.75	69.87	82.57	92.30	96.15	97.83	99.45	99.46	99.46	99.46	99.46	99.98
DI-21 (2.6)	2.0	0.30	1.74	0.39	0.07	8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.35	2.96	10.96	19.75	51.64	77.43	91.70	97.75	99.76	99.92	99.93	99.93	100.00
DI-21 (0.9)	1.4	0.30	1.76	0.51	0.18	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.20	1.10	6.43	14.46	27.00	49.08	69.61	84.48	94.37	99.20	99.78	99.82	99.82	100.00
DI-21 (-0.1)	3.7	0.26	1.93	0.37	0.19	8	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.02	0.03	0.12	1.93	4.66	9.38	28.17	55.40	79.99	98.91	99.49	99.81	99.81	99.81	100.00
DI-21 (-6.4)	4.2	0.31	1.71	0.47	1.39	6	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.02	0.09	0.74	6.52	13.84	28.53	51.88	74.35	87.92	95.49	98.45	98.59	98.60	98.61	100.00
DI-21 (-8.5)	2.7	0.29	1.80	0.44	3.94	6	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.02	0.07	0.36	3.28	9.22	20.18	42.74	66.80	82.35	91.81	95.80	96.03	96.06	96.06	99.93
DI-21 (-11.7)	0.0	0.21	2.24	0.59	95.42	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.07	0.23	0.46	0.93	1.57	2.22	3.06	4.26	4.50	4.55	4.58	100.00
DI-21 COMPOSITE	**15.1**	**0.30**	**1.74**	**0.48**	**1.20**	**7**	**0.00**	**0.00**	**0.00**	**0.00**	**0.01**	**0.02**	**0.03**	**0.07**	**0.20**	**1.02**	**6.81**	**14.74**	**25.21**	**47.30**	**70.05**	**85.95**	**96.16**	**98.55**	**98.78**	**98.79**	**98.79**	**99.99**
DI-27 (5.1)	1.5	0.23	2.09	0.35	0.07	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.04	0.12	0.41	0.54	16.14	44.91	71.48	88.75	99.34	99.92	99.93	99.93	100.00
DI-27 (2.2)	2.1	0.30	1.76	0.34	0.27	8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.72	17.68	52.79	79.00	92.25	97.64	99.60	99.72	99.72	99.73	99.99
DI-27 (0.9)	1.1	0.26	1.97	0.49	0.15	8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.07	0.33	3.19	7.56	11.39	31.45	52.01	72.80	87.15	99.41	99.80	99.84	99.85	99.99
DI-27 (0.0)	2.8	0.51	0.97	0.76	0.24	8	0.00	0.00	0.00	0.95	1.28	1.85	2.11	2.90	5.72	16.93	49.31	69.29	75.00	89.93	94.45	96.87	98.52	99.72	99.76	99.76	99.76	100.00
DI-27 (-4.7)	4.4	0.23	2.13	0.53	0.14	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.19	0.53	2.06	4.93	11.17	24.77	34.11	59.17	76.32	97.28	99.80	99.83	99.86	100.00
DI-27 (-8.8)	4.0	0.23	2.14	0.59	29.17	5	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.10	0.22	0.50	1.72	4.22	7.85	17.48	29.53	41.82	52.11	66.49	70.21	70.61	70.83	100.00
DI-27 (-12.6)	0.0	0.21	2.25	0.78	98.61	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.04	0.08	0.10	0.14	0.27	0.43	0.65	1.14	1.18	1.27	1.34	1.39	99.98
DI-27 COMPOSITE	**15.9**	**0.28**	**1.84**	**0.71**	**7.50**	**7**	**0.00**	**0.00**	**0.00**	**0.17**	**0.23**	**0.33**	**0.38**	**0.56**	**1.13**	**3.29**	**9.95**	**16.13**	**21.51**	**37.83**	**51.79**	**67.91**	**78.85**	**90.58**	**92.33**	**92.44**	**92.50**	**100.00**
DI-32 (7.0)	2.0	0.30	1.72	0.46	0.29	7	0.00	0.00	0.00	0.00	0.10	0.13	0.16	0.18	0.19	0.30	2.39	10.98	28.95	59.39	77.23	88.27	94.82	99.23	99.71	99.71	99.71	100.00
DI-32 (3.1)	3.1	0.30	1.74	0.42	0.18	8	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.03	0.08	0.27	2.51	11.43	22.80	54.00	77.51	89.52	95.56	99.53	99.82	99.82	99.82	100.00
DI-32 (0.9)	1.6	0.21	2.24	0.53	0.58	7	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.03	0.07	0.29	1.84	4.08	6.77	18.52	31.90	47.15	63.33	96.56	99.40	99.41	99.42	100.00
DI-32 (-0.1)	2.6	0.46	1.13	1.58	0.49	7	0.00	0.00	2.53	5.90	9.59	11.56	12.89	14.24	16.45	21.22	29.87	35.90	44.30	56.92	67.98	77.34	87.20	98.26	99.46	99.50	99.51	100.00
DI-32 (-4.2)	3.8	0.18	2.51	0.46	0.72	6	0.00	0.00	0.00	0.00	0.00	0.04	0.05	0.09	0.16	0.28	0.76	1.36	2.34	6.20	12.54	23.39	42.56	92.04	99.08	99.25	99.28	100.00
DI-32 (-7.7)	3.9	0.19	2.43	0.59	3.58	6	0.00	0.00	0.00	0.00	0.07	0.10	0.13	0.20	0.36	0.69	1.95	3.56	6.43	12.34	20.39	28.97	42.31	87.51	96.05	96.33	96.42	100.00
DI-32 (-11.9)	4.3	0.27	1.88	0.61	5.12	6	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.06	0.15	0.59	4.59	12.76	25.35	46.09	59.91	67.20	77.17	93.06	94.75	94.84	94.88	100.00
DI-32 (-16.2)	0.0	0.18	2.51	1.07	74.02	4	0.00	0.00	0.00	0.32	0.59	0.70	0.80	0.94	1.08	1.23	1.47	1.69	2.05	2.71	3.72	5.14	7.88	18.85	25.04	25.72	25.98	100.00
DI-32 COMPOSITE	**21.3**	**0.25**	**1.99**	**0.87**	**1.98**	**7**	**0.00**	**0.00**	**0.31**	**0.72**	**1.20**	**1.45**	**1.64**	**1.83**	**2.17**	**2.98**	**5.80**	**10.85**	**18.64**	**34.39**	**47.22**	**57.27**	**69.07**	**94.27**	**97.88**	**97.99**	**98.02**	**100.00**

APPENDIX 6
Beach Composite Granularmetric Reports

Granularmetric Report

Depths and elevations based on measured values

Project Name: Dauphin Island Beach Composites

Sample Name: WEST END COMP

Analysis Date: 03-01-10

Analyzed By: JR

Coastal Planning & Engineering
2481 NW Boca Raton Blvd, Boca Raton
FL 33431
ph (561) 391-8102
fax (561) 391-9116

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
		Alabama State Plane West	

USCS:	Munsell:	Comments:
SP		Composite data. Average dry Munsell Value is 7.

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
100.00	100.00	1.61	0.02	#200 - 1.67 #230 - 1.63			

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
5/8"	-4.00	16.00	0.00	0.00	0.00	0.00
7/16"	-3.50	11.31	0.00	0.00	0.00	0.00
5/16"	-3.00	8.00	0.01	0.01	0.01	0.01
3.5	-2.50	5.66	0.05	0.05	0.06	0.06
5	-2.00	4.00	0.02	0.02	0.08	0.08
7	-1.50	2.83	0.01	0.01	0.09	0.09
10	-1.00	2.00	0.03	0.03	0.12	0.12
14	-0.50	1.41	0.09	0.09	0.21	0.21
18	0.00	1.00	0.29	0.29	0.50	0.50
25	0.50	0.71	1.20	1.20	1.70	1.70
35	1.00	0.50	6.19	6.19	7.89	7.89
40	1.25	0.42	4.95	4.95	12.84	12.84
45	1.50	0.35	10.08	10.08	22.92	22.92
50	1.75	0.30	17.81	17.81	40.73	40.73
60	2.00	0.25	16.49	16.49	57.22	57.22
70	2.25	0.21	12.03	12.03	69.25	69.25
80	2.50	0.18	12.35	12.35	81.60	81.60
120	3.00	0.13	14.22	14.22	95.82	95.82
170	3.50	0.09	2.36	2.36	98.18	98.18
200	3.75	0.07	0.15	0.15	98.33	98.33
230	4.00	0.06	0.04	0.04	98.37	98.37

Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.97	2.58	2.37	1.89	1.53	1.33	0.77

Moment	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
Statistics	1.89	0.27	0.65	-0.55	5.3

GRANULARMETRIC REPORT 2010_BEACH_COMPOSITES_COMBINED_032211.GPJ JPBRAZIL.GDT 5/6/11

Granularmetric Report

Depths and elevations based on measured values

Project Name: Dauphin Island Beach Composites

Sample Name: EAST END COMP

Analysis Date: 11-02-10

Analyzed By: TD

Coastal Planning & Engineering
2481 NW Boca Raton Blvd, Boca Raton
FL 33431
ph (561) 391-8102
fax (561) 391-9116

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
		Alabama State Plane West	

USCS:	Munsell:	Comments:
SP		Composite data. Average dry Munsell Value is 7.

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
100.00	100.00	3.55	0.01	#200 - 3.59 #230 - 3.56			

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
5/8"	-4.00	16.00	0.00	0.00	0.00	0.00
7/16"	-3.50	11.31	0.00	0.00	0.00	0.00
5/16"	-3.00	8.00	0.10	0.10	0.10	0.10
3.5	-2.50	5.66	0.20	0.20	0.30	0.30
5	-2.00	4.00	0.18	0.18	0.48	0.48
7	-1.50	2.83	0.12	0.12	0.60	0.60
10	-1.00	2.00	0.08	0.08	0.68	0.68
14	-0.50	1.41	0.14	0.14	0.82	0.82
18	0.00	1.00	0.35	0.35	1.17	1.17
25	0.50	0.71	1.26	1.26	2.43	2.43
35	1.00	0.50	5.09	5.09	7.52	7.52
40	1.25	0.42	6.39	6.39	13.91	13.91
45	1.50	0.35	7.88	7.88	21.79	21.79
50	1.75	0.30	18.05	18.05	39.84	39.84
60	2.00	0.25	16.51	16.51	56.35	56.35
70	2.25	0.21	14.02	14.02	70.37	70.37
80	2.50	0.18	10.99	10.99	81.36	81.36
120	3.00	0.13	13.11	13.11	94.47	94.47
170	3.50	0.09	1.86	1.86	96.33	96.33
200	3.75	0.07	0.08	0.08	96.41	96.41
230	4.00	0.06	0.03	0.03	96.44	96.44

Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
3.14	2.60	2.36	1.90	1.54	1.32	0.75

Moment	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
Statistics	1.86	0.28	0.71	-1.67	11.57

GRANULARMETRIC REPORT 2010_BEACH_COMPOSITES_COMBINED_032211.GPJ JPBRAZIL.GDT 5/6/11

Granularmetric Report

Depths and elevations based on measured values

Project Name: Dauphin Island Beach Composites

Sample Name: DI-2 COMPOSITE

Analysis Date: 11-02-10

Analyzed By: TD

Coastal Planning & Engineering
2481 NW Boca Raton Blvd, Boca Raton
FL 33431
ph (561) 391-8102
fax (561) 391-9116

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
		Alabama State Plane West	

USCS:	Munsell:	Comments:
SP		Composite data. Average dry Munsell Value is 7.

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
100.00	100.00	1.27	0.00	#200 - 1.29 #230 - 1.27			

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
5/8"	-4.00	16.00	0.00	0.00	0.00	0.00
7/16"	-3.50	11.31	0.00	0.00	0.00	0.00
5/16"	-3.00	8.00	0.00	0.00	0.00	0.00
3.5	-2.50	5.66	0.00	0.00	0.00	0.00
5	-2.00	4.00	0.04	0.04	0.04	0.04
7	-1.50	2.83	0.02	0.02	0.06	0.06
10	-1.00	2.00	0.02	0.02	0.08	0.08
14	-0.50	1.41	0.12	0.12	0.20	0.20
18	0.00	1.00	0.37	0.37	0.57	0.57
25	0.50	0.71	1.51	1.51	2.08	2.08
35	1.00	0.50	8.03	8.03	10.11	10.11
40	1.25	0.42	6.18	6.18	16.29	16.29
45	1.50	0.35	12.76	12.76	29.05	29.05
50	1.75	0.30	19.67	19.67	48.72	48.72
60	2.00	0.25	14.59	14.59	63.31	63.31
70	2.25	0.21	8.59	8.59	71.90	71.90
80	2.50	0.18	8.62	8.62	80.52	80.52
120	3.00	0.13	14.77	14.77	95.29	95.29
170	3.50	0.09	3.27	3.27	98.56	98.56
200	3.75	0.07	0.15	0.15	98.71	98.71
230	4.00	0.06	0.02	0.02	98.73	98.73

Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.99	2.62	2.34	1.77	1.42	1.24	0.68

Moment	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
Statistics	1.83	0.28	0.68	-0.17	3.58

GRANULARMETRIC REPORT 2010_BEACH_COMPOSITES_COMBINED_032211.GPJ JPBRAZIL.GDT 5/6/11

Granularmetric Report

Depths and elevations based on measured values

Project Name: Dauphin Island Beach Composites

Sample Name: DI-8 COMPOSITE

Analysis Date: 11-02-10

Analyzed By: TD

Coastal Planning & Engineering
2481 NW Boca Raton Blvd, Boca Raton
FL 33431
ph (561) 391-8102
fax (561) 391-9116

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
		Alabama State Plane West	

USCS:	Munsell:	Comments:
SP		Composite data. Average dry Munsell Value is 7.

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
100.00	100.00	1.50	0.01	#200 - 1.57 #230 - 1.51			

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
5/8"	-4.00	16.00	0.00	0.00	0.00	0.00
7/16"	-3.50	11.31	0.00	0.00	0.00	0.00
5/16"	-3.00	8.00	0.04	0.04	0.04	0.04
3.5	-2.50	5.66	0.13	0.13	0.17	0.17
5	-2.00	4.00	0.04	0.04	0.21	0.21
7	-1.50	2.83	0.03	0.03	0.24	0.24
10	-1.00	2.00	0.05	0.05	0.29	0.29
14	-0.50	1.41	0.10	0.10	0.39	0.39
18	0.00	1.00	0.40	0.40	0.79	0.79
25	0.50	0.71	1.59	1.59	2.38	2.38
35	1.00	0.50	7.71	7.71	10.09	10.09
40	1.25	0.42	5.77	5.77	15.86	15.86
45	1.50	0.35	11.06	11.06	26.92	26.92
50	1.75	0.30	18.64	18.64	45.56	45.56
60	2.00	0.25	15.98	15.98	61.54	61.54
70	2.25	0.21	10.18	10.18	71.72	71.72
80	2.50	0.18	10.31	10.31	82.03	82.03
120	3.00	0.13	13.53	13.53	95.56	95.56
170	3.50	0.09	2.65	2.65	98.21	98.21
200	3.75	0.07	0.22	0.22	98.43	98.43
230	4.00	0.06	0.06	0.06	98.49	98.49

Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.98	2.57	2.33	1.82	1.46	1.25	0.67

Moment	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
Statistics	1.83	0.28	0.7	-0.77	6.89

GRANULARMETRIC REPORT 2010_BEACH_COMPOSITES_COMBINED_032211.GPJ JPBRAZIL.GDT 5/6/11

Granularmetric Report

Depths and elevations based on measured values

Project Name: Dauphin Island Beach Composites

Sample Name: DI-10 COMPOSITE

Analysis Date: 11-02-10

Analyzed By: TD

Coastal Planning & Engineering
2481 NW Boca Raton Blvd, Boca Raton
FL 33431
ph (561) 391-8102
fax (561) 391-9116

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
		Alabama State Plane West	

USCS:	Munsell:	Comments:
SP		Composite data. Average dry Munsell Value is 7.

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
100.00	100.00	1.84	0.02	#200 - 1.92 #230 - 1.86			

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
5/8"	-4.00	16.00	0.00	0.00	0.00	0.00
7/16"	-3.50	11.31	0.00	0.00	0.00	0.00
5/16"	-3.00	8.00	0.00	0.00	0.00	0.00
3.5	-2.50	5.66	0.06	0.06	0.06	0.06
5	-2.00	4.00	0.00	0.00	0.06	0.06
7	-1.50	2.83	0.01	0.01	0.07	0.07
10	-1.00	2.00	0.01	0.01	0.08	0.08
14	-0.50	1.41	0.07	0.07	0.15	0.15
18	0.00	1.00	0.19	0.19	0.34	0.34
25	0.50	0.71	0.92	0.92	1.26	1.26
35	1.00	0.50	5.27	5.27	6.53	6.53
40	1.25	0.42	4.66	4.66	11.19	11.19
45	1.50	0.35	10.29	10.29	21.48	21.48
50	1.75	0.30	19.73	19.73	41.21	41.21
60	2.00	0.25	17.30	17.30	58.51	58.51
70	2.25	0.21	11.00	11.00	69.51	69.51
80	2.50	0.18	11.12	11.12	80.63	80.63
120	3.00	0.13	14.59	14.59	95.22	95.22
170	3.50	0.09	2.67	2.67	97.89	97.89
200	3.75	0.07	0.19	0.19	98.08	98.08
230	4.00	0.06	0.06	0.06	98.14	98.14

Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.99	2.62	2.37	1.88	1.54	1.37	0.85

Moment	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
Statistics	1.91	0.27	0.63	-0.37	5.02

GRANULARMETRIC REPORT 2010_BEACH_COMPOSITES_COMBINED_032211.GPJ JPBRAZIL.GDT 5/6/11

Granularmetric Report

Depths and elevations based on measured values

Project Name: Dauphin Island Beach Composites

Sample Name: DI-14 COMPOSITE

Analysis Date: 11-02-10

Analyzed By: TD

Coastal Planning & Engineering
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FL 33431
ph (561) 391-8102
fax (561) 391-9116

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
		Alabama State Plane West	

USCS:	Munsell:	Comments:
SP		Composite data. Average dry Munsell Value is 7.

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
100.00	100.00	1.83	0.05	#200 - 1.89 #230 - 1.88			

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
5/8"	-4.00	16.00	0.00	0.00	0.00	0.00
7/16"	-3.50	11.31	0.00	0.00	0.00	0.00
5/16"	-3.00	8.00	0.00	0.00	0.00	0.00
3.5	-2.50	5.66	0.00	0.00	0.00	0.00
5	-2.00	4.00	0.00	0.00	0.00	0.00
7	-1.50	2.83	0.00	0.00	0.00	0.00
10	-1.00	2.00	0.03	0.03	0.03	0.03
14	-0.50	1.41	0.06	0.06	0.09	0.09
18	0.00	1.00	0.20	0.20	0.29	0.29
25	0.50	0.71	0.77	0.77	1.06	1.06
35	1.00	0.50	3.79	3.79	4.85	4.85
40	1.25	0.42	3.17	3.17	8.02	8.02
45	1.50	0.35	6.22	6.22	14.24	14.24
50	1.75	0.30	13.18	13.18	27.42	27.42
60	2.00	0.25	18.12	18.12	45.54	45.54
70	2.25	0.21	18.33	18.33	63.87	63.87
80	2.50	0.18	19.37	19.37	83.24	83.24
120	3.00	0.13	13.98	13.98	97.22	97.22
170	3.50	0.09	0.85	0.85	98.07	98.07
200	3.75	0.07	0.04	0.04	98.11	98.11
230	4.00	0.06	0.01	0.01	98.12	98.12

Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.92	2.53	2.39	2.06	1.70	1.53	1.01

Moment	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
Statistics	2.01	0.25	0.55	-0.75	4.43

GRANULARMETRIC REPORT 2010_BEACH_COMPOSITES_COMBINED_032211.GPJ JPBRAZIL.GDT 5/6/11

Granularmetric Report

Depths and elevations based on measured values

Project Name: Dauphin Island Beach Composites

Sample Name: DI-21 COMPOSITE

Analysis Date: 03-01-10

Analyzed By: JR

Coastal Planning & Engineering
2481 NW Boca Raton Blvd, Boca Raton
FL 33431
ph (561) 391-8102
fax (561) 391-9116

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
		Alabama State Plane West	

USCS:	Munsell:	Comments:
SP		Composite data. Average dry Munsell Value is 7.

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
100.00	100.00	1.19	0.01	#200 - 1.20 #230 - 1.20			

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
5/8"	-4.00	16.00	0.00	0.00	0.00	0.00
7/16"	-3.50	11.31	0.00	0.00	0.00	0.00
5/16"	-3.00	8.00	0.00	0.00	0.00	0.00
3.5	-2.50	5.66	0.00	0.00	0.00	0.00
5	-2.00	4.00	0.01	0.01	0.01	0.01
7	-1.50	2.83	0.01	0.01	0.02	0.02
10	-1.00	2.00	0.01	0.01	0.03	0.03
14	-0.50	1.41	0.04	0.04	0.07	0.07
18	0.00	1.00	0.13	0.13	0.20	0.20
25	0.50	0.71	0.83	0.83	1.03	1.03
35	1.00	0.50	5.79	5.79	6.82	6.82
40	1.25	0.42	7.94	7.94	14.76	14.76
45	1.50	0.35	10.47	10.47	25.23	25.23
50	1.75	0.30	22.08	22.08	47.31	47.31
60	2.00	0.25	22.75	22.75	70.06	70.06
70	2.25	0.21	15.90	15.90	85.96	85.96
80	2.50	0.18	10.22	10.22	96.18	96.18
120	3.00	0.13	2.37	2.37	98.55	98.55
170	3.50	0.09	0.24	0.24	98.79	98.79
200	3.75	0.07	0.01	0.01	98.80	98.80
230	4.00	0.06	0.00	0.00	98.80	98.80

Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.47	2.22	2.08	1.78	1.49	1.28	0.84

Moment	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
Statistics	1.74	0.30	0.48	-0.59	4.61

GRANULARMETRIC REPORT 2010_BEACH_COMPOSITES_COMBINED_032211.GPJ JPBRAZIL.GDT 5/6/11

Granularmetric Report

Depths and elevations based on measured values

Project Name: Dauphin Island Beach Composites

Sample Name: DI-27 COMPOSITE

Analysis Date: 03-01-10

Analyzed By: JR

Coastal Planning & Engineering
2481 NW Boca Raton Blvd, Boca Raton
FL 33431
ph (561) 391-8102
fax (561) 391-9116

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
		Alabama State Plane West	

USCS:	Munsell:	Comments:
SP-SM		Composite data. Average dry Munsell Value is 7.

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
100.00	100.00	7.50	0.00	#200 - 7.56 #230 - 7.50			

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
5/8"	-4.00	16.00	0.00	0.00	0.00	0.00
7/16"	-3.50	11.31	0.00	0.00	0.00	0.00
5/16"	-3.00	8.00	0.00	0.00	0.00	0.00
3.5	-2.50	5.66	0.17	0.17	0.17	0.17
5	-2.00	4.00	0.06	0.06	0.23	0.23
7	-1.50	2.83	0.10	0.10	0.33	0.33
10	-1.00	2.00	0.05	0.05	0.38	0.38
14	-0.50	1.41	0.18	0.18	0.56	0.56
18	0.00	1.00	0.57	0.57	1.13	1.13
25	0.50	0.71	2.16	2.16	3.29	3.29
35	1.00	0.50	6.66	6.66	9.95	9.95
40	1.25	0.42	6.18	6.18	16.13	16.13
45	1.50	0.35	5.38	5.38	21.51	21.51
50	1.75	0.30	16.32	16.32	37.83	37.83
60	2.00	0.25	13.96	13.96	51.79	51.79
70	2.25	0.21	16.12	16.12	67.91	67.91
80	2.50	0.18	10.94	10.94	78.85	78.85
120	3.00	0.13	11.73	11.73	90.58	90.58
170	3.50	0.09	1.75	1.75	92.33	92.33
200	3.75	0.07	0.11	0.11	92.44	92.44
230	4.00	0.06	0.06	0.06	92.50	92.50

Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
	2.72	2.41	1.97	1.55	1.24	0.63

Moment	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
Statistics	1.84	0.28	0.71	-1.16	7.44

GRANULARMETRIC REPORT 2010_BEACH_COMPOSITES_COMBINED_032211.GPJ JPBRAZIL.GDT 5/6/11

Granularmetric Report

Depths and elevations based on measured values

Project Name: Dauphin Island Beach Composites

Sample Name: DI-32 COMPOSITE

Analysis Date: 03-01-10

Analyzed By: JR

Coastal Planning & Engineering
2481 NW Boca Raton Blvd, Boca Raton
FL 33431
ph (561) 391-8102
fax (561) 391-9116

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
		Alabama State Plane West	

USCS:	Munsell:	Comments:
SW		Composite data. Average dry Munsell Value is 7.

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
100.00	100.00	1.98	0.00	#200 - 2.01 #230 - 1.98			

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
5/8"	-4.00	16.00	0.00	0.00	0.00	0.00
7/16"	-3.50	11.31	0.00	0.00	0.00	0.00
5/16"	-3.00	8.00	0.31	0.31	0.31	0.31
3.5	-2.50	5.66	0.41	0.41	0.72	0.72
5	-2.00	4.00	0.48	0.48	1.20	1.20
7	-1.50	2.83	0.25	0.25	1.45	1.45
10	-1.00	2.00	0.19	0.19	1.64	1.64
14	-0.50	1.41	0.19	0.19	1.83	1.83
18	0.00	1.00	0.34	0.34	2.17	2.17
25	0.50	0.71	0.81	0.81	2.98	2.98
35	1.00	0.50	2.82	2.82	5.80	5.80
40	1.25	0.42	5.05	5.05	10.85	10.85
45	1.50	0.35	7.79	7.79	18.64	18.64
50	1.75	0.30	15.75	15.75	34.39	34.39
60	2.00	0.25	12.83	12.83	47.22	47.22
70	2.25	0.21	10.05	10.05	57.27	57.27
80	2.50	0.18	11.80	11.80	69.07	69.07
120	3.00	0.13	25.20	25.20	94.27	94.27
170	3.50	0.09	3.61	3.61	97.88	97.88
200	3.75	0.07	0.11	0.11	97.99	97.99
230	4.00	0.06	0.03	0.03	98.02	98.02

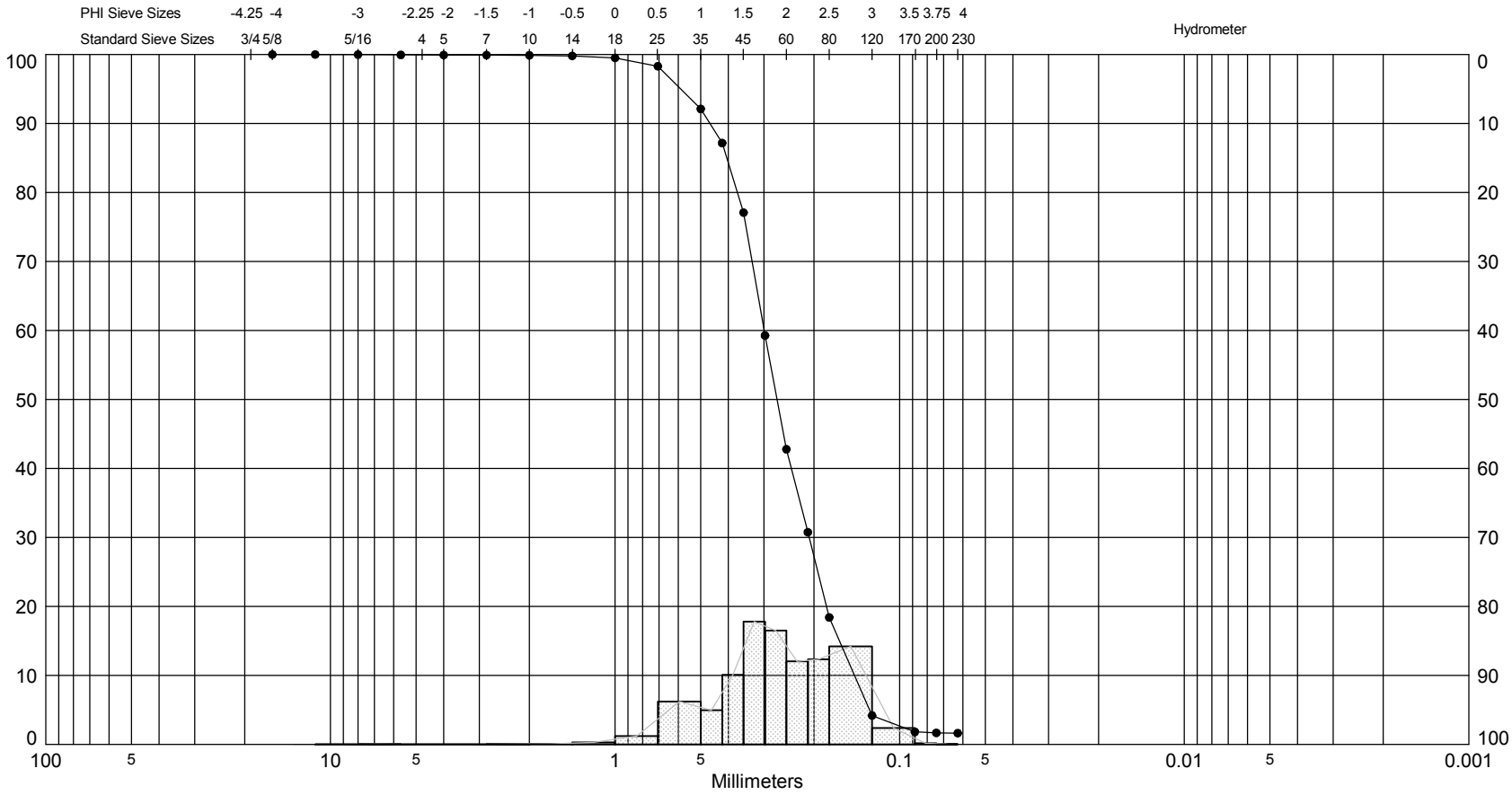
Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
3.10	2.80	2.62	2.07	1.60	1.42	0.86

Moment	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
Statistics	1.99	0.25	0.87	-2.33	13.16

GRANULARMETRIC REPORT 2010_BEACH_COMPOSITES_COMBINED_032211.GPJ JPBRAZIL.GDT 5/6/11

APPENDIX 7
Beach Composite Grain Size Curves/Histograms



Gravel		Sand			Silt and Clay
Coarse	Fine	Coarse	Medium	Fine	

Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
WEST END COMP	—●—		SP	#200 - 1.67 #230 - 1.63			1.89	1.89	-0.55	5.3	0.65

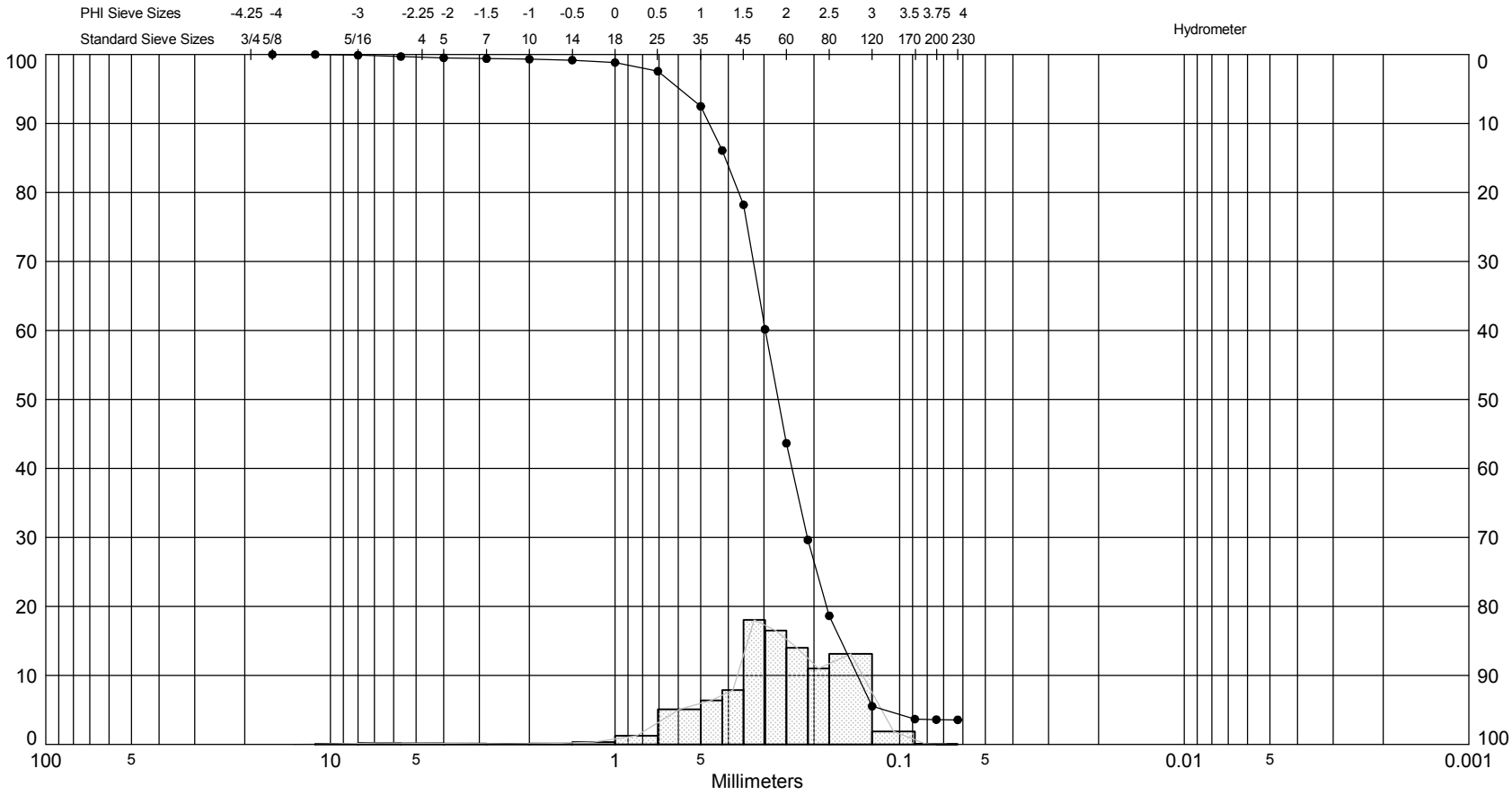
Comments: Composite data. Average dry Munsell Value is 7.

Depths and elevations based on measured values

Sample Information	
Project Name:	Dauphin Island Beach Composites
Analysis Date:	03-01-10
Analyzed By:	JR
Easting (X, ft):	
Northing (Y, ft):	
Horizontal System:	NAD 1983
Vertical System:	NAVD 88

Coastal Planning & Engineering
2481 NW Boca Raton Blvd, Boca Raton
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fax (561) 391-9116

SIEVE ANALYSIS 2010_BEACH_COMPOSITES_COMBINED_032211.GPJ JPBRAZIL.GDT 5/6/11



Gravel		Sand			Silt and Clay
Coarse	Fine	Coarse	Medium	Fine	

Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
EAST END COMP	—●—		SP	#200 - 3.59 #230 - 3.56			1.9	1.86	-1.67	11.57	0.71

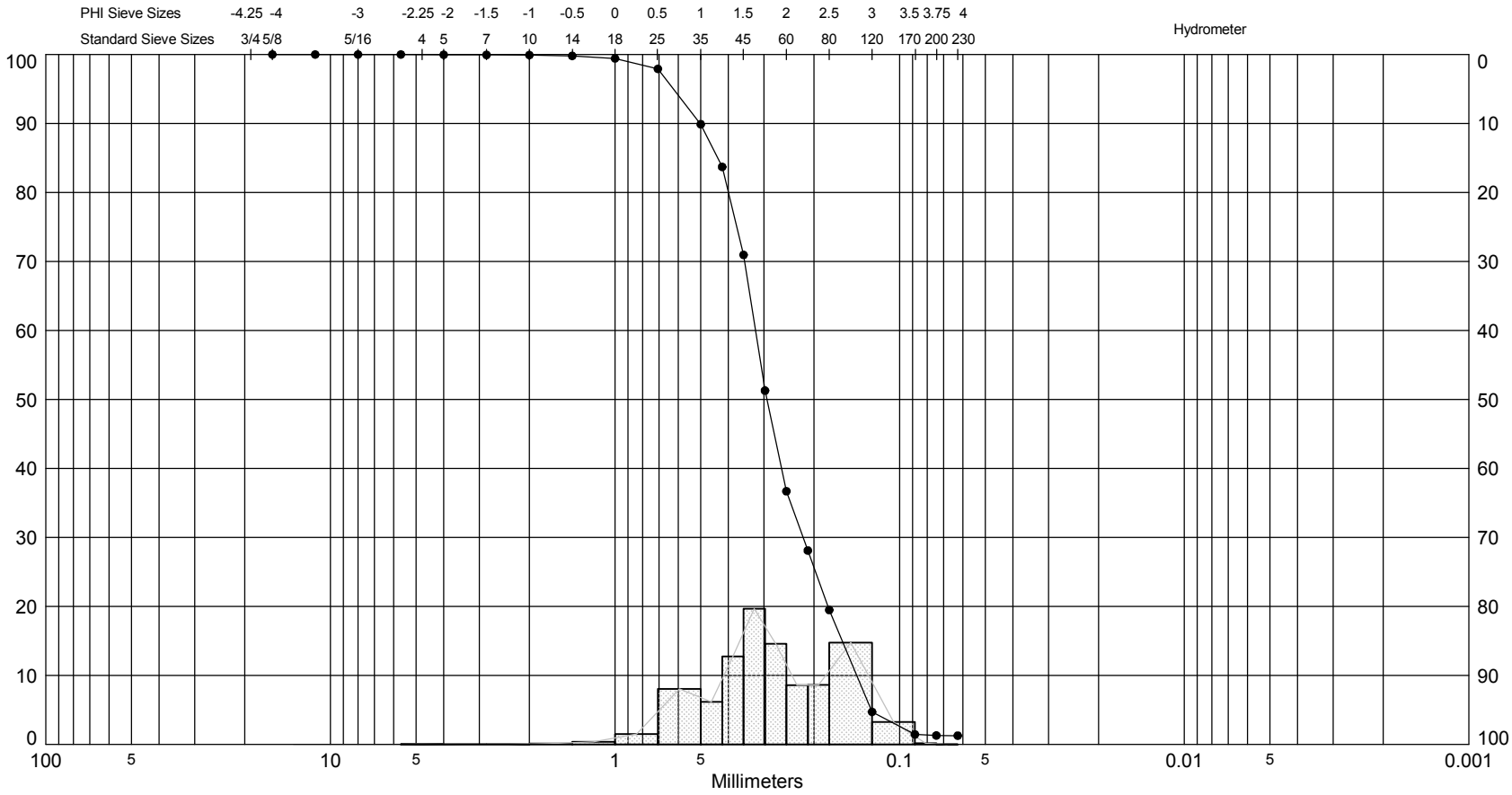
Comments: Composite data. Average dry Munsell Value is 7.

Depths and elevations based on measured values

Sample Information	
Project Name:	Dauphin Island Beach Composites
Analysis Date:	11-02-10
Analyzed By:	TD
Easting (X, ft):	
Northing (Y, ft):	
Horizontal System:	NAD 1983
Vertical System:	NAVD 88

Coastal Planning & Engineering
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SIEVE ANALYSIS 2010_BEACH_COMPOSITES_COMBINED_032211.GPJ JPBRAZIL.GDT 5/6/11



Gravel		Sand			Silt and Clay
Coarse	Fine	Coarse	Medium	Fine	

Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
DI-2 COMPOSITE	—●—		SP	#200 - 1.29 #230 - 1.27			1.77	1.83	-0.17	3.58	0.68

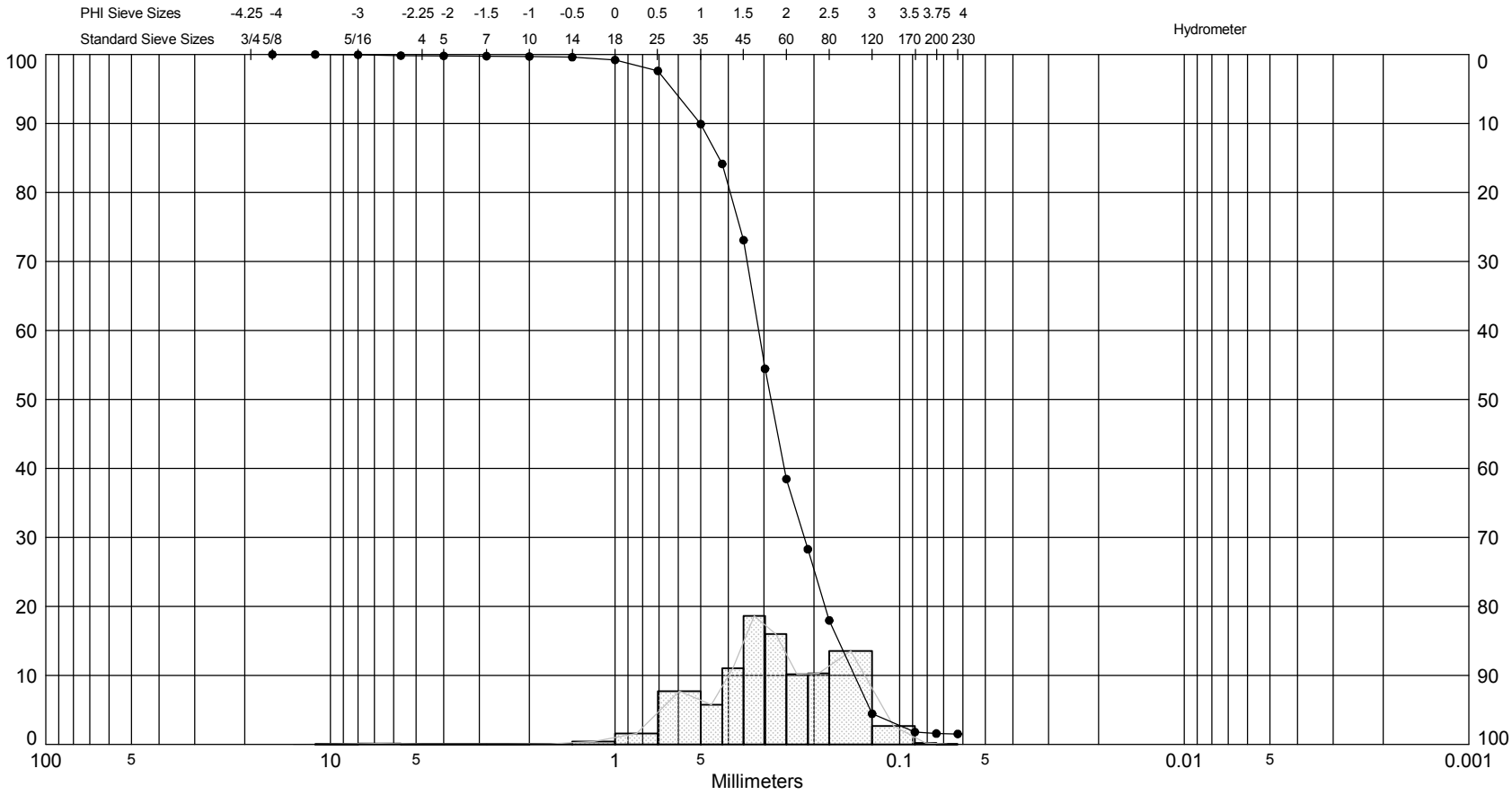
Comments: Composite data. Average dry Munsell Value is 7.

Depths and elevations based on measured values

Sample Information	
Project Name:	Dauphin Island Beach Composites
Analysis Date:	11-02-10
Analyzed By:	TD
Easting (X, ft):	
Northing (Y, ft):	
Horizontal System:	NAD 1983
Vertical System:	NAVD 88

Coastal Planning & Engineering
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SIEVE ANALYSIS 2010_BEACH_COMPOSITES_COMBINED_032211.GPJ JPBRAZIL.GDT 5/6/11



Gravel		Sand			Silt and Clay
Coarse	Fine	Coarse	Medium	Fine	

Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
DI-8 COMPOSITE	—●—		SP	#200 - 1.57 #230 - 1.51			1.82	1.83	-0.77	6.89	0.7

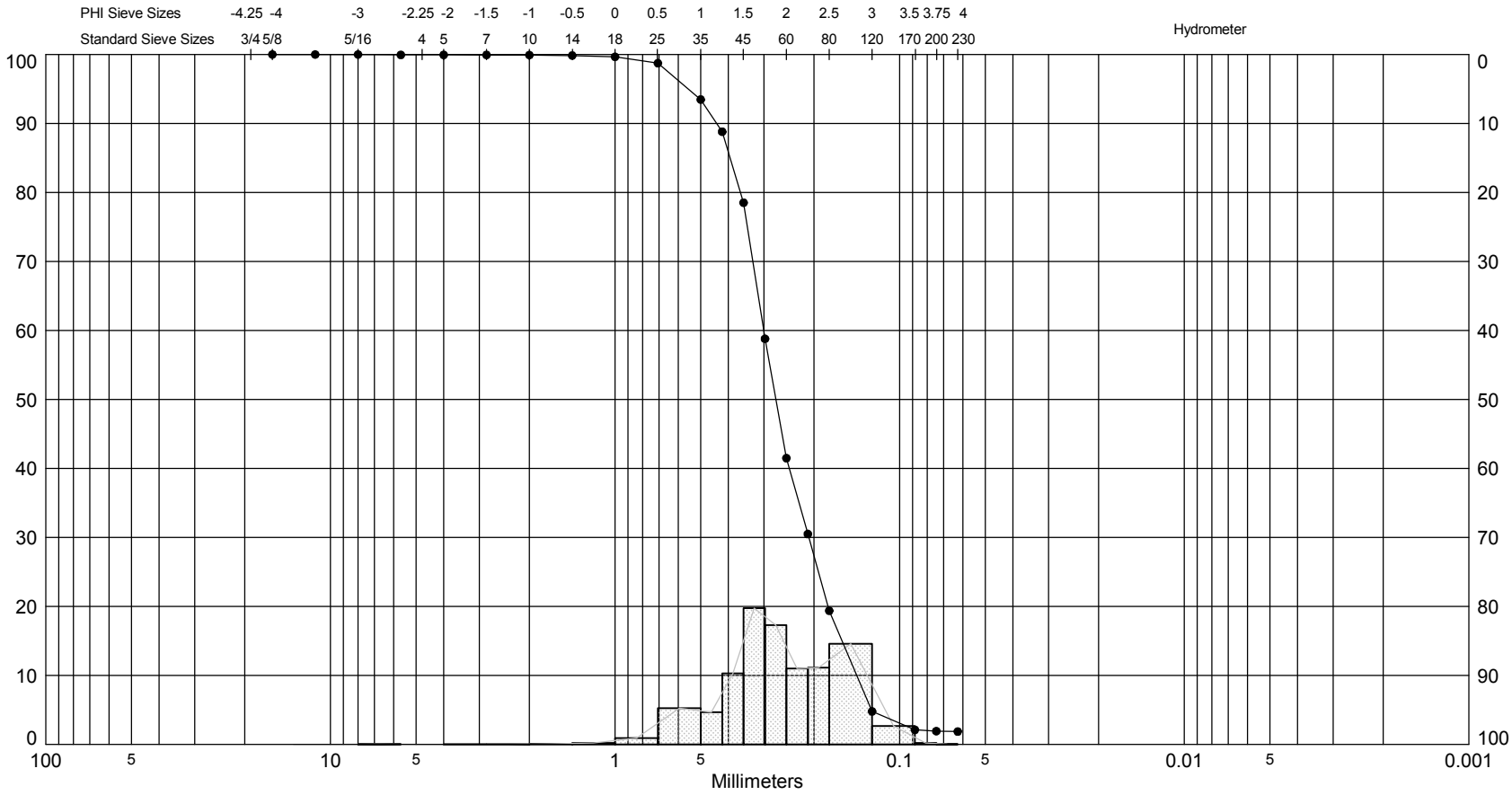
Comments: Composite data. Average dry Munsell Value is 7.

Depths and elevations based on measured values

Sample Information	
Project Name:	Dauphin Island Beach Composites
Analysis Date:	11-02-10
Analyzed By:	TD
Easting (X, ft):	
Northing (Y, ft):	
Horizontal System:	NAD 1983
Vertical System:	NAVD 88

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SIEVE ANALYSIS 2010_BEACH_COMPOSITES_COMBINED_032211.GPJ JPBRAZIL.GDT 5/6/11



Gravel		Sand			Silt and Clay
Coarse	Fine	Coarse	Medium	Fine	

Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
DI-10 COMPOSITE	—●—		SP	#200 - 1.92 #230 - 1.86			1.88	1.91	-0.37	5.02	0.63

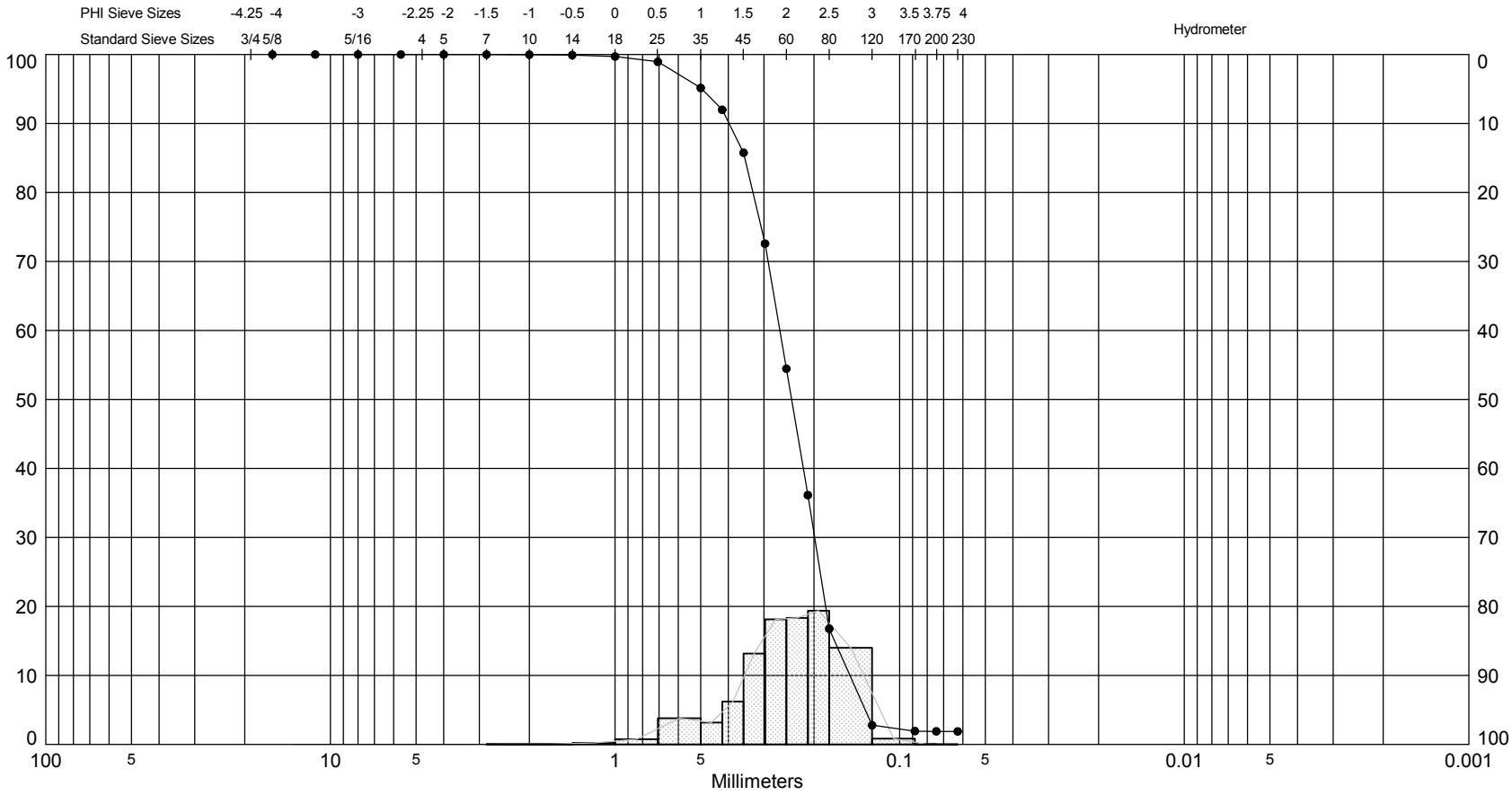
Comments: Composite data. Average dry Munsell Value is 7.

Depths and elevations based on measured values

Sample Information	
Project Name:	Dauphin Island Beach Composites
Analysis Date:	11-02-10
Analyzed By:	TD
Easting (X, ft):	
Northing (Y, ft):	
Horizontal System:	NAD 1983
Vertical System:	NAVD 88

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Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
DI-14 COMPOSITE	—●—		SP	#200 - 1.89 #230 - 1.88			2.06	2.01	-0.75	4.43	0.55

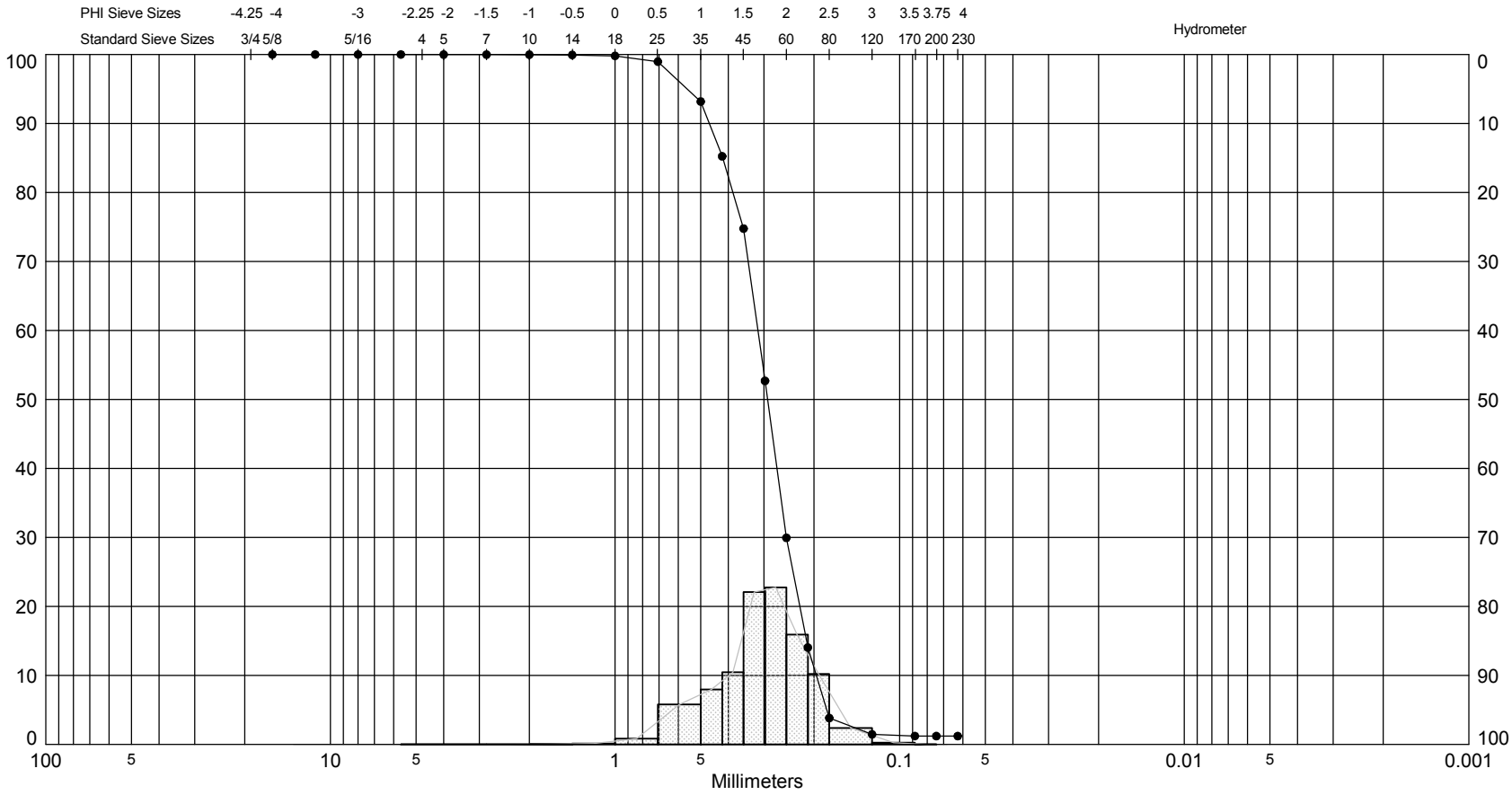
Comments: Composite data. Average dry Munsell Value is 7.

Depths and elevations based on measured values

Sample Information	
Project Name:	Dauphin Island Beach Composites
Analysis Date:	11-02-10
Analyzed By:	TD
Easting (X, ft):	
Northing (Y, ft):	
Horizontal System:	NAD 1983
Vertical System:	NAVD 88

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SIEVE ANALYSIS 2010_BEACH_COMPOSITES_COMBINED_032211.GPJ JPBRAZIL.GDT 5/6/11



Gravel		Sand			Silt and Clay
Coarse	Fine	Coarse	Medium	Fine	

Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
DI-21 COMPOSITE	—●—		SP	#200 - 1.20 #230 - 1.20			1.78	1.74	-0.59	4.61	0.48

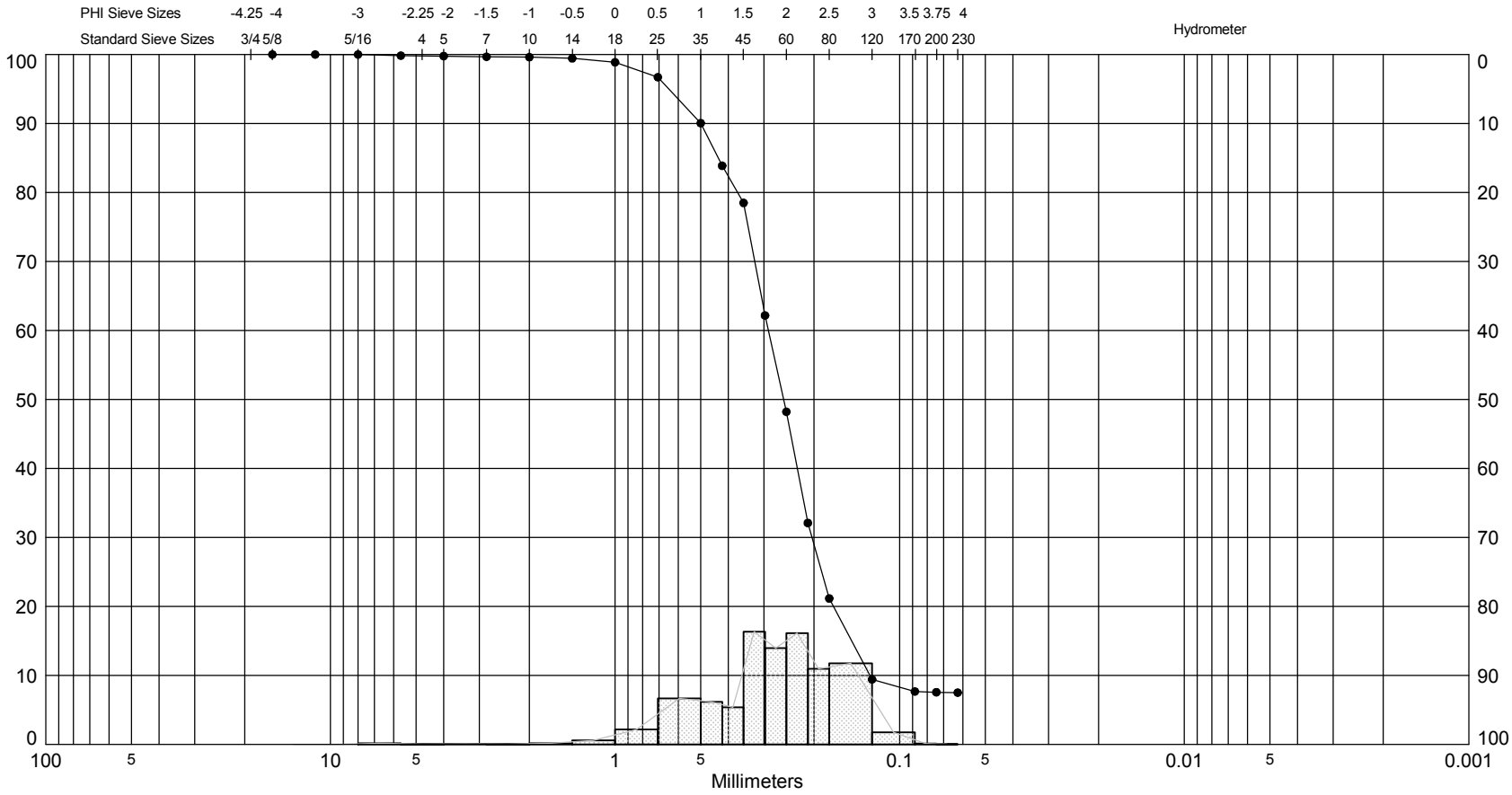
Comments: Composite data. Average dry Munsell Value is 7.

Depths and elevations based on measured values

Sample Information	
Project Name:	Dauphin Island Beach Composites
Analysis Date:	03-01-10
Analyzed By:	JR
Easting (X, ft):	
Northing (Y, ft):	
Horizontal System:	NAD 1983
Vertical System:	NAVD 88

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SIEVE ANALYSIS 2010_BEACH_COMPOSITES_COMBINED_032211.GPJ JPBRAZIL.GDT 5/6/11



Gravel		Sand			Silt and Clay
Coarse	Fine	Coarse	Medium	Fine	

Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
DI-27 COMPOSITE	—●—		SP-SM	#200 - 7.56 #230 - 7.50			1.97	1.84	-1.16	7.44	0.71

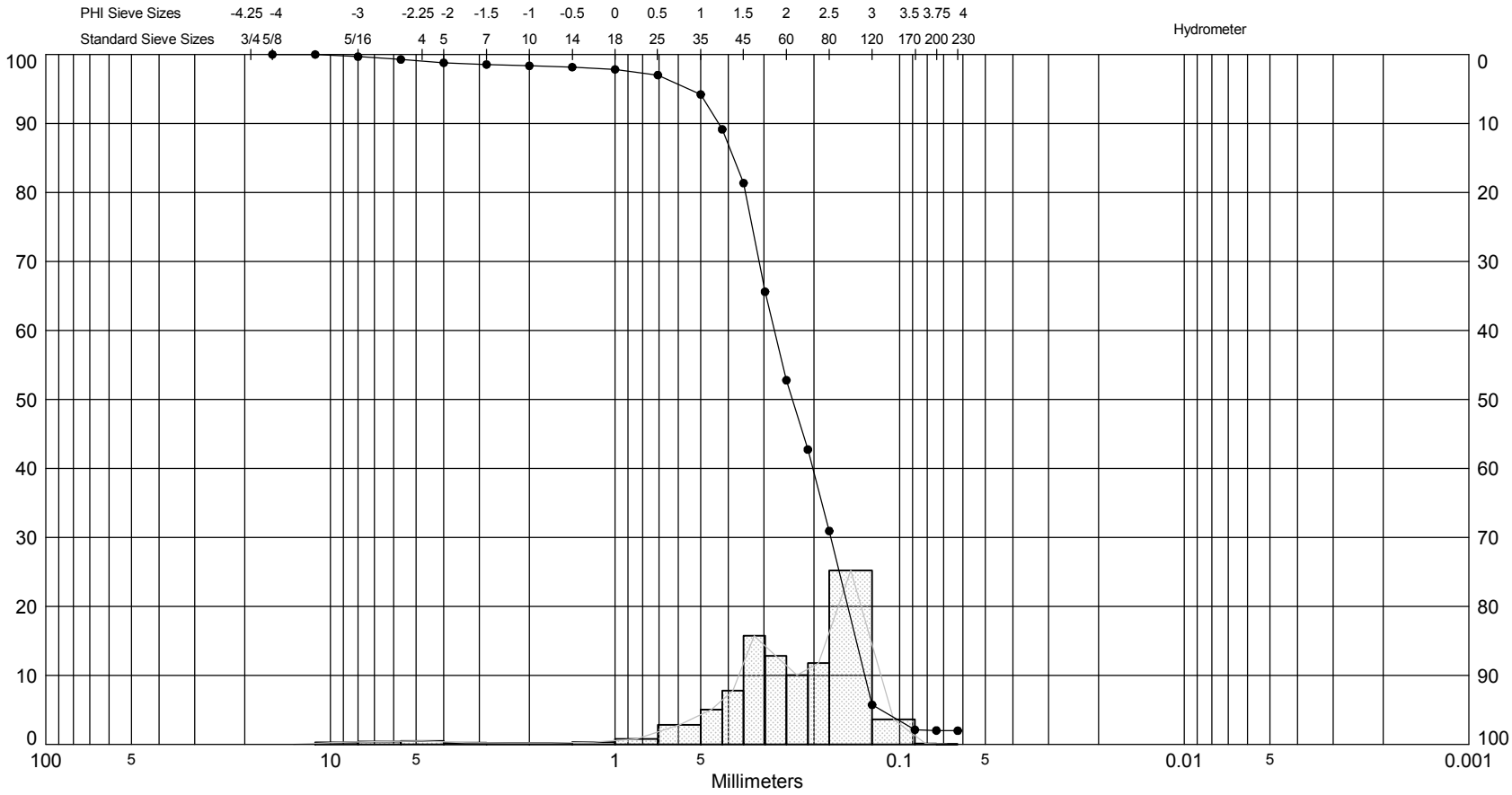
Comments: Composite data. Average dry Munsell Value is 7.

Depths and elevations based on measured values

Sample Information	
Project Name:	Dauphin Island Beach Composites
Analysis Date:	03-01-10
Analyzed By:	JR
Easting (X, ft):	
Northing (Y, ft):	
Horizontal System:	NAD 1983
Vertical System:	NAVD 88

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Gravel		Sand			Silt and Clay
Coarse	Fine	Coarse	Medium	Fine	

Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
DI-32 COMPOSITE	—●—		SW	#200 - 2.01 #230 - 1.98			2.07	1.99	-2.33	13.16	0.87

Comments: Composite data. Average dry Munsell Value is 7.

Depths and elevations based on measured values

Sample Information	
Project Name:	Dauphin Island Beach Composites
Analysis Date:	03-01-10
Analyzed By:	JR
Easting (X, ft):	
Northing (Y, ft):	
Horizontal System:	NAD 1983
Vertical System:	NAVD 88

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APPENDIX 8
2010/2011 CPE Vibracore Logs

Coastal Planning & Engineering, Inc.
2481 N.W. Boca Raton Blvd.
Boca Raton, Florida 33431
Phone # 1-561-391-8102

Legend for Geotechnical Data

(SP), (SM), etc. Refers to the Army Corps of Engineers Unified Soils Classification System. Class types are defined primarily by grain size, sorting and percent of material passing the 200 sieve. Classification of materials on the core logs based on visual field examinations are identified on the core logs under the Classification of Materials Description. Classifications based on laboratory sieve analyses are identified on the core logs in the Legend and under Remarks.

Grain Size Terms

Cobble – retained on the 3.0" sieve

Gravel – greater than the #4 sieve and less than the 3.0" sieve
- Coarse: greater than the ¾" sieve and less than the 3.0" sieve
- Fine – greater than the #4 sieve and less than the ¾" sieve

Sand - greater than the #200 sieve and less than the #4 sieve
- Coarse - greater than the #10 sieve and less than the #4 sieve
- Medium - greater than the #40 sieve and less than the #10 sieve
- Fine - greater than the #230 sieve and less than the #40 sieve

Fines – (silt or clay) passing the #230 sieve

Proportional definition of descriptive terms

Descriptive Term	Range of Proportions
Sandy, gravelly, etc.	35 % to 50 %
Some	20 % to 35 %
Little	10 % to 20 %
Trace	1 % to 10 %

Note: Information is after ACOE Atlantic Division Manual # 1110-1-1 titled *Engineering and Design Geotechnical Manual for Surface and Subsurface Investigations*

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Legend for Geotechnical Data

GW		Well graded gravels or gravel-sand mixtures, little or no fines	ML		Inorganic silts and very fine sands, rock flour, sandy silts or clayey silts with slight plasticity
GP		Poorly graded gravels or gravel-sand mixtures, w/ little or no fines	MH		Inorganic silts, micaceous or diatomaceous fine sandy or silty soild, elastic silts
GM		Silty gravels, gravel-sand-silt mixtures	OL		Organic silts and organic silt-clays of low plasticity
GC		Clayey gravels, gravel-sand-clay mixtures	OH		Organic clays of medium to high plasticity, organic silts
SW		Well graded sands or gravelly sands, little or no fines	CL		Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays
SP		Poorly graded sands or gravelly sands, little or no fines	CH		Inorganic clays of high plasticity, fat clays
SM		Silty sands, sand-silt mixtures	PT		Peat and other highly organic soils
SC		Clayey sands, sand-clay mixtures	SP-SM		Poorly-graded silty sand
SW-SM		Well-graded silty sand	SM-SC		Silty clayey sand
GW-GM		Well-graded silty gravel	ML-CL		Inorganic silty lean clay
GM-GC		Clayey silty gravel			

Note: Information is after ACOE Atlantic Division Manual # 1110-1-1 titled *Engineering and Design Geotechnical Manual for Surface and Subsurface Investigations*

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Legend for Geotechnical Data

The naming convention used by Coastal Planning and Engineering incorporates key information about the item in the title. The naming format uses the following information:

- Abbreviated area name (two letters that will be used throughout the project)
- Abbreviated data type: jet probe (JP), vibracore (VC) or surface sample (SS)
- Collection year (YY)
- Identification number
- Sample or composite identification in the case of jet probes or vibracores. Composite samples are indicated by COMP following the identification number. COMP represents a composite developed to characterize beach compatible material.

Format examples:

A) DIVC-10-07

B) DIVC-10-13 S#1

Example A is vibracore number 07, collected in the Dauphin Island area in the year 2010.

Example B refers to sample number 1 taken from vibracore number 13, which was collected in the Dauphin Island area in 2010.

Note: Information is after ACOE Atlantic Division Manual # 1110-1-1 titled *Engineering and Design Geotechnical Manual for Surface and Subsurface Investigations*

Boring Designation DIVC-10-01

DRILLING LOG

DIVISION

INSTALLATION

SHEET 1 OF 1 SHEETS

1. PROJECT
Dauphin Island Shore Protection
Dauphin Island, Alabama

2. BORING DESIGNATION: DIVC-10-01
LOCATION COORDINATES: X = 1,789,858 Y = 67,263

3. DRILLING AGENCY: American Vibracore Services, Inc.
CONTRACTOR FILE NO.:

4. NAME OF DRILLER: Brian McCord

5. DIRECTION OF BORING: ☒ VERTICAL ☐ INCLINED
DEG. FROM VERTICAL:
BEARING:

6. THICKNESS OF OVERBURDEN: 0.0 Ft.

7. DEPTH DRILLED INTO ROCK: 0.0 Ft.

8. TOTAL DEPTH OF BORING: 20.2 Ft.

9. SIZE AND TYPE OF BIT: 3.0 In.

10. COORDINATE SYSTEM/DATUM: Alabama State Plane West
HORIZONTAL: NAD 1983
VERTICAL: NAVD 88

11. MANUFACTURER'S DESIGNATION OF DRILL: Alpine Pneumatic Vibracore
☐ AUTO HAMMER ☐ MANUAL HAMMER

12. TOTAL SAMPLES:
DISTURBED:
UNDISTURBED (UD):

13. TOTAL NUMBER CORE BOXES:

14. ELEVATION GROUND WATER:

15. DATE BORING
STARTED: 01-27-10 08:42
COMPLETED: 01-27-10 08:52

16. ELEVATION TOP OF BORING: -14.3 Ft.

17. TOTAL RECOVERY FOR BORING: 20.2 Ft.

18. SIGNATURE AND TITLE OF INSPECTOR: BF

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS Depths and elevations based on measured values	% REC.	BOX OR SAMPLE	REMARKS Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.
-14.3	0.0					
-16.9	2.6		SAND, fine to medium grained, quartz, trace shell fragments, trace shell hash, trace silt, shell fragments up to 1.0", 0.5" clay pocket @ 0.8', 1.0" clay pocket @ 1.0', pale olive (5Y-6/3), (SP).		1	Sample #1, Depth = 1.2' Mean (mm): 0.35, Phi Sorting: 0.77 Shell Hash: 1%, Fines (230): 1.36% (SP)
-18.3	4.0		SAND, fine to medium grained, quartz, trace shell hash, trace silt, light olive gray (5Y-6/2), (SP).		2	Sample #2, Depth = 3.2' Mean (mm): 0.29, Phi Sorting: 0.46 Shell Hash: 0%, Fines (230): 1.07% (SP)
-19.4	5.1		SAND, fine to medium grained, quartz, trace shell hash, trace silt, 0.5" whole shell @ 4.0', (0.25"x0.5") whole shell @ 4.3', (1.0"x0.5") shell fragments @ 4.4' and 5.1', olive gray (5Y-5/2), (SP).		3	Sample #3, Depth = 4.5' Mean (mm): 0.28, Phi Sorting: 0.62 Shell Hash: 0%, Fines (230): 1.07% (SP)
-23.4	9.1		SAND, fine to medium grained, quartz, trace shell hash, trace silt, (0.25"x0.5") wood fragment @ 6.6', (2.0"x1.0") shell fragment @ 8.0', gray (5Y-6/1), (SP).		4	Sample #4, Depth = 6.5' Mean (mm): 0.21, Phi Sorting: 0.35 Shell Hash: 0%, Fines (230): 1.11% (SP)
-26.0	11.7		SAND, fine to medium grained, quartz, trace clay, trace shell hash, trace silt, clay distributed in pockets typically up to 1.0", 2.0" clay pocket @ 9.1', 0.5" whole shell @ 9.5', olive gray (5Y-5/2), (SW).		5	Sample #5, Depth = 10.0' Mean (mm): 0.27, Phi Sorting: 0.92 Shell Hash: 0%, Fines (230): 3.13% (SW)
-31.3	17.0		SAND, fine to medium grained, quartz, trace shell hash, trace silt, (0.25"x1.0") shell fragment @ 11.4', 1.0" clay pocket @ 12.1', 1.0" whole shell @ 15.8', (1.0"x2.0") clay pocket @ 16.5', 0.5" clay pocket @ 16.6', olive gray (5Y-5/2), (SP).		6	Sample #6, Depth = 13.0' Mean (mm): 0.25, Phi Sorting: 0.45 Shell Hash: 0%, Fines (230): 2.02% (SP)
					7	Sample #7, Depth = 15.5' Mean (mm): 0.26, Phi Sorting: 0.46 Shell Hash: 0%, Fines (230): 1.10% (SP)
-33.5	19.2		SAND, fine grained, quartz, trace silt, 0.5" clay pockets @ 17.9', 18.0' and 18.1', light olive gray (5Y-6/2), (SP).		8	Sample #8, Depth = 18.2' Mean (mm): 0.22, Phi Sorting: 0.35 Shell Hash: 0%, Fines (230): 1.58% (SP)
-34.5	20.2		SAND, fine grained, quartz, trace silt, dark gray (5Y-4/1), (SP).		9	Sample #9, Depth = 19.5' Mean (mm): 0.22, Phi Sorting: 0.38 Shell Hash: 0%, Fines (230): 2.48% (SP)
			End of Boring			

0 5 10 15 20 25

ALABAMA DIVC-10.GPJ FL DEP ROSS.GDT 3/17/11

SAJ FORM 1836
JUN 02

Boring Designation DIVC-10-02

DRILLING LOG

DIVISION		INSTALLATION	SHEET 1 OF 1 SHEETS

1. PROJECT: Dauphin Island Shore Protection, Dauphin Island, Alabama		9. SIZE AND TYPE OF BIT: 3.0 In.	
2. BORING DESIGNATION: DIVC-10-02	LOCATION COORDINATES: X = 1,793,769 Y = 62,457	10. COORDINATE SYSTEM/DATUM: Alabama State Plane West	HORIZONTAL: NAD 1983 / VERTICAL: NAVD 88
3. DRILLING AGENCY: American Vibracore Services, Inc.	CONTRACTOR FILE NO.	11. MANUFACTURER'S DESIGNATION OF DRILL: Alpine Pneumatic Vibracore	☐ AUTO HAMMER ☐ MANUAL HAMMER
4. NAME OF DRILLER: Brian McCord		12. TOTAL SAMPLES	DISTURBED / UNDISTURBED (UD)
5. DIRECTION OF BORING: ☒ VERTICAL ☐ INCLINED	DEG. FROM VERTICAL / BEARING	13. TOTAL NUMBER CORE BOXES	
		14. ELEVATION GROUND WATER	
		15. DATE BORING	STARTED: 01-27-10 09:33 / COMPLETED: 01-27-10 09:37
6. THICKNESS OF OVERBURDEN: 0.0 Ft.		16. ELEVATION TOP OF BORING: -32.8 Ft.	
7. DEPTH DRILLED INTO ROCK: 0.0 Ft.		17. TOTAL RECOVERY FOR BORING: 16.6 Ft.	
8. TOTAL DEPTH OF BORING: 20.0 Ft.		18. SIGNATURE AND TITLE OF INSPECTOR: KD	

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS Depths and elevations based on measured values	% REC.	BOX OR SAMPLE	REMARKS
-32.8	0.0					Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.
-34.1	1.3		SAND, fine grained, quartz, trace shell hash, trace silt, 1.0" clay pocket @ 0.1', (2.5"x1.5") clay pocket @ 0.7', olive (5Y-5/3), (SP).		1	Sample #1, Depth = 0.5' Mean (mm): 0.23, Phi Sorting: 0.36 Shell Hash: 0%, Fines (230): 1.21% (SP)
-39.5	6.7		SAND, fine grained, quartz, trace clay, trace silt, clay distributed in clayey pockets typically up to 0.5", (2.5"x0.5") clayey pocket @ 2.3', 1.5" clayey pocket @ 4.1', gray (5Y-5/1), (SP).		2	Sample #2, Depth = 4.0' Mean (mm): 0.17, Phi Sorting: 0.39 Shell Hash: 0%, Fines (230): 2.57% (SP)
-41.0	8.2		SAND, fine grained, quartz, trace clay, trace shell hash, trace silt, clay distributed in clayey laminae and pockets up to 1.0", olive gray (5Y-4/2), (SP).		3	Sample #3, Depth = 7.5' Mean (mm): 0.16, Phi Sorting: 0.34 Shell Hash: 0%, Fines (230): 4.52% (SP)
-45.4	12.6		CLAY, trace sand, firm clay, sand distributed in pockets up to 1.0", 0.5" shell fragment @ 9.7', dark olive gray (5Y-3/2), (CL).			
-48.1	15.3		SAND, fine grained, quartz, trace clay, trace silt, clay distributed in clayey laminae and pockets up to 1.5", olive gray (5Y-4/2), (SP).		3	
-48.8	16.0		SAND, fine grained, quartz, trace clay, trace silt, clay distributed in clayey pockets up to 1.5",			
-49.4	16.6		clayey lamina @ 15.4', pale olive (5Y-6/3), (SP). CLAY, firm clay, dark olive gray (5Y-3/2), (CL).			
-52.8	20.0		No Recovery.			
			End of Boring			

0 5 10 15 20 25

ALABAMA DIVC-10.GPJ FL DEP ROSS.GDT 3/17/11

SAJ FORM 1836
JUN 02

Boring Designation DIVC-10-03

DRILLING LOG

DIVISION		**INSTALLATION**	**SHEET 1 OF 1 SHEETS**

1. PROJECT Dauphin Island Shore Protection, Dauphin Island, Alabama		**9. SIZE AND TYPE OF BIT** 3.0 In.	
		10. COORDINATE SYSTEM/DATUM Alabama State Plane West	**HORIZONTAL** NAD 1983 / **VERTICAL** NAVD 88
2. BORING DESIGNATION DIVC-10-03	**LOCATION COORDINATES** X = 1,789,459 Y = 64,265	**11. MANUFACTURER'S DESIGNATION OF DRILL** Alpine Pneumatic Vibracore	☐ AUTO HAMMER ☐ MANUAL HAMMER
3. DRILLING AGENCY American Vibracore Services, Inc.	**CONTRACTOR FILE NO.**	**12. TOTAL SAMPLES**	**DISTURBED** / **UNDISTURBED (UD)**
4. NAME OF DRILLER Brian McCord		**13. TOTAL NUMBER CORE BOXES**	
5. DIRECTION OF BORING ☒ VERTICAL ☐ INCLINED	**DEG. FROM VERTICAL** / **BEARING**	**14. ELEVATION GROUND WATER**	
		15. DATE BORING	**STARTED** 01-27-10 10:02 / **COMPLETED** 01-27-10 10:14
6. THICKNESS OF OVERBURDEN 0.0 Ft.		**16. ELEVATION TOP OF BORING** -18.8 Ft.	
7. DEPTH DRILLED INTO ROCK 0.0 Ft.		**17. TOTAL RECOVERY FOR BORING** 19.6 Ft.	
8. TOTAL DEPTH OF BORING 19.7 Ft.		**18. SIGNATURE AND TITLE OF INSPECTOR** KD	

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS Depths and elevations based on measured values	% REC.	BOX OR SAMPLE	REMARKS Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.
-18.8	0.0					
-19.8	1.0		SAND, fine grained, quartz, trace shell hash, trace silt, pale olive (5Y-6/3), (SP).		1	Sample #1, Depth = 0.5' Mean (mm): 0.25, Phi Sorting: 0.56 Shell Hash: 0%, Fines (230): 1.39% (SP)
-22.1	3.3		SAND, fine grained, quartz, trace shell fragments, trace shell hash, trace silt, trace whole shell, shell fragments up to 0.75", whole shells up to 0.5", 0.25" silty pocket @ 2.5', pale yellow (5Y-7/3), (SP).		2	Sample #2, Depth = 2.1' Mean (mm): 0.30, Phi Sorting: 0.63 Shell Hash: 0%, Fines (230): 1.30% (SP)
-25.3	6.5		SAND, fine grained, quartz, trace shell fragments, trace shell hash, trace silt, shell fragments up to 0.75", gray (5Y-6/1), (SP).		3	Sample #3, Depth = 5.0' Mean (mm): 0.27, Phi Sorting: 0.46 Shell Hash: 0%, Fines (230): 1.02% (SP)
-26.7	7.9		SAND, fine grained, quartz, little shell hash, trace silt, (0.75"x0.5") shell fragment @ 7.3', (1.0"x0.75") whole shell @ 7.1', light gray (5Y-7/1), (SP).		4	Sample #4, Depth = 7.2' Mean (mm): 0.33, Phi Sorting: 0.65 Shell Hash: 1%, Fines (230): 1.49% (SP)
-28.4	9.6		SAND, fine grained, quartz, trace shell fragments, trace shell hash, trace silt, shell fragments up to 0.75", gray (5Y-6/1), (SP).		3	
-32.8	14.0		SAND, fine grained, quartz, trace shell hash, trace silt, 0.25" clayey pocket @ 11.6', gray (5Y-6/1), (SP).		5	Sample #5, Depth = 12.0' Mean (mm): 0.18, Phi Sorting: 0.36 Shell Hash: 0%, Fines (230): 1.28% (SP)
-34.7	15.9		SAND, fine grained, quartz, trace clay, trace shell hash, trace silt, clay distributed in clayey pockets up to 0.5", gray (5Y-5/1), (SP).		6	Sample #6, Depth = 15.0' Mean (mm): 0.18, Phi Sorting: 0.55 Shell Hash: 0%, Fines (230): 1.61% (SP)
-38.4	19.6		SAND, fine grained, quartz, trace clay, trace shell hash, trace silt, clay distributed in clayey pockets typically up to (1.0"x0.5"), (2.5"x1.5") clayey pocket @ 18.2', gray (5Y-6/1), (SP).		7	Sample #7, Depth = 17.8' Mean (mm): 0.20, Phi Sorting: 0.37 Shell Hash: 0%, Fines (230): 1.78% (SP)
-38.5	19.7		No Recovery.			
			End of Boring			

0 5 10 15 20 25

ALABAMA DIVC-10.GPJ FL DEP ROSS.GDT 3/17/11

SAJ FORM 1836
JUN 02

Boring Designation DIVC-10-04

DRILLING LOG

DIVISION		INSTALLATION	SHEET 1 OF 1 SHEETS

1. PROJECT: Dauphin Island Shore Protection, Dauphin Island, Alabama
2. BORING DESIGNATION: DIVC-10-04
3. DRILLING AGENCY: American Vibracore Services, Inc.
4. NAME OF DRILLER: Brian McCord
5. DIRECTION OF BORING: ☒ VERTICAL ☐ INCLINED; DEG. FROM VERTICAL; BEARING
6. THICKNESS OF OVERBURDEN: 0.0 Ft.
7. DEPTH DRILLED INTO ROCK: 0.0 Ft.
8. TOTAL DEPTH OF BORING: 20.0 Ft.
9. SIZE AND TYPE OF BIT: 3.0 In.
10. COORDINATE SYSTEM/DATUM: Alabama State Plane West; HORIZONTAL: NAD 1983; VERTICAL: NAVD 88
11. MANUFACTURER'S DESIGNATION OF DRILL: Alpine Pneumatic Vibracore; ☐ AUTO HAMMER ☐ MANUAL HAMMER
12. TOTAL SAMPLES; DISTURBED; UNDISTURBED (UD)
13. TOTAL NUMBER CORE BOXES
14. ELEVATION GROUND WATER
15. DATE BORING: STARTED 01-27-10 10:46; COMPLETED 01-27-10 11:01
16. ELEVATION TOP OF BORING: -22.6 Ft.
17. TOTAL RECOVERY FOR BORING: 17.5 Ft.
18. SIGNATURE AND TITLE OF INSPECTOR: KD

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS Depths and elevations based on measured values	% REC.	BOX OR SAMPLE	REMARKS (Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.)
-22.6	0.0					
-23.8	1.2		SAND, fine grained, quartz, trace shell hash, trace silt, pale olive (5Y-6/3), (SP).		1	Sample #1, Depth = 0.6' Mean (mm): 0.22, Phi Sorting: 0.50 Shell Hash: 0%, Fines (230): 1.22% (SP)
			SAND, fine grained, quartz, trace shell hash, trace silt, (0.5"x0.25") organic pocket @ 2.2', gray (5Y-6/1), (SP).		2	Sample #2, Depth = 4.5' Mean (mm): 0.24, Phi Sorting: 0.48 Shell Hash: 0%, Fines (230): 1.04% (SP)
					3	Sample #3, Depth = 7.5' Mean (mm): 0.22, Phi Sorting: 0.42 Shell Hash: 0%, Fines (230): 1.22% (SP)
-32.8	10.2					
-35.4	12.8		SAND, fine grained, quartz, trace shell hash, trace silt, (1.0"x0.25") clayey pocket @ 12.3', olive gray (5Y-5/2), (SP).		4	Sample #4, Depth = 11.6' Mean (mm): 0.17, Phi Sorting: 0.42 Shell Hash: 0%, Fines (230): 1.86% (SP)
-39.6	17.0		SAND, fine grained, quartz, trace clay, trace shell hash, trace silt, clay distributed in clayey pockets typically up to 0.75", (2.0"x1.0") clayey pocket @ 12.8', 0.25" organic pocket @ 13.2', gray (5Y-6/1), (SP).		5	Sample #5, Depth = 14.5' Mean (mm): 0.23, Phi Sorting: 0.50 Shell Hash: 0%, Fines (230): 1.45% (SP)
-40.1	17.5		SAND, fine grained, quartz, little clay, trace silt, clay distributed in clayey pockets up to 0.75", olive gray (5Y-5/2), (SP-SC).			
-42.6	20.0		No Recovery.			
			End of Boring			

0 5 10 15 20 25

ALABAMA DIVC-10.GPJ FL DEP ROSS.GDT 3/17/11

SAJ FORM 1836
JUN 02

Boring Designation DIVC-10-05

DRILLING LOG

DIVISION		INSTALLATION	SHEET 1 OF 1 SHEETS

1. PROJECT: Dauphin Island Shore Protection, Dauphin Island, Alabama		9. SIZE AND TYPE OF BIT: 3.0 In.	
2. BORING DESIGNATION: DIVC-10-05	LOCATION COORDINATES: X = 1,782,592 Y = 57,111	10. COORDINATE SYSTEM/DATUM: Alabama State Plane West	HORIZONTAL: NAD 1983 / VERTICAL: NAVD 88
3. DRILLING AGENCY: American Vibracore Services, Inc.	CONTRACTOR FILE NO.	11. MANUFACTURER'S DESIGNATION OF DRILL: Alpine Pneumatic Vibracore	☐ AUTO HAMMER ☐ MANUAL HAMMER
4. NAME OF DRILLER: Brian McCord		12. TOTAL SAMPLES	DISTURBED / UNDISTURBED (UD)
5. DIRECTION OF BORING: ☒ VERTICAL ☐ INCLINED	DEG. FROM VERTICAL / BEARING	13. TOTAL NUMBER CORE BOXES	
		14. ELEVATION GROUND WATER	
		15. DATE BORING	STARTED: 01-27-10 12:25 / COMPLETED: 01-27-10 12:36
6. THICKNESS OF OVERBURDEN: 0.0 Ft.		16. ELEVATION TOP OF BORING: -33.2 Ft.	
7. DEPTH DRILLED INTO ROCK: 0.0 Ft.		17. TOTAL RECOVERY FOR BORING: 11.9 Ft.	
8. TOTAL DEPTH OF BORING: 20.0 Ft.		18. SIGNATURE AND TITLE OF INSPECTOR: KD	

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS Depths and elevations based on measured values	% REC.	BOX OR SAMPLE	REMARKS
-33.2	0.0					Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.
-35.9	2.7		SAND, fine grained, quartz, trace shell hash, trace silt, 0.25" clayey pocket @ 2.0', light olive gray (5Y-6/2), (SP).		1	Sample #1, Depth = 1.4' Mean (mm): 0.26, Phi Sorting: 0.54 Shell Hash: 0%, Fines (230): 1.27% (SP)
-38.3	5.1		SAND, fine grained, quartz, trace shell fragments, trace shell hash, trace silt, shell fragments up to 1.0", olive gray (5Y-5/2), (SW).		2	Sample #2, Depth = 3.9' Mean (mm): 0.26, Phi Sorting: 0.91 Shell Hash: 1%, Fines (230): 1.26% (SW)
-39.0	5.8		Shelly SAND, fine grained, quartz, trace silt, shell component is shell hash, shell fragments up to 2.0" and whole shells up to 1.5", olive (5Y-4/3), (GW).		3	Sample #3, Depth = 5.5' Mean (mm): 1.30, Phi Sorting: 2.30 Shell Hash: 9%, Fines (230): 1.58% (SW)
-41.2	8.0		SAND, fine grained, quartz, trace clay, trace shell hash, trace silt, clay distributed in clayey pockets typically up to 0.75", (1.25"x0.75") clayey pocket @ 7.4', (2.25"x0.5") clayey pocket @ 7.6', light olive gray (5Y-6/2), (SP).		4	Sample #4, Depth = 6.9' Mean (mm): 0.27, Phi Sorting: 0.65 Shell Hash: 0%, Fines (230): 1.47% (SP)
-43.2	10.0		SAND, fine grained, quartz, trace clay, trace shell hash, trace silt, clay distributed in clayey pockets typically up to 2.0", (4.0"x2.0") clayey pocket @ 9.2', (1.25"x0.75") whole shell @ 9.3', 2 (0.5") shell fragments @ 9.3', olive gray (5Y-5/2), (SP).		5	Sample #5, Depth = 8.8' Mean (mm): 0.26, Phi Sorting: 0.52 Shell Hash: 0%, Fines (230): 2.79% (SP)
-45.1	11.9		Shelly SAND, fine grained, quartz, trace silt, shell component is shell hash, shell hash increases with depth, olive gray (5Y-5/2), (SW).		6	Sample #6, Depth = 11.0' Mean (mm): 0.29, Phi Sorting: 0.94 Shell Hash: 1%, Fines (230): 1.45% (SW)
			No Recovery.			
-53.2	20.0		End of Boring			

0 5 10 15 20 25

ALABAMA DIVC-10.GPJ FL DEP ROSS.GDT 3/17/11

SAJ FORM 1836
JUN 02

Boring Designation DIVC-10-06

DRILLING LOG

DIVISION		INSTALLATION	SHEET 1 OF 1 SHEETS

1. PROJECT: Dauphin Island Shore Protection, Dauphin Island, Alabama
2. BORING DESIGNATION: DIVC-10-06
3. DRILLING AGENCY: American Vibracore Services, Inc.
4. NAME OF DRILLER: Brian McCord
5. DIRECTION OF BORING: ☒ VERTICAL ☐ INCLINED; DEG. FROM VERTICAL:; BEARING:
6. THICKNESS OF OVERBURDEN: 0.0 Ft.
7. DEPTH DRILLED INTO ROCK: 0.0 Ft.
8. TOTAL DEPTH OF BORING: 20.0 Ft.
9. SIZE AND TYPE OF BIT: 3.0 In.
10. COORDINATE SYSTEM/DATUM: Alabama State Plane West; HORIZONTAL: NAD 1983; VERTICAL: NAVD 88
11. MANUFACTURER'S DESIGNATION OF DRILL: Alpine Pneumatic Vibracore; ☐ AUTO HAMMER ☐ MANUAL HAMMER
12. TOTAL SAMPLES: DISTURBED: UNDISTURBED (UD):
13. TOTAL NUMBER CORE BOXES:
14. ELEVATION GROUND WATER:
15. DATE BORING: STARTED 01-27-10 13:30; COMPLETED 01-27-10 13:34
16. ELEVATION TOP OF BORING: -26.8 Ft.
17. TOTAL RECOVERY FOR BORING: 13.1 Ft.
18. SIGNATURE AND TITLE OF INSPECTOR: BF

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS Depths and elevations based on measured values	% REC.	BOX OR SAMPLE	REMARKS
-26.8	0.0					Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.
-27.8	1.0		SAND, fine grained, quartz, little shell hash, trace shell fragments, trace silt, shell fragments up to 0.5", (1.5"x1.0") whole shell @ 0.8', shell hash increases with depth, pale olive (5Y-6/3), (SP).		1	Sample #1, Depth = 0.5' Mean (mm): 0.30, Phi Sorting: 0.84 Shell Hash: 1%, Fines (230): 0.83% (SP)
-30.7	3.9		SAND, fine grained, quartz, trace clay, trace shell hash, trace silt, clay distributed in burrows up to 1.0", 0.5" clay layer @ 1.1', (1.0"x0.5") clay pocket @ 2.1', (1.0"x1.5") clay pocket @ 2.3', 1.0" clay pocket @ 3.3', light olive gray (5Y-6/2), (SP).		2	Sample #2, Depth = 1.9' Mean (mm): 0.26, Phi Sorting: 0.40 Shell Hash: 0%, Fines (230): 1.80% (SP)
-33.0	6.2		SAND, fine grained, quartz, trace clay, trace shell hash, trace silt, clay distributed in laminae, (1.0"x0.5") shell fragment @ 5.9', color is mottled gray (5Y-5/1) and, black (5Y-2.5/1), (SP-SC).		3	Sample #3, Depth = 5.2' Mean (mm): 0.18, Phi Sorting: 0.47 Shell Hash: 0%, Fines (230): 9.39% (SP-SC)
-39.9	13.1		CLAY, trace sand, firm clay, sand distributed in pockets typically up to 1.0", 2.0" sand pockets @ 8.8' and 11.0', (3.5"x1.5") whole shell @ 8.2', (1.0"x0.25") shell fragment @ 9.2', (5.0"x3.5") whole shell @ 10.2', (2.0"x1.0") sand pocket @ 12.5', black (5Y-2.5/1), (CL).			
-46.8	20.0		No Recovery.			
			End of Boring			

0 5 10 15 20 25

ALABAMA DIVC-10.GPJ FL DEP ROSS.GDT 3/17/11

SAJ FORM 1836
JUN 02

Boring Designation DIVC-10-07

DRILLING LOG

DIVISION		INSTALLATION	SHEET 1 OF 1 SHEETS

1. PROJECT: Dauphin Island Shore Protection, Dauphin Island, Alabama		9. SIZE AND TYPE OF BIT: 3.0 In.	
		10. COORDINATE SYSTEM/DATUM: Alabama State Plane West	HORIZONTAL: NAD 1983 / VERTICAL: NAVD 88
2. BORING DESIGNATION: DIVC-10-07	LOCATION COORDINATES: X = 1,761,210 Y = 86,107	11. MANUFACTURER'S DESIGNATION OF DRILL: Alpine Pneumatic Vibracore	☐ AUTO HAMMER ☐ MANUAL HAMMER
3. DRILLING AGENCY: American Vibracore Services, Inc.	CONTRACTOR FILE NO.	12. TOTAL SAMPLES	DISTURBED / UNDISTURBED (UD)
4. NAME OF DRILLER: Brian McCord		13. TOTAL NUMBER CORE BOXES	
5. DIRECTION OF BORING: ☒ VERTICAL ☐ INCLINED	DEG. FROM VERTICAL / BEARING	14. ELEVATION GROUND WATER	
		15. DATE BORING	STARTED: 01-27-10 14:16 / COMPLETED: 01-27-10 14:19
6. THICKNESS OF OVERBURDEN: 0.0 Ft.		16. ELEVATION TOP OF BORING: -26.1 Ft.	
7. DEPTH DRILLED INTO ROCK: 0.0 Ft.		17. TOTAL RECOVERY FOR BORING: 13.8 Ft.	
8. TOTAL DEPTH OF BORING: 20.0 Ft.		18. SIGNATURE AND TITLE OF INSPECTOR: BF	

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS Depths and elevations based on measured values	% REC.	BOX OR SAMPLE	REMARKS Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.
-26.1	0.0					
-27.1	1.0		CLAY, soft clay, (2.0"x0.25") wood fragment @ 0.7', olive (5Y-4/3), (CL).			
-30.9	4.8		SAND, fine grained, quartz, trace clay, trace shell hash, trace silt, color is mottled gray (5Y-5/1) and, dark olive gray (5Y-3/2), (SP-SC).		1	Sample #1, Depth = 2.5' Mean (mm): 0.34, Phi Sorting: 0.60 Shell Hash: 0%, Fines (230): 5.71% (SP-SC)
-39.9	13.8		Sandy CLAY, trace shell hash, trace silt, sand distributed in pockets up to 2.0", (1.5"x1.0") whole shell @ 5.5', 2.0" shelly layer @ 11.8', shell component is whole shell up to 2.0", dark olive gray (5Y-3/2), (SC).		2	Sample #2, Depth = 6.9' Mean (mm): 0.17, Phi Sorting: 0.69 Shell Hash: 0%, Fines (230): 26.69% (SC)
					3	Sample #3, Depth = 11.0' Mean (mm): 0.18, Phi Sorting: 0.54 Shell Hash: 0%, Fines (230): 25.70% (SC)
-46.1	20.0		No Recovery.			
			End of Boring			

0 5 10 15 20 25

ALABAMA DIVC-10.GPJ FL DEP ROSS.GDT 3/17/11

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Boring Designation DIVC-10-08

DRILLING LOG

DIVISION		INSTALLATION	SHEET 1 OF 1 SHEETS

1. PROJECT: Dauphin Island Shore Protection, Dauphin Island, Alabama		9. SIZE AND TYPE OF BIT: 3.0 In.	
2. BORING DESIGNATION: DIVC-10-08	LOCATION COORDINATES: X = 1,775,889 Y = 79,005	10. COORDINATE SYSTEM/DATUM: Alabama State Plane West	HORIZONTAL: NAD 1983 / VERTICAL: NAVD 88
3. DRILLING AGENCY: American Vibracore Services, Inc.	CONTRACTOR FILE NO.	11. MANUFACTURER'S DESIGNATION OF DRILL: Alpine Pneumatic Vibracore	☐ AUTO HAMMER ☐ MANUAL HAMMER
4. NAME OF DRILLER: Brian McCord		12. TOTAL SAMPLES	DISTURBED / UNDISTURBED (UD)
5. DIRECTION OF BORING: ☒ VERTICAL ☐ INCLINED	DEG. FROM VERTICAL / BEARING	13. TOTAL NUMBER CORE BOXES	
		14. ELEVATION GROUND WATER	
		15. DATE BORING	STARTED: 01-27-10 14:57 / COMPLETED: 01-27-10 15:00
6. THICKNESS OF OVERBURDEN: 0.0 Ft.		16. ELEVATION TOP OF BORING: -20.3 Ft.	
7. DEPTH DRILLED INTO ROCK: 0.0 Ft.		17. TOTAL RECOVERY FOR BORING: 11.7 Ft.	
8. TOTAL DEPTH OF BORING: 20.0 Ft.		18. SIGNATURE AND TITLE OF INSPECTOR: ML	

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS Depths and elevations based on measured values	% REC.	BOX OR SAMPLE	REMARKS
-20.3	0.0					Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.
-21.1	0.8		SAND, fine grained, quartz, trace shell hash, trace silt, light gray (5Y-7/1), (SP).		1	Sample #1, Depth = 0.5' Mean (mm): 0.24, Phi Sorting: 0.60 Shell Hash: 0%, Fines (230): 1.24% (SP)
-22.0	1.7		SAND, fine grained, quartz, trace clay, trace shell hash, clay distributed in burrows up to 1.0", gray (5Y-6/1), (SP).		2	
-22.9	2.6		SAND, fine grained, quartz, trace clay, trace shell hash, trace silt, light gray (5Y-7/1), (SP).		1	
-24.3	4.0		SAND, fine grained, quartz, trace clay, trace shell hash, clay distributed in pockets up to 1.0", gray (5Y-6/1), (SP).		2	Sample #2, Depth = 3.3' Mean (mm): 0.15, Phi Sorting: 0.47 Shell Hash: 0%, Fines (230): 2.03% (SP)
-24.7	4.4		SAND, fine grained, quartz, trace clay, trace shell hash, trace silt, light gray (5Y-7/1), (SP).		1	
-26.9	6.6		SAND, fine grained, quartz, trace clay, trace shell hash, clay distributed in pockets up to 0.5", gray (5Y-6/1), (SP).		2	
-28.5	8.2		CLAY, some sand, black (5Y-2.5/1), (CL).			
-29.7	9.4		SAND, fine grained, quartz, trace clay, color is mottled gray (5Y-6/1) and, olive gray (5Y-4/2), (SP-SC).		3	Sample #3, Depth = 8.8' Mean (mm): 0.18, Phi Sorting: 0.48 Shell Hash: 0%, Fines (230): 5.36% (SP-SC)
-31.8	11.5		SAND, fine grained, quartz, trace clay, clay distributed in pockets and burrows up to 3.0", color is mottled gray (5Y-6/1) and, olive gray (5Y-4/2), (SP).		4	Sample #4, Depth = 10.3' Mean (mm): 0.20, Phi Sorting: 0.40 Shell Hash: 0%, Fines (230): 2.79% (SP)
-32.0	11.7		CLAY, trace sand, black (5Y-2.5/1), (CL).			
			No Recovery.			
-40.3	20.0		End of Boring			

0 5 10 15 20 25

ALABAMA DIVC-10.GPJ FL DEP ROSS.GDT 3/17/11

SAJ FORM 1836
JUN 02

Boring Designation DIVC-10-09

DRILLING LOG

DIVISION

INSTALLATION

SHEET 1 OF 1 SHEETS

1. PROJECT
Dauphin Island Shore Protection
Dauphin Island, Alabama

2. BORING DESIGNATION: DIVC-10-09
LOCATION COORDINATES: X = 1,787,827 Y = 64,695

3. DRILLING AGENCY: American Vibracore Services, Inc.
CONTRACTOR FILE NO.:

4. NAME OF DRILLER: Sean Kemnuir

5. DIRECTION OF BORING: ☒ VERTICAL ☐ INCLINED
DEG. FROM VERTICAL:
BEARING:

6. THICKNESS OF OVERBURDEN: 0.0 Ft.

7. DEPTH DRILLED INTO ROCK: 0.0 Ft.

8. TOTAL DEPTH OF BORING: 20.0 Ft.

9. SIZE AND TYPE OF BIT: 3.0 In.

10. COORDINATE SYSTEM/DATUM: Alabama State Plane West
HORIZONTAL: NAD 1983
VERTICAL: NAVD 88

11. MANUFACTURER'S DESIGNATION OF DRILL: Alpine Pneumatic Vibracore
☐ AUTO HAMMER ☐ MANUAL HAMMER

12. TOTAL SAMPLES:
DISTURBED:
UNDISTURBED (UD):

13. TOTAL NUMBER CORE BOXES:

14. ELEVATION GROUND WATER:

15. DATE BORING
STARTED: 09-07-10 08:29
COMPLETED: 09-07-10 08:37

16. ELEVATION TOP OF BORING: -19.1 Ft.

17. TOTAL RECOVERY FOR BORING: 16.9 Ft.

18. SIGNATURE AND TITLE OF INSPECTOR: BF

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS Depths and elevations based on measured values	% REC.	BOX OR SAMPLE	REMARKS Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.
-19.1	0.0					
			SAND, fine grained, quartz, trace shell hash, trace silt, silt distributed in pockets up to 1.0", 1.0" clay pocket @ 11.4', gray (5Y-5/1), (SP).		1	Sample #1, Depth = 4.5' Mean (mm): 0.23, Phi Sorting: 0.42 Shell Hash: 0%, Fines (230): 1.07% (SP)
					2	Sample #2, Depth = 9.5' Mean (mm): 0.25, Phi Sorting: 0.60 Shell Hash: 0%, Fines (230): 1.28% (SP)
-32.9	13.8					
			SAND, fine grained, quartz, trace clay, trace shell fragments, trace shell hash, trace silt, shell fragments up to 0.5", clay distributed in pockets up to 1.0", clay decreases with depth, gray (5Y-5/1), (SP).		3	Sample #3, Depth = 15.0' Mean (mm): 0.19, Phi Sorting: 0.43 Shell Hash: 0%, Fines (230): 1.93% (SP)
-36.0	16.9					
			No Recovery.			
-39.1	20.0					
			End of Boring			

0 5 10 15 20 25

ALABAMA DIVC-10.GPJ FL DEP ROSS.GDT 3/17/11

SAJ FORM 1836
JUN 02

Boring Designation DIVC-10-10

DRILLING LOG

DIVISION

INSTALLATION

SHEET 1 OF 1 SHEETS

1. PROJECT
Dauphin Island Shore Protection
Dauphin Island, Alabama

9. SIZE AND TYPE OF BIT 3.0 In.

10. COORDINATE SYSTEM/DATUM: Alabama State Plane West | HORIZONTAL: NAD 1983 | VERTICAL: NAVD 88

2. BORING DESIGNATION: DIVC-10-10
LOCATION COORDINATES: X = 1,788,794 Y = 64,755

11. MANUFACTURER'S DESIGNATION OF DRILL: Alpine Pneumatic Vibracore
☐ AUTO HAMMER ☐ MANUAL HAMMER

3. DRILLING AGENCY: American Vibracore Services, Inc.
CONTRACTOR FILE NO.

12. TOTAL SAMPLES | DISTURBED | UNDISTURBED (UD)

4. NAME OF DRILLER: Brian McCord

13. TOTAL NUMBER CORE BOXES

14. ELEVATION GROUND WATER

5. DIRECTION OF BORING: ☒ VERTICAL ☐ INCLINED
DEG. FROM VERTICAL | BEARING

15. DATE BORING: STARTED 09-07-10 09:10 | COMPLETED 09-07-10 09:16

6. THICKNESS OF OVERBURDEN 0.0 Ft.

16. ELEVATION TOP OF BORING -17.2 Ft.

7. DEPTH DRILLED INTO ROCK 0.0 Ft.

17. TOTAL RECOVERY FOR BORING 19 Ft.

8. TOTAL DEPTH OF BORING 20.0 Ft.

18. SIGNATURE AND TITLE OF INSPECTOR
BF

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS Depths and elevations based on measured values	% REC.	BOX OR SAMPLE	REMARKS Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.
-17.2	0.0					
-19.3	2.1		SAND, fine grained, quartz, trace shell hash, trace silt, light olive gray (5Y-6/2), (SP).		1	Sample #1, Depth = 1.0' Mean (mm): 0.26, Phi Sorting: 0.50 Shell Hash: 0%, Fines (230): 0.93% (SP)
-20.7	3.5		SAND, fine grained, quartz, trace shell fragments, trace shell hash, trace silt, shell fragments up to 0.25", light olive gray (5Y-6/2), (SP).		2	Sample #2, Depth = 2.8' Mean (mm): 0.34, Phi Sorting: 0.69 Shell Hash: 1%, Fines (230): 1.23% (SP)
-21.4	4.2		SAND, fine grained, quartz, trace shell hash, trace silt, 2.0" silty pocket @ 3.8', light olive gray (5Y-6/2), (SP).		1	
-25.2	8.0		SAND, fine grained, quartz, trace shell hash, trace silt, gray (5Y-5/1), (SP).		3	Sample #3, Depth = 8.0' Mean (mm): 0.28, Phi Sorting: 0.57 Shell Hash: 0%, Fines (230): 1.08% (SP)
-30.7	13.5		SAND, fine grained, quartz, trace clay, trace shell hash, trace silt, clay distributed in pockets up to 1.0", gray (5Y-5/1), (SP).		4	Sample #4, Depth = 10.5' Mean (mm): 0.26, Phi Sorting: 0.67 Shell Hash: 0%, Fines (230): 1.79% (SP)
-36.2	19.0		SAND, fine grained, quartz, trace clay, trace shell fragments, trace shell hash, trace silt, clay distributed in pockets up to 2.0", silty clay from 13.8' to 14.2', shell fragments up to 1.0", 1.0" whole shell @ 17.3', olive gray (5Y-5/2), (SP).		5	Sample #5, Depth = 17.0' Mean (mm): 0.25, Phi Sorting: 0.42 Shell Hash: 0%, Fines (230): 2.07% (SP)
-37.2	20.0		No Recovery.			
			End of Boring			

0 5 10 15 20 25

ALABAMA DIVC-10.GPJ FL DEP ROSS.GDT 3/17/11

SAJ FORM 1836
JUN 02

Boring Designation DIVC-10-11

DRILLING LOG

DIVISION

INSTALLATION

SHEET 1 OF 1 SHEETS

1. PROJECT
Dauphin Island Shore Protection
Dauphin Island, Alabama

9. SIZE AND TYPE OF BIT 3.0 In.

10. COORDINATE SYSTEM/DATUM: Alabama State Plane West | HORIZONTAL: NAD 1983 | VERTICAL: NAVD 88

2. BORING DESIGNATION: DIVC-10-11
LOCATION COORDINATES: X = 1,788,371 Y = 63,930

11. MANUFACTURER'S DESIGNATION OF DRILL: Alpine Pneumatic Vibracore
☐ AUTO HAMMER ☐ MANUAL HAMMER

3. DRILLING AGENCY: American Vibracore Services, Inc.
CONTRACTOR FILE NO.

12. TOTAL SAMPLES | DISTURBED | UNDISTURBED (UD)

4. NAME OF DRILLER: Brian McCord

13. TOTAL NUMBER CORE BOXES

5. DIRECTION OF BORING: ☒ VERTICAL ☐ INCLINED | DEG. FROM VERTICAL | BEARING

14. ELEVATION GROUND WATER

15. DATE BORING | STARTED: 09-07-10 09:40 | COMPLETED: 09-07-10 09:49

6. THICKNESS OF OVERBURDEN: 0.0 Ft.

16. ELEVATION TOP OF BORING: -18.2 Ft.

7. DEPTH DRILLED INTO ROCK: 0.0 Ft.

17. TOTAL RECOVERY FOR BORING: 17.9 Ft.

8. TOTAL DEPTH OF BORING: 20.0 Ft.

18. SIGNATURE AND TITLE OF INSPECTOR: ML

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS Depths and elevations based on measured values	% REC.	BOX OR SAMPLE	REMARKS Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.
-18.2	0.0					
			SAND, fine grained, quartz, trace shell hash, trace silt, 1.0" layer of shell hash @ 4.9', light brownish gray (2.5Y-6/2), (SP).		1	Sample #1, Depth = 2.0' Mean (mm): 0.24, Phi Sorting: 0.46 Shell Hash: 0%, Fines (230): 1.21% (SP)
-23.2	5.0					
			SAND, fine grained, quartz, trace shell hash, trace silt, light gray (5Y-7/2), (SP).		2	Sample #2, Depth = 7.0' Mean (mm): 0.23, Phi Sorting: 0.39 Shell Hash: 0%, Fines (230): 0.84% (SP)
					3	Sample #3, Depth = 11.0' Mean (mm): 0.22, Phi Sorting: 0.36 Shell Hash: 0%, Fines (230): 1.11% (SP)
-31.1	12.9					
			SAND, fine grained, quartz, trace clay, clay distribution is mottled, light olive gray (5Y-6/2), (SP).		4	Sample #4, Depth = 14.4' Mean (mm): 0.19, Phi Sorting: 0.60 Shell Hash: 0%, Fines (230): 2.78% (SP)
-33.2	15.0					
			SAND, fine grained, quartz, trace clay, clay distribution is mottled, pale olive (5Y-6/3), (SP-SC).		5	Sample #5, Depth = 16.5' Mean (mm): 0.21, Phi Sorting: 0.73 Shell Hash: 0%, Fines (230): 4.98% (SP-SC)
-35.7	17.5					
-36.1	17.9		SAND, fine grained, quartz, trace silt, bit sample from 17.6' to 17.9', olive gray (5Y-5/2), (SP-SM). No Recovery.			
-38.2	20.0					
			End of Boring			

0 5 10 15 20 25

ALABAMA DIVC-10.GPJ FL DEP ROSS.GDT 3/17/11

SAJ FORM 1836
JUN 02

Boring Designation DIVC-10-12

DRILLING LOG

DIVISION

INSTALLATION

SHEET 1 OF 1 SHEETS

1. PROJECT
Dauphin Island Shore Protection
Dauphin Island, Alabama

9. SIZE AND TYPE OF BIT 3.0 In.

10. COORDINATE SYSTEM/DATUM: Alabama State Plane West | HORIZONTAL: NAD 1983 | VERTICAL: NAVD 88

2. BORING DESIGNATION: DIVC-10-12 | LOCATION COORDINATES: X = 1,788,442 Y = 63,059

11. MANUFACTURER'S DESIGNATION OF DRILL: Alpine Pneumatic Vibracore | ☐ AUTO HAMMER ☐ MANUAL HAMMER

3. DRILLING AGENCY: American Vibracore Services, Inc. | CONTRACTOR FILE NO.

12. TOTAL SAMPLES | DISTURBED | UNDISTURBED (UD)

4. NAME OF DRILLER: Sean Kemnuir

13. TOTAL NUMBER CORE BOXES

5. DIRECTION OF BORING: ☒ VERTICAL ☐ INCLINED | DEG. FROM VERTICAL | BEARING

14. ELEVATION GROUND WATER

15. DATE BORING | STARTED 09-07-10 10:09 | COMPLETED 09-07-10 10:19

6. THICKNESS OF OVERBURDEN 0.0 Ft.

16. ELEVATION TOP OF BORING -20.3 Ft.

7. DEPTH DRILLED INTO ROCK 0.0 Ft.

17. TOTAL RECOVERY FOR BORING 17.7 Ft.

8. TOTAL DEPTH OF BORING 17.7 Ft.

18. SIGNATURE AND TITLE OF INSPECTOR
BF

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS Depths and elevations based on measured values	% REC.	BOX OR SAMPLE	REMARKS Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.
-20.3	0.0					
			SAND, fine grained, quartz, trace shell fragments, trace shell hash, trace silt, shell fragments up to 0.25", gray (2.5Y-5/1), (SP).		1	Sample #1, Depth = 3.0' Mean (mm): 0.25, Phi Sorting: 0.47 Shell Hash: 0%, Fines (230): 1.08% (SP)
					2	Sample #2, Depth = 6.0' Mean (mm): 0.26, Phi Sorting: 0.55 Shell Hash: 0%, Fines (230): 1.25% (SP)
-29.3	9.0					
			SAND, fine grained, quartz, trace shell fragments, trace shell hash, trace silt, shell fragments up to 0.25", gray (2.5Y-5/1), (SP).		3	Sample #3, Depth = 10.4' Mean (mm): 0.28, Phi Sorting: 0.76 Shell Hash: 1%, Fines (230): 1.50% (SP)
-31.4	11.1					
			SAND, fine grained, quartz, trace shell hash, trace silt, gray (2.5Y-5/1), (SP).		1	
-34.0	13.7					
			SAND, fine grained, quartz, trace clay, trace shell hash, trace silt, 2.0" clay lens @ 15.6', (1.5"x1.0") clay pocket @ 14.1', bit sample from 17.6' to 17.7', gray (5Y-5/1), (SP).		4	Sample #4, Depth = 15.3' Mean (mm): 0.24, Phi Sorting: 0.80 Shell Hash: 0%, Fines (230): 3.06% (SP)
-38.0	17.7					
			End of Boring			

0 5 10 15 20 25

ALABAMA DIVC-10.GPJ FL DEP ROSS.GDT 3/17/11

SAJ FORM 1836
JUN 02

Boring Designation DIVC-10-13

DRILLING LOG

DIVISION		INSTALLATION	SHEET 1 OF 1 SHEETS

1. PROJECT: Dauphin Island Shore Protection, Dauphin Island, Alabama		9. SIZE AND TYPE OF BIT: 3.0 In.	
		10. COORDINATE SYSTEM/DATUM: Alabama State Plane West	HORIZONTAL: NAD 1983 / VERTICAL: NAVD 88
2. BORING DESIGNATION: DIVC-10-13	LOCATION COORDINATES: X = 1,789,373 Y = 63,248	11. MANUFACTURER'S DESIGNATION OF DRILL: Alpine Pneumatic Vibracore	☐ AUTO HAMMER ☐ MANUAL HAMMER
3. DRILLING AGENCY: American Vibracore Services, Inc.	CONTRACTOR FILE NO.	12. TOTAL SAMPLES	DISTURBED / UNDISTURBED (UD)
4. NAME OF DRILLER: Sean Kemnuir		13. TOTAL NUMBER CORE BOXES	
5. DIRECTION OF BORING: ☒ VERTICAL ☐ INCLINED	DEG. FROM VERTICAL / BEARING	14. ELEVATION GROUND WATER	
		15. DATE BORING	STARTED: 09-07-10 10:39 / COMPLETED: 09-07-10 10:54
6. THICKNESS OF OVERBURDEN: 0.0 Ft.		16. ELEVATION TOP OF BORING: -18.7 Ft.	
7. DEPTH DRILLED INTO ROCK: 0.0 Ft.		17. TOTAL RECOVERY FOR BORING: 20 Ft.	
8. TOTAL DEPTH OF BORING: 20.0 Ft.		18. SIGNATURE AND TITLE OF INSPECTOR: BF	

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS Depths and elevations based on measured values	% REC.	BOX OR SAMPLE	REMARKS
-18.7	0.0					Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.
			SAND, fine grained, quartz, trace clay, trace shell fragments, trace shell hash, trace silt, shell fragments up to 0.5", clayey pocket from 2.9' to 3.4', clay distributed in pockets typically up to 2.0", light brownish gray (2.5Y-6/2), (SP).		1	Sample #1, Depth = 1.7' Mean (mm): 0.25, Phi Sorting: 0.52 Shell Hash: 0%, Fines (230): 1.11% (SP)
-25.3	6.6					
			SAND, fine grained, quartz, trace clay, trace shell hash, trace silt, clay distributed in pockets up to 1.0", light olive gray (5Y-6/2), (SP).		2	Sample #2, Depth = 10.2' Mean (mm): 0.24, Phi Sorting: 0.48 Shell Hash: 0%, Fines (230): 1.30% (SP)
-33.3	14.6					Sample #3, Depth = 14.8'
-33.7	15.0		SAND, fine grained, quartz, trace shell hash, trace silt, 1.0" clay pocket @ 14.8', gray (5Y-6/1), (SP).		3	Mean (mm): 0.21, Phi Sorting: 0.46 Shell Hash: 0%, Fines (230): 4.68% (SP)
			SAND, fine grained, quartz, trace clay, trace shell hash, trace silt, clay distributed in pockets up to 1.0", light olive gray (5Y-6/2), (SP).		2	
-37.0	18.3					
-38.4	19.7		SAND, fine grained, quartz, trace clay, trace shell hash, trace silt, clay distributed in pockets up to 1.0", clay increases with depth, gray (5Y-6/1), (SP).		3	
-38.7	20.0		CLAY, trace sand, fine grained, quartz, bit sample, black (5Y-2.5/1), (CL).			
			End of Boring			

0 5 10 15 20 25

ALABAMA DIVC-10.GPJ FL DEP ROSS.GDT 3/17/11

SAJ FORM 1836
JUN 02

Boring Designation DIVC-10-14

DRILLING LOG

DIVISION		INSTALLATION	SHEET 1 OF 1 SHEETS

1. PROJECT: Dauphin Island Shore Protection, Dauphin Island, Alabama		9. SIZE AND TYPE OF BIT: 3.0 In.	
2. BORING DESIGNATION: DIVC-10-14	LOCATION COORDINATES: X = 1,789,853 Y = 68,589	10. COORDINATE SYSTEM/DATUM: Alabama State Plane West	HORIZONTAL: NAD 1983 / VERTICAL: NAVD 88
3. DRILLING AGENCY: American Vibracore Services, Inc.	CONTRACTOR FILE NO.	11. MANUFACTURER'S DESIGNATION OF DRILL: Alpine Pneumatic Vibracore	☐ AUTO HAMMER ☐ MANUAL HAMMER
4. NAME OF DRILLER: Sean Kemnuir		12. TOTAL SAMPLES	DISTURBED / UNDISTURBED (UD)
5. DIRECTION OF BORING: ☒ VERTICAL ☐ INCLINED	DEG. FROM VERTICAL / BEARING	13. TOTAL NUMBER CORE BOXES	
		14. ELEVATION GROUND WATER	
		15. DATE BORING	STARTED: 09-07-10 11:33 / COMPLETED: 09-07-10 11:45
6. THICKNESS OF OVERBURDEN: 0.0 Ft.		16. ELEVATION TOP OF BORING: -13.9 Ft.	
7. DEPTH DRILLED INTO ROCK: 0.0 Ft.		17. TOTAL RECOVERY FOR BORING: 17.5 Ft.	
8. TOTAL DEPTH OF BORING: 17.6 Ft.		18. SIGNATURE AND TITLE OF INSPECTOR: ML	

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS Depths and elevations based on measured values	% REC.	BOX OR SAMPLE	REMARKS Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.
-13.9	0.0					
-17.8	3.9		SAND, fine grained, quartz, trace shell fragments, trace silt, shell fragments up to 0.5", (1.0"x0.5") clayey lens @ 2.6', light brownish gray (2.5Y-6/2), (SP).		1	Sample #1, Depth = 2.0' Mean (mm): 0.34, Phi Sorting: 0.79 Shell Hash: 0%, Fines (230): 1.44% (SP)
-19.6	5.7		SAND, fine grained, quartz, trace shell hash, trace silt, 0.5" silty burrows from 4.3' to 4.8', light gray (5Y-7/1), (SP).		2	Sample #2, Depth = 5.0' Mean (mm): 0.21, Phi Sorting: 0.46 Shell Hash: 0%, Fines (230): 1.12% (SP)
-21.5	7.6		SAND, fine grained, quartz, trace shell fragments, trace shell hash, trace silt, shell fragments up to 0.5", 1.0" silty pocket @ 6.3', gray (5Y-6/1), (SP).		3	Sample #3, Depth = 6.9' Mean (mm): 0.29, Phi Sorting: 0.71 Shell Hash: 0%, Fines (230): 2.64% (SP)
-29.7	15.8		SAND, fine grained, quartz, trace shell hash, trace silt, gray (5Y-6/1), (SP).		4	Sample #4, Depth = 11.0' Mean (mm): 0.23, Phi Sorting: 0.45 Shell Hash: 0%, Fines (230): 1.66% (SP)
-31.4	17.5		SAND, fine grained, quartz, trace shell hash, trace silt, bit sample from 17.4' to 17.5', light olive gray (5Y-6/2), (SP).		5	Sample #5, Depth = 17.0' Mean (mm): 0.18, Phi Sorting: 0.37 Shell Hash: 0%, Fines (230): 4.08% (SP)
-31.5	17.6		No Recovery.			
			End of Boring			

0 5 10 15 20 25

ALABAMA DIVC-10.GPJ FL DEP ROSS.GDT 3/17/11

SAJ FORM 1836
JUN 02

Boring Designation DIVC-10-15

DRILLING LOG

DIVISION

INSTALLATION

SHEET 1 OF 1 SHEETS

1. PROJECT
Dauphin Island Shore Protection
Dauphin Island, Alabama

9. SIZE AND TYPE OF BIT 3.0 In.

10. COORDINATE SYSTEM/DATUM: Alabama State Plane West | HORIZONTAL: NAD 1983 | VERTICAL: NAVD 88

2. BORING DESIGNATION: DIVC-10-15
LOCATION COORDINATES: X = 1,790,086 Y = 67,775

11. MANUFACTURER'S DESIGNATION OF DRILL: Alpine Pneumatic Vibracore
☐ AUTO HAMMER ☐ MANUAL HAMMER

3. DRILLING AGENCY: American Vibracore Services, Inc.
CONTRACTOR FILE NO.

12. TOTAL SAMPLES | DISTURBED | UNDISTURBED (UD)

4. NAME OF DRILLER: Sean Kemnuir

13. TOTAL NUMBER CORE BOXES

5. DIRECTION OF BORING: ☒ VERTICAL ☐ INCLINED | DEG. FROM VERTICAL | BEARING

14. ELEVATION GROUND WATER

15. DATE BORING | STARTED: 09-07-10 12:02 | COMPLETED: 09-07-10 12:19

6. THICKNESS OF OVERBURDEN: 0.0 Ft.

16. ELEVATION TOP OF BORING: -14.5 Ft.

7. DEPTH DRILLED INTO ROCK: 0.0 Ft.

17. TOTAL RECOVERY FOR BORING: 17.3 Ft.

8. TOTAL DEPTH OF BORING: 17.3 Ft.

18. SIGNATURE AND TITLE OF INSPECTOR: BF

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS Depths and elevations based on measured values	% REC.	BOX OR SAMPLE	REMARKS Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.
-14.5	0.0					
-17.5	3.0		SAND, fine grained, quartz, trace shell fragments, trace shell hash, trace silt, trace whole shell, whole shells up to 0.5", shell fragments up to 1.0", light brownish gray (2.5Y-6/2), (SW).		1	Sample #1, Depth = 1.5' Mean (mm): 0.33, Phi Sorting: 0.87 Shell Hash: 1%, Fines (230): 0.62% (SW)
-20.5	6.0		SAND, fine grained, quartz, trace shell hash, trace silt, trace whole shell, whole shells up to 0.5", shell fragments up to 1.0", gray (5Y-6/1), (SP).		2	Sample #2, Depth = 4.5' Mean (mm): 0.26, Phi Sorting: 0.56 Shell Hash: 0%, Fines (230): 1.21% (SP)
-21.8	7.3		SAND, fine grained, quartz, trace shell hash, trace silt, gray (5Y-5/1), (SP).		3	Sample #3, Depth = 6.6' Mean (mm): 0.22, Phi Sorting: 0.43 Shell Hash: 0%, Fines (230): 1.35% (SP)
-22.9	8.4		SAND, fine grained, quartz, trace shell fragments, trace shell hash, trace silt, shell fragments typically up to 0.25", (2.0"x1.0") shell fragment @ 8.3', gray (5Y-6/1), (SP).		2	
-31.8	17.3		SAND, fine grained, quartz, trace clay, trace shell hash, trace silt, clay distributed in pockets up to 0.5", (1.0"x0.25") whole shell @ 16.0', gray (5Y-5/1), (SP).		4	Sample #4, Depth = 12.5' Mean (mm): 0.23, Phi Sorting: 0.53 Shell Hash: 0%, Fines (230): 1.89% (SP)
			End of Boring			

0 5 10 15 20 25

ALABAMA DIVC-10.GPJ FL DEP ROSS.GDT 3/17/11

SAJ FORM 1836
JUN 02

Boring Designation DIVC-10-16

DRILLING LOG

DIVISION		**INSTALLATION**	**SHEET 1 OF 1 SHEETS**

1. PROJECT
Dauphin Island Shore Protection
Dauphin Island, Alabama

2. BORING DESIGNATION DIVC-10-16
LOCATION COORDINATES X = 1,790,971 Y = 68,178

3. DRILLING AGENCY American Vibracore Services, Inc.
CONTRACTOR FILE NO.

4. NAME OF DRILLER Sean Kemnuir

5. DIRECTION OF BORING ☒ VERTICAL ☐ INCLINED
DEG. FROM VERTICAL
BEARING

6. THICKNESS OF OVERBURDEN 0.0 Ft.

7. DEPTH DRILLED INTO ROCK 0.0 Ft.

8. TOTAL DEPTH OF BORING 18.0 Ft.

9. SIZE AND TYPE OF BIT 3.0 In.

10. COORDINATE SYSTEM/DATUM Alabama State Plane West
HORIZONTAL NAD 1983
VERTICAL NAVD 88

11. MANUFACTURER'S DESIGNATION OF DRILL Alpine Pneumatic Vibracore
☐ AUTO HAMMER ☐ MANUAL HAMMER

12. TOTAL SAMPLES
DISTURBED
UNDISTURBED (UD)

13. TOTAL NUMBER CORE BOXES

14. ELEVATION GROUND WATER

15. DATE BORING
STARTED 09-07-10 12:45
COMPLETED 09-07-10 12:58

16. ELEVATION TOP OF BORING -13.0 Ft.

17. TOTAL RECOVERY FOR BORING 18 Ft.

18. SIGNATURE AND TITLE OF INSPECTOR
BF

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS Depths and elevations based on measured values	% REC.	BOX OR SAMPLE	REMARKS Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.
-13.0	0.0					
-15.0	2.0		SAND, fine grained, quartz, trace shell fragments, trace shell hash, trace silt, trace whole shell, shell fragments up to 0.25", whole shells typically up to 0.25", 1.0" whole shell @ 1.6', gray (5Y-5/1), (SP).		1	Sample #1, Depth = 1.0' Mean (mm): 0.29, Phi Sorting: 0.63 Shell Hash: 1%, Fines (230): 1.40% (SP)
-16.8	3.8		SAND, fine grained, quartz, trace shell hash, trace silt, gray (5Y-6/1), (SP).		2	Sample #2, Depth = 2.9' Mean (mm): 0.24, Phi Sorting: 0.60 Shell Hash: 0%, Fines (230): 1.08% (SP)
					3	Sample #3, Depth = 8.1' Mean (mm): 0.26, Phi Sorting: 0.71 Shell Hash: 0%, Fines (230): 2.07% (SP)
			SAND, fine grained, quartz, trace clay, trace shell fragments, trace shell hash, trace silt, clay distributed in pockets up to 1.0", (2.0"x1.0") clay pocket @ 6.5', shell fragments typically up to 0.25", (1.0"x0.25") whole shell @ 4.0', (1.5"x1.0") shell fragment @ 4.1', gray (5Y-5/1), (SP).		4	Sample #4, Depth = 13.1' Mean (mm): 0.22, Phi Sorting: 0.57 Shell Hash: 0%, Fines (230): 2.13% (SP)
-31.0	18.0					
			End of Boring			

0 5 10 15 20 25

ALABAMA DIVC-10.GPJ FL DEP ROSS.GDT 3/17/11

SAJ FORM 1836
JUN 02

Boring Designation DIVC-10-17

DRILLING LOG

DIVISION

INSTALLATION

SHEET 1 OF 1 SHEETS

1. PROJECT
Dauphin Island Shore Protection
Dauphin Island, Alabama

9. SIZE AND TYPE OF BIT 3.0 In.

10. COORDINATE SYSTEM/DATUM: Alabama State Plane West | HORIZONTAL: NAD 1983 | VERTICAL: NAVD 88

2. BORING DESIGNATION: DIVC-10-17
LOCATION COORDINATES: X = 1,790,952 Y = 67,304

11. MANUFACTURER'S DESIGNATION OF DRILL: Alpine Pneumatic Vibracore
☐ AUTO HAMMER ☐ MANUAL HAMMER

3. DRILLING AGENCY: American Vibracore Services, Inc.
CONTRACTOR FILE NO.

12. TOTAL SAMPLES | DISTURBED | UNDISTURBED (UD)

4. NAME OF DRILLER: Brian McCord

13. TOTAL NUMBER CORE BOXES

5. DIRECTION OF BORING: ☒ VERTICAL ☐ INCLINED | DEG. FROM VERTICAL | BEARING

14. ELEVATION GROUND WATER

15. DATE BORING | STARTED 09-07-10 13:19 | COMPLETED 09-07-10 13:35

6. THICKNESS OF OVERBURDEN 0.0 Ft.

16. ELEVATION TOP OF BORING -15.2 Ft.

7. DEPTH DRILLED INTO ROCK 0.0 Ft.

17. TOTAL RECOVERY FOR BORING 17.6 Ft.

8. TOTAL DEPTH OF BORING 17.6 Ft.

18. SIGNATURE AND TITLE OF INSPECTOR
BF

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS Depths and elevations based on measured values	% REC.	BOX OR SAMPLE	REMARKS Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.
-15.2	0.0					
-16.5	1.3		SAND, fine grained, quartz, trace shell hash, trace silt, dark gray (5Y-4/1), (SP).		1	Sample #1, Depth = 0.7' Mean (mm): 0.26, Phi Sorting: 0.53 Shell Hash: 0%, Fines (230): 1.52% (SP)
-18.0	2.8		SAND, fine grained, quartz, trace shell fragments, trace shell hash, trace silt, (1.0"x0.5") whole shell @ 2.4', shell fragments up to 0.5", light brownish gray (2.5Y-6/2), (SW).		2	Sample #2, Depth = 2.0' Mean (mm): 0.29, Phi Sorting: 0.95 Shell Hash: 1%, Fines (230): 1.53% (SW)
-19.0	3.8		SAND, fine grained, quartz, trace shell hash, trace silt, gray (5Y-6/1), (SP).		3	Sample #3, Depth = 3.3' Mean (mm): 0.25, Phi Sorting: 0.42 Shell Hash: 0%, Fines (230): 0.99% (SP)
-26.0	10.8		SAND, fine grained, quartz, trace clay, trace shell fragments, trace silt, clay distributed in pockets up to 1.0", shell fragments up to 0.5", gray (5Y-5/1), (SP).		4	Sample #4, Depth = 7.0' Mean (mm): 0.26, Phi Sorting: 0.83 Shell Hash: 1%, Fines (230): 1.86% (SP)
-32.8	17.6		SAND, fine grained, quartz, trace clay, trace shell hash, trace silt, clay distributed in pockets up to 0.5", 1.0" clay layer @ 13.7', gray (5Y-5/1), (SP).		5	Sample #5, Depth = 14.0' Mean (mm): 0.20, Phi Sorting: 0.38 Shell Hash: 0%, Fines (230): 2.57% (SP)
			End of Boring			

0 5 10 15 20 25

ALABAMA DIVC-10.GPJ FL DEP ROSS.GDT 3/17/11

SAJ FORM 1836
JUN 02

Boring Designation DIVC-10-18

DRILLING LOG

DIVISION		INSTALLATION	SHEET 1 OF 1 SHEETS

1. PROJECT: Dauphin Island Shore Protection, Dauphin Island, Alabama		9. SIZE AND TYPE OF BIT: 3.0 In.	
2. BORING DESIGNATION: DIVC-10-18	LOCATION COORDINATES: X = 1,790,332 Y = 66,495	10. COORDINATE SYSTEM/DATUM: Alabama State Plane West	HORIZONTAL: NAD 1983 / VERTICAL: NAVD 88
3. DRILLING AGENCY: American Vibracore Services, Inc.	CONTRACTOR FILE NO.	11. MANUFACTURER'S DESIGNATION OF DRILL: Alpine Pneumatic Vibracore	☐ AUTO HAMMER ☐ MANUAL HAMMER
4. NAME OF DRILLER: Sean Kemnuir		12. TOTAL SAMPLES	DISTURBED / UNDISTURBED (UD)
5. DIRECTION OF BORING: ☒ VERTICAL ☐ INCLINED	DEG. FROM VERTICAL / BEARING	13. TOTAL NUMBER CORE BOXES	
		14. ELEVATION GROUND WATER	
		15. DATE BORING	STARTED: 09-07-10 01:57 / COMPLETED: 09-07-10 02:09
6. THICKNESS OF OVERBURDEN: 0.0 Ft.		16. ELEVATION TOP OF BORING: -15.8 Ft.	
7. DEPTH DRILLED INTO ROCK: 0.0 Ft.		17. TOTAL RECOVERY FOR BORING: 19.3 Ft.	
8. TOTAL DEPTH OF BORING: 19.3 Ft.		18. SIGNATURE AND TITLE OF INSPECTOR: BF	

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS Depths and elevations based on measured values	% REC.	BOX OR SAMPLE	REMARKS Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.
-15.8	0.0					
-19.2	3.4		SAND, fine grained, quartz, trace clay, trace silt, (2.5"x0.5") shell fragment @1.3', clay distributed in pockets up to 1.0", (1.0"x0.5") rock fragment @ 2.5', light brownish gray (2.5Y-6/2), (SP).		1	Sample #1, Depth = 1.7' Mean (mm): 0.28, Phi Sorting: 0.51 Shell Hash: 0%, Fines (230): 1.42% (SP)
-20.7	4.9		SAND, fine grained, quartz, trace shell hash, trace silt, 2.0" organic pocket @ 3.7', gray (5Y-6/1), (SP).		2	Sample #2, Depth = 4.1' Mean (mm): 0.23, Phi Sorting: 0.49 Shell Hash: 0%, Fines (230): 1.39% (SP)
-24.8	9.0		SAND, fine grained, quartz, trace shell fragments, trace shell hash, trace silt, shell fragments up to 0.5", gray (2.5Y-6/1), (SP).		3	Sample #3, Depth = 6.8' Mean (mm): 0.26, Phi Sorting: 0.50 Shell Hash: 0%, Fines (230): 1.18% (SP)
-26.6	10.8		SAND, fine grained, quartz, trace shell fragments, trace shell hash, trace silt, shell fragments up to 0.25", 1.0" silt pocket @10.4', gray (2.5Y-5/1), (SP).		4	Sample #4, Depth = 9.8' Mean (mm): 0.19, Phi Sorting: 0.41 Shell Hash: 0%, Fines (230): 1.49% (SP)
-27.8	12.0		SAND, fine grained, quartz, trace shell fragments, trace shell hash, trace silt, trace whole shell, (2.5"x1.5") shell fragment @11.6', whole shells up to 1.0", shell fragments typically up to 0.25", gray (2.5Y-5/1), (SW).		5	Sample #5, Depth = 11.4' Mean (mm): 0.24, Phi Sorting: 0.90 Shell Hash: 1%, Fines (230): 3.32% (SW)
-35.1	19.3		SAND, fine grained, quartz, trace clay, trace shell fragments, trace shell hash, trace silt, silt distributed in laminae and pockets up to 1.0", clay distributed in pockets up to 1.0", silt increasing with depth, shell fragments up to 0.25", gray (5Y-6/1), (SP).		6	Sample #6, Depth = 16.0' Mean (mm): 0.26, Phi Sorting: 0.46 Shell Hash: 0%, Fines (230): 1.72% (SP)
			End of Boring			

0 5 10 15 20 25

ALABAMA DIVC-10.GPJ FL DEP ROSS.GDT 3/17/11

SAJ FORM 1836
JUN 02

Boring Designation DIVC-10-19

DRILLING LOG

DIVISION

INSTALLATION

SHEET 1 OF 1 SHEETS

1. PROJECT
Dauphin Island Shore Protection
Dauphin Island, Alabama

9. SIZE AND TYPE OF BIT 3.0 In.

10. COORDINATE SYSTEM/DATUM: Alabama State Plane West | HORIZONTAL: NAD 1983 | VERTICAL: NAVD 88

2. BORING DESIGNATION: DIVC-10-19
LOCATION COORDINATES: X = 1,791,209 Y = 66,338

11. MANUFACTURER'S DESIGNATION OF DRILL: Alpine Pneumatic Vibracore
☐ AUTO HAMMER ☐ MANUAL HAMMER

3. DRILLING AGENCY: American Vibracore Services, Inc.
CONTRACTOR FILE NO.

12. TOTAL SAMPLES | DISTURBED | UNDISTURBED (UD)

4. NAME OF DRILLER: Sean Kemnuir

13. TOTAL NUMBER CORE BOXES

5. DIRECTION OF BORING: ☒ VERTICAL ☐ INCLINED | DEG. FROM VERTICAL | BEARING

14. ELEVATION GROUND WATER

15. DATE BORING | STARTED: 09-07-10 02:36 | COMPLETED: 09-07-10 02:45

6. THICKNESS OF OVERBURDEN: 0.0 Ft.

16. ELEVATION TOP OF BORING: -17.0 Ft.

7. DEPTH DRILLED INTO ROCK: 0.0 Ft.

17. TOTAL RECOVERY FOR BORING: 19 Ft.

8. TOTAL DEPTH OF BORING: 19.0 Ft.

18. SIGNATURE AND TITLE OF INSPECTOR: KD

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS Depths and elevations based on measured values	% REC.	BOX OR SAMPLE	REMARKS Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.
-17.0	0.0					
-19.5	2.5		SAND, fine grained, quartz, trace shell hash, trace silt, silt distributed in silty pockets up to 0.5", light gray (5Y-7/2), (SP).		1	Sample #1, Depth = 1.2' Mean (mm): 0.26, Phi Sorting: 0.54 Shell Hash: 0%, Fines (230): 1.40% (SP)
-21.5	4.5		SAND, fine grained, quartz, trace shell fragments, trace shell hash, trace silt, silt distributed in silty pockets up to 0.5", 2 (1.0") clayey pockets @ 2.6', shell fragments up to 0.5", light gray (5Y-7/1), (SP).		2	Sample #2, Depth = 3.5' Mean (mm): 0.28, Phi Sorting: 0.67 Shell Hash: 0%, Fines (230): 1.15% (SP)
-22.9	5.9		SAND, fine grained, quartz, trace shell hash, trace silt, gray (5Y-6/1), (SP).		3	Sample #3, Depth = 5.2' Mean (mm): 0.19, Phi Sorting: 0.45 Shell Hash: 0%, Fines (230): 1.51% (SP)
-25.5	8.5		SAND, fine grained, quartz, trace clay, trace shell hash, trace silt, clay distributed in clayey pockets up to 0.5", (1.0"x0.75") shell fragment @ 7.1', gray (5Y-5/1), (SP).		4	Sample #4, Depth = 6.9' Mean (mm): 0.22, Phi Sorting: 0.75 Shell Hash: 0%, Fines (230): 2.46% (SP)
-34.2	17.2		SAND, fine grained, quartz, trace clay, trace shell fragments, trace shell hash, trace silt, silt distributed in silty pockets up to 0.5", clay distributed in clayey pockets up to 1.0", shell fragments up to 0.75", gray (5Y-6/1), (SP).		5	Sample #5, Depth = 12.5' Mean (mm): 0.25, Phi Sorting: 0.38 Shell Hash: 0%, Fines (230): 1.18% (SP)
-36.0	19.0		SAND, fine grained, quartz, trace clay, trace shell hash, trace silt, clay distributed in clayey pockets up to 1.5", silt and clay increases with depth, gray (5Y-5/1), (SP).			
			End of Boring			

0 5 10 15 20 25

ALABAMA DIVC-10.GPJ FL DEP ROSS.GDT 3/17/11

SAJ FORM 1836
JUN 02

Boring Designation DIVC-10-20

DRILLING LOG

DIVISION		INSTALLATION	SHEET 1 OF 1 SHEETS

1. PROJECT: Dauphin Island Shore Protection, Dauphin Island, Alabama		9. SIZE AND TYPE OF BIT: 3.0 In.	
2. BORING DESIGNATION: DIVC-10-20	LOCATION COORDINATES: X = 1,790,576 Y = 65,529	10. COORDINATE SYSTEM/DATUM: Alabama State Plane West	HORIZONTAL: NAD 1983 / VERTICAL: NAVD 88
3. DRILLING AGENCY: American Vibracore Services, Inc.	CONTRACTOR FILE NO.	11. MANUFACTURER'S DESIGNATION OF DRILL: Alpine Pneumatic Vibracore	☐ AUTO HAMMER ☐ MANUAL HAMMER
4. NAME OF DRILLER: Sean Kemnuir		12. TOTAL SAMPLES	DISTURBED / UNDISTURBED (UD)
5. DIRECTION OF BORING: ☒ VERTICAL ☐ INCLINED	DEG. FROM VERTICAL / BEARING	13. TOTAL NUMBER CORE BOXES	
		14. ELEVATION GROUND WATER	
		15. DATE BORING	STARTED: 09-07-10 03:18 / COMPLETED: 09-07-10 03:30
6. THICKNESS OF OVERBURDEN: 0.0 Ft.		16. ELEVATION TOP OF BORING: -16.9 Ft.	
7. DEPTH DRILLED INTO ROCK: 0.0 Ft.		17. TOTAL RECOVERY FOR BORING: 18.6 Ft.	
8. TOTAL DEPTH OF BORING: 18.6 Ft.		18. SIGNATURE AND TITLE OF INSPECTOR: KD	

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS Depths and elevations based on measured values	% REC.	BOX OR SAMPLE	REMARKS Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.
-16.9	0.0					
-22.0	5.1		SAND, fine grained, quartz, trace shell fragments, trace shell hash, trace silt, shell fragments typically up to 1.0", (2.25"x1.25") shell fragment @ 1.3', (1.5"x1.0") shell fragment @ 2.8', 2 (0.75") silty pockets @ 1.0', light gray (5Y-7/2), (SP).		1	Sample #1, Depth = 2.5' Mean (mm): 0.27, Phi Sorting: 0.56 Shell Hash: 0%, Fines (230): 1.32% (SP)
-28.1	11.2		SAND, fine grained, quartz, trace shell fragments, trace silt, shell fragments typically up to 0.75", (2.0"x1.75") shell fragment @ 8.1', silt distributed in silty pockets up to 0.5", gray (5Y-6/1), (SP).		2	Sample #2, Depth = 7.8' Mean (mm): 0.24, Phi Sorting: 0.44 Shell Hash: 0%, Fines (230): 1.41% (SP)
-29.7	12.8		SAND, fine grained, quartz, trace clay, trace shell fragments, trace silt, clay distributed in clayey pockets up to 1.0", shell fragments up to 1.0", gray (5Y-5/1), (SP).		3	Sample #3, Depth = 12.2' Mean (mm): 0.22, Phi Sorting: 0.57 Shell Hash: 0%, Fines (230): 3.31% (SP)
-31.1	14.2		SAND, fine grained, quartz, trace shell hash, trace silt, silt distributed in silty pockets up to 0.75", gray (5Y-6/1), (SP).		2	
-35.5	18.6		SAND, fine grained, quartz, trace shell hash, trace silt, silt distributed in silty pockets up to 1.0", 1.0" clayey pocket @ 18.5', bit sample from 18.4' to 18.6', gray (5Y-5/1), (SP).		4	Sample #4, Depth = 16.5' Mean (mm): 0.22, Phi Sorting: 0.37 Shell Hash: 0%, Fines (230): 3.49% (SP)
			End of Boring			

0 5 10 15 20 25

ALABAMA DIVC-10.GPJ FL DEP ROSS.GDT 3/17/11

SAJ FORM 1836
JUN 02

Boring Designation DIVC-10-21

DRILLING LOG

DIVISION		**INSTALLATION**	**SHEET 1 OF 1 SHEETS**

1. PROJECT Dauphin Island Shore Protection, Dauphin Island, Alabama		**9. SIZE AND TYPE OF BIT** 3.0 In.	
		10. COORDINATE SYSTEM/DATUM Alabama State Plane West	**HORIZONTAL** NAD 1983 / **VERTICAL** NAVD 88
2. BORING DESIGNATION DIVC-10-21	**LOCATION COORDINATES** X = 1,791,351 Y = 65,352	**11. MANUFACTURER'S DESIGNATION OF DRILL** Alpine Pneumatic Vibracore	☐ AUTO HAMMER ☐ MANUAL HAMMER
3. DRILLING AGENCY American Vibracore Services, Inc.	**CONTRACTOR FILE NO.**	**12. TOTAL SAMPLES**	**DISTURBED** / **UNDISTURBED (UD)**
4. NAME OF DRILLER Sean Kemnuir		**13. TOTAL NUMBER CORE BOXES**	
5. DIRECTION OF BORING ☒ VERTICAL ☐ INCLINED	**DEG. FROM VERTICAL** / **BEARING**	**14. ELEVATION GROUND WATER**	
		15. DATE BORING	**STARTED** 09-07-10 04:32 / **COMPLETED** 09-07-10 04:50
6. THICKNESS OF OVERBURDEN 0.0 Ft.		**16. ELEVATION TOP OF BORING** -18.4 Ft.	
7. DEPTH DRILLED INTO ROCK 0.0 Ft.		**17. TOTAL RECOVERY FOR BORING** 18.6 Ft.	
8. TOTAL DEPTH OF BORING 18.6 Ft.		**18. SIGNATURE AND TITLE OF INSPECTOR** BF	

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS Depths and elevations based on measured values	% REC.	BOX OR SAMPLE	REMARKS Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.
-18.4	0.0					
-21.1	2.7		SAND, fine grained, trace shell fragments, trace shell hash, trace silt, shell fragments up to 0.25", olive gray (5Y-5/2), (SP).		1	Sample #1, Depth = 1.5' Mean (mm): 0.30, Phi Sorting: 0.71 Shell Hash: 1%, Fines (230): 1.31% (SP)
-22.2	3.8		SAND, fine grained, trace shell fragments, trace shell hash, trace silt, shell fragments up to 0.5", light olive gray (5Y-6/2), (SP).		2	Sample #2, Depth = 3.3' Mean (mm): 0.33, Phi Sorting: 0.65 Shell Hash: 0%, Fines (230): 1.09% (SP)
-24.7	6.3		SAND, fine grained, trace shell fragments, trace shell hash, trace silt, shell fragments up to 0.25", gray (5Y-6/1), (SP).		3	Sample #3, Depth = 5.1' Mean (mm): 0.26, Phi Sorting: 0.68 Shell Hash: 1%, Fines (230): 1.42% (SP)
-26.8	8.4		SAND, fine grained, trace shell hash, trace silt, silt distributed in pockets up to 1.0", gray (5Y-6/1), (SP).		4	Sample #4, Depth = 7.6' Mean (mm): 0.18, Phi Sorting: 0.56 Shell Hash: 0%, Fines (230): 2.05% (SP)
-28.1	9.7		SAND, fine grained, trace clay, trace shell hash, trace silt, clay distributed in laminae and pockets up to 2.0", dark gray (5Y-4/1), (SW-SC).		5	Sample #5, Depth = 9.0' Mean (mm): 0.24, Phi Sorting: 0.94 Shell Hash: 1%, Fines (230): 7.50% (SW-SC)
-32.6	14.2		SAND, fine grained, trace clay, trace shell hash, trace silt, (0.5"x1.0") shell fragment @ 10.0', clay distributed in pockets up to 0.5", silt distributed in pockets up to 1.0", gray (5Y-6/1), (SP).		4	
-37.0	18.6		SAND, fine grained, trace clay, trace shell hash, trace silt, clay distributed in laminae, shelly lamina @ 14.2', gray (5Y-5/1), (SP).		6	Sample #6, Depth = 16.5' Mean (mm): 0.24, Phi Sorting: 0.34 Shell Hash: 0%, Fines (230): 1.72% (SP)
			End of Boring			

0 5 10 15 20 25

ALABAMA DIVC-10.GPJ FL DEP ROSS.GDT 3/17/11

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Boring Designation DIVC-10-22

DRILLING LOG

DIVISION		INSTALLATION	SHEET 1 OF 1 SHEETS

1. PROJECT Dauphin Island Shore Protection Dauphin Island, Alabama		9. SIZE AND TYPE OF BIT 3.0 In.	
		10. COORDINATE SYSTEM/DATUM Alabama State Plane West	HORIZONTAL NAD 1983 / VERTICAL NAVD 88
2. BORING DESIGNATION DIVC-10-22	LOCATION COORDINATES X = 1,792,791 Y = 65,318	11. MANUFACTURER'S DESIGNATION OF DRILL Alpine Pneumatic Vibracore	☐ AUTO HAMMER ☐ MANUAL HAMMER
3. DRILLING AGENCY American Vibracore Services, Inc.	CONTRACTOR FILE NO.	12. TOTAL SAMPLES	DISTURBED / UNDISTURBED (UD)
4. NAME OF DRILLER Sean Kemnuir		13. TOTAL NUMBER CORE BOXES	
5. DIRECTION OF BORING ☒ VERTICAL ☐ INCLINED	DEG. FROM VERTICAL / BEARING	14. ELEVATION GROUND WATER	
		15. DATE BORING	STARTED 09-07-10 05:20 / COMPLETED 09-07-10 17:29
6. THICKNESS OF OVERBURDEN 0.0 Ft.		16. ELEVATION TOP OF BORING -18.6 Ft.	
7. DEPTH DRILLED INTO ROCK 0.0 Ft.		17. TOTAL RECOVERY FOR BORING 17.4 Ft.	
8. TOTAL DEPTH OF BORING 17.4 Ft.		18. SIGNATURE AND TITLE OF INSPECTOR BF	

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS Depths and elevations based on measured values	% REC.	BOX OR SAMPLE	REMARKS Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.
-18.6	0.0					
			SAND, fine grained, trace shell hash, trace silt, silt distributed in laminae, gray (5Y-5/1), (SP).		1	Sample #1, Depth = 3.5' Mean (mm): 0.24, Phi Sorting: 0.60 Shell Hash: 0%, Fines (230): 1.26% (SP)
					2	Sample #2, Depth = 7.5' Mean (mm): 0.28, Phi Sorting: 0.43 Shell Hash: 0%, Fines (230): 2.14% (SP)
-30.3	11.7					
-32.2	13.6		SAND, fine grained, trace shell fragments, trace shell hash, trace silt, shell fragments up to 0.25", gray (5Y-5/1), (SP).		3	Sample #3, Depth = 12.3' Mean (mm): 0.37, Phi Sorting: 0.78 Shell Hash: 1%, Fines (230): 1.15% (SP)
-33.2	14.6		SAND, some shell hash, trace silt, gray (5Y-5/1), (SW).		4	Sample #4, Depth = 14.2' Mean (mm): 0.39, Phi Sorting: 1.52 Shell Hash: 8%, Fines (230): 1.66% (SW)
-36.0	17.4		SAND, fine grained, trace shell fragments, trace shell hash, trace silt, trace whole shell, whole shells and shell fragments typically up to 0.25", (1.0"x0.25") whole shell @ 15.0', gray (5Y-5/1), (SP).		3	
			End of Boring			

0 5 10 15 20 25

ALABAMA DIVC-10.GPJ FL DEP ROSS.GDT 3/17/11

SAJ FORM 1836
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Boring Designation DIVC-10-23

DRILLING LOG

DIVISION		INSTALLATION	SHEET 1 OF 1 SHEETS

1. PROJECT Dauphin Island Shore Protection Dauphin Island, Alabama		9. SIZE AND TYPE OF BIT 3.0 In.	
		10. COORDINATE SYSTEM/DATUM Alabama State Plane West	HORIZONTAL NAD 1983	VERTICAL NAVD 88
2. BORING DESIGNATION DIVC-10-23	LOCATION COORDINATES X = 1,791,669 Y = 59,181	11. MANUFACTURER'S DESIGNATION OF DRILL Alpine Pneumatic Vibracore	☐ AUTO HAMMER ☐ MANUAL HAMMER
3. DRILLING AGENCY American Vibracore Services, Inc.	CONTRACTOR FILE NO.	12. TOTAL SAMPLES	DISTURBED	UNDISTURBED (UD)
4. NAME OF DRILLER Sean Kemnuir		13. TOTAL NUMBER CORE BOXES	
5. DIRECTION OF BORING ☒ VERTICAL ☐ INCLINED	DEG. FROM VERTICAL BEARING	14. ELEVATION GROUND WATER	
		15. DATE BORING	STARTED 09-08-10 08:12	COMPLETED 09-08-10 08:25
6. THICKNESS OF OVERBURDEN 0.0 Ft.		16. ELEVATION TOP OF BORING -18.0 Ft.	
7. DEPTH DRILLED INTO ROCK 0.0 Ft.		17. TOTAL RECOVERY FOR BORING 19 Ft.	
8. TOTAL DEPTH OF BORING 19.0 Ft.		18. SIGNATURE AND TITLE OF INSPECTOR BF	

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS Depths and elevations based on measured values	% REC.	BOX OR SAMPLE	REMARKS Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.
-18.0	0.0					
-21.3	3.3		SAND, fine grained, trace shell hash, trace silt, 1.0" silt lens @ 1.7', light brownish gray (2.5Y-6/2), (SP).		1	Sample #1, Depth = 1.7' Mean (mm): 0.23, Phi Sorting: 0.49 Shell Hash: 0%, Fines (230): 1.12% (SP)
-29.0	11.0		SAND, fine grained, trace clay, trace shell fragments, trace shell hash, trace silt, shell fragments typically up to 0.25", (2.5"x1.5") shell fragment @ 5.9', clay distributed in pockets up to 1.0", clayey pockets from 5.1'-5.2', 6.4'-6.6', 7.4'-7.6' & 10.4'-10.5', light brownish gray (2.5Y-6/2), (SP).		2	Sample #2, Depth = 7.0' Mean (mm): 0.22, Phi Sorting: 0.47 Shell Hash: 0%, Fines (230): 1.40% (SP)
-33.6	15.6		SAND, fine grained, trace shell hash, trace silt, silt distributed in laminae and pockets up to 0.5", light brownish gray (2.5Y-6/2), (SP).		3	Sample #3, Depth = 12.5' Mean (mm): 0.21, Phi Sorting: 0.52 Shell Hash: 0%, Fines (230): 2.19% (SP)
-35.6	17.6		SAND, fine grained, trace shell hash, trace silt, (1.0"x2.0") silty pocket @ 16.8', gray (5Y-5/1), (SW).		4	Sample #4, Depth = 16.5' Mean (mm): 0.27, Phi Sorting: 0.88 Shell Hash: 1%, Fines (230): 1.61% (SW)
-37.0	19.0		SAND, fine grained, trace shell hash, trace silt, 2.0" clayey pocket @ 17.7', bit sample from 18.8' to 19.0', light brownish gray (2.5Y-6/2), (SP).		2	
			End of Boring			

0 5 10 15 20 25

ALABAMA DIVC-10.GPJ FL DEP ROSS.GDT 3/17/11

SAJ FORM 1836
JUN 02

Boring Designation DIVC-10-24

DRILLING LOG

DIVISION

INSTALLATION

SHEET 1 OF 1 SHEETS

1. PROJECT
Dauphin Island Shore Protection
Dauphin Island, Alabama

9. SIZE AND TYPE OF BIT 3.0 In.

10. COORDINATE SYSTEM/DATUM: Alabama State Plane West | HORIZONTAL: NAD 1983 | VERTICAL: NAVD 88

2. BORING DESIGNATION: DIVC-10-24
LOCATION COORDINATES: X = 1,790,945 Y = 59,401

11. MANUFACTURER'S DESIGNATION OF DRILL: Alpine Pneumatic Vibracore
☐ AUTO HAMMER ☐ MANUAL HAMMER

3. DRILLING AGENCY: American Vibracore Services, Inc.
CONTRACTOR FILE NO.

12. TOTAL SAMPLES | DISTURBED | UNDISTURBED (UD)

4. NAME OF DRILLER: Sean Kemnuir

13. TOTAL NUMBER CORE BOXES

5. DIRECTION OF BORING: ☒ VERTICAL ☐ INCLINED | DEG. FROM VERTICAL | BEARING

14. ELEVATION GROUND WATER

15. DATE BORING | STARTED 09-08-10 09:31 | COMPLETED 09-08-10 09:43

6. THICKNESS OF OVERBURDEN 0.0 Ft.

16. ELEVATION TOP OF BORING -20.6 Ft.

7. DEPTH DRILLED INTO ROCK 0.0 Ft.

17. TOTAL RECOVERY FOR BORING 20.2 Ft.

8. TOTAL DEPTH OF BORING 20.2 Ft.

18. SIGNATURE AND TITLE OF INSPECTOR
BF

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS Depths and elevations based on measured values	% REC.	BOX OR SAMPLE	REMARKS
-20.6	0.0					Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.
			SAND, fine grained, trace clay, trace shell hash, trace silt, clay distributed in pockets typically up to 1.0", (0.5"x3.0") clay lens @ 2.5', light brownish gray (2.5Y-6/2), (SP).		1	Sample #1, Depth = 3.0' Mean (mm): 0.19, Phi Sorting: 0.41 Shell Hash: 0%, Fines (230): 1.38% (SP)
					2	Sample #2, Depth = 6.0' Mean (mm): 0.26, Phi Sorting: 0.45 Shell Hash: 0%, Fines (230): 1.15% (SP)
-28.9	8.3					
-29.8	9.2		SAND, fine grained, trace shell hash, trace silt, 1.5" clay lens @ 8.4', (2.0"x0.5") shell fragment @ 9.1', dark gray (5Y-4/1), (SW).		3	Sample #3, Depth = 8.8' Mean (mm): 0.21, Phi Sorting: 0.92 Shell Hash: 1%, Fines (230): 3.63% (SW)
			SAND, fine grained, trace shell hash, trace silt, 1.0" silty pocket @ 19.2', bit sample from 19.9' to 20.2', gray (5Y-5/1), (SP).		4	Sample #4, Depth = 13.0' Mean (mm): 0.24, Phi Sorting: 0.41 Shell Hash: 0%, Fines (230): 1.25% (SP)
					5	Sample #5, Depth = 17.0' Mean (mm): 0.21, Phi Sorting: 0.40 Shell Hash: 0%, Fines (230): 1.37% (SP)
-40.8	20.2					
			End of Boring			

0 5 10 15 20 25

ALABAMA DIVC-10.GPJ FL DEP ROSS.GDT 3/17/11

SAJ FORM 1836
JUN 02

Boring Designation DIVC-10-25

DRILLING LOG

DIVISION

INSTALLATION

SHEET 1 OF 1 SHEETS

1. PROJECT
Dauphin Island Shore Protection
Dauphin Island, Alabama

9. SIZE AND TYPE OF BIT 3.0 In.

10. COORDINATE SYSTEM/DATUM: Alabama State Plane West | HORIZONTAL: NAD 1983 | VERTICAL: NAVD 88

2. BORING DESIGNATION: DIVC-10-25
LOCATION COORDINATES: X = 1,789,873 Y = 59,320

11. MANUFACTURER'S DESIGNATION OF DRILL: Alpine Pneumatic Vibracore
☐ AUTO HAMMER ☐ MANUAL HAMMER

3. DRILLING AGENCY: American Vibracore Services, Inc.
CONTRACTOR FILE NO.

12. TOTAL SAMPLES | DISTURBED | UNDISTURBED (UD)

4. NAME OF DRILLER: Sean Kemnuir

13. TOTAL NUMBER CORE BOXES

5. DIRECTION OF BORING: ☒ VERTICAL ☐ INCLINED | DEG. FROM VERTICAL | BEARING

14. ELEVATION GROUND WATER

15. DATE BORING | STARTED: 09-08-10 10:03 | COMPLETED: 09-08-10 10:09

6. THICKNESS OF OVERBURDEN: 0.0 Ft.

16. ELEVATION TOP OF BORING: -24.1 Ft.

7. DEPTH DRILLED INTO ROCK: 0.0 Ft.

17. TOTAL RECOVERY FOR BORING: 19.4 Ft.

8. TOTAL DEPTH OF BORING: 20.0 Ft.

18. SIGNATURE AND TITLE OF INSPECTOR: BF

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS Depths and elevations based on measured values	% REC.	BOX OR SAMPLE	REMARKS
-24.1	0.0					Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.
			SAND, fine grained, trace clay, trace shell hash, trace silt, clayey sand from 0.0'-0.3', clay distributed in pockets typically up to 1.0" and laminae, light yellowish brown (2.5Y-6/3), (SP).		1	Sample #1, Depth = 3.4' Mean (mm): 0.20, Phi Sorting: 0.50 Shell Hash: 0%, Fines (230): 2.54% (SP)
-30.8	6.7					
			SAND, fine grained, trace shell hash, trace silt, silt distributed in pockets up to 2.0", gray (5Y-5/1), (SP).		2	Sample #2, Depth = 7.6' Mean (mm): 0.18, Phi Sorting: 0.47 Shell Hash: 0%, Fines (230): 1.99% (SP)
-32.7	8.6					
			SAND, fine grained, trace shell hash, trace silt, silt distributed in pockets up to 2.0", gray (5Y-5/1), (SP).		3	Sample #3, Depth = 10.1' Mean (mm): 0.25, Phi Sorting: 0.52 Shell Hash: 0%, Fines (230): 1.40% (SP)
-35.5	11.4					
-36.6	12.5		SAND, little clay, trace shell hash, trace silt, dark gray (5Y-4/1), (SC).			
			CLAY, trace sand, trace shell hash, soft clay, sand distributed in pockets typically up to 0.5", 2.0" sand pocket @ 13.6', (2.5"x2.0") whole shell @ 18.4', very dark gray (5Y-3/1), (CL).			
-42.6	18.5					
-43.5	19.4		SAND, fine grained, trace clay, trace shell hash, trace silt, clay in pockets up to 2.0", bit sample from 19.2' to 19.4', gray (5Y-5/1), (SP).			
-44.1	20.0		No Recovery.			
			End of Boring			

0 5 10 15 20 25

ALABAMA DIVC-10.GPJ FL DEP ROSS.GDT 3/17/11

SAJ FORM 1836
JUN 02

Boring Designation DIVC-10-26

DRILLING LOG

DIVISION

INSTALLATION

SHEET 1 OF 1 SHEETS

1. PROJECT
Dauphin Island Shore Protection
Dauphin Island, Alabama

9. SIZE AND TYPE OF BIT 3.0 In.

10. COORDINATE SYSTEM/DATUM: Alabama State Plane West | HORIZONTAL: NAD 1983 | VERTICAL: NAVD 88

2. BORING DESIGNATION: DIVC-10-26
LOCATION COORDINATES: X = 1,788,778 Y = 60,203

11. MANUFACTURER'S DESIGNATION OF DRILL: Alpine Pneumatic Vibracore
☐ AUTO HAMMER ☐ MANUAL HAMMER

3. DRILLING AGENCY: American Vibracore Services, Inc.
CONTRACTOR FILE NO.

12. TOTAL SAMPLES | DISTURBED | UNDISTURBED (UD)

4. NAME OF DRILLER: Sean Kemnuir

13. TOTAL NUMBER CORE BOXES

5. DIRECTION OF BORING: ☒ VERTICAL ☐ INCLINED | DEG. FROM VERTICAL | BEARING

14. ELEVATION GROUND WATER

15. DATE BORING | STARTED: 09-08-10 10:31 | COMPLETED: 09-08-10 10:40

6. THICKNESS OF OVERBURDEN: 0.0 Ft.

16. ELEVATION TOP OF BORING: -19.2 Ft.

7. DEPTH DRILLED INTO ROCK: 0.0 Ft.

17. TOTAL RECOVERY FOR BORING: 19.3 Ft.

8. TOTAL DEPTH OF BORING: 20.0 Ft.

18. SIGNATURE AND TITLE OF INSPECTOR: BF

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS Depths and elevations based on measured values	% REC.	BOX OR SAMPLE	REMARKS Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.
-19.2	0.0					
-20.8	1.6		SAND, fine grained, trace clay, trace shell hash, trace silt, clay distributed in pockets up to 0.25", light yellowish brown (2.5Y-6/3), (SP).		1	Sample #1, Depth = 0.9' Mean (mm): 0.33, Phi Sorting: 0.80 Shell Hash: 0%, Fines (230): 1.57% (SP)
					2	Sample #2, Depth = 4.0' Mean (mm): 0.24, Phi Sorting: 0.51 Shell Hash: 0%, Fines (230): 1.24% (SP)
			SAND, fine grained, trace shell hash, trace silt, 1.0" shell fragment @ 3.4', 1.5" clay lense @ 8.0', 1.0" clay lens @ 10.2', light brownish gray (2.5Y-6/2), (SP).			
					3	Sample #3, Depth = 7.0' Mean (mm): 0.21, Phi Sorting: 0.43 Shell Hash: 0%, Fines (230): 1.11% (SP)
-29.6	10.4					
-30.5	11.3		SAND, fine grained, trace shell hash, trace silt, gray (5Y-5/1), (SP).		4	Sample #4, Depth = 11.0' Mean (mm): 0.30, Phi Sorting: 0.80 Shell Hash: 1%, Fines (230): 1.80% (SP)
-31.7	12.5		SAND, fine grained, trace shell hash, trace silt, light brownish gray (2.5Y-6/2), (SP).		2	
-32.3	13.1		SAND, fine grained, trace shell hash, trace silt, gray (5Y-5/1), (SP).		4	
			SAND, fine grained, trace shell hash, trace silt, light brownish gray (2.5Y-6/2), (SP).		2	
-35.6	16.4					
-38.5	19.3		SAND, fine grained, little clay, trace shell hash, trace silt, clay distributed in pockets up to 2.0", (1.0"x0.5") whole shell @ 16.7', light olive gray (5Y 6/2) layered with, dark gray (5Y-4/1), (SC).			
-39.2	20.0		No Recovery.			
			End of Boring			

0 5 10 15 20 25

ALABAMA DIVC-10.GPJ FL DEP ROSS.GDT 3/17/11

SAJ FORM 1836
JUN 02

Boring Designation DIVC-10-27

DRILLING LOG

DIVISION		INSTALLATION	SHEET 1 OF 1 SHEETS

1. PROJECT: Dauphin Island Shore Protection, Dauphin Island, Alabama		9. SIZE AND TYPE OF BIT: 3.0 In.	
		10. COORDINATE SYSTEM/DATUM: Alabama State Plane West	HORIZONTAL: NAD 1983 / VERTICAL: NAVD 88
2. BORING DESIGNATION: DIVC-10-27	LOCATION COORDINATES: X = 1,789,530 Y = 60,098	11. MANUFACTURER'S DESIGNATION OF DRILL: Alpine Pneumatic Vibracore	☐ AUTO HAMMER ☐ MANUAL HAMMER
3. DRILLING AGENCY: American Vibracore Services, Inc.	CONTRACTOR FILE NO.	12. TOTAL SAMPLES	DISTURBED / UNDISTURBED (UD)
4. NAME OF DRILLER: Sean Kemnuir		13. TOTAL NUMBER CORE BOXES	
5. DIRECTION OF BORING: ☒ VERTICAL ☐ INCLINED	DEG. FROM VERTICAL / BEARING	14. ELEVATION GROUND WATER	
		15. DATE BORING	STARTED: 09-08-10 11:19 / COMPLETED: 09-08-10 11:28
6. THICKNESS OF OVERBURDEN: 0.0 Ft.		16. ELEVATION TOP OF BORING: -18.7 Ft.	
7. DEPTH DRILLED INTO ROCK: 0.0 Ft.		17. TOTAL RECOVERY FOR BORING: 19.2 Ft.	
8. TOTAL DEPTH OF BORING: 20.0 Ft.		18. SIGNATURE AND TITLE OF INSPECTOR: KD	

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS Depths and elevations based on measured values	% REC.	BOX OR SAMPLE	REMARKS
-18.7	0.0					Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.
			SAND, fine grained, trace shell hash, trace silt, light gray (5Y-7/2), (SP).		1	Sample #1, Depth = 2.0' Mean (mm): 0.23, Phi Sorting: 0.52 Shell Hash: 0%, Fines (230): 1.07% (SP)
-22.6	3.9					
			SAND, fine grained, quartz, trace shell hash, trace silt, light olive gray (5Y-6/2), (SP).		2	Sample #2, Depth = 5.0' Mean (mm): 0.21, Phi Sorting: 0.41 Shell Hash: 0%, Fines (230): 1.12% (SP)
-24.6	5.9					
			SAND, trace clay, trace shell hash, trace silt, (1.0"x2.5") clay pocket @ 8.3', (1.0"x0.5") clayey pocket @ 8.5', gray (5Y-6/1), (SP).		3	Sample #3, Depth = 7.2' Mean (mm): 0.20, Phi Sorting: 0.43 Shell Hash: 0%, Fines (230): 1.26% (SP)
-27.2	8.5					
			SAND, fine grained, quartz, trace shell hash, trace silt, (1.0"x0.75") clayey pocket @ 9.1', light olive gray (5Y-6/2), (SP).		2	
-31.0	12.3					
			SAND, fine grained, quartz, trace shell hash, trace silt, 1.0" clayey pocket @ 14.1', gray (5Y-6/1), (SP).		3	
-33.3	14.6					
			SAND, fine grained, quartz, trace shell hash, trace silt, 1.0" clayey pocket @ 15.9', 0.5" clayey pockets @ 16.3', 16.5' &16.9', light olive gray (5Y-6/2), (SP).		2	
-35.7	17.0					
			SAND, fine grained, quartz, trace clay, trace silt, clay distributed in clayey pockets typically up to 1.0", (3.0"x2.0") clayey pocket @ 17.3', bit sample from 19.0' to 19.2', olive gray (5Y-5/2), (SP-SC).			
-37.9	19.2					
-38.7	20.0		No Recovery.			
			End of Boring			

0 5 10 15 20 25

ALABAMA DIVC-10.GPJ FL DEP ROSS.GDT 3/17/11

SAJ FORM 1836
JUN 02

Boring Designation DIVC-10-28

DRILLING LOG

DIVISION

INSTALLATION

SHEET 1 OF 1 SHEETS

1. PROJECT
Dauphin Island Shore Protection
Dauphin Island, Alabama

9. SIZE AND TYPE OF BIT 3.0 In.

10. COORDINATE SYSTEM/DATUM: Alabama State Plane West | HORIZONTAL: NAD 1983 | VERTICAL: NAVD 88

2. BORING DESIGNATION: DIVC-10-28 | LOCATION COORDINATES: X = 1,790,597 Y = 60,122

11. MANUFACTURER'S DESIGNATION OF DRILL: Alpine Pneumatic Vibracore | ☐ AUTO HAMMER ☐ MANUAL HAMMER

3. DRILLING AGENCY: American Vibracore Services, Inc. | CONTRACTOR FILE NO.

12. TOTAL SAMPLES | DISTURBED | UNDISTURBED (UD)

4. NAME OF DRILLER: Sean Kemnuir

13. TOTAL NUMBER CORE BOXES

5. DIRECTION OF BORING: ☒ VERTICAL ☐ INCLINED | DEG. FROM VERTICAL | BEARING

14. ELEVATION GROUND WATER

15. DATE BORING | STARTED: 09-08-10 11:54 | COMPLETED: 09-08-10 12:03

6. THICKNESS OF OVERBURDEN: 0.0 Ft.

16. ELEVATION TOP OF BORING: -20.0 Ft.

7. DEPTH DRILLED INTO ROCK: 0.0 Ft.

17. TOTAL RECOVERY FOR BORING: 19.7 Ft.

8. TOTAL DEPTH OF BORING: 19.7 Ft.

18. SIGNATURE AND TITLE OF INSPECTOR: BF

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS Depths and elevations based on measured values	% REC.	BOX OR SAMPLE	REMARKS Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.
-20.0	0.0					
-21.4	1.4		SAND, fine grained, trace shell hash, trace silt, light olive gray (5Y-6/2), (SP).		1	Sample #1, Depth = 0.7' Mean (mm): 0.23, Phi Sorting: 0.48 Shell Hash: 0%, Fines (230): 1.21% (SP)
-25.8	5.8		SAND, fine grained, trace shell hash, trace silt, gray (5Y-6/1), (SP).		2	Sample #2, Depth = 3.7' Mean (mm): 0.22, Phi Sorting: 0.46 Shell Hash: 0%, Fines (230): 1.14% (SP)
-26.8	6.8		SAND, fine grained, trace shell hash, trace silt, gray (5Y-5/1), (SP).		3	Sample #3, Depth = 6.4' Mean (mm): 0.18, Phi Sorting: 0.46 Shell Hash: 0%, Fines (230): 1.45% (SP)
-27.5	7.5		SAND, fine grained, little clay, trace silt, 2.0" clay pocket @ 7.2', olive gray (5Y-4/2), (SC).		4	Sample #4, Depth = 7.0' Mean (mm): 0.18, Phi Sorting: 0.44 Shell Hash: 0%, Fines (230): 13.00% (SC)
-28.8	8.8		SAND, fine grained, trace shell hash, trace silt, gray (5Y-5/1), (SP).		3	
-39.7	19.7		SAND, fine grained, trace shell hash, trace silt, bit sample from 19.4' to 19.7', gray (2.5Y-6/1), (SP).		5	Sample #5, Depth = 12.0' Mean (mm): 0.28, Phi Sorting: 0.57 Shell Hash: 0%, Fines (230): 1.05% (SP)
			End of Boring		6	Sample #6, Depth = 16.0' Mean (mm): 0.26, Phi Sorting: 0.47 Shell Hash: 0%, Fines (230): 0.97% (SP)

0 5 10 15 20 25

ALABAMA DIVC-10.GPJ FL DEP ROSS.GDT 3/17/11

SAJ FORM 1836
JUN 02

Boring Designation DIVC-10-29

DRILLING LOG

DIVISION

INSTALLATION

SHEET 1 OF 1 SHEETS

1. PROJECT
Dauphin Island Shore Protection
Dauphin Island, Alabama

9. SIZE AND TYPE OF BIT 3.0 In.

10. COORDINATE SYSTEM/DATUM: Alabama State Plane West | HORIZONTAL: NAD 1983 | VERTICAL: NAVD 88

2. BORING DESIGNATION: DIVC-10-29
LOCATION COORDINATES: X = 1,791,549 Y = 60,168

11. MANUFACTURER'S DESIGNATION OF DRILL: Alpine Pneumatic Vibracore
☐ AUTO HAMMER ☐ MANUAL HAMMER

3. DRILLING AGENCY: American Vibracore Services, Inc.
CONTRACTOR FILE NO.

12. TOTAL SAMPLES | DISTURBED | UNDISTURBED (UD)

4. NAME OF DRILLER: Sean Kemnuir

13. TOTAL NUMBER CORE BOXES

5. DIRECTION OF BORING: ☒ VERTICAL ☐ INCLINED | DEG. FROM VERTICAL | BEARING

14. ELEVATION GROUND WATER

15. DATE BORING | STARTED 09-08-10 12:28 | COMPLETED 09-08-10 12:38

6. THICKNESS OF OVERBURDEN 0.0 Ft.

16. ELEVATION TOP OF BORING -21.6 Ft.

7. DEPTH DRILLED INTO ROCK 0.0 Ft.

17. TOTAL RECOVERY FOR BORING 20.1 Ft.

8. TOTAL DEPTH OF BORING 20.1 Ft.

18. SIGNATURE AND TITLE OF INSPECTOR
BF

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS Depths and elevations based on measured values	% REC.	BOX OR SAMPLE	REMARKS Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.
-21.6	0.0					
-22.4	0.8		SAND, fine grained, trace shell fragments, trace shell hash, trace silt, shell fragments up to 0.25", olive gray (5Y-5/2), (SP).		1	Sample #1, Depth = 0.4' Mean (mm): 0.29, Phi Sorting: 0.67 Shell Hash: 0%, Fines (230): 1.01% (SP)
-25.8	4.2		SAND, fine grained, trace clay, trace shell hash, trace silt, 1.0" clay pocket @ 0.9', 2.0" clay lens @ 1.0', 1.0" clay lens @ 1.7', 1.0" shell hash pocket @ 1.8', light brownish gray (2.5Y-6/2), (SP).		2	Sample #2, Depth = 2.6' Mean (mm): 0.20, Phi Sorting: 0.43 Shell Hash: 0%, Fines (230): 1.12% (SP)
-36.3	14.7		SAND, fine grained, trace shell hash, trace silt, silt distributed in laminae, 1.5" shelly pocket @ 4.4'; shell is shell hash, shell hash increases with depth, gray (5Y-6/1), (SP).		3	Sample #3, Depth = 8.0' Mean (mm): 0.28, Phi Sorting: 0.58 Shell Hash: 0%, Fines (230): 1.01% (SP)
					4	Sample #4, Depth = 12.0' Mean (mm): 0.26, Phi Sorting: 0.54 Shell Hash: 0%, Fines (230): 1.04% (SP)
-37.9	16.3		SAND, fine grained, little shell hash, trace shell fragments, trace silt, trace whole shell, whole shells and shell fragments up to 0.25", gray (5Y-5/1), (SW).		5	Sample #5, Depth = 15.5' Mean (mm): 0.27, Phi Sorting: 1.12 Shell Hash: 2%, Fines (230): 2.37% (SW)
-39.6	18.0		SAND, fine grained, trace shell hash, trace silt, silt distributed in laminae, gray (5Y-6/1), (SP).		3	
-40.3	18.7		SAND, fine grained, some clay, trace shell hash, olive gray (5Y-5/2), (SC).			
-41.7	20.1		SAND, fine grained, trace clay, trace shell hash, trace silt, clay in pockets up to 1.0", silt increases with depth, gray (5Y-5/1), (SP).		6	Sample #6, Depth = 19.3' Mean (mm): 0.16, Phi Sorting: 0.37 Shell Hash: 0%, Fines (230): 2.35% (SP)
			End of Boring			

0 5 10 15 20 25

ALABAMA DIVC-10.GPJ FL DEP ROSS.GDT 3/17/11

SAJ FORM 1836
JUN 02

Boring Designation DIVC-10-30

DRILLING LOG

DIVISION		INSTALLATION	SHEET 1 OF 1 SHEETS

1. PROJECT: Dauphin Island Shore Protection, Dauphin Island, Alabama		9. SIZE AND TYPE OF BIT: 3.0 In.	
		10. COORDINATE SYSTEM/DATUM: Alabama State Plane West	HORIZONTAL: NAD 1983 / VERTICAL: NAVD 88
2. BORING DESIGNATION: DIVC-10-30	LOCATION COORDINATES: X = 1,791,226 Y = 58,662	11. MANUFACTURER'S DESIGNATION OF DRILL: Alpine Pneumatic Vibracore	☐ AUTO HAMMER ☐ MANUAL HAMMER
3. DRILLING AGENCY: American Vibracore Services, Inc.	CONTRACTOR FILE NO.	12. TOTAL SAMPLES	DISTURBED / UNDISTURBED (UD)
4. NAME OF DRILLER: Sean Kemnuir		13. TOTAL NUMBER CORE BOXES	
5. DIRECTION OF BORING: ☒ VERTICAL ☐ INCLINED	DEG. FROM VERTICAL / BEARING	14. ELEVATION GROUND WATER	
		15. DATE BORING	STARTED: 09-08-10 01:07 / COMPLETED: 09-08-10 01:18
6. THICKNESS OF OVERBURDEN: 0.0 Ft.		16. ELEVATION TOP OF BORING: -19.8 Ft.	
7. DEPTH DRILLED INTO ROCK: 0.0 Ft.		17. TOTAL RECOVERY FOR BORING: 19.6 Ft.	
8. TOTAL DEPTH OF BORING: 19.6 Ft.		18. SIGNATURE AND TITLE OF INSPECTOR: KD	

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS Depths and elevations based on measured values	% REC.	BOX OR SAMPLE	REMARKS Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.
-19.8	0.0					
-20.8	1.0		SAND, fine grained, quartz, trace shell hash, trace silt, light gray (5Y-7/2), (SP).		1	Sample #1, Depth = 0.5' Mean (mm): 0.24, Phi Sorting: 0.50 Shell Hash: 0%, Fines (230): 0.87% (SP)
-23.3	3.5		SAND, fine grained, quartz, trace clay, trace shell hash, trace silt, clay distributed in clayey pockets up to 0.5", light olive gray (5Y-6/2), (SP).		2	Sample #2, Depth = 2.2' Mean (mm): 0.22, Phi Sorting: 0.55 Shell Hash: 0%, Fines (230): 1.62% (SP)
-27.1	7.3		SAND, fine grained, quartz, trace clay, trace shell hash, trace silt, clay distributed in clayey pockets up to 1.0", 0.5" organic pocket @ 5.2', gray (5Y-6/1), (SP).		3	Sample #3, Depth = 5.5' Mean (mm): 0.19, Phi Sorting: 0.47 Shell Hash: 0%, Fines (230): 1.08% (SP)
-32.4	12.6		SAND, fine grained, quartz, trace shell hash, trace silt, gray (5Y-6/1), (SP).		4	Sample #4, Depth = 9.5' Mean (mm): 0.20, Phi Sorting: 0.39 Shell Hash: 0%, Fines (230): 0.87% (SP)
-35.7	15.9		SAND, fine grained, quartz, trace clay, trace shell hash, trace silt, clay distributed in clayey pockets up to 0.5", (3.0"x1.5") shell hash pocket @ 13.7', (3.0"x1.0") clay pocket @ 15.8', silt increases with depth, gray (5Y-5/1), (SP).		5	Sample #5, Depth = 14.5' Mean (mm): 0.20, Phi Sorting: 0.69 Shell Hash: 0%, Fines (230): 1.19% (SP)
-39.4	19.6		SAND, fine grained, quartz, trace shell hash, trace silt, trace whole shell, whole shells up to 1.0", bit sample from 19.5' to 19.6', light olive gray (5Y-6/2), (SP).		6	Sample #6, Depth = 17.5' Mean (mm): 0.26, Phi Sorting: 0.54 Shell Hash: 0%, Fines (230): 1.67% (SP)
			End of Boring			

0 5 10 15 20 25

ALABAMA DIVC-10.GPJ FL DEP ROSS.GDT 3/17/11

SAJ FORM 1836
JUN 02

Boring Designation DIVC-10-31

DRILLING LOG

DIVISION		INSTALLATION	SHEET 1 OF 1 SHEETS

1. PROJECT: Dauphin Island Shore Protection, Dauphin Island, Alabama
2. BORING DESIGNATION: DIVC-10-31
3. DRILLING AGENCY: American Vibracore Services, Inc.
4. NAME OF DRILLER: Sean Kemnuir
5. DIRECTION OF BORING: ☒ VERTICAL ☐ INCLINED; DEG. FROM VERTICAL:; BEARING:
6. THICKNESS OF OVERBURDEN: 0.0 Ft.
7. DEPTH DRILLED INTO ROCK: 0.0 Ft.
8. TOTAL DEPTH OF BORING: 20.3 Ft.
9. SIZE AND TYPE OF BIT: 3.0 In.
10. COORDINATE SYSTEM/DATUM: Alabama State Plane West; HORIZONTAL: NAD 1983; VERTICAL: NAVD 88
11. MANUFACTURER'S DESIGNATION OF DRILL: Alpine Pneumatic Vibracore; ☐ AUTO HAMMER ☐ MANUAL HAMMER
12. TOTAL SAMPLES: ; DISTURBED: ; UNDISTURBED (UD):
13. TOTAL NUMBER CORE BOXES:
14. ELEVATION GROUND WATER:
15. DATE BORING: STARTED 09-08-10 01:58; COMPLETED 09-08-10 02:10
16. ELEVATION TOP OF BORING: -19.2 Ft.
17. TOTAL RECOVERY FOR BORING: 20.3 Ft.
18. SIGNATURE AND TITLE OF INSPECTOR: KD

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS Depths and elevations based on measured values	% REC.	BOX OR SAMPLE	REMARKS
-19.2	0.0					Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.
-22.6	3.4		SAND, fine grained, quartz, trace clay, trace shell fragments, trace shell hash, trace silt, clay distributed in clayey pockets up to 0.5", shell fragments up to 0.75", light gray (5Y-7/2), (SP).		1	Sample #1, Depth = 1.8' Mean (mm): 0.32, Phi Sorting: 0.61 Shell Hash: 1%, Fines (230): 0.95% (SP)
-23.7	4.5		SAND, fine grained, quartz, trace shell hash, trace silt, light gray (5Y-7/1), (SP).		2	Sample #2, Depth = 4.0' Mean (mm): 0.23, Phi Sorting: 0.43 Shell Hash: 0%, Fines (230): 0.88% (SP)
-25.7	6.5		SAND, fine grained, quartz, trace shell hash, trace silt, gray (5Y-6/1), (SP).		3	Sample #3, Depth = 5.5' Mean (mm): 0.25, Phi Sorting: 0.41 Shell Hash: 0%, Fines (230): 0.88% (SP)
-27.1	7.9		SAND, fine grained, quartz, little shell hash, trace silt, gray (5Y-6/1), (SP).		4	Sample #4, Depth = 7.3' Mean (mm): 0.29, Phi Sorting: 0.82 Shell Hash: 1%, Fines (230): 1.07% (SP)
-28.0	8.8		SAND, fine grained, quartz, trace shell hash, trace silt, gray (5Y-6/1), (SP).		3	
-29.5	10.3		SAND, fine grained, quartz, little shell hash, trace silt, gray (5Y-6/1), (SP).		4	
-30.7	11.5		SAND, fine grained, quartz, trace shell hash, trace silt, gray (5Y-5/1), (SP).		5	Sample #5, Depth = 11.0' Mean (mm): 0.17, Phi Sorting: 0.46 Shell Hash: 0%, Fines (230): 1.14% (SP)
-31.2	12.0		SAND, fine grained, quartz, little shell hash, trace silt, gray (5Y-6/1), (SP).		4	
-32.1	12.9		SAND, fine grained, quartz, trace shell hash, trace silt, gray (5Y-6/1), (SP).		3	
-33.8	14.6		SAND, fine grained, quartz, trace shell hash, trace silt, gray (5Y-5/1), (SP).		5	
-37.6	18.4		SAND, fine grained, quartz, trace clay, trace silt, clay in clayey pockets up to 2.0", (3.0"x1.0") clay pocket @ 15.0', 1.0" clay pocket @ 17.0', gray (5Y-5/1), (SP).		6	Sample #6, Depth = 16.7' Mean (mm): 0.19, Phi Sorting: 0.49 Shell Hash: 0%, Fines (230): 2.96% (SP)
-39.5	20.3		SAND, fine grained, quartz, little silt, trace clay, trace shell hash, clay distributed in clayey pockets up to 1.0", bit sample from 19.8' to 20.3', olive gray (5Y-4/2), (SM).			
			End of Boring			

0 5 10 15 20 25

ALABAMA DIVC-10.GPJ FL DEP ROSS.GDT 3/17/11

SAJ FORM 1836
JUN 02

Boring Designation DIVC-10-32

DRILLING LOG

DIVISION		INSTALLATION	SHEET 1 OF 1 SHEETS

1. PROJECT Dauphin Island Shore Protection Dauphin Island, Alabama		9. SIZE AND TYPE OF BIT 3.0 In.	
		10. COORDINATE SYSTEM/DATUM Alabama State Plane West	HORIZONTAL NAD 1983	VERTICAL NAVD 88
2. BORING DESIGNATION DIVC-10-32	LOCATION COORDINATES X = 1,793,136 Y = 64,325	11. MANUFACTURER'S DESIGNATION OF DRILL Alpine Pneumatic Vibracore	☐ AUTO HAMMER ☐ MANUAL HAMMER
3. DRILLING AGENCY American Vibracore Services, Inc.	CONTRACTOR FILE NO.	12. TOTAL SAMPLES	DISTURBED	UNDISTURBED (UD)
4. NAME OF DRILLER Sean Kemnuir		13. TOTAL NUMBER CORE BOXES	
5. DIRECTION OF BORING ☒ VERTICAL ☐ INCLINED	DEG. FROM VERTICAL BEARING	14. ELEVATION GROUND WATER	
		15. DATE BORING	STARTED 09-08-10 05:15	COMPLETED 09-08-10 05:27
6. THICKNESS OF OVERBURDEN 0.0 Ft.		16. ELEVATION TOP OF BORING -19.7 Ft.	
7. DEPTH DRILLED INTO ROCK 0.0 Ft.		17. TOTAL RECOVERY FOR BORING 17.9 Ft.	
8. TOTAL DEPTH OF BORING 18.8 Ft.		18. SIGNATURE AND TITLE OF INSPECTOR KD	

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS Depths and elevations based on measured values	% REC.	BOX OR SAMPLE	REMARKS Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.
-19.7	0.0					
-21.9	2.2		SAND, fine grained, quartz, trace shell hash, trace silt, light olive gray (5Y-6/2), (SP).		1	Sample #1, Depth = 1.1' Mean (mm): 0.27, Phi Sorting: 0.49 Shell Hash: 0%, Fines (230): 0.99% (SP)
-25.1	5.4		SAND, fine grained, quartz, trace clay, trace silt, clay in clayey pockets typically up to (1.0"x0.25"), 1.0" clay pockets @ 2.7' & 2.9', (2.0"x0.5") clayey pocket @ 2.8', 2.0" clay pockets @ 4.1' & 5.3', olive gray (5Y-5/2), (SP).		2	Sample #2, Depth = 3.7' Mean (mm): 0.21, Phi Sorting: 0.51 Shell Hash: 0%, Fines (230): 2.13% (SP)
-34.3	14.6		SAND, fine grained, quartz, trace clay, trace shell hash, trace silt, clay distributed in clayey pockets up to (1.0"x0.5"), gray (5Y-6/1), (SP).		3	Sample #3, Depth = 8.5' Mean (mm): 0.23, Phi Sorting: 0.50 Shell Hash: 0%, Fines (230): 1.56% (SP)
					4	Sample #4, Depth = 11.5' Mean (mm): 0.28, Phi Sorting: 0.63 Shell Hash: 0%, Fines (230): 1.01% (SP)
-35.6	15.9		SAND, fine grained, quartz, little clay, trace shell hash, trace silt, clay in clayey pockets up to 1.0", gray (5Y-5/1), (SP).		5	Sample #5, Depth = 15.2' Mean (mm): 0.22, Phi Sorting: 0.54 Shell Hash: 0%, Fines (230): 3.74% (SP)
-37.6	17.9		SAND, fine grained, quartz, trace shell hash, trace silt, gray (5Y-6/1), (SP).		3	
-38.5	18.8		No Recovery.			
			End of Boring			

0 5 10 15 20 25

ALABAMA DIVC-10.GPJ FL DEP ROSS.GDT 3/17/11

SAJ FORM 1836
JUN 02

Boring Designation DIVC-10-33

DRILLING LOG

DIVISION		**INSTALLATION**	**SHEET 1 OF 1 SHEETS**

1. PROJECT Dauphin Island Shore Protection, Dauphin Island, Alabama		**9. SIZE AND TYPE OF BIT** 3.0 In.	
		10. COORDINATE SYSTEM/DATUM Alabama State Plane West	**HORIZONTAL** NAD 1983 / **VERTICAL** NAVD 88
2. BORING DESIGNATION DIVC-10-33	**LOCATION COORDINATES** X = 1,791,133 Y = 63,571	**11. MANUFACTURER'S DESIGNATION OF DRILL** Alpine Pneumatic Vibracore	☐ AUTO HAMMER ☐ MANUAL HAMMER
3. DRILLING AGENCY American Vibracore Services, Inc.	**CONTRACTOR FILE NO.**	**12. TOTAL SAMPLES**	**DISTURBED** / **UNDISTURBED (UD)**
4. NAME OF DRILLER Sean Kemnuir		**13. TOTAL NUMBER CORE BOXES**	
5. DIRECTION OF BORING ☒ VERTICAL ☐ INCLINED	**DEG. FROM VERTICAL** / **BEARING**	**14. ELEVATION GROUND WATER**	
		15. DATE BORING	**STARTED** 09-08-10 02:30 / **COMPLETED** 09-08-10 02:40
6. THICKNESS OF OVERBURDEN 0.0 Ft.		**16. ELEVATION TOP OF BORING** -20.0 Ft.	
7. DEPTH DRILLED INTO ROCK 0.0 Ft.		**17. TOTAL RECOVERY FOR BORING** 17.9 Ft.	
8. TOTAL DEPTH OF BORING 20.0 Ft.		**18. SIGNATURE AND TITLE OF INSPECTOR** BF	

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS Depths and elevations based on measured values	% REC.	BOX OR SAMPLE	REMARKS Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.
-20.0	0.0					
-23.5	3.5		SAND, fine grained, trace shell fragments, trace shell hash, trace silt, clay lamina @ 2.4', shell fragments up to 0.25", olive gray (5Y-5/2), (SP).		1	Sample #1, Depth = 1.6' Mean (mm): 0.21, Phi Sorting: 0.40 Shell Hash: 0%, Fines (230): 0.99% (SP)
-25.3	5.3		SAND, fine grained, trace clay, trace shell fragments, trace shell hash, trace silt, shell fragments up to 1.0", clay and silt in pockets up to 1.0", olive gray (5Y-5/2), (SP).		2	Sample #2, Depth = 4.4' Mean (mm): 0.26, Phi Sorting: 0.80 Shell Hash: 1%, Fines (230): 1.42% (SP)
-29.2	9.2		SAND, fine grained, trace shell fragments, trace shell hash, trace silt, shell fragments up to 0.25", 1.0" silt pocket @ 5.6', (1.0"x2.0") silt pocket @ 6.1', 1.5" clay lens @ 6.4', gray (5Y-6/1), (SP).		3	Sample #3, Depth = 7.5' Mean (mm): 0.22, Phi Sorting: 0.59 Shell Hash: 0%, Fines (230): 1.87% (SP)
-31.6	11.6		SAND, little silt, trace clay, trace shell hash, clayey pockets from 9.2'-9.5', 9.9'-10.1' & 11.0'-11.4', gray (5Y-5/1), (SP-SM).		4	Sample #4, Depth = 10.3' Mean (mm): 0.19, Phi Sorting: 0.62 Shell Hash: 0%, Fines (230): 5.24% (SP-SM)
-36.0	16.0		SAND, trace shell fragments, trace shell hash, trace silt, shell fragments up to 0.25", silt distributed in laminae, olive gray (5Y-5/2), (SP).		5	Sample #5, Depth = 13.6' Mean (mm): 0.18, Phi Sorting: 0.51 Shell Hash: 0%, Fines (230): 3.06% (SP)
-37.9	17.9		SAND, little silt, trace clay, trace shell hash, silt and clay distributed in laminae and pockets up to 0.5", clayey bit sample from 17.7' to 17.9', gray (5Y-5/1), (SP-SM).		4	
-40.0	20.0		No Recovery.			
			End of Boring			

0 5 10 15 20 25

ALABAMA DIVC-10.GPJ FL DEP ROSS.GDT 3/17/11

SAJ FORM 1836
JUN 02

Boring Designation DIVC-10-34

DRILLING LOG

DIVISION		INSTALLATION	SHEET 1 OF 1 SHEETS

1. PROJECT Dauphin Island Shore Protection Dauphin Island, Alabama		9. SIZE AND TYPE OF BIT 3.0 In.	
		10. COORDINATE SYSTEM/DATUM Alabama State Plane West	HORIZONTAL NAD 1983	VERTICAL NAVD 88
2. BORING DESIGNATION DIVC-10-34	LOCATION COORDINATES X = 1,792,066 Y = 63,658	11. MANUFACTURER'S DESIGNATION OF DRILL Alpine Pneumatic Vibracore	☐ AUTO HAMMER ☐ MANUAL HAMMER
3. DRILLING AGENCY American Vibracore Services, Inc.	CONTRACTOR FILE NO.	12. TOTAL SAMPLES	DISTURBED	UNDISTURBED (UD)
4. NAME OF DRILLER Sean Kemnuir		13. TOTAL NUMBER CORE BOXES	
5. DIRECTION OF BORING ☒ VERTICAL ☐ INCLINED	DEG. FROM VERTICAL BEARING	14. ELEVATION GROUND WATER	
		15. DATE BORING	STARTED 09-08-10 03:07	COMPLETED 09-08-10 03:14
6. THICKNESS OF OVERBURDEN 0.0 Ft.		16. ELEVATION TOP OF BORING -19.1 Ft.	
7. DEPTH DRILLED INTO ROCK 0.0 Ft.		17. TOTAL RECOVERY FOR BORING 19.9 Ft.	
8. TOTAL DEPTH OF BORING 20.0 Ft.		18. SIGNATURE AND TITLE OF INSPECTOR BF	

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS Depths and elevations based on measured values	% REC.	BOX OR SAMPLE	REMARKS Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.
-19.1	0.0					
-19.8	0.7		SAND, fine grained, trace shell fragments, trace shell hash, trace silt, shell fragments up to 0.25", light olive gray (5Y-6/2), (SP).		1	Sample #1, Depth = 0.4' Mean (mm): 0.30, Phi Sorting: 0.68 Shell Hash: 0%, Fines (230): 0.82% (SP)
-23.6	4.5		SAND, fine grained, trace shell fragments, trace shell hash, trace silt, shell fragments up to 0.5", silt distributed in laminae, (2.5-6/2), (SP).		2	Sample #2, Depth = 2.7' Mean (mm): 0.22, Phi Sorting: 0.45 Shell Hash: 0%, Fines (230): 1.33% (SP)
-24.5	5.4		SAND, fine grained, trace clay, trace silt, clay in pockets up to 1.0", light brownish gray (2.5Y-6/2), (SW).		3	Sample #3, Depth = 4.9' Mean (mm): 0.26, Phi Sorting: 0.99 Shell Hash: 1%, Fines (230): 3.24% (SW)
-25.0	5.9		SAND, fine grained, some shell hash, trace silt, (3.0"x1.5") shell fragment @ 5.7', (1.0"x1.5") shell fragment @ 5.5', gray (2.5Y-6/1), (SW).		4	Sample #4, Depth = 5.7' Mean (mm): 0.38, Phi Sorting: 1.45 Shell Hash: 3%, Fines (230): 1.36% (SW)
-34.7	15.6		SAND, fine grained, trace clay, trace shell fragments, trace shell hash, trace silt, shell fragments up to 0.25", silt and clay distributed in laminae, lenses up to 0.5" and pockets up to 1.0", gray (5Y-5/1), (SP).		5	Sample #5, Depth = 8.5' Mean (mm): 0.18, Phi Sorting: 0.49 Shell Hash: 0%, Fines (230): 0.99% (SP)
					6	Sample #6, Depth = 12.5' Mean (mm): 0.21, Phi Sorting: 0.29 Shell Hash: 0%, Fines (230): 1.73% (SP)
-36.1	17.0		SAND, fine grained, trace clay, trace shell hash, trace silt, clay in pockets up to 0.5", gray (5Y-5/1), (SP).		7	Sample #7, Depth = 16.3' Mean (mm): 0.18, Phi Sorting: 0.42 Shell Hash: 0%, Fines (230): 3.80% (SP)
-36.6	17.5		SAND, fine grained, trace clay, trace shell hash, trace silt, clay and silt distributed in laminae, gray (5Y-5/1), (SP).		5	
-39.0	19.9		SAND, fine grained, trace clay, trace shell hash, trace silt, clay in lamine and pockets up to 0.5", bit sample from 19.4' to 19.9', gray (5Y-5/1), (SP).		7	
-39.1	20.0		No Recovery.			
			End of Boring			

ALABAMA DIVC-10.GPJ FL DEP ROSS.GDT 3/17/11

SAJ FORM 1836
JUN 02

Boring Designation DIVC-10-35

DRILLING LOG

DIVISION

INSTALLATION

SHEET 1 OF 1 SHEETS

1. PROJECT
Dauphin Island Shore Protection
Dauphin Island, Alabama

9. SIZE AND TYPE OF BIT 3.0 In.

10. COORDINATE SYSTEM/DATUM: Alabama State Plane West | HORIZONTAL: NAD 1983 | VERTICAL: NAVD 88

2. BORING DESIGNATION: DIVC-10-35
LOCATION COORDINATES: X = 1,792,192 Y = 64,538

11. MANUFACTURER'S DESIGNATION OF DRILL: Alpine Pneumatic Vibracore
☐ AUTO HAMMER ☐ MANUAL HAMMER

3. DRILLING AGENCY: American Vibracore Services, Inc.
CONTRACTOR FILE NO.

12. TOTAL SAMPLES | DISTURBED | UNDISTURBED (UD)

4. NAME OF DRILLER: Sean Kemnuir

13. TOTAL NUMBER CORE BOXES

5. DIRECTION OF BORING: ☒ VERTICAL ☐ INCLINED | DEG. FROM VERTICAL | BEARING

14. ELEVATION GROUND WATER

15. DATE BORING | STARTED: 09-08-10 04:16 | COMPLETED: 09-08-10 04:30

6. THICKNESS OF OVERBURDEN: 0.0 Ft.

16. ELEVATION TOP OF BORING: -19.9 Ft.

7. DEPTH DRILLED INTO ROCK: 0.0 Ft.

17. TOTAL RECOVERY FOR BORING: 18 Ft.

8. TOTAL DEPTH OF BORING: 18.9 Ft.

18. SIGNATURE AND TITLE OF INSPECTOR: BF

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS Depths and elevations based on measured values	% REC.	BOX OR SAMPLE	REMARKS Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.
-19.9	0.0					
-22.6	2.7		SAND, fine grained, trace shell hash, trace silt, (1.0"x0.5") shell fragment @ 1.0', (0.5"x0.25") shell fragment @ 2.0', 3 (0.5"x1.0") shell fragments @ 2.1', (1.5"x1.0") shell fragment @ 2.3', shell hash increases with depth, gray (5Y-5/1), (SP).		1	Sample #1, Depth = 1.4' Mean (mm): 0.23, Phi Sorting: 0.44 Shell Hash: 0%, Fines (230): 1.24% (SP)
-25.4	5.5		SAND, fine grained, trace shell hash, trace silt, (1.0"x0.5") shell fragment @ 5.4', gray (5Y-6/1), (SP).		2	Sample #2, Depth = 4.2' Mean (mm): 0.23, Phi Sorting: 0.51 Shell Hash: 0%, Fines (230): 1.04% (SP)
-28.9	9.0		SAND, fine grained, trace clay, trace shell hash, trace silt, silt distributed in laminae, clay distributed in laminae and pockets up to 1.0", (1.0"x0.5") shell fragments @ 7.3' & 7.7', clay increases with depth, gray (5Y-5/1), (SP).		3	Sample #3, Depth = 7.5' Mean (mm): 0.24, Phi Sorting: 0.82 Shell Hash: 1%, Fines (230): 1.51% (SP)
-37.9	18.0		SAND, fine grained, trace shell hash, trace silt, trace clay laminae, (1.0"x0.5") clay pockets @ 11.8' & 11.9', 1.0" clay layer @ 16.8', bit sample from 17.8' to 18.0', gray (5Y-6/1), (SP).		4	Sample #4, Depth = 13.5' Mean (mm): 0.20, Phi Sorting: 0.40 Shell Hash: 0%, Fines (230): 1.14% (SP)
-38.8	18.9		No Recovery.			
			End of Boring			

0 5 10 15 20 25

ALABAMA DIVC-10.GPJ FL DEP ROSS.GDT 3/17/11

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Boring Designation DIVC-10-36

DRILLING LOG

DIVISION		INSTALLATION	SHEET 1 OF 1 SHEETS

1. PROJECT Dauphin Island Shore Protection Dauphin Island, Alabama		9. SIZE AND TYPE OF BIT 3.0 In.	
		10. COORDINATE SYSTEM/DATUM Alabama State Plane West	HORIZONTAL NAD 1983	VERTICAL NAVD 88
2. BORING DESIGNATION DIVC-10-36	LOCATION COORDINATES X = 1,791,262 Y = 64,470	11. MANUFACTURER'S DESIGNATION OF DRILL Alpine Pneumatic Vibracore	☐ AUTO HAMMER ☐ MANUAL HAMMER
3. DRILLING AGENCY American Vibracore Services, Inc.	CONTRACTOR FILE NO.	12. TOTAL SAMPLES	DISTURBED	UNDISTURBED (UD)
4. NAME OF DRILLER Sean Kemnuir		13. TOTAL NUMBER CORE BOXES	
5. DIRECTION OF BORING ☒ VERTICAL ☐ INCLINED	DEG. FROM VERTICAL BEARING	14. ELEVATION GROUND WATER	
		15. DATE BORING	STARTED 09-08-10 05:50	COMPLETED 09-08-10 06:00
6. THICKNESS OF OVERBURDEN 0.0 Ft.		16. ELEVATION TOP OF BORING -19.5 Ft.	
7. DEPTH DRILLED INTO ROCK 0.0 Ft.		17. TOTAL RECOVERY FOR BORING 19.6 Ft.	
8. TOTAL DEPTH OF BORING 20.0 Ft.		18. SIGNATURE AND TITLE OF INSPECTOR KD	

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS Depths and elevations based on measured values	% REC.	BOX OR SAMPLE	REMARKS Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.
-19.5	0.0					
-21.1	1.6		SAND, fine grained, quartz, trace shell hash, trace silt, light gray (5Y-7/2), (SP).		1	Sample #1, Depth = 0.8' Mean (mm): 0.23, Phi Sorting: 0.42 Shell Hash: 0%, Fines (230): 1.07% (SP)
-23.4	3.9		SAND, fine grained, quartz, trace shell fragments, trace shell hash, trace silt, silt distributed in silty pockets up to 0.75", shell fragments up to 0.75", light gray (5Y-7/2), (SW).		2	Sample #2, Depth = 2.7' Mean (mm): 0.33, Phi Sorting: 0.91 Shell Hash: 2%, Fines (230): 1.23% (SW)
-24.0	4.5				3	Sample #3, Depth = 4.2' Mean (mm): 0.36, Phi Sorting: 0.71 Shell Hash: 0%, Fines (230): 0.91% (SP)
-25.0	5.5		SAND, fine grained, quartz, trace shell fragments, trace shell hash, trace silt, shell fragments up to 0.5", light gray (5Y-7/1), (SP).		4	Sample #4, Depth = 5.0' Mean (mm): 0.24, Phi Sorting: 0.62 Shell Hash: 0%, Fines (230): 1.37% (SP)
-27.5	8.0		SAND, fine grained, quartz, trace shell hash, trace silt, gray (5Y-6/1), (SP). SAND, fine grained, quartz, trace shell hash, trace silt, gray (5Y-6/1), (SP).		5	Sample #5, Depth = 6.8' Mean (mm): 0.18, Phi Sorting: 0.55 Shell Hash: 0%, Fines (230): 1.22% (SP)
-28.0	8.5		SAND, trace shell hash, trace silt, olive gray (5Y-4/2), (SP).		6	Sample #6, Depth = 8.2' Mean (mm): 0.19, Phi Sorting: 0.41 Shell Hash: 0%, Fines (230): 1.90% (SP)
-28.4	8.9				4	
-29.1	9.6		SAND, fine grained, quartz, trace shell hash, trace silt, gray (5Y-6/1), (SP).		7	Sample #7, Depth = 9.2' Mean (mm): 0.22, Phi Sorting: 0.89 Shell Hash: 1%, Fines (230): 2.05% (SW)
-38.4	18.9		SAND, fine grained, quartz, trace shell hash, trace silt, 0.75" shell fragment @ 9.4', 1.0" clayey pocket @ 9.0', dark gray (5Y-4/1), (SW). SAND, fine grained, quartz, trace shell hash, trace silt, silt distributed in silty pockets up to 1.0", (2.0"x1.0") shell fragment @ 10.1', 4 (1.0") shell fragments @ 10.1', 1.0" whole shell @ 10.0', gray (5Y-6/1), (SP).		5	
-39.1	19.6		SAND, fine grained, quartz, trace shell hash, trace silt, bit sample from 19.4' to 19.6', gray (5Y-5/1), (SP).			
-39.5	20.0		No Recovery.			
			End of Boring			

0 5 10 15 20 25

ALABAMA DIVC-10.GPJ FL DEP ROSS.GDT 3/17/11

SAJ FORM 1836
JUN 02

Boring Designation DIVC-10-37

DRILLING LOG

DIVISION		INSTALLATION	SHEET 1 OF 1 SHEETS

1. PROJECT: Dauphin Island Shore Protection, Dauphin Island, Alabama		9. SIZE AND TYPE OF BIT: 3.0 In.	
		10. COORDINATE SYSTEM/DATUM: Alabama State Plane West	HORIZONTAL: NAD 1983 / VERTICAL: NAVD 88
2. BORING DESIGNATION: DIVC-10-37	LOCATION COORDINATES: X = 1,790,318 Y = 64,684	11. MANUFACTURER'S DESIGNATION OF DRILL: Alpine Pneumatic Vibracore	☐ AUTO HAMMER ☐ MANUAL HAMMER
3. DRILLING AGENCY: American Vibracore Services, Inc.	CONTRACTOR FILE NO.	12. TOTAL SAMPLES	DISTURBED / UNDISTURBED (UD)
4. NAME OF DRILLER: Sean Kemnuir		13. TOTAL NUMBER CORE BOXES	
5. DIRECTION OF BORING: ☒ VERTICAL ☐ INCLINED	DEG. FROM VERTICAL / BEARING	14. ELEVATION GROUND WATER	
		15. DATE BORING	STARTED: 09-08-10 06:17 / COMPLETED: 09-08-10 06:27
6. THICKNESS OF OVERBURDEN: 0.0 Ft.		16. ELEVATION TOP OF BORING: -17.9 Ft.	
7. DEPTH DRILLED INTO ROCK: 0.0 Ft.		17. TOTAL RECOVERY FOR BORING: 20 Ft.	
8. TOTAL DEPTH OF BORING: 20.0 Ft.		18. SIGNATURE AND TITLE OF INSPECTOR: BF	

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS Depths and elevations based on measured values	% REC.	BOX OR SAMPLE	REMARKS Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.
-17.9	0.0					
			SAND, fine grained, trace shell fragments, trace shell hash, trace silt, trace whole shell, shell fragments up to 0.5", whole shells up to 0.5", (1.5"x0.25") shell fragment @ 6.7', (1.0"x1.25") shell fragment @ 7.7', (1.0"x1.5") clay pocket @ 1.8', gray (5Y-6/1), (SP).		1	Sample #1, Depth = 3.0' Mean (mm): 0.36, Phi Sorting: 0.83 Shell Hash: 1%, Fines (230): 1.38% (SP)
					2	Sample #2, Depth = 6.0' Mean (mm): 0.34, Phi Sorting: 0.76 Shell Hash: 0%, Fines (230): 1.07% (SP)
-27.7	9.8					
			SAND, fine grained, trace clay, trace shell hash, trace silt, clay distributed in laminae and pockets, clayey sand from 11.8'-12.0', clay increases with depth, bit sample from 19.8' to 20.0', gray (5Y-5/1), (SP).		3	Sample #3, Depth = 13.0' Mean (mm): 0.22, Phi Sorting: 0.69 Shell Hash: 0%, Fines (230): 0.92% (SP)
					4	Sample #4, Depth = 17.0' Mean (mm): 0.20, Phi Sorting: 0.42 Shell Hash: 0%, Fines (230): 1.40% (SP)
-37.9	20.0					
			End of Boring			

0 5 10 15 20 25

ALABAMA DIVC-10.GPJ FL DEP ROSS.GDT 3/17/11

SAJ FORM 1836
JUN 02

Boring Designation DIVC-11-01

DRILLING LOG

DIVISION		INSTALLATION	SHEET 1 OF 1 SHEETS

1. PROJECT Dauphin Island Shore Protection Dauphin Island, Alabama		9. SIZE AND TYPE OF BIT 3.0 In.	
		10. COORDINATE SYSTEM/DATUM Alabama State Plane West	HORIZONTAL NAD 1983 / VERTICAL NAVD 88
2. BORING DESIGNATION DIVC-11-01	LOCATION COORDINATES X = 1,725,121 Y = 73,380	11. MANUFACTURER'S DESIGNATION OF DRILL Electric	☐ AUTO HAMMER ☐ MANUAL HAMMER
3. DRILLING AGENCY	CONTRACTOR FILE NO.	12. TOTAL SAMPLES	DISTURBED / UNDISTURBED (UD)
4. NAME OF DRILLER Athena		13. TOTAL NUMBER CORE BOXES	
5. DIRECTION OF BORING ☒ VERTICAL ☐ INCLINED	DEG. FROM VERTICAL / BEARING	14. ELEVATION GROUND WATER	
		15. DATE BORING	STARTED 01-04-11 08:31 / COMPLETED 01-04-11 08:33
6. THICKNESS OF OVERBURDEN 0.0 Ft.		16. ELEVATION TOP OF BORING -42.7 Ft.	
7. DEPTH DRILLED INTO ROCK 0.0 Ft.		17. TOTAL RECOVERY FOR BORING 15.5 Ft.	
8. TOTAL DEPTH OF BORING 16.0 Ft.		18. SIGNATURE AND TITLE OF INSPECTOR TH	

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS Depths and elevations based on measured values	% REC.	BOX OR SAMPLE	REMARKS Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.
-42.7	0.0					
			SAND, fine grained, quartz, little silt, trace clay, trace shell hash, clay distributed in pockets from 0.1' to 0.6', clay lenses @ 4.0', 4.4', 4.5', 5.2', 5.4' and 5.7', (1.5"x1.0") rock fragment @ 5.8', 0.75" rock fragment @ 5.8', gray (5Y-5/1), (SP-SM).		1	Sample #1, Depth = 1.4' Mean (mm): 0.23, Phi Sorting: 0.69 Shell Hash: 0%, Fines (230): 8.95% (SP-SM)
					2	Sample #2, Depth = 3.8' Mean (mm): 0.26, Phi Sorting: 0.66 Shell Hash: 0%, Fines (230): 11.41% (SP-SM)
-48.5	5.8					
			SAND, fine grained, quartz, trace clay, trace shell hash, trace silt, gray (5Y-6/1), (SP-SM).		3	Sample #3, Depth = 6.7' Mean (mm): 0.22, Phi Sorting: 0.53 Shell Hash: 0%, Fines (230): 8.95% (SP-SM)
-50.4	7.7					
			SAND, fine grained, quartz, little clay, trace shell hash, trace silt, clay increases with depth, gray (5Y-5/1), (SC).		4	Sample #4, Depth = 8.5' Mean (mm): 0.21, Phi Sorting: 0.72 Shell Hash: 1%, Fines (230): 14.75% (SC)
-51.7	9.0					
			Sandy CLAY, trace silt, dark gray (5Y-4/1), (SC).			
-53.0	10.3					
			CLAY, firm clay, 1.0" sand pocket @ 13.7', dark gray (5Y-4/1), (CL).			
-58.2	15.5					
-58.7	16.0		No Recovery.			
			End of Boring			

0 5 10 15 20 25

ALABAMA DIVC-11.GPJ FL DEP ROSS.GDT 5/12/11

SAJ FORM 1836
JUN 02

Boring Designation DIVC-11-02

DRILLING LOG

DIVISION		INSTALLATION	SHEET 1 OF 1 SHEETS

1. PROJECT: Dauphin Island Shore Protection, Dauphin Island, Alabama
2. BORING DESIGNATION: DIVC-11-02
3. DRILLING AGENCY:
4. NAME OF DRILLER: Athena
5. DIRECTION OF BORING: ☒ VERTICAL ☐ INCLINED; DEG. FROM VERTICAL:; BEARING:
6. THICKNESS OF OVERBURDEN: 0.0 Ft.
7. DEPTH DRILLED INTO ROCK: 0.0 Ft.
8. TOTAL DEPTH OF BORING: 16.0 Ft.
9. SIZE AND TYPE OF BIT: 3.0 In.
10. COORDINATE SYSTEM/DATUM: Alabama State Plane West; HORIZONTAL: NAD 1983; VERTICAL: NAVD 88
11. MANUFACTURER'S DESIGNATION OF DRILL: Electric; ☐ AUTO HAMMER ☐ MANUAL HAMMER
12. TOTAL SAMPLES: DISTURBED: UNDISTURBED (UD):
13. TOTAL NUMBER CORE BOXES:
14. ELEVATION GROUND WATER:
15. DATE BORING: STARTED 01-04-11 12:16; COMPLETED 01-04-11 12:20
16. ELEVATION TOP OF BORING: -39.3 Ft.
17. TOTAL RECOVERY FOR BORING: 15 Ft.
18. SIGNATURE AND TITLE OF INSPECTOR: TH

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS Depths and elevations based on measured values	% REC.	BOX OR SAMPLE	REMARKS
-39.3	0.0					Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.
-40.5	1.2		CLAY, trace sand, soft clay, olive gray (5Y-4/2), (CL).			
-41.0	1.7		Clayey SAND, fine grained, quartz, trace shell hash, trace whole shell, whole shell up to 1.0", gray (5Y-5/1), (SC).			
-42.7	3.4		SAND, fine grained, quartz, trace shell hash, trace silt, silt distributed in lenses, 0.5" clay lens @ 2.9', gray (5Y-6/1), (SP-SM).		1	Sample #1, Depth = 2.7' Mean (mm): 0.24, Phi Sorting: 0.52 Shell Hash: 0%, Fines (230): 5.80% (SP-SM)
-44.1	4.8		SAND, fine grained, quartz, trace clay, trace shell hash, trace silt, dark gray (5Y-4/1), (SM-SC).		2	Sample #2, Depth = 4.1' Mean (mm): 0.19, Phi Sorting: 0.74 Shell Hash: 0%, Fines (230): 14.16% (SM-SC)
-45.2	5.9		Clayey SAND, fine grained, quartz, some shell hash, 1.0" shell fragment @ 5.1', dark gray (5Y-4/1), (SC).			
-46.3	7.0		CLAY, some shell hash, firm clay, dark gray (5Y-4/1), (CL).			
			CLAY, firm clay, 1.0" shelly pocket @ 9.4', shell component is shell fragments up to 1.0", very dark gray (5Y-3/1), (CL).			
-54.3	15.0					
-55.3	16.0		No Recovery.			
			End of Boring			

0 5 10 15 20 25

ALABAMA DIVC-11.GPJ FL DEP ROSS.GDT 5/12/11

SAJ FORM 1836
JUN 02

Boring Designation DIVC-11-03

DRILLING LOG

DIVISION		**INSTALLATION**	**SHEET 1 OF 1 SHEETS**

1. PROJECT Dauphin Island Shore Protection, Dauphin Island, Alabama		**9. SIZE AND TYPE OF BIT** 3.0 In.	
		10. COORDINATE SYSTEM/DATUM Alabama State Plane West	**HORIZONTAL** NAD 1983 / **VERTICAL** NAVD 88
2. BORING DESIGNATION DIVC-11-03	**LOCATION COORDINATES** X = 1,749,629 Y = 80,529	**11. MANUFACTURER'S DESIGNATION OF DRILL** Electric	☐ AUTO HAMMER ☐ MANUAL HAMMER
3. DRILLING AGENCY	**CONTRACTOR FILE NO.**	**12. TOTAL SAMPLES**	**DISTURBED** / **UNDISTURBED (UD)**
4. NAME OF DRILLER Athena		**13. TOTAL NUMBER CORE BOXES**	
5. DIRECTION OF BORING ☒ VERTICAL ☐ INCLINED	**DEG. FROM VERTICAL** / **BEARING**	**14. ELEVATION GROUND WATER**	
		15. DATE BORING	**STARTED** 01-04-11 13:20 / **COMPLETED** 01-04-11 13:24
6. THICKNESS OF OVERBURDEN 0.0 Ft.		**16. ELEVATION TOP OF BORING** -37.8 Ft.	
7. DEPTH DRILLED INTO ROCK 0.0 Ft.		**17. TOTAL RECOVERY FOR BORING** 20 Ft.	
8. TOTAL DEPTH OF BORING 20.0 Ft.		**18. SIGNATURE AND TITLE OF INSPECTOR** TH	

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS Depths and elevations based on measured values	% REC.	BOX OR SAMPLE	REMARKS
-37.8	0.0					Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.
-39.0	1.2		CLAY, trace sand, trace shell hash, soft clay, sand increases with depth, dark gray (5Y-4/1), (CL).			
-42.2	4.4		SAND, fine grained, quartz, little shell hash, trace clay, trace silt, 1.5" clay pocket @ 1.5', 2.0" clay pockets @ 1.8' and 4.1', 2.0" shelly pocket @ 4.3', shell component is shell hash and shell fragments, gray (5Y-6/1), (SP-SM).		1	Sample #1, Depth = 3.0' Mean (mm): 0.32, Phi Sorting: 0.78 Shell Hash: 1%, Fines (230): 5.43% (SP-SM)
-44.0	6.2		SAND, fine grained, quartz, trace clay, trace shell fragments, trace shell hash, trace silt, shell fragments up to 2.0", silt increases with depth, 2.0" shelly pocket @ 4.6', shell component is shell hash and shell fragments, gray (5Y-5/1), (SW-SM).		2	Sample #2, Depth = 5.7' Mean (mm): 0.19, Phi Sorting: 0.97 Shell Hash: 1%, Fines (230): 7.82% (SW-SM)
-46.3	8.5		SAND, fine grained, quartz, trace clay, trace shell fragments, trace shell hash, trace silt, trace whole shell, shell fragments up to 2.0", whole shell up to 0.75", clay increases with depth, dark gray (5Y-4/1), (SM-SC).		3	Sample #3, Depth = 7.3' Mean (mm): 0.18, Phi Sorting: 1.34 Shell Hash: 2%, Fines (230): 14.11% (SM-SC)
-47.7	9.9		CLAY, little sand, trace shell hash, sand distributed in pockets up to 1.0", dark gray (5Y-4/1), (SC).			
-53.2	15.4		CLAY, stiff clay, 1.0" shell fragment @ 10.2', 0.5" whole shell @ 13.4', very dark gray (5Y-3/1), (CL).			
-54.9	17.1		CLAY, trace whole shell, stiff clay, whole shell up to 1.0", dark gray (5Y-4/1), (CL).			
-57.8	20.0		CLAY, stiff clay, dark gray (5Y-4/1), (CL).			
			End of Boring			

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ALABAMA DIVC-11.GPJ FL DEP ROSS.GDT 5/12/11

SAJ FORM 1836
JUN 02

Boring Designation DIVC-11-04

DRILLING LOG

DIVISION	INSTALLATION	SHEET 1 OF 1 SHEETS

1. PROJECT: Dauphin Island Shore Protection, Dauphin Island, Alabama
2. BORING DESIGNATION: DIVC-11-04
3. DRILLING AGENCY:
4. NAME OF DRILLER: Athena
5. DIRECTION OF BORING: ☒ VERTICAL ☐ INCLINED; DEG. FROM VERTICAL:; BEARING:
6. THICKNESS OF OVERBURDEN: 0.0 Ft.
7. DEPTH DRILLED INTO ROCK: 0.0 Ft.
8. TOTAL DEPTH OF BORING: 15.0 Ft.
9. SIZE AND TYPE OF BIT: 3.0 In.
10. COORDINATE SYSTEM/DATUM: Alabama State Plane West; HORIZONTAL: NAD 1983; VERTICAL: NAVD 88
11. MANUFACTURER'S DESIGNATION OF DRILL: Electric; ☐ AUTO HAMMER ☐ MANUAL HAMMER
12. TOTAL SAMPLES: DISTURBED: UNDISTURBED (UD):
13. TOTAL NUMBER CORE BOXES:
14. ELEVATION GROUND WATER:
15. DATE BORING: STARTED 01-04-11 13:54; COMPLETED 01-04-11 13:58
16. ELEVATION TOP OF BORING: -39.2 Ft.
17. TOTAL RECOVERY FOR BORING: 14.2 Ft.
18. SIGNATURE AND TITLE OF INSPECTOR: TH

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS Depths and elevations based on measured values	% REC.	BOX OR SAMPLE	REMARKS
-39.2	0.0					Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.
-41.2	2.0		CLAY, soft clay, olive gray (5Y-4/2), (CL).			
-42.9	3.7		CLAY, little sand, trace shell hash, 1.5" shell fragment @ 2.0', very dark gray (5Y-3/1), (CL).			
-44.7	5.5		CLAY, trace sand, trace shell hash, firm clay, sand and shell hash distributed in pockets up to 2.0", very dark gray (5Y-3/1), (CL).			
-53.4	14.2		CLAY, trace shell hash, trace whole shell, firm clay, whole shell up to 1.0", 1.0" sand pocket @ 11.8', dark gray (5Y-4/1), (CL).			
-54.2	15.0		No Recovery.			
			End of Boring			

0 5 10 15 20 25

ALABAMA DIVC-11.GPJ FL DEP ROSS.GDT 5/12/11

SAJ FORM 1836
JUN 02

Boring Designation DIVC-11-05

DRILLING LOG

DIVISION	INSTALLATION	SHEET 1 OF 1 SHEETS

1. PROJECT: Dauphin Island Shore Protection, Dauphin Island, Alabama
2. BORING DESIGNATION: DIVC-11-05
3. DRILLING AGENCY:
4. NAME OF DRILLER: Athena
5. DIRECTION OF BORING: ☒ VERTICAL ☐ INCLINED; DEG. FROM VERTICAL:; BEARING:
6. THICKNESS OF OVERBURDEN: 0.0 Ft.
7. DEPTH DRILLED INTO ROCK: 0.0 Ft.
8. TOTAL DEPTH OF BORING: 16.0 Ft.
9. SIZE AND TYPE OF BIT: 3.0 In.
10. COORDINATE SYSTEM/DATUM: Alabama State Plane West; HORIZONTAL: NAD 1983; VERTICAL: NAVD 88
11. MANUFACTURER'S DESIGNATION OF DRILL: Electric; ☐ AUTO HAMMER ☐ MANUAL HAMMER
12. TOTAL SAMPLES: DISTURBED: UNDISTURBED (UD):
13. TOTAL NUMBER CORE BOXES:
14. ELEVATION GROUND WATER:
15. DATE BORING: STARTED 01-04-11 14:37; COMPLETED 01-04-11 14:40
16. ELEVATION TOP OF BORING: -37.9 Ft.
17. TOTAL RECOVERY FOR BORING: 15.2 Ft.
18. SIGNATURE AND TITLE OF INSPECTOR: TH

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS Depths and elevations based on measured values	% REC.	BOX OR SAMPLE	REMARKS
-37.9	0.0					Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.
-40.9	3.0		CLAY, trace sand, trace shell hash, soft clay, olive gray (5Y-4/2), (CL).			
-42.9	5.0		CLAY, trace sand, soft clay, dark gray (5Y-4/1), (CL).			
-53.1	15.2		CLAY, trace shell fragments, trace whole shell, firm clay, whole shell up to 2.0", shell fragments up to 0.75", 1.0" sand pocket @ 11.9', very dark gray (5Y-3/1), (CL).			
-53.9	16.0		No Recovery.			
			End of Boring			

0 5 10 15 20 25

ALABAMA DIVC-11.GPJ FL DEP ROSS.GDT 5/12/11

SAJ FORM 1836
JUN 02

Boring Designation DIVC-11-06

DRILLING LOG

DIVISION		INSTALLATION	SHEET 1 OF 1 SHEETS

1. PROJECT: Dauphin Island Shore Protection, Dauphin Island, Alabama		9. SIZE AND TYPE OF BIT: 3.0 In.	
		10. COORDINATE SYSTEM/DATUM: Alabama State Plane West	HORIZONTAL: NAD 1983 / VERTICAL: NAVD 88
2. BORING DESIGNATION: DIVC-11-06	LOCATION COORDINATES: X = 1,724,087 Y = 78,872	11. MANUFACTURER'S DESIGNATION OF DRILL: Electric	☐ AUTO HAMMER ☐ MANUAL HAMMER
3. DRILLING AGENCY	CONTRACTOR FILE NO.	12. TOTAL SAMPLES	DISTURBED / UNDISTURBED (UD)
4. NAME OF DRILLER: Athena		13. TOTAL NUMBER CORE BOXES	
5. DIRECTION OF BORING: ☒ VERTICAL ☐ INCLINED	DEG. FROM VERTICAL / BEARING	14. ELEVATION GROUND WATER	
		15. DATE BORING	STARTED: 01-14-11 08:37 / COMPLETED: 01-14-11 08:39
6. THICKNESS OF OVERBURDEN: 0.0 Ft.		16. ELEVATION TOP OF BORING: -32.9 Ft.	
7. DEPTH DRILLED INTO ROCK: 0.0 Ft.		17. TOTAL RECOVERY FOR BORING: 19.4 Ft.	
8. TOTAL DEPTH OF BORING: 20.0 Ft.		18. SIGNATURE AND TITLE OF INSPECTOR: BF	

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS Depths and elevations based on measured values	% REC.	BOX OR SAMPLE	REMARKS
-32.9	0.0					Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.
-34.0	1.1		SAND, fine grained, quartz, trace shell hash, trace silt, olive gray (5Y-5/2), (SP).		1	Sample #1, Depth = 0.6' Mean (mm): 0.34, Phi Sorting: 0.58 Shell Hash: 0%, Fines (230): 1.26% (SP)
-35.5	2.6		CLAY, trace sand, firm clay, sand typically distributed in laminae, (2.0"x1.5") sand pocket @ 1.4', greenish gray (10Y-5/1), (CL).			
-39.3	6.4		SAND, fine grained, quartz, trace clay, trace silt, clay distributed in pockets up to 1.0", color is mottled light gray (2.5Y-7/1) and, gray (5Y-5/1), (SP).		2	Sample #2, Depth = 4.3' Mean (mm): 0.33, Phi Sorting: 0.48 Shell Hash: 0%, Fines (230): 3.72% (SP)
-41.6	8.7		SAND, fine grained, quartz, trace clay, trace silt, clay distributed in pockets up to 1.0", light gray (2.5Y-7/1), (SP).		3	Sample #3, Depth = 7.0' Mean (mm): 0.30, Phi Sorting: 0.51 Shell Hash: 0%, Fines (230): 3.08% (SP)
-45.4	12.5		SAND, fine grained, quartz, trace clay, trace shell hash, trace silt, clay distributed in pockets up to 1.0", clay increases with depth, gray (5Y-6/1), (SP-SM).		4	Sample #4, Depth = 10.4' Mean (mm): 0.27, Phi Sorting: 0.50 Shell Hash: 0%, Fines (230): 6.44% (SP-SM)
-47.1	14.2		Sandy CLAY, trace shell hash, shell hash increases with depth, sand distributed throughout and in pockets up to 1.0", dark gray (2.5Y-4/1), (SC).		5	Sample #5, Depth = 13.3' Mean (mm): 0.19, Phi Sorting: 0.58 Shell Hash: 0%, Fines (230): 36.34% (SC)
-52.3	19.4		CLAY, trace shell fragments, trace shell hash, trace whole shell, firm clay, whole shell and shell fragments up to 1.0", 2 (2.0") rock fragments @ 14.3', dark gray (2.5Y-4/1), (CL).			
-52.9	20.0		No Recovery.			
			End of Boring			

0 5 10 15 20 25

ALABAMA DIVC-11.GPJ FL DEP ROSS.GDT 5/12/11

SAJ FORM 1836
JUN 02

Boring Designation DIVC-11-07

DRILLING LOG

DIVISION		INSTALLATION	SHEET 1 OF 1 SHEETS

1. PROJECT: Dauphin Island Shore Protection, Dauphin Island, Alabama
2. BORING DESIGNATION: DIVC-11-07
3. DRILLING AGENCY:
4. NAME OF DRILLER: Athena
5. DIRECTION OF BORING: ☒ VERTICAL ☐ INCLINED; DEG. FROM VERTICAL:; BEARING:
6. THICKNESS OF OVERBURDEN: 0.0 Ft.
7. DEPTH DRILLED INTO ROCK: 0.0 Ft.
8. TOTAL DEPTH OF BORING: 20.0 Ft.
9. SIZE AND TYPE OF BIT: 3.0 In.
10. COORDINATE SYSTEM/DATUM: Alabama State Plane West; HORIZONTAL: NAD 1983; VERTICAL: NAVD 88
11. MANUFACTURER'S DESIGNATION OF DRILL: Electric; ☐ AUTO HAMMER ☐ MANUAL HAMMER
12. TOTAL SAMPLES: DISTURBED: UNDISTURBED (UD):
13. TOTAL NUMBER CORE BOXES:
14. ELEVATION GROUND WATER:
15. DATE BORING: STARTED 01-14-11 09:21; COMPLETED 01-14-11 09:23
16. ELEVATION TOP OF BORING: -38.9 Ft.
17. TOTAL RECOVERY FOR BORING: 18.9 Ft.
18. SIGNATURE AND TITLE OF INSPECTOR: BF

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS Depths and elevations based on measured values	% REC.	BOX OR SAMPLE	REMARKS
-38.9	0.0					Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.
-39.4	0.5		SAND, fine grained, quartz, trace shell hash, trace silt, dark grayish brown (2.5Y-4/2), (SP).		1	Sample #1, Depth = 0.3' Mean (mm): 0.26, Phi Sorting: 0.62 Shell Hash: 0%, Fines (230): 4.20% (SP)
-40.4	1.5		SAND, fine grained, quartz, trace shell hash, trace silt, shell hash increases with depth, gray (5Y-5/1), (SP).		2	Sample #2, Depth = 1.0' Mean (mm): 0.33, Phi Sorting: 0.76 Shell Hash: 1%, Fines (230): 1.51% (SP)
-41.3	2.4		SAND, fine grained, quartz, trace clay, trace silt, clay distributed in pockets up to 1.5", 1.0" shell hash pocket @ 1.7', gray (5Y-6/1), (SP).		3	Sample #3, Depth = 1.9' Mean (mm): 0.31, Phi Sorting: 0.52 Shell Hash: 0%, Fines (230): 4.23% (SP)
-42.5	3.6		SAND, fine grained, quartz, trace clay, trace silt, clay distributed in pockets up to 1.0" and laminae, color is mottled gray (5Y-6/1) and, dark gray (5Y-4/1), (SP-SC).		4	Sample #4, Depth = 3.0' Mean (mm): 0.31, Phi Sorting: 0.55 Shell Hash: 0%, Fines (230): 6.87% (SP-SC)
-46.2	7.3		SAND, fine grained, quartz, trace clay, trace silt, clay distributed in pockets typically up to 1.0", 2.0" silt pockets @ 4.6' and 5.1', gray (5Y-6/1), (SP).		5	Sample #5, Depth = 5.8' Mean (mm): 0.29, Phi Sorting: 0.49 Shell Hash: 0%, Fines (230): 1.48% (SP)
-47.8	8.9		SAND, fine grained, quartz, trace clay, trace silt, clay distributed in pockets up to 1.0", color is mottled gray (5Y-6/1) and, dark gray (5Y-4/1), (SP-SC).		4	
-49.3	10.4		Sandy CLAY, sand distributed in pockets up to 2.0", (1.5"x0.5") wood fragment @ 9.2', very dark gray (5Y-3/1), (CL).			
-57.8	18.9		CLAY, firm clay, 2.0" shelly pocket @ 13.8', shell component is shell fragments up to 1.0", very dark gray (5Y-3/1), (CL).			
-58.9	20.0		No Recovery.			
			End of Boring			

ALABAMA DIVC-11.GPJ FL DEP ROSS.GDT 5/12/11

SAJ FORM 1836
JUN 02

Boring Designation DIVC-11-08

DRILLING LOG

DIVISION

INSTALLATION

SHEET 1 OF 1 SHEETS

1. PROJECT
Dauphin Island Shore Protection
Dauphin Island, Alabama

2. BORING DESIGNATION: DIVC-11-08
LOCATION COORDINATES: X = 1,729,059 Y = 82,584

3. DRILLING AGENCY
CONTRACTOR FILE NO.

4. NAME OF DRILLER: Athena

5. DIRECTION OF BORING: ☒ VERTICAL ☐ INCLINED
DEG. FROM VERTICAL:
BEARING:

6. THICKNESS OF OVERBURDEN: 0.0 Ft.

7. DEPTH DRILLED INTO ROCK: 0.0 Ft.

8. TOTAL DEPTH OF BORING: 5.0 Ft.

9. SIZE AND TYPE OF BIT: 3.0 In.

10. COORDINATE SYSTEM/DATUM: Alabama State Plane West
HORIZONTAL: NAD 1983
VERTICAL: NAVD 88

11. MANUFACTURER'S DESIGNATION OF DRILL: Electric
☐ AUTO HAMMER ☐ MANUAL HAMMER

12. TOTAL SAMPLES
DISTURBED
UNDISTURBED (UD)

13. TOTAL NUMBER CORE BOXES

14. ELEVATION GROUND WATER

15. DATE BORING
STARTED: 01-14-11 09:54
COMPLETED: 01-14-11 09:56

16. ELEVATION TOP OF BORING: -30.3 Ft.

17. TOTAL RECOVERY FOR BORING: 4.4 Ft.

18. SIGNATURE AND TITLE OF INSPECTOR: BF

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS Depths and elevations based on measured values	% REC.	BOX OR SAMPLE	REMARKS
-30.3	0.0					Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.
-30.5	0.2		SAND, fine grained, quartz, trace shell hash, trace silt, olive gray (5Y-4/2), (SP).			
-31.2	0.9		CLAY, very soft clay, (1.5"x0.5") wood fragment @ 0.8', very dark gray (5Y-3/1), (CL).			
			CLAY, trace organics, firm clay, oxidized to yellowish brown (10YR-5/6) from 0.9' to 1.9', organics distributed in laminae, 1.0" organic pocket @ 2.9', greenish gray (10Y-5/1), (CL).			
-34.7	4.4					
-35.3	5.0		No Recovery.			
			End of Boring			

0 5 10 15 20 25

ALABAMA DIVC-11.GPJ FL DEP ROSS.GDT 5/12/11

SAJ FORM 1836
JUN 02

Boring Designation DIVC-11-09

DRILLING LOG

DIVISION		INSTALLATION	SHEET 1 OF 1 SHEETS

1. PROJECT: Dauphin Island Shore Protection, Dauphin Island, Alabama		9. SIZE AND TYPE OF BIT: 3.0 In.	
		10. COORDINATE SYSTEM/DATUM: Alabama State Plane West	HORIZONTAL: NAD 1983 / VERTICAL: NAVD 88
2. BORING DESIGNATION: DIVC-11-09	LOCATION COORDINATES: X = 1,734,727 Y = 80,751	11. MANUFACTURER'S DESIGNATION OF DRILL: Electric	☐ AUTO HAMMER ☐ MANUAL HAMMER
3. DRILLING AGENCY	CONTRACTOR FILE NO.	12. TOTAL SAMPLES	DISTURBED / UNDISTURBED (UD)
4. NAME OF DRILLER: Athena		13. TOTAL NUMBER CORE BOXES	
5. DIRECTION OF BORING: ☒ VERTICAL ☐ INCLINED	DEG. FROM VERTICAL / BEARING	14. ELEVATION GROUND WATER	
		15. DATE BORING	STARTED: 01-14-11 11:01 / COMPLETED: 01-14-11 11:03
6. THICKNESS OF OVERBURDEN: 0.0 Ft.		16. ELEVATION TOP OF BORING: -35.6 Ft.	
7. DEPTH DRILLED INTO ROCK: 0.0 Ft.		17. TOTAL RECOVERY FOR BORING: 14.1 Ft.	
8. TOTAL DEPTH OF BORING: 15.0 Ft.		18. SIGNATURE AND TITLE OF INSPECTOR: BF	

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS Depths and elevations based on measured values	% REC.	BOX OR SAMPLE	REMARKS
-35.6	0.0					Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.
-36.0	0.4		SAND, fine grained, quartz, trace shell hash, trace silt, grayish brown (2.5Y-5/2), (SP-SM).		1	Sample #1, Depth = 0.2' Mean (mm): 0.29, Phi Sorting: 0.71 Shell Hash: 0%, Fines (230): 5.63% (SP-SM)
-39.1	3.5		CLAY, trace sand, trace wood, soft clay, sand distributed in pockets up to 1.0", wood fragments typically up to 0.5", (3.0"x1.0") wood fragment @ 3.3', gray (2.5Y-5/1), (CL).			
-41.6	6.0		SAND, fine grained, quartz, trace clay, trace silt, clay distributed in pockets up to 1.0", 1.0" wood fragment @ 5.7', (3.0"x0.5") wood fragment @ 5.8', greenish gray (10Y-5/1), (SP-SM).		2	Sample #2, Depth = 4.6' Mean (mm): 0.36, Phi Sorting: 0.53 Shell Hash: 0%, Fines (230): 11.11% (SP-SM)
-42.8	7.2		SAND, fine grained, quartz, trace silt, light gray (2.5Y-7/1), (SP).		3	Sample #3, Depth = 6.6' Mean (mm): 0.32, Phi Sorting: 0.56 Shell Hash: 0%, Fines (230): 3.87% (SP)
-43.8	8.2		SAND, fine grained, quartz, little clay, trace silt, greenish gray (10Y-5/1), (SC).		4	Sample #4, Depth = 7.7' Mean (mm): 0.29, Phi Sorting: 0.53 Shell Hash: 0%, Fines (230): 16.04% (SC)
-46.0	10.4		Sandy CLAY, greenish gray (10Y-5/1), (CL).			
-49.7	14.1		CLAY, trace rock fragments, trace sand, firm clay, sand distributed in pockets up to 1.0", (3.0"x2.5") rock fragment @ 10.7', (2.0"x1.0") rock fragment @ 10.8', (2.0"x2.0") rock fragment @ 11.4', 1.0" shell hash pocket @ 12.1', (1.0"x0.5") wood fragment @ 14.0', gray (5Y-5/1), (CL).			
-50.6	15.0		No Recovery.			
			End of Boring			

0 5 10 15 20 25

ALABAMA DIVC-11.GPJ FL DEP ROSS.GDT 5/12/11

SAJ FORM 1836
JUN 02

Boring Designation DIVC-11-10

DRILLING LOG

DIVISION

INSTALLATION

SHEET 1 OF 1 SHEETS

1. PROJECT
Dauphin Island Shore Protection
Dauphin Island, Alabama

2. BORING DESIGNATION: DIVC-11-10
LOCATION COORDINATES: X = 1,748,011 Y = 85,920

3. DRILLING AGENCY

CONTRACTOR FILE NO.

4. NAME OF DRILLER: Athena

5. DIRECTION OF BORING: ☒ VERTICAL ☐ INCLINED
DEG. FROM VERTICAL:
BEARING:

6. THICKNESS OF OVERBURDEN: 0.0 Ft.

7. DEPTH DRILLED INTO ROCK: 0.0 Ft.

8. TOTAL DEPTH OF BORING: 4.0 Ft.

9. SIZE AND TYPE OF BIT: 3.0 In.

10. COORDINATE SYSTEM/DATUM: Alabama State Plane West
HORIZONTAL: NAD 1983
VERTICAL: NAVD 88

11. MANUFACTURER'S DESIGNATION OF DRILL: Electric
☐ AUTO HAMMER ☐ MANUAL HAMMER

12. TOTAL SAMPLES
DISTURBED
UNDISTURBED (UD)

13. TOTAL NUMBER CORE BOXES

14. ELEVATION GROUND WATER

15. DATE BORING
STARTED: 01-14-11 11:46
COMPLETED: 01-14-11 11:48

16. ELEVATION TOP OF BORING: -28.8 Ft.

17. TOTAL RECOVERY FOR BORING: 3.6 Ft.

18. SIGNATURE AND TITLE OF INSPECTOR: BF

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS Depths and elevations based on measured values	% REC.	BOX OR SAMPLE	REMARKS
-28.8	0.0					Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.
-29.5	0.7		CLAY, very soft clay, very dark gray (5Y-3/1), (CL).			
			CLAY, firm clay, (2.0"x1.0") coral fragment @ 1.2', 1.0" sand pocket @ 1.3', greenish gray (10Y-5/1), (CL).			
-32.4	3.6					
-32.8	4.0		No Recovery.			
			End of Boring			

0
5
10
15
20
25

ALABAMA DIVC-11.GPJ FL DEP ROSS.GDT 5/12/11

SAJ FORM 1836
JUN 02

Boring Designation DIVC-11-11

DRILLING LOG

DIVISION		INSTALLATION	SHEET 1 OF 1 SHEETS

1. PROJECT: Dauphin Island Shore Protection, Dauphin Island, Alabama		9. SIZE AND TYPE OF BIT: 3.0 In.	
2. BORING DESIGNATION: DIVC-11-11	LOCATION COORDINATES: X = 1,755,321 Y = 84,381	10. COORDINATE SYSTEM/DATUM: Alabama State Plane West	HORIZONTAL: NAD 1983 / VERTICAL: NAVD 88
3. DRILLING AGENCY	CONTRACTOR FILE NO.	11. MANUFACTURER'S DESIGNATION OF DRILL: Electric	☐ AUTO HAMMER ☐ MANUAL HAMMER
4. NAME OF DRILLER: Athena		12. TOTAL SAMPLES	DISTURBED / UNDISTURBED (UD)
5. DIRECTION OF BORING: ☒ VERTICAL ☐ INCLINED	DEG. FROM VERTICAL / BEARING	13. TOTAL NUMBER CORE BOXES	
6. THICKNESS OF OVERBURDEN: 0.0 Ft.		14. ELEVATION GROUND WATER	
7. DEPTH DRILLED INTO ROCK: 0.0 Ft.		15. DATE BORING	STARTED: 01-14-11 12:21 / COMPLETED: 01-14-11 12:23
8. TOTAL DEPTH OF BORING: 20.0 Ft.		16. ELEVATION TOP OF BORING: -31.5 Ft.	
		17. TOTAL RECOVERY FOR BORING: 17.9 Ft.	
		18. SIGNATURE AND TITLE OF INSPECTOR: BF	

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS Depths and elevations based on measured values	% REC.	BOX OR SAMPLE	REMARKS Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.
-31.5	0.0					
-32.5	1.0		CLAY, trace sand, trace shell hash, soft clay, sand increases with depth, dark gray (5Y-4/1), (CL).			
-33.7	2.2		SAND, fine grained, quartz, little shell hash, trace clay, trace shell fragments, trace silt, trace whole shell, shell fragments up to 0.5", whole shell up to 1.0", dark gray (5Y-4/1), (SW-SC).		1	Sample #1, Depth = 1.5' Mean (mm): 0.37, Phi Sorting: 1.11 Shell Hash: 2%, Fines (230): 8.10% (SW-SC)
-37.9	6.4		SAND, fine grained, quartz, little shell hash, trace clay, trace shell fragments, trace silt, trace whole shell, clay distributed in pockets up to 1.0", shell fragments typically up to 1.0", whole shell up to 0.75", (3.0"x0.5") shell fragment @ 4.9', 2.0" shell hash pocket @ 5.3', color is mottled gray (5Y-5/1) and, dark gray (5Y-4/1), (SM-SC).		2	Sample #2, Depth = 4.5' Mean (mm): 0.34, Phi Sorting: 0.94 Shell Hash: 1%, Fines (230): 12.36% (SM-SC)
-40.6	9.1		SAND, fine grained, quartz, little shell hash, trace clay, trace shell fragments, trace silt, shell fragments typically up to 0.5", clay distributed in pockets up to 0.5", 2.0" shell fragment @ 7.5', dark gray (5Y-4/1), (SP).		3	Sample #3, Depth = 7.7' Mean (mm): 0.33, Phi Sorting: 0.82 Shell Hash: 1%, Fines (230): 4.15% (SP)
-43.0	11.5		SAND, fine grained, quartz, little shell hash, trace clay, trace shell fragments, trace silt, trace whole shell, shell fragments up to 1.0", whole shell up to 0.5", clay increases with depth, gray (5Y-5/1), (SW-SC).		4	Sample #4, Depth = 10.5' Mean (mm): 0.25, Phi Sorting: 1.03 Shell Hash: 1%, Fines (230): 9.70% (SW-SC)
-46.2	14.7		SAND, fine grained, quartz, little clay, little shell hash, trace shell fragments, trace whole shell, clay distributed in pockets up to 1.0", whole shell up to 1.0", very dark gray (5Y-3/1), (SC).		5	Sample #5, Depth = 12.4' Mean (mm): 0.29, Phi Sorting: 1.95 Shell Hash: 3%, Fines (230): 12.17% (SC)
-49.4	17.9		CLAY, trace sand, trace shell hash, trace whole shell, firm clay, sand distributed in pockets up to 0.5", whole shell up to 1.0", very dark gray (5Y-3/1), (CL).			
-51.5	20.0		No Recovery.			
			End of Boring			

0 5 10 15 20 25

ALABAMA DIVC-11.GPJ FL DEP ROSS.GDT 5/12/11

SAJ FORM 1836
JUN 02

Boring Designation DIVC-11-12

DRILLING LOG

DIVISION	INSTALLATION	SHEET 1 OF 1 SHEETS

1. PROJECT: Dauphin Island Shore Protection, Dauphin Island, Alabama
2. BORING DESIGNATION: DIVC-11-12
3. DRILLING AGENCY:
4. NAME OF DRILLER: Athena
5. DIRECTION OF BORING: ☒ VERTICAL ☐ INCLINED
6. THICKNESS OF OVERBURDEN: 0.0 Ft.
7. DEPTH DRILLED INTO ROCK: 0.0 Ft.
8. TOTAL DEPTH OF BORING: 20.0 Ft.
9. SIZE AND TYPE OF BIT: 3.0 In.
10. COORDINATE SYSTEM/DATUM: Alabama State Plane West | HORIZONTAL: NAD 1983 | VERTICAL: NAVD 88
11. MANUFACTURER'S DESIGNATION OF DRILL: Electric ☐ AUTO HAMMER ☐ MANUAL HAMMER
12. TOTAL SAMPLES | DISTURBED | UNDISTURBED (UD)
13. TOTAL NUMBER CORE BOXES
14. ELEVATION GROUND WATER
15. DATE BORING: STARTED 01-14-11 12:57 | COMPLETED 01-14-11 12:59
16. ELEVATION TOP OF BORING: -31.3 Ft.
17. TOTAL RECOVERY FOR BORING: 18 Ft.
18. SIGNATURE AND TITLE OF INSPECTOR: BF

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS Depths and elevations based on measured values	% REC.	BOX OR SAMPLE	REMARKS
-31.3	0.0					Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.
-34.3	3.0		CLAY, very soft clay, dark gray (5Y-4/1), (CL).			
-41.9	10.6		Sandy CLAY, trace shell fragments, trace shell hash, trace whole shell, soft clay, sand distributed in pockets up to 2.0" and laminae, shell fragments typically up to 2.0", whole shell up to 1.5", (3.0"x2.0") shell fragment @ 6.7', (3.0"x0.5") wood fragment @ 5.8', sand increases with depth, (2.0"x0.5") wood fragment @ 9.3', dark gray (5Y-4/1), (CL).			
-45.7	14.4		CLAY, trace sand, trace shell fragments, trace shell hash, trace whole shell, firm clay, sand distributed in laminae, whole shell up to 1.5", shell fragments up to 1.0", 2.0" very soft clay pocket @ 12.0', dark gray (5Y-4/1), (CL).			
-49.3	18.0		CLAY, trace organics, trace sand, trace shell hash, firm clay, sand and organics distributed in laminae, (1.0"x0.5") shell fragment @ 17.1', dark gray (5Y-4/1), (CL).			
-51.3	20.0		No Recovery.			
			End of Boring			

0 5 10 15 20 25

ALABAMA DIVC-11.GPJ FL DEP ROSS.GDT 5/12/11

SAJ FORM 1836
JUN 02

APPENDIX 9
2010/2011 CPE Vibracore Photographs


COASTAL PLANNING
CPE
& ENGINEERING
DAUPHIN ISLAND
DIVC-10-01
0.0 - 2.0


COASTAL PLANNING
CPE
& ENGINEERING
DAUPHIN ISLAND
DIVC-10-01
2.0 - 4.0


COASTAL PLANNING
CPE
& ENGINEERING
DAUPHIN ISLAND
DIVC-10-01
4.0 - 6.0


COASTAL PLANNING
CPE
& ENGINEERING
DAUPHIN ISLAND
DIVC-10-01
6.0 - 8.0


COASTAL PLANNING
CPE
& ENGINEERING
DAUPHIN ISLAND
DIVC-10-01
8.0 -10.0


COASTAL PLANNING
CPE
& ENGINEERING
DAUPHIN ISLAND
DIVC-10-01
10.0 -12.0


COASTAL PLANNING
CPE
& ENGINEERING
DAUPHIN ISLAND
DIVC-10-01
12.0 -14.0


COASTAL PLANNING
CPE
& ENGINEERING
DAUPHIN ISLAND
DIVC-10-01
14.0 -16.0


COASTAL PLANNING
CPE
& ENGINEERING
DAUPHIN ISLAND
DIVC-10-01
16.0 - 18.0


COASTAL PLANNING
CPE
& ENGINEERING
DAUPHIN ISLAND
DIVC-10-01
18.0 - 20.0


COASTAL PLANNING
CPE
& ENGINEERING
DAUPHIN ISLAND
DIVC-10-01
20.0 - 20.2


COASTAL PLANNING
CPE
& ENGINEERING
DAUPHIN ISLAND
DIVC-10-02
0.0 - 2.0


COASTAL PLANNING
CPE
& ENGINEERING
DAUPHIN ISLAND
DIVC-10-02
2.0 - 4.0


COASTAL PLANNING
CPE
& ENGINEERING
DAUPHIN ISLAND
DIVC-10-02
4.0 - 6.0


COASTAL PLANNING
CPE
& ENGINEERING
DAUPHIN ISLAND
DIVC-10-02
6.0 - 8.0


COASTAL PLANNING
CPE
& ENGINEERING
DAUPHIN ISLAND
DIVC-10-02
8.0-10.0


COASTAL PLANNING
CPE
& ENGINEERING
DAUPHIN ISLAND
DIVC-10-02
10.0-12.0


COASTAL PLANNING
CPE
& ENGINEERING
DAUPHIN ISLAND
DIVC-10-02
12.0-14.0


COASTAL PLANNING
CPE
& ENGINEERING
DAUPHIN ISLAND
DIVC-10-02
14.0-16.0


COASTAL PLANNING
CPE
& ENGINEERING
DAUPHIN ISLAND
DIVC-10-02
16.0-16.6


COASTAL PLANNING
CPE
& ENGINEERING
DAUPHIN ISLAND
DIVC-10-03
0.0 - 2.0


COASTAL PLANNING
CPE
& ENGINEERING
DAUPHIN ISLAND
DIVC-10-03
2.0 - 4.0


COASTAL PLANNING
CPE
& ENGINEERING
DAUPHIN ISLAND
DIVC-10-03
4.0 - 6.0


COASTAL PLANNING
CPE
& ENGINEERING
DAUPHIN ISLAND
DIVC-10-03
6.0 - 8.0


COASTAL PLANNING
CPE
& ENGINEERING
DAUPHIN ISLAND
DIVC-10-03
8.0 - 10.0


COASTAL PLANNING
CPE
& ENGINEERING
DAUPHIN ISLAND
DIVC-10-03
10.0 - 12.0


COASTAL PLANNING
CPE
& ENGINEERING
DAUPHIN ISLAND
DIVC-10-03
12.0 - 14.0


COASTAL PLANNING
CPE
& ENGINEERING
DAUPHIN ISLAND
DIVC-10-03
14.0 - 16.0


COASTAL PLANNING
CPE
& ENGINEERING
DAUPHIN ISLAND
DIVC-10-03
16.0 - 18.0


COASTAL PLANNING
CPE
& ENGINEERING
DAUPHIN ISLAND
DIVC-10-03
18.0 - 19.6


COASTAL PLANNING
CPE
& ENGINEERING
DAUPHIN ISLAND
DIVC-10-04
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COASTAL PLANNING
CPE
& ENGINEERING
DAUPHIN ISLAND
DIVC-10-04
2.0 - 4.0


COASTAL PLANNING
CPE
& ENGINEERING
DAUPHIN ISLAND
DIVC-10-04
4.0 - 6.0


COASTAL PLANNING
CPE
& ENGINEERING
DAUPHIN ISLAND
DIVC-10-04
6.0 - 8.0


COASTAL PLANNING
CPE
& ENGINEERING
DAUPHIN ISLAND
DIVC-10-04
8.0-10.0


COASTAL PLANNING
CPE
& ENGINEERING
DAUPHIN ISLAND
DIVC-10-04
10.0-12.0


COASTAL PLANNING
CPE
& ENGINEERING
DAUPHIN ISLAND
DIVC-10-04
12.0-14.0


COASTAL PLANNING
CPE
& ENGINEERING
DAUPHIN ISLAND
DIVC-10-04
14.0-16.0


COASTAL PLANNING
CPE
& ENGINEERING
DAUPHIN ISLAND
DIVC-10-04
16.0-17.5


COASTAL PLANNING
CPE
& ENGINEERING
DAUPHIN ISLAND
DIVC-10-05
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COASTAL PLANNING
CPE
& ENGINEERING
DAUPHIN ISLAND
DIVC-10-05
2.0-4.0


COASTAL PLANNING
CPE
& ENGINEERING
DAUPHIN ISLAND
DIVC-10-05
4.0-6.0


COASTAL PLANNING
CPE
& ENGINEERING
DAUPHIN ISLAND
DIVC-10-05
6.0-8.0


COASTAL PLANNING
CPE
& ENGINEERING
DAUPHIN ISLAND
DIVC-10-05
8.0-10.0


COASTAL PLANNING
CPE
& ENGINEERING
DAUPHIN ISLAND
DIVC-10-05
10.0-11.9


COASTAL PLANNING
CPE
& ENGINEERING
DAUPHIN ISLAND
DIVC-10-06
0.0-2.0


COASTAL PLANNING
CPE
& ENGINEERING
DAUPHIN ISLAND
DIVC-10-06
2.0-4.0


COASTAL PLANNING
CPE
& ENGINEERING
DAUPHIN ISLAND
DIVC-10-06
4.0-6.0


COASTAL PLANNING
CPE
& ENGINEERING
DAUPHIN ISLAND
DIVC-10-06
6.0-8.0


COASTAL PLANNING
CPE
& ENGINEERING
DAUPHIN ISLAND
DIVC-10-06
8.0-10.0


COASTAL PLANNING
CPE
& ENGINEERING
DAUPHIN ISLAND
DIVC-10-06
10.0-12.0


COASTAL PLANNING
CPE
& ENGINEERING
DAUPHIN ISLAND
DIVC-10-06
12.0-13.1


COASTAL PLANNING
CPE
& ENGINEERING
DAUPHIN ISLAND
DIVC-10-07
0.0 - 2.0


COASTAL PLANNING
CPE
& ENGINEERING
DAUPHIN ISLAND
DIVC-10-07
2.0 - 4.0


COASTAL PLANNING
CPE
& ENGINEERING
DAUPHIN ISLAND
DIVC-10-07
4.0 - 6.0


COASTAL PLANNING
CPE
& ENGINEERING
DAUPHIN ISLAND
DIVC-10-07
6.0 - 8.0


COASTAL PLANNING
CPE
& ENGINEERING
DAUPHIN ISLAND
DIVC-10-07
8.0-10.0


COASTAL PLANNING
CPE
& ENGINEERING
DAUPHIN ISLAND
DIVC-10-07
10.0-12.0


COASTAL PLANNING
CPE
& ENGINEERING
DAUPHIN ISLAND
DIVC-10-07
12.0-13.8


COASTAL PLANNING
CPE
& ENGINEERING
DAUPHIN ISLAND
DIVC-10-08
0.0 - 2.0


COASTAL PLANNING
CPE
& ENGINEERING
DAUPHIN ISLAND
DIVC-10-08
2.0 - 4.0


COASTAL PLANNING
CPE
& ENGINEERING
DAUPHIN ISLAND
DIVC-10-08
4.0 - 6.0


COASTAL PLANNING
CPE
& ENGINEERING
DAUPHIN ISLAND
DIVC-10-08
6.0 - 8.0


COASTAL PLANNING
CPE
& ENGINEERING
DAUPHIN ISLAND
DIVC-10-08
8.0-10.0


COASTAL PLANNING
CPE
& ENGINEERING
DAUPHIN ISLAND
DIVC-10-08
10.0-11.7


COASTAL PLANNING
CPE
& ENGINEERING
DAUPHIN ISLAND
DIVC-10-09
0.0-2.0


COASTAL PLANNING
CPE
& ENGINEERING
DAUPHIN ISLAND
DIVC-10-09
2.0-4.0


COASTAL PLANNING
CPE
& ENGINEERING
DAUPHIN ISLAND
DIVC-10-09
4.0-6.0


COASTAL PLANNING
CPE
& ENGINEERING
DAUPHIN ISLAND
DIVC-10-09
6.0-8.0


DAUPHIN ISLAND
DIVC-10-09
8.0-10.0


DAUPHIN ISLAND
DIVC-10-09
10.0-12.0


DAUPHIN ISLAND
DIVC-10-09
12.0-14.0


DAUPHIN ISLAND
DIVC-10-09
14.0-16.0


COASTAL PLANNING
CPE
& ENGINEERING
DAUPHIN ISLAND
DIVC-10-09
16.0-16.9


DAUPHIN ISLAND
DIVC-10-10
0.0 - 2.0


DAUPHIN ISLAND
DIVC-10-10
2.0 - 4.0


DAUPHIN ISLAND
DIVC-10-10
4.0 - 6.0


DAUPHIN ISLAND
DIVC-10-10
6.0 - 8.0


COASTAL PLANNING
CPE
& ENGINEERING
DAUPHIN ISLAND
DIVC-10-10
8.0-10.0


COASTAL PLANNING
CPE
& ENGINEERING
DAUPHIN ISLAND
DIVC-10-10
10.0-12.0


COASTAL PLANNING
CPE
& ENGINEERING
DAUPHIN ISLAND
DIVC-10-10
12.0-14.0


COASTAL PLANNING
CPE
& ENGINEERING
DAUPHIN ISLAND
DIVC-10-10
14.0-16.0


COASTAL PLANNING
CPE
& ENGINEERING
DAUPHIN ISLAND
DIVC-10-10
16.0-18.0


COASTAL PLANNING
CPE
& ENGINEERING
DAUPHIN ISLAND
DIVC-10-10
18.0-19.0


DAUPHIN ISLAND
DIVC-10-11
0.0 - 2.0


DAUPHIN ISLAND
DIVC-10-11
2.0 - 4.0


DAUPHIN ISLAND
DIVC-10-11
4.0 - 6.0


DAUPHIN ISLAND
DIVC-10-11
6.0 - 8.0


DAUPHIN ISLAND
DIVC-10-11
8.0-10.0


DAUPHIN ISLAND
DIVC-10-11
10.0-12.0


DAUPHIN ISLAND
DIVC-10-11
12.0-14.0


DAUPHIN ISLAND
DIVC-10-11
14.0-16.0


COASTAL PLANNING
CPE
& ENGINEERING
DAUPHIN ISLAND
DIVC-10-11
16.0-17.9


DAUPHIN ISLAND
DIVC-10-12
0.0 - 2.0


DAUPHIN ISLAND
DIVC-10-12
2.0 - 4.0


DAUPHIN ISLAND
DIVC-10-12
4.0 - 6.0


DAUPHIN ISLAND
DIVC-10-12
6.0 - 8.0


COASTAL PLANNING
CPE
& ENGINEERING
DAUPHIN ISLAND
DIVC-10-12
8.0-10.0


COASTAL PLANNING
CPE
& ENGINEERING
DAUPHIN ISLAND
DIVC-10-12
10.0-12.0


COASTAL PLANNING
CPE
& ENGINEERING
DAUPHIN ISLAND
DIVC-10-12
12.0-14.0


COASTAL PLANNING
CPE
& ENGINEERING
DAUPHIN ISLAND
DIVC-10-12
14.0-16.0


COASTAL PLANNING
CPE
& ENGINEERING
DAUPHIN ISLAND
DIVC-10-12
16.0-17.7


DAUPHIN ISLAND
DIVC-10-13
0.0-2.0


DAUPHIN ISLAND
DIVC-10-13
2.0-4.0


DAUPHIN ISLAND
DIVC-10-13
4.0-6.0


DAUPHIN ISLAND
DIVC-10-13
6.0-8.0


COASTAL PLANNING
CPE
& ENGINEERING
DAUPHIN ISLAND
DIVC-10-13
8.0-10.0


COASTAL PLANNING
CPE
& ENGINEERING
DAUPHIN ISLAND
DIVC-10-13
10.0-12.0


COASTAL PLANNING
CPE
& ENGINEERING
DAUPHIN ISLAND
DIVC-10-13
12.0-14.0


COASTAL PLANNING
CPE
& ENGINEERING
DAUPHIN ISLAND
DIVC-10-13
14.0-16.0


DAUPHIN ISLAND
DIVC-10-13
16.0-18.0


DAUPHIN ISLAND
DIVC-10-13
18.0-20.0


DAUPHIN ISLAND
DIVC-10-14
0.0 - 2.0


DAUPHIN ISLAND
DIVC-10-14
2.0 - 4.0


DAUPHIN ISLAND
DIVC-10-14
4.0 - 6.0


DAUPHIN ISLAND
DIVC-10-14
6.0 - 8.0


DAUPHIN ISLAND
DIVC-10-14
8.0-10.0


DAUPHIN ISLAND
DIVC-10-14
10.0-12.0


DAUPHIN ISLAND
DIVC-10-14
12.0-14.0


DAUPHIN ISLAND
DIVC-10-14
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DAUPHIN ISLAND
DIVC-10-14
16.0-17.5


DAUPHIN ISLAND
DIVC-10-15
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DAUPHIN ISLAND
DIVC-10-15
2.0 - 4.0


DAUPHIN ISLAND
DIVC-10-15
4.0 - 6.0


DAUPHIN ISLAND
DIVC-10-15
6.0 - 8.0


DAUPHIN ISLAND
DIVC-10-15
8.0-10.0


DAUPHIN ISLAND
DIVC-10-15
10.0-12.0


DAUPHIN ISLAND
DIVC-10-15
12.0-14.0


DAUPHIN ISLAND
DIVC-10-15
14.0-16.0


COASTAL PLANNING
CPE
& ENGINEERING
DAUPHIN ISLAND
DIVC-10-15
16.0-17.3


DAUPHIN ISLAND
DIVC-10-16
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DAUPHIN ISLAND
DIVC-10-16
2.0 - 4.0


DAUPHIN ISLAND
DIVC-10-16
4.0 - 6.0


DAUPHIN ISLAND
DIVC-10-16
6.0 - 8.0


DAUPHIN ISLAND
DIVC-10-16
8.0-10.0


DAUPHIN ISLAND
DIVC-10-16
10.0-12.0


DAUPHIN ISLAND
DIVC-10-16
12.0-14.0


DAUPHIN ISLAND
DIVC-10-16
14.0-16.0


DAUPHIN ISLAND
DIVC-10-16
16.0-18.0


DAUPHIN ISLAND
DIVC-10-17
0.0 - 2.0


DAUPHIN ISLAND
DIVC-10-17
2.0 - 4.0


DAUPHIN ISLAND
DIVC-10-17
4.0 - 6.0


DAUPHIN ISLAND
DIVC-10-17
6.0 - 8.0


DAUPHIN ISLAND
DIVC-10-17
8.0-10.0


DAUPHIN ISLAND
DIVC-10-17
10.0-12.0


DAUPHIN ISLAND
DIVC-10-17
12.0-14.0


DAUPHIN ISLAND
DIVC-10-17
14.0-16.0


COASTAL PLANNING
CPE
& ENGINEERING
DAUPHIN ISLAND
DIVC-10-17
16.0-17.6


DAUPHIN ISLAND
DIVC-10-18
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DAUPHIN ISLAND
DIVC-10-18
2.0-4.0


DAUPHIN ISLAND
DIVC-10-18
4.0-6.0


DAUPHIN ISLAND
DIVC-10-18
6.0-8.0


COASTAL PLANNING
CPE
& ENGINEERING
DAUPHIN ISLAND
DIVC-10-18
8.0-10.0


COASTAL PLANNING
CPE
& ENGINEERING
DAUPHIN ISLAND
DIVC-10-18
10.0-12.0


COASTAL PLANNING
CPE
& ENGINEERING
DAUPHIN ISLAND
DIVC-10-18
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COASTAL PLANNING
CPE
& ENGINEERING
DAUPHIN ISLAND
DIVC-10-18
14.0-16.0


COASTAL PLANNING
CPE
& ENGINEERING
DAUPHIN ISLAND
DIVC-10-18
16.0-18.0


COASTAL PLANNING
CPE
& ENGINEERING
DAUPHIN ISLAND
DIVC-10-18
18.0-19.3


COASTAL PLANNING
CPE
& ENGINEERING
DAUPHIN ISLAND
DIVC-10-19
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COASTAL PLANNING
CPE
& ENGINEERING
DAUPHIN ISLAND
DIVC-10-19
2.0-4.0


COASTAL PLANNING
CPE
& ENGINEERING
DAUPHIN ISLAND
DIVC-10-19
4.0-6.0


COASTAL PLANNING
CPE
& ENGINEERING
DAUPHIN ISLAND
DIVC-10-19
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DAUPHIN ISLAND
DIVC-10-19
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DAUPHIN ISLAND
DIVC-10-19
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DAUPHIN ISLAND
DIVC-10-19
12.0-14.0


DAUPHIN ISLAND
DIVC-10-19
14.0-16.0


COASTAL PLANNING
CPE
& ENGINEERING
DAUPHIN ISLAND
DIVC-10-19
16.0-18.0


COASTAL PLANNING
CPE
& ENGINEERING
DAUPHIN ISLAND
DIVC-10-19
18.0-19.0


DAUPHIN ISLAND
DIVC-10-20
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DAUPHIN ISLAND
DIVC-10-20
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DAUPHIN ISLAND
DIVC-10-20
4.0-6.0


DAUPHIN ISLAND
DIVC-10-20
6.0-8.0


DAUPHIN ISLAND
DIVC-10-20
8.0 - 10.0


DAUPHIN ISLAND
DIVC-10-20
10.0 - 12.0


DAUPHIN ISLAND
DIVC-10-20
12.0 - 14.0


DAUPHIN ISLAND
DIVC-10-20
14.0 - 16.0


DAUPHIN ISLAND
DIVC-10-20
16.0 -18.0


DAUPHIN ISLAND
DIVC-10-20
18.0 -18.6


DAUPHIN ISLAND
DIVC-10-21
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DAUPHIN ISLAND
DIVC-10-21
2.0-4.0


DAUPHIN ISLAND
DIVC-10-21
4.0-6.0


DAUPHIN ISLAND
DIVC-10-21
6.0-8.0


DAUPHIN ISLAND
DIVC-10-21
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DAUPHIN ISLAND
DIVC-10-21
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DAUPHIN ISLAND
DIVC-10-21
12.0-14.0


DAUPHIN ISLAND
DIVC-10-21
14.0-16.0


COASTAL PLANNING
CPE
& ENGINEERING
DAUPHIN ISLAND
DIVC-10-21
16.0-18.0


COASTAL PLANNING
CPE
& ENGINEERING
DAUPHIN ISLAND
DIVC-10-21
18.0-18.6


COASTAL PLANNING
CPE
& ENGINEERING
DAUPHIN ISLAND
DIVC-10-22
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COASTAL PLANNING
CPE
& ENGINEERING
DAUPHIN ISLAND
DIVC-10-22
2.0-4.0


COASTAL PLANNING
CPE
& ENGINEERING
DAUPHIN ISLAND
DIVC-10-22
4.0-6.0


COASTAL PLANNING
CPE
& ENGINEERING
DAUPHIN ISLAND
DIVC-10-22
6.0-8.0


DAUPHIN ISLAND
DIVC-10-22
8.0-10.0


DAUPHIN ISLAND
DIVC-10-22
10.0-12.0


DAUPHIN ISLAND
DIVC-10-22
12.0-14.0


DAUPHIN ISLAND
DIVC-10-22
14.0-16.0


COASTAL PLANNING
CPE
& ENGINEERING
DAUPHIN ISLAND
DIVC-10-22
16.0 - 17.4


DAUPHIN ISLAND
DIVC-10-23
0.0 - 2.0


DAUPHIN ISLAND
DIVC-10-23
2.0 - 4.0


DAUPHIN ISLAND
DIVC-10-23
4.0 - 6.0


DAUPHIN ISLAND
DIVC-10-23
6.0 - 8.0


DAUPHIN ISLAND
DIVC-10-23
8.0 -10.0


DAUPHIN ISLAND
DIVC-10-23
10.0 -12.0


DAUPHIN ISLAND
DIVC-10-23
12.0 -14.0


DAUPHIN ISLAND
DIVC-10-23
14.0 -16.0


COASTAL PLANNING
CPE
& ENGINEERING
DAUPHIN ISLAND
DIVC-10-23
16.0 - 18.0


COASTAL PLANNING
CPE
& ENGINEERING
DAUPHIN ISLAND
DIVC-10-23
18.0 - 19.0


COASTAL PLANNING
CPE
& ENGINEERING
DAUPHIN ISLAND
DIVC-10-24
0.0 - 2.0


COASTAL PLANNING
CPE
& ENGINEERING
DAUPHIN ISLAND
DIVC-10-24
2.0 - 4.0


COASTAL PLANNING
CPE
& ENGINEERING
DAUPHIN ISLAND
DIVC-10-24
4.0 - 6.0


COASTAL PLANNING
CPE
& ENGINEERING
DAUPHIN ISLAND
DIVC-10-24
6.0 - 8.0


COASTAL PLANNING
CPE
& ENGINEERING
DAUPHIN ISLAND
DIVC-10-24
8.0-10.0


COASTAL PLANNING
CPE
& ENGINEERING
DAUPHIN ISLAND
DIVC-10-24
10.0-12.0


COASTAL PLANNING
CPE
& ENGINEERING
DAUPHIN ISLAND
DIVC-10-24
12.0-14.0


COASTAL PLANNING
CPE
& ENGINEERING
DAUPHIN ISLAND
DIVC-10-24
14.0-16.0


COASTAL PLANNING
CPE
& ENGINEERING
DAUPHIN ISLAND
DIVC-10-24
16.0-18.0


COASTAL PLANNING
CPE
& ENGINEERING
DAUPHIN ISLAND
DIVC-10-24
18.0-20.0


COASTAL PLANNING
CPE
& ENGINEERING
DAUPHIN ISLAND
DIVC-10-24
20.0-20.2


DAUPHIN ISLAND
DIVC-10-25
0.0 - 2.0


DAUPHIN ISLAND
DIVC-10-25
2.0 - 4.0


DAUPHIN ISLAND
DIVC-10-25
4.0 - 6.0


DAUPHIN ISLAND
DIVC-10-25
6.0 - 8.0


COASTAL PLANNING
CPE
& ENGINEERING
DAUPHIN ISLAND
DIVC-10-25
8.0 - 10.0


COASTAL PLANNING
CPE
& ENGINEERING
DAUPHIN ISLAND
DIVC-10-25
10.0 - 12.0


COASTAL PLANNING
CPE
& ENGINEERING
DAUPHIN ISLAND
DIVC-10-25
12.0 - 14.0


COASTAL PLANNING
CPE
& ENGINEERING
DAUPHIN ISLAND
DIVC-10-25
14.0 - 16.0


COASTAL PLANNING
CPE
& ENGINEERING
DAUPHIN ISLAND
DIVC-10-25
16.0 - 18.0


COASTAL PLANNING
CPE
& ENGINEERING
DAUPHIN ISLAND
DIVC-10-25
18.0 - 19.4


COASTAL PLANNING
CPE
& ENGINEERING
DAUPHIN ISLAND
DIVC-10-26
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COASTAL PLANNING
CPE
& ENGINEERING
DAUPHIN ISLAND
DIVC-10-26
2.0-4.0


COASTAL PLANNING
CPE
& ENGINEERING
DAUPHIN ISLAND
DIVC-10-26
4.0-6.0


COASTAL PLANNING
CPE
& ENGINEERING
DAUPHIN ISLAND
DIVC-10-26
6.0-8.0


DAUPHIN ISLAND
DIVC-10-26
8.0-10.0


DAUPHIN ISLAND
DIVC-10-26
10.0-12.0


DAUPHIN ISLAND
DIVC-10-26
12.0-14.0


DAUPHIN ISLAND
DIVC-10-26
14.0-16.0


COASTAL PLANNING
CPE
& ENGINEERING
DAUPHIN ISLAND
DIVC-10-26
16.0 - 18.0


COASTAL PLANNING
CPE
& ENGINEERING
DAUPHIN ISLAND
DIVC-10-26
18.0 - 19.3


COASTAL PLANNING
CPE
& ENGINEERING
DAUPHIN ISLAND
DIVC-10-27
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COASTAL PLANNING
CPE
& ENGINEERING
DAUPHIN ISLAND
DIVC-10-27
2.0-4.0


COASTAL PLANNING
CPE
& ENGINEERING
DAUPHIN ISLAND
DIVC-10-27
4.0-6.0


COASTAL PLANNING
CPE
& ENGINEERING
DAUPHIN ISLAND
DIVC-10-27
6.0-8.0


DAUPHIN ISLAND
DIVC-10-27
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DAUPHIN ISLAND
DIVC-10-27
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DAUPHIN ISLAND
DIVC-10-27
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DAUPHIN ISLAND
DIVC-10-27
14.0-16.0


COASTAL PLANNING
CPE
& ENGINEERING
DAUPHIN ISLAND
DIVC-10-27
16.0-18.0


COASTAL PLANNING
CPE
& ENGINEERING
DAUPHIN ISLAND
DIVC-10-27
18.0-19.2


DAUPHIN ISLAND
DIVC-10-28
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DAUPHIN ISLAND
DIVC-10-28
2.0 - 4.0


DAUPHIN ISLAND
DIVC-10-28
4.0 - 6.0


DAUPHIN ISLAND
DIVC-10-28
6.0 - 8.0


DAUPHIN ISLAND
DIVC-10-28
8.0 -10.0


DAUPHIN ISLAND
DIVC-10-28
10.0 -12.0


DAUPHIN ISLAND
DIVC-10-28
12.0 -14.0


DAUPHIN ISLAND
DIVC-10-28
14.0 -16.0


COASTAL PLANNING
CPE
& ENGINEERING
DAUPHIN ISLAND
DIVC-10-28
16.0 - 18.0


COASTAL PLANNING
CPE
& ENGINEERING
DAUPHIN ISLAND
DIVC-10-28
18.0 - 19.7


COASTAL PLANNING
CPE
& ENGINEERING
DAUPHIN ISLAND
DIVC-10-29
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COASTAL PLANNING
CPE
& ENGINEERING
DAUPHIN ISLAND
DIVC-10-29
2.0-4.0


COASTAL PLANNING
CPE
& ENGINEERING
DAUPHIN ISLAND
DIVC-10-29
4.0-6.0


COASTAL PLANNING
CPE
& ENGINEERING
DAUPHIN ISLAND
DIVC-10-29
6.0-8.0


COASTAL PLANNING
CPE
& ENGINEERING
DAUPHIN ISLAND
DIVC-10-29
8.0-10.0


COASTAL PLANNING
CPE
& ENGINEERING
DAUPHIN ISLAND
DIVC-10-29
10.0-12.0


COASTAL PLANNING
CPE
& ENGINEERING
DAUPHIN ISLAND
DIVC-10-29
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COASTAL PLANNING
CPE
& ENGINEERING
DAUPHIN ISLAND
DIVC-10-29
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COASTAL PLANNING
CPE
& ENGINEERING
DAUPHIN ISLAND
DIVC-10-29
16.0-18.0


COASTAL PLANNING
CPE
& ENGINEERING
DAUPHIN ISLAND
DIVC-10-29
18.0-20.0


COASTAL PLANNING
CPE
& ENGINEERING
DAUPHIN ISLAND
DIVC-10-29
20.0-20.1


DAUPHIN ISLAND
DIVC-10-30
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DAUPHIN ISLAND
DIVC-10-30
2.0 - 4.0


DAUPHIN ISLAND
DIVC-10-30
4.0 - 6.0


DAUPHIN ISLAND
DIVC-10-30
6.0 - 8.0


COASTAL PLANNING
CPE
& ENGINEERING
DAUPHIN ISLAND
DIVC-10-30
8.0-10.0


COASTAL PLANNING
CPE
& ENGINEERING
DAUPHIN ISLAND
DIVC-10-30
10.0-12.0


COASTAL PLANNING
CPE
& ENGINEERING
DAUPHIN ISLAND
DIVC-10-30
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COASTAL PLANNING
CPE
& ENGINEERING
DAUPHIN ISLAND
DIVC-10-30
14.0-16.0


COASTAL PLANNING
CPE
& ENGINEERING
DAUPHIN ISLAND
DIVC-10-30
16.0-18.0


COASTAL PLANNING
CPE
& ENGINEERING
DAUPHIN ISLAND
DIVC-10-30
18.0-19.6


COASTAL PLANNING
CPE
& ENGINEERING
DAUPHIN ISLAND
DIVC-10-31
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COASTAL PLANNING
CPE
& ENGINEERING
DAUPHIN ISLAND
DIVC-10-31
2.0 - 4.0


COASTAL PLANNING
CPE
& ENGINEERING
DAUPHIN ISLAND
DIVC-10-31
4.0 - 6.0


COASTAL PLANNING
CPE
& ENGINEERING
DAUPHIN ISLAND
DIVC-10-31
6.0 - 8.0


DAUPHIN ISLAND
DIVC-10-31
8.0 - 10.0


DAUPHIN ISLAND
DIVC-10-31
10.0 - 12.0


DAUPHIN ISLAND
DIVC-10-31
12.0 - 14.0


DAUPHIN ISLAND
DIVC-10-31
14.0 - 16.0


COASTAL PLANNING
CPE
& ENGINEERING
DAUPHIN ISLAND
DIVC-10-31
16.0 - 18.0


COASTAL PLANNING
CPE
& ENGINEERING
DAUPHIN ISLAND
DIVC-10-31
18.0 - 20.0


COASTAL PLANNING
CPE
& ENGINEERING
DAUPHIN ISLAND
DIVC-10-31
20.0 - 20.3


COASTAL PLANNING
CPE
& ENGINEERING
DAUPHIN ISLAND
DIVC-10-32
0.0 - 2.0


COASTAL PLANNING
CPE
& ENGINEERING
DAUPHIN ISLAND
DIVC-10-32
2.0 - 4.0


COASTAL PLANNING
CPE
& ENGINEERING
DAUPHIN ISLAND
DIVC-10-32
4.0 - 6.0


COASTAL PLANNING
CPE
& ENGINEERING
DAUPHIN ISLAND
DIVC-10-32
6.0 - 8.0


DAUPHIN ISLAND
DIVC-10-32
8.0-10.0


DAUPHIN ISLAND
DIVC-10-32
10.0-12.0


DAUPHIN ISLAND
DIVC-10-32
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DAUPHIN ISLAND
DIVC-10-32
14.0-16.0


DAUPHIN ISLAND
DIVC-10-32
16.0-17.9


COASTAL PLANNING
CPE
& ENGINEERING
DAUPHIN ISLAND
DIVC-10-33
0.0 - 2.0


COASTAL PLANNING
CPE
& ENGINEERING
DAUPHIN ISLAND
DIVC-10-33
2.0 - 4.0


COASTAL PLANNING
CPE
& ENGINEERING
DAUPHIN ISLAND
DIVC-10-33
4.0 - 6.0


COASTAL PLANNING
CPE
& ENGINEERING
DAUPHIN ISLAND
DIVC-10-33
6.0 - 8.0


DAUPHIN ISLAND
DIVC-10-33
8.0 -10.0


DAUPHIN ISLAND
DIVC-10-33
10.0 -12.0


DAUPHIN ISLAND
DIVC-10-33
12.0 -14.0


DAUPHIN ISLAND
DIVC-10-33
14.0 -16.0


DAUPHIN ISLAND
DIVC-10-33
16.0 -17.9


COASTAL PLANNING
CPE
& ENGINEERING
DAUPHIN ISLAND
DIVC-10-34
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COASTAL PLANNING
CPE
& ENGINEERING
DAUPHIN ISLAND
DIVC-10-34
2.0 - 4.0


COASTAL PLANNING
CPE
& ENGINEERING
DAUPHIN ISLAND
DIVC-10-34
4.0 - 6.0


COASTAL PLANNING
CPE
& ENGINEERING
DAUPHIN ISLAND
DIVC-10-34
6.0 - 8.0


DAUPHIN ISLAND
DIVC-10-34
8.0 -10.0


DAUPHIN ISLAND
DIVC-10-34
10.0 -12.0


DAUPHIN ISLAND
DIVC-10-34
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DAUPHIN ISLAND
DIVC-10-34
14.0 -16.0


COASTAL PLANNING
CPE
& ENGINEERING
DAUPHIN ISLAND
DIVC-10-34
16.0 -18.0


COASTAL PLANNING
CPE
& ENGINEERING
DAUPHIN ISLAND
DIVC-10-34
18.0 -19.9


DAUPHIN ISLAND
DIVC-10-35
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DAUPHIN ISLAND
DIVC-10-35
2.0-4.0


DAUPHIN ISLAND
DIVC-10-35
4.0-6.0


DAUPHIN ISLAND
DIVC-10-35
6.0-8.0


DAUPHIN ISLAND
DIVC-10-35
8.0-10.0


DAUPHIN ISLAND
DIVC-10-35
10.0-12.0


DAUPHIN ISLAND
DIVC-10-35
12.0-14.0


DAUPHIN ISLAND
DIVC-10-35
14.0-16.0


DAUPHIN ISLAND
DIVC-10-35
16.0-18.0


COASTAL PLANNING
CPE
& ENGINEERING
DAUPHIN ISLAND
DIVC-10-36
0.0 - 2.0


COASTAL PLANNING
CPE
& ENGINEERING
DAUPHIN ISLAND
DIVC-10-36
2.0 - 4.0


COASTAL PLANNING
CPE
& ENGINEERING
DAUPHIN ISLAND
DIVC-10-36
4.0 - 6.0


COASTAL PLANNING
CPE
& ENGINEERING
DAUPHIN ISLAND
DIVC-10-36
6.0 - 8.0


DAUPHIN ISLAND
DIVC-10-36
8.0 - 10.0


DAUPHIN ISLAND
DIVC-10-36
10.0 - 12.0


DAUPHIN ISLAND
DIVC-10-36
12.0 - 14.0


DAUPHIN ISLAND
DIVC-10-36
14.0 - 16.0


COASTAL PLANNING
CPE
& ENGINEERING
DAUPHIN ISLAND
DIVC-10-36
16.0 - 18.0


COASTAL PLANNING
CPE
& ENGINEERING
DAUPHIN ISLAND
DIVC-10-36
18.0 - 19.6


COASTAL PLANNING
CPE
& ENGINEERING
DAUPHIN ISLAND
DIVC-10-37
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COASTAL PLANNING
CPE
& ENGINEERING
DAUPHIN ISLAND
DIVC-10-37
2.0 - 4.0


COASTAL PLANNING
CPE
& ENGINEERING
DAUPHIN ISLAND
DIVC-10-37
4.0 - 6.0


COASTAL PLANNING
CPE
& ENGINEERING
DAUPHIN ISLAND
DIVC-10-37
6.0 - 8.0


COASTAL PLANNING
CPE
& ENGINEERING
DAUPHIN ISLAND
DIVC-10-37
8.0-10.0


COASTAL PLANNING
CPE
& ENGINEERING
DAUPHIN ISLAND
DIVC-10-37
10.0-12.0


COASTAL PLANNING
CPE
& ENGINEERING
DAUPHIN ISLAND
DIVC-10-37
12.0-14.0


COASTAL PLANNING
CPE
& ENGINEERING
DAUPHIN ISLAND
DIVC-10-37
14.0-16.0


COASTAL PLANNING
CPE
& ENGINEERING
DAUPHIN ISLAND
DIVC-10-37
16.0-18.0


COASTAL PLANNING
CPE
& ENGINEERING
DAUPHIN ISLAND
DIVC-10-37
18.0-20.0


DAUPHIN ISLAND
DIVC-11-01
0.0 - 2.0


DAUPHIN ISLAND
DIVC-11-01
2.0 - 4.0


DAUPHIN ISLAND
DIVC-11-01
4.0 - 6.0


DAUPHIN ISLAND
DIVC-11-01
6.0 - 8.0


DAUPHIN ISLAND
DIVC-11-01
8.0 - 10.0


DAUPHIN ISLAND
DIVC-11-01
10.0 - 12.0


DAUPHIN ISLAND
DIVC-11-01
12.0 - 14.0


DAUPHIN ISLAND
DIVC-11-01
14.0 - 15.5


COASTAL PLANNING
CPE
& ENGINEERING
DAUPHIN ISLAND
DIVC-11-02
0.0 - 2.0


COASTAL PLANNING
CPE
& ENGINEERING
DAUPHIN ISLAND
DIVC-11-02
2.0 - 4.0


COASTAL PLANNING
CPE
& ENGINEERING
DAUPHIN ISLAND
DIVC-11-02
4.0 - 6.0


COASTAL PLANNING
CPE
& ENGINEERING
DAUPHIN ISLAND
DIVC-11-02
6.0 - 8.0


DAUPHIN ISLAND
DIVC-11-02
8.0 - 10.0


DAUPHIN ISLAND
DIVC-11-02
10.0 - 12.0


DAUPHIN ISLAND
DIVC-11-02
12.0 - 14.0


DAUPHIN ISLAND
DIVC-11-02
14.0 - 15.0


DAUPHIN ISLAND
DIVC-11-03
0.0 - 2.0


DAUPHIN ISLAND
DIVC-11-03
2.0 - 4.0


DAUPHIN ISLAND
DIVC-11-03
4.0 - 6.0


DAUPHIN ISLAND
DIVC-11-03
6.0 - 8.0


DAUPHIN ISLAND
DIVC-11-03
8.0 - 10.0


DAUPHIN ISLAND
DIVC-11-03
10.0 - 12.0


DAUPHIN ISLAND
DIVC-11-03
12.0 - 14.0


DAUPHIN ISLAND
DIVC-11-03
14.0 - 16.0


COASTAL PLANNING
CPE
& ENGINEERING
DAUPHIN ISLAND
DIVC-11-03
16.0 - 18.0


COASTAL PLANNING
CPE
& ENGINEERING
DAUPHIN ISLAND
DIVC-11-03
18.0 - 20.0


DAU PHIN ISLAND
DIVC-11-04
0.0 - 2.0


DAU PHIN ISLAND
DIVC-11-04
2.0 - 4.0


DAU PHIN ISLAND
DIVC-11-04
4.0 - 6.0


DAU PHIN ISLAND
DIVC-11-04
6.0 - 8.0


DAU PHIN ISLAND
DIVC-11-04
8.0 - 10.0


DAU PHIN ISLAND
DIVC-11-04
10.0 - 12.0


DAUPHIN ISLAND
DIVC-11-04
12.0 - 14.0


DAUPHIN ISLAND
DIVC-11-04
14.0 - 14.2


DAUPHIN ISLAND
DIVC-11-05
0.0 - 2.0


DAUPHIN ISLAND
DIVC-11-05
2.0 - 4.0


DAUPHIN ISLAND
DIVC-11-05
4.0 - 6.0


DAUPHIN ISLAND
DIVC-11-05
6.0 - 8.0


DAUPHIN ISLAND
DIVC-11-05
8.0 -10.0


DAUPHIN ISLAND
DIVC-11-05
10.0 -12.0


DAUPHIN ISLAND
DIVC-11-05
12.0 -14.0


DAUPHIN ISLAND
DIVC-11-05
14.0 -15.2


DAUPHIN ISLAND
DIVC-11-06
0.0-2.0


DAUPHIN ISLAND
DIVC-11-06
2.0-4.0


DAUPHIN ISLAND
DIVC-11-06
4.0-6.0


DAUPHIN ISLAND
DIVC-11-06
6.0-8.0


DAUPHIN ISLAND
DIVC-11-06
8.0-10.0


DAUPHIN ISLAND
DIVC-11-06
10.0-12.0


DAUPHIN ISLAND
DIVC-11-06
12.0-14.0


DAUPHIN ISLAND
DIVC-11-06
14.0-16.0


DAUPHIN ISLAND
DIVC-11-06
16.0-18.0


DAUPHIN ISLAND
DIVC-11-06
18.0-19.4


DAUPHIN ISLAND
DIVC-11-07
0.0 - 2.0


DAUPHIN ISLAND
DIVC-11-07
2.0 - 4.0


DAUPHIN ISLAND
DIVC-11-07
4.0 - 6.0


DAUPHIN ISLAND
DIVC-11-07
6.0 - 8.0


DAUPHIN ISLAND
DIVC-11-07
8.0-10.0


DAUPHIN ISLAND
DIVC-11-07
10.0-12.0


DAUPHIN ISLAND
DIVC-11-07
12.0-14.0


DAUPHIN ISLAND
DIVC-11-07
14.0-16.0


DAUPHIN ISLAND
DIVC-11-07
16.0-18.0
COASTAL PLANNING
CPE
& ENGINEERING


DAUPHIN ISLAND
DIVC-11-07
18.0-18.9
COASTAL PLANNING
CPE
& ENGINEERING


DAUPHIN ISLAND
DIVC-11-08
0.0 - 2.0
COASTAL PLANNING
CPE
& ENGINEERING


DAUPHIN ISLAND
DIVC-11-08
2.0 - 4.0
COASTAL PLANNING
CPE
& ENGINEERING


DAUPHIN ISLAND
DIVC-11-08
4.0 - 4.4
COASTAL PLANNING
CPE
& ENGINEERING


DAUPHIN ISLAND
DIVC-11-09
0.0-2.0


DAUPHIN ISLAND
DIVC-11-09
2.0-4.0


DAUPHIN ISLAND
DIVC-11-09
4.0-6.0


DAUPHIN ISLAND
DIVC-11-09
6.0-8.0


DAUPHIN ISLAND
DIVC-11-09
8.0-10.0


DAUPHIN ISLAND
DIVC-11-09
10.0-12.0


DAUPHIN ISLAND
DIVC-11-09
12.0-14.0


DAUPHIN ISLAND
DIVC-11-09
14.0-14.1


DAUPHIN ISLAND
DIVC-11-10
0.0-2.0


DAUPHIN ISLAND
DIVC-11-10
2.0-3.6


DAUPHIN ISLAND
DIVC-11-11
0.0 - 2.0


DAUPHIN ISLAND
DIVC-11-11
2.0 - 4.0


DAUPHIN ISLAND
DIVC-11-11
4.0 - 6.0


DAUPHIN ISLAND
DIVC-11-11
6.0 - 8.0


DAUPHIN ISLAND
DIVC-11-11
8.0 - 10.0


DAUPHIN ISLAND
DIVC-11-11
10.0 - 12.0


DAUPHIN ISLAND
DIVC-11-11
12.0 - 14.0


DAUPHIN ISLAND
DIVC-11-11
14.0 - 16.0


DAUPHIN ISLAND
DIVC-11-11
16.0-17.9


DAUPHIN ISLAND
DIVC-11-12
0.0 - 2.0


DAUPHIN ISLAND
DIVC-11-12
2.0 - 4.0


DAUPHIN ISLAND
DIVC-11-12
4.0 - 6.0


DAUPHIN ISLAND
DIVC-11-12
6.0 - 8.0


DAUPHIN ISLAND
DIVC-11-12
8.0 - 10.0


DAUPHIN ISLAND
DIVC-11-12
10.0 - 12.0


DAUPHIN ISLAND
DIVC-11-12
12.0 - 14.0


DAUPHIN ISLAND
DIVC-11-12
14.0 - 16.0


DAUPHIN ISLAND
DIVC-11-12
16.0-18.0
COASTAL PLANNING
CPE
& ENGINEERING

APPENDIX 10
2010/2011 CPE Individual Vibracore Granularmetric Reports

Granularmetric Report

Depths and elevations based on measured values

Project Name: Dauphin Island Shore Protection

Sample Name: DIVC-10-01 #1

Analysis Date: 02-22-10

Analyzed By: GL

Coastal Planning & Engineering
2481 NW Boca Raton Blvd, Boca Raton
FL 33431
ph (561) 391-8102
fax (561) 391-9116

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
1,789,858	67,263	Alabama State Plane West	-15.5 NAVD 88

USCS:	Munsell:	Comments:
SP	Wet - 5Y-6/3 Dry - 5Y-7/2 Washed - 5Y-7/2	

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
117.07	115.47	0.00	0.00	#200 - 1.37 #230 - 1.36			1

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
5/8"	-4.00	16.00	0.00	0.00	0.00	0.00
7/16"	-3.50	11.31	0.00	0.00	0.00	0.00
5/16"	-3.00	8.00	0.00	0.00	0.00	0.00
3.5	-2.50	5.66	0.77	0.66	0.77	0.66
5	-2.00	4.00	0.18	0.15	0.95	0.81
7	-1.50	2.83	0.49	0.42	1.44	1.23
10	-1.00	2.00	0.85	0.73	2.29	1.96
14	-0.50	1.41	0.87	0.74	3.16	2.70
18	0.00	1.00	1.22	1.04	4.38	3.74
25	0.50	0.71	2.75	2.35	7.13	6.09
35	1.00	0.50	11.61	9.92	18.74	16.01
40	1.25	0.42	9.83	8.40	28.57	24.41
45	1.50	0.35	14.14	12.08	42.71	36.49
50	1.75	0.30	26.87	22.95	69.58	59.44
60	2.00	0.25	21.95	18.75	91.53	78.19
70	2.25	0.21	13.58	11.60	105.11	89.79
80	2.50	0.18	7.21	6.16	112.32	95.95
120	3.00	0.13	2.93	2.50	115.25	98.45
170	3.50	0.09	0.20	0.17	115.45	98.62
200	3.75	0.07	0.01	0.01	115.46	98.63
230	4.00	0.06	0.01	0.01	115.47	98.64

Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.46	2.13	1.96	1.65	1.26	1.00	0.27

Moment	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
Statistics	1.51	0.35	0.77	-2.2	11.27

ALABAMA DIVC-10.GPJ FL DEP ROSS.GDT 3/14/11

Granularmetric Report

Depths and elevations based on measured values

Project Name: Dauphin Island Shore Protection

Sample Name: DIVC-10-01 #2

Analysis Date: 02-23-10

Analyzed By: GL

Coastal Planning & Engineering
2481 NW Boca Raton Blvd, Boca Raton
FL 33431
ph (561) 391-8102
fax (561) 391-9116

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
1,789,858	67,263	Alabama State Plane West	-17.5 NAVD 88

USCS:	Munsell:	Comments:
SP	Wet - 5Y-6/2 Dry - 5Y-7/2 Washed - 5Y-7/2	

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
103.92	102.82	0.02	0.00	#200 - 1.09 #230 - 1.07			0

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
5/8"	-4.00	16.00	0.00	0.00	0.00	0.00
7/16"	-3.50	11.31	0.00	0.00	0.00	0.00
5/16"	-3.00	8.00	0.00	0.00	0.00	0.00
3.5	-2.50	5.66	0.00	0.00	0.00	0.00
5	-2.00	4.00	0.00	0.00	0.00	0.00
7	-1.50	2.83	0.07	0.07	0.07	0.07
10	-1.00	2.00	0.09	0.09	0.16	0.16
14	-0.50	1.41	0.21	0.20	0.37	0.36
18	0.00	1.00	0.20	0.19	0.57	0.55
25	0.50	0.71	0.31	0.30	0.88	0.85
35	1.00	0.50	2.22	2.14	3.10	2.99
40	1.25	0.42	6.48	6.24	9.58	9.23
45	1.50	0.35	12.21	11.75	21.79	20.98
50	1.75	0.30	28.10	27.04	49.89	48.02
60	2.00	0.25	24.74	23.81	74.63	71.83
70	2.25	0.21	15.34	14.76	89.97	86.59
80	2.50	0.18	8.90	8.56	98.87	95.15
120	3.00	0.13	3.65	3.51	102.52	98.66
170	3.50	0.09	0.22	0.21	102.74	98.87
200	3.75	0.07	0.04	0.04	102.78	98.91
230	4.00	0.06	0.02	0.02	102.80	98.93

Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.50	2.21	2.05	1.77	1.54	1.39	1.08

Moment	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
Statistics	1.77	0.29	0.46	-0.94	9.21

ALABAMA DIVC-10.GPJ FL DEP ROSS.GDT 3/14/11

Granularmetric Report

Depths and elevations based on measured values

Project Name: Dauphin Island Shore Protection

Sample Name: DIVC-10-01 #3

Analysis Date: 02-23-10

Analyzed By: GL

Coastal Planning & Engineering
2481 NW Boca Raton Blvd, Boca Raton
FL 33431
ph (561) 391-8102
fax (561) 391-9116

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
1,789,858	67,263	Alabama State Plane West	-18.8 NAVD 88

USCS:	Munsell:	Comments:
SP	Wet - 5Y-5/2 Dry - 5Y-7/1 Washed - 5Y-7/1	

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
105.05	103.89	0.00	0.00	#200 - 1.08 #230 - 1.07			0

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
5/8"	-4.00	16.00	0.00	0.00	0.00	0.00
7/16"	-3.50	11.31	0.00	0.00	0.00	0.00
5/16"	-3.00	8.00	0.00	0.00	0.00	0.00
3.5	-2.50	5.66	0.08	0.08	0.08	0.08
5	-2.00	4.00	0.06	0.06	0.14	0.14
7	-1.50	2.83	0.29	0.28	0.43	0.42
10	-1.00	2.00	0.49	0.47	0.92	0.89
14	-0.50	1.41	0.52	0.50	1.44	1.39
18	0.00	1.00	0.70	0.67	2.14	2.06
25	0.50	0.71	0.84	0.80	2.98	2.86
35	1.00	0.50	2.34	2.23	5.32	5.09
40	1.25	0.42	4.91	4.67	10.23	9.76
45	1.50	0.35	7.35	7.00	17.58	16.76
50	1.75	0.30	20.28	19.31	37.86	36.07
60	2.00	0.25	23.38	22.26	61.24	58.33
70	2.25	0.21	22.11	21.05	83.35	79.38
80	2.50	0.18	14.06	13.38	97.41	92.76
120	3.00	0.13	6.02	5.73	103.43	98.49
170	3.50	0.09	0.44	0.42	103.87	98.91
200	3.75	0.07	0.01	0.01	103.88	98.92
230	4.00	0.06	0.01	0.01	103.89	98.93

Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.70	2.34	2.20	1.91	1.61	1.47	0.98

Moment	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
Statistics	1.84	0.28	0.62	-2.28	13.33

ALABAMA DIVC-10.GPJ FL DEP ROSS.GDT 3/14/11

Granularmetric Report

Depths and elevations based on measured values

Project Name: Dauphin Island Shore Protection

Sample Name: DIVC-10-01 #4

Analysis Date: 02-23-10

Analyzed By: GL

Coastal Planning & Engineering
2481 NW Boca Raton Blvd, Boca Raton
FL 33431
ph (561) 391-8102
fax (561) 391-9116

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
1,789,858	67,263	Alabama State Plane West	-20.8 NAVD 88

USCS:	Munsell:	Comments:
SP	Wet - 5Y-6/1 Dry - 5Y-7/1 Washed - 5Y-7/1	

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
94.20	93.19	0.01	0.00	#200 - 1.13 #230 - 1.11			0

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
5/8"	-4.00	16.00	0.00	0.00	0.00	0.00
7/16"	-3.50	11.31	0.00	0.00	0.00	0.00
5/16"	-3.00	8.00	0.00	0.00	0.00	0.00
3.5	-2.50	5.66	0.00	0.00	0.00	0.00
5	-2.00	4.00	0.00	0.00	0.00	0.00
7	-1.50	2.83	0.03	0.03	0.03	0.03
10	-1.00	2.00	0.03	0.03	0.06	0.06
14	-0.50	1.41	0.03	0.03	0.09	0.09
18	0.00	1.00	0.04	0.04	0.13	0.13
25	0.50	0.71	0.07	0.07	0.20	0.20
35	1.00	0.50	0.14	0.15	0.34	0.35
40	1.25	0.42	0.27	0.29	0.61	0.64
45	1.50	0.35	0.80	0.85	1.41	1.49
50	1.75	0.30	3.15	3.34	4.56	4.83
60	2.00	0.25	12.40	13.16	16.96	17.99
70	2.25	0.21	27.04	28.70	44.00	46.69
80	2.50	0.18	33.19	35.23	77.19	81.92
120	3.00	0.13	15.43	16.38	92.62	98.30
170	3.50	0.09	0.35	0.37	92.97	98.67
200	3.75	0.07	0.19	0.20	93.16	98.87
230	4.00	0.06	0.02	0.02	93.18	98.89

Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.90	2.56	2.45	2.27	2.06	1.96	1.75

Moment	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
Statistics	2.26	0.21	0.35	-1.35	15.61

ALABAMA DIVC-10.GPJ FL DEP ROSS.GDT 3/14/11

Granularmetric Report

Depths and elevations based on measured values

Project Name: Dauphin Island Shore Protection

Sample Name: DIVC-10-01 #5

Analysis Date: 02-23-10

Analyzed By: GL

Coastal Planning & Engineering
2481 NW Boca Raton Blvd, Boca Raton
FL 33431
ph (561) 391-8102
fax (561) 391-9116

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
1,789,858	67,263	Alabama State Plane West	-24.3 NAVD 88

USCS:	Munsell:	Comments:
SW	Wet - 5Y-5/2 Dry - 5Y-6/2 Washed - 5Y-6/2	

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
96.76	93.75	0.02	0.00	#200 - 3.15 #230 - 3.13			0

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
5/8"	-4.00	16.00	0.00	0.00	0.00	0.00
7/16"	-3.50	11.31	1.81	1.87	1.81	1.87
5/16"	-3.00	8.00	0.00	0.00	1.81	1.87
3.5	-2.50	5.66	0.00	0.00	1.81	1.87
5	-2.00	4.00	0.02	0.02	1.83	1.89
7	-1.50	2.83	0.05	0.05	1.88	1.94
10	-1.00	2.00	0.13	0.13	2.01	2.07
14	-0.50	1.41	0.20	0.21	2.21	2.28
18	0.00	1.00	0.16	0.17	2.37	2.45
25	0.50	0.71	0.21	0.22	2.58	2.67
35	1.00	0.50	0.64	0.66	3.22	3.33
40	1.25	0.42	2.18	2.25	5.40	5.58
45	1.50	0.35	4.65	4.81	10.05	10.39
50	1.75	0.30	18.38	19.00	28.43	29.39
60	2.00	0.25	21.94	22.67	50.37	52.06
70	2.25	0.21	20.78	21.48	71.15	73.54
80	2.50	0.18	12.54	12.96	83.69	86.50
120	3.00	0.13	9.09	9.39	92.78	95.89
170	3.50	0.09	0.84	0.87	93.62	96.76
200	3.75	0.07	0.09	0.09	93.71	96.85
230	4.00	0.06	0.02	0.02	93.73	96.87

Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.95	2.45	2.28	1.98	1.69	1.57	1.19

Moment Statistics	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
	1.87	0.27	0.92	-4.43	27.29

ALABAMA DIVC-10.GPJ FL DEP ROSS.GDT 3/14/11

Granularmetric Report

Depths and elevations based on measured values

Project Name: Dauphin Island Shore Protection

Sample Name: DIVC-10-01 #6

Analysis Date: 02-23-10

Analyzed By: GL

Coastal Planning & Engineering
2481 NW Boca Raton Blvd, Boca Raton
FL 33431
ph (561) 391-8102
fax (561) 391-9116

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
1,789,858	67,263	Alabama State Plane West	-27.3 NAVD 88

USCS:	Munsell:	Comments:
SP	Wet - 5Y-5/2 Dry - 5Y-6/2 Washed - 5Y-7/1	

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
109.09	106.93	0.04	0.00	#200 - 2.13 #230 - 2.02			0

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
5/8"	-4.00	16.00	0.00	0.00	0.00	0.00
7/16"	-3.50	11.31	0.00	0.00	0.00	0.00
5/16"	-3.00	8.00	0.00	0.00	0.00	0.00
3.5	-2.50	5.66	0.00	0.00	0.00	0.00
5	-2.00	4.00	0.00	0.00	0.00	0.00
7	-1.50	2.83	0.04	0.04	0.04	0.04
10	-1.00	2.00	0.03	0.03	0.07	0.07
14	-0.50	1.41	0.02	0.02	0.09	0.09
18	0.00	1.00	0.04	0.04	0.13	0.13
25	0.50	0.71	0.10	0.09	0.23	0.22
35	1.00	0.50	0.56	0.51	0.79	0.73
40	1.25	0.42	2.01	1.84	2.80	2.57
45	1.50	0.35	6.73	6.17	9.53	8.74
50	1.75	0.30	26.02	23.85	35.55	32.59
60	2.00	0.25	25.06	22.97	60.61	55.56
70	2.25	0.21	16.95	15.54	77.56	71.10
80	2.50	0.18	17.47	16.01	95.03	87.11
120	3.00	0.13	10.80	9.90	105.83	97.01
170	3.50	0.09	0.80	0.73	106.63	97.74
200	3.75	0.07	0.14	0.13	106.77	97.87
230	4.00	0.06	0.12	0.11	106.89	97.98

Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.90	2.45	2.31	1.94	1.67	1.58	1.35

Moment	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
Statistics	1.98	0.25	0.45	-0.05	6.18

ALABAMA DIVC-10.GPJ FL DEP ROSS.GDT 3/14/11

Granularmetric Report

Depths and elevations based on measured values

Project Name: Dauphin Island Shore Protection

Sample Name: DIVC-10-01 #7

Analysis Date: 02-23-10

Analyzed By: GL

Coastal Planning & Engineering
2481 NW Boca Raton Blvd, Boca Raton
FL 33431
ph (561) 391-8102
fax (561) 391-9116

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
1,789,858	67,263	Alabama State Plane West	-29.8 NAVD 88

USCS:	Munsell:	Comments:
SP	Wet - 5Y-5/2 Dry - 5Y-7/1 Washed - 5Y-7/1	

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
95.79	94.76	0.01	0.00	#200 - 1.11 #230 - 1.10			0

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
5/8"	-4.00	16.00	0.00	0.00	0.00	0.00
7/16"	-3.50	11.31	0.00	0.00	0.00	0.00
5/16"	-3.00	8.00	0.00	0.00	0.00	0.00
3.5	-2.50	5.66	0.00	0.00	0.00	0.00
5	-2.00	4.00	0.00	0.00	0.00	0.00
7	-1.50	2.83	0.01	0.01	0.01	0.01
10	-1.00	2.00	0.01	0.01	0.02	0.02
14	-0.50	1.41	0.02	0.02	0.04	0.04
18	0.00	1.00	0.03	0.03	0.07	0.07
25	0.50	0.71	0.08	0.08	0.15	0.15
35	1.00	0.50	0.30	0.31	0.45	0.46
40	1.25	0.42	2.26	2.36	2.71	2.82
45	1.50	0.35	8.45	8.82	11.16	11.64
50	1.75	0.30	25.84	26.98	37.00	38.62
60	2.00	0.25	17.39	18.15	54.39	56.77
70	2.25	0.21	12.56	13.11	66.95	69.88
80	2.50	0.18	16.12	16.83	83.07	86.71
120	3.00	0.13	11.17	11.66	94.24	98.37
170	3.50	0.09	0.44	0.46	94.68	98.83
200	3.75	0.07	0.06	0.06	94.74	98.89
230	4.00	0.06	0.01	0.01	94.75	98.90

Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.86	2.46	2.33	1.91	1.62	1.54	1.31

Moment	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
Statistics	1.97	0.26	0.46	0.13	3.68

ALABAMA DIVC-10.GPJ FL DEP ROSS.GDT 3/14/11

Granularmetric Report

Depths and elevations based on measured values

Project Name: Dauphin Island Shore Protection

Sample Name: DIVC-10-01 #8

Analysis Date: 02-23-10

Analyzed By: GL

Coastal Planning & Engineering
2481 NW Boca Raton Blvd, Boca Raton
FL 33431
ph (561) 391-8102
fax (561) 391-9116

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
1,789,858	67,263	Alabama State Plane West	-32.5 NAVD 88

USCS:	Munsell:	Comments:
SP	Wet - 5Y-6/2 Dry - 5Y-7/1 Washed - 5Y-7/1	

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
96.96	95.45	0.01	0.00	#200 - 1.63 #230 - 1.58			0

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
5/8"	-4.00	16.00	0.00	0.00	0.00	0.00
7/16"	-3.50	11.31	0.00	0.00	0.00	0.00
5/16"	-3.00	8.00	0.00	0.00	0.00	0.00
3.5	-2.50	5.66	0.00	0.00	0.00	0.00
5	-2.00	4.00	0.00	0.00	0.00	0.00
7	-1.50	2.83	0.00	0.00	0.00	0.00
10	-1.00	2.00	0.00	0.00	0.00	0.00
14	-0.50	1.41	0.00	0.00	0.00	0.00
18	0.00	1.00	0.01	0.01	0.01	0.01
25	0.50	0.71	0.01	0.01	0.02	0.02
35	1.00	0.50	0.01	0.01	0.03	0.03
40	1.25	0.42	0.21	0.22	0.24	0.25
45	1.50	0.35	1.32	1.36	1.56	1.61
50	1.75	0.30	8.88	9.16	10.44	10.77
60	2.00	0.25	17.62	18.17	28.06	28.94
70	2.25	0.21	26.28	27.10	54.34	56.04
80	2.50	0.18	27.58	28.44	81.92	84.48
120	3.00	0.13	12.76	13.16	94.68	97.64
170	3.50	0.09	0.62	0.64	95.30	98.28
200	3.75	0.07	0.09	0.09	95.39	98.37
230	4.00	0.06	0.05	0.05	95.44	98.42

Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.90	2.50	2.42	2.19	1.95	1.82	1.59

Moment	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
Statistics	2.18	0.22	0.35	0.11	3.6

ALABAMA DIVC-10.GPJ FL DEP ROSS.GDT 3/14/11

Granularmetric Report

Depths and elevations based on measured values

Project Name: Dauphin Island Shore Protection

Sample Name: DIVC-10-01 #9

Analysis Date: 02-23-10

Analyzed By: GL

Coastal Planning & Engineering
2481 NW Boca Raton Blvd, Boca Raton
FL 33431
ph (561) 391-8102
fax (561) 391-9116

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
1,789,858	67,263	Alabama State Plane West	-33.8 NAVD 88

USCS:	Munsell:	Comments:
SP	Wet - 5Y-4/1 Dry - 5Y-6/2 Washed - 5Y-7/1	

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
92.18	89.97	0.05	0.01	#200 - 2.59 #230 - 2.48			0

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
5/8"	-4.00	16.00	0.00	0.00	0.00	0.00
7/16"	-3.50	11.31	0.00	0.00	0.00	0.00
5/16"	-3.00	8.00	0.00	0.00	0.00	0.00
3.5	-2.50	5.66	0.00	0.00	0.00	0.00
5	-2.00	4.00	0.00	0.00	0.00	0.00
7	-1.50	2.83	0.00	0.00	0.00	0.00
10	-1.00	2.00	0.00	0.00	0.00	0.00
14	-0.50	1.41	0.01	0.01	0.01	0.01
18	0.00	1.00	0.00	0.00	0.01	0.01
25	0.50	0.71	0.00	0.00	0.01	0.01
35	1.00	0.50	0.02	0.02	0.03	0.03
40	1.25	0.42	0.17	0.18	0.20	0.21
45	1.50	0.35	0.75	0.81	0.95	1.02
50	1.75	0.30	9.71	10.53	10.66	11.55
60	2.00	0.25	18.43	19.99	29.09	31.54
70	2.25	0.21	22.60	24.52	51.69	56.06
80	2.50	0.18	21.74	23.58	73.43	79.64
120	3.00	0.13	15.30	16.60	88.73	96.24
170	3.50	0.09	0.91	0.99	89.64	97.23
200	3.75	0.07	0.17	0.18	89.81	97.41
230	4.00	0.06	0.10	0.11	89.91	97.52

Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.96	2.63	2.45	2.19	1.92	1.81	1.59

Moment	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
Statistics	2.19	0.22	0.38	0.3	3.56

ALABAMA DIVC-10.GPJ FL DEP ROSS.GDT 3/14/11

Granularmetric Report

Depths and elevations based on measured values

Project Name: Dauphin Island Shore Protection

Sample Name: DIVC-10-02 #1

Analysis Date: 02-23-10

Analyzed By: GL

Coastal Planning & Engineering
2481 NW Boca Raton Blvd, Boca Raton
FL 33431
ph (561) 391-8102
fax (561) 391-9116

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
1,793,769	62,457	Alabama State Plane West	-33.3 NAVD 88

USCS:	Munsell:	Comments:
SP	Wet - 5Y-5/3 Dry - 5Y-6/2 Washed - 5Y-7/2	

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
94.69	93.56	0.01	0.00	#200 - 1.23 #230 - 1.21			0

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
5/8"	-4.00	16.00	0.00	0.00	0.00	0.00
7/16"	-3.50	11.31	0.00	0.00	0.00	0.00
5/16"	-3.00	8.00	0.00	0.00	0.00	0.00
3.5	-2.50	5.66	0.00	0.00	0.00	0.00
5	-2.00	4.00	0.00	0.00	0.00	0.00
7	-1.50	2.83	0.00	0.00	0.00	0.00
10	-1.00	2.00	0.00	0.00	0.00	0.00
14	-0.50	1.41	0.01	0.01	0.01	0.01
18	0.00	1.00	0.03	0.03	0.04	0.04
25	0.50	0.71	0.05	0.05	0.09	0.09
35	1.00	0.50	0.24	0.25	0.33	0.34
40	1.25	0.42	0.75	0.79	1.08	1.13
45	1.50	0.35	1.52	1.61	2.60	2.74
50	1.75	0.30	6.50	6.86	9.10	9.60
60	2.00	0.25	22.76	24.04	31.86	33.64
70	2.25	0.21	30.35	32.05	62.21	65.69
80	2.50	0.18	20.45	21.60	82.66	87.29
120	3.00	0.13	9.80	10.35	92.46	97.64
170	3.50	0.09	1.01	1.07	93.47	98.71
200	3.75	0.07	0.06	0.06	93.53	98.77
230	4.00	0.06	0.02	0.02	93.55	98.79

Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.87	2.46	2.36	2.13	1.91	1.82	1.58

Moment Statistics	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
	2.14	0.23	0.36	-0.03	5.44

ALABAMA DIVC-10.GPJ FL DEP ROSS.GDT 3/14/11

Granularmetric Report

Depths and elevations based on measured values

Project Name: Dauphin Island Shore Protection

Sample Name: DIVC-10-02 #2

Analysis Date: 02-23-10

Analyzed By: GL

Coastal Planning & Engineering
2481 NW Boca Raton Blvd, Boca Raton
FL 33431
ph (561) 391-8102
fax (561) 391-9116

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
1,793,769	62,457	Alabama State Plane West	-36.8 NAVD 88

USCS:	Munsell:	Comments:
SP	Wet - 5Y-5/1 Dry - 5Y-7/1 Washed - 5Y-7/1	

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
91.74	89.43	0.03	0.00	#200 - 2.66 #230 - 2.57			0

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
5/8"	-4.00	16.00	0.00	0.00	0.00	0.00
7/16"	-3.50	11.31	0.00	0.00	0.00	0.00
5/16"	-3.00	8.00	0.00	0.00	0.00	0.00
3.5	-2.50	5.66	0.00	0.00	0.00	0.00
5	-2.00	4.00	0.00	0.00	0.00	0.00
7	-1.50	2.83	0.01	0.01	0.01	0.01
10	-1.00	2.00	0.02	0.02	0.03	0.03
14	-0.50	1.41	0.03	0.03	0.06	0.06
18	0.00	1.00	0.05	0.05	0.11	0.11
25	0.50	0.71	0.05	0.05	0.16	0.16
35	1.00	0.50	0.10	0.11	0.26	0.27
40	1.25	0.42	0.22	0.24	0.48	0.51
45	1.50	0.35	0.12	0.13	0.60	0.64
50	1.75	0.30	1.72	1.87	2.32	2.51
60	2.00	0.25	3.72	4.05	6.04	6.56
70	2.25	0.21	8.24	8.98	14.28	15.54
80	2.50	0.18	17.66	19.25	31.94	34.79
120	3.00	0.13	50.11	54.62	82.05	89.41
170	3.50	0.09	6.88	7.50	88.93	96.91
200	3.75	0.07	0.39	0.43	89.32	97.34
230	4.00	0.06	0.08	0.09	89.40	97.43

Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
3.37	2.95	2.87	2.64	2.37	2.26	1.90

Moment Statistics	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
	2.59	0.17	0.39	-1.44	11.77

ALABAMA DIVC-10.GPJ FL DEP ROSS.GDT 3/14/11

Granularmetric Report

Depths and elevations based on measured values

Project Name: Dauphin Island Shore Protection

Sample Name: DIVC-10-02 #3

Analysis Date: 02-23-10

Analyzed By: GL

Coastal Planning & Engineering
2481 NW Boca Raton Blvd, Boca Raton
FL 33431
ph (561) 391-8102
fax (561) 391-9116

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
1,793,769	62,457	Alabama State Plane West	-40.3 NAVD 88

USCS:	Munsell:	Comments:
SP	Wet - 5Y-4/2 Dry - 5Y-6/1 Washed - 5Y-6/1	

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
104.49	99.91	0.15	0.00	#200 - 4.87 #230 - 4.52			0

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
5/8"	-4.00	16.00	0.00	0.00	0.00	0.00
7/16"	-3.50	11.31	0.00	0.00	0.00	0.00
5/16"	-3.00	8.00	0.00	0.00	0.00	0.00
3.5	-2.50	5.66	0.00	0.00	0.00	0.00
5	-2.00	4.00	0.00	0.00	0.00	0.00
7	-1.50	2.83	0.00	0.00	0.00	0.00
10	-1.00	2.00	0.00	0.00	0.00	0.00
14	-0.50	1.41	0.02	0.02	0.02	0.02
18	0.00	1.00	0.02	0.02	0.04	0.04
25	0.50	0.71	0.06	0.06	0.10	0.10
35	1.00	0.50	0.10	0.10	0.20	0.20
40	1.25	0.42	0.16	0.15	0.36	0.35
45	1.50	0.35	0.44	0.42	0.80	0.77
50	1.75	0.30	0.33	0.32	1.13	1.09
60	2.00	0.25	1.17	1.12	2.30	2.21
70	2.25	0.21	4.15	3.97	6.45	6.18
80	2.50	0.18	22.88	21.90	29.33	28.08
120	3.00	0.13	59.11	56.57	88.44	84.65
170	3.50	0.09	10.09	9.66	98.53	94.31
200	3.75	0.07	0.86	0.82	99.39	95.13
230	4.00	0.06	0.37	0.35	99.76	95.48

Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
3.71	2.99	2.91	2.69	2.46	2.36	2.18

Moment	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
Statistics	2.67	0.16	0.34	-0.83	10.15

ALABAMA DIVC-10.GPJ FL DEP ROSS.GDT 3/14/11

Granularmetric Report

Depths and elevations based on measured values

Project Name: Dauphin Island Shore Protection

Sample Name: DIVC-10-03 #1

Analysis Date: 02-23-10

Analyzed By: GL

Coastal Planning & Engineering
2481 NW Boca Raton Blvd, Boca Raton
FL 33431
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fax (561) 391-9116

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
1,789,459	64,265	Alabama State Plane West	-19.3 NAVD 88

USCS:	Munsell:	Comments:
SP	Wet - 5Y-6/3 Dry - 5Y-7/2 Washed - 5Y-7/2	

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
105.84	104.38	0.01	0.01	#200 - 1.42 #230 - 1.39			0

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
5/8"	-4.00	16.00	0.00	0.00	0.00	0.00
7/16"	-3.50	11.31	0.00	0.00	0.00	0.00
5/16"	-3.00	8.00	0.00	0.00	0.00	0.00
3.5	-2.50	5.66	0.00	0.00	0.00	0.00
5	-2.00	4.00	0.00	0.00	0.00	0.00
7	-1.50	2.83	0.11	0.10	0.11	0.10
10	-1.00	2.00	0.13	0.12	0.24	0.22
14	-0.50	1.41	0.13	0.12	0.37	0.34
18	0.00	1.00	0.24	0.23	0.61	0.57
25	0.50	0.71	0.62	0.59	1.23	1.16
35	1.00	0.50	2.91	2.75	4.14	3.91
40	1.25	0.42	3.72	3.51	7.86	7.42
45	1.50	0.35	4.78	4.52	12.64	11.94
50	1.75	0.30	19.33	18.26	31.97	30.20
60	2.00	0.25	15.98	15.10	47.95	45.30
70	2.25	0.21	20.63	19.49	68.58	64.79
80	2.50	0.18	19.83	18.74	88.41	83.53
120	3.00	0.13	15.24	14.40	103.65	97.93
170	3.50	0.09	0.62	0.59	104.27	98.52
200	3.75	0.07	0.06	0.06	104.33	98.58
230	4.00	0.06	0.03	0.03	104.36	98.61

Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.90	2.52	2.39	2.06	1.68	1.56	1.08

Moment	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
Statistics	2	0.25	0.56	-1.16	7.46

ALABAMA DIVC-10.GPJ FL DEP ROSS.GDT 3/14/11

Granularmetric Report

Depths and elevations based on measured values

Project Name: Dauphin Island Shore Protection

Sample Name: DIVC-10-03 #2

Analysis Date: 02-16-10

Analyzed By: PB

Coastal Planning & Engineering
2481 NW Boca Raton Blvd, Boca Raton
FL 33431
ph (561) 391-8102
fax (561) 391-9116

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
1,789,459	64,265	Alabama State Plane West	-20.9 NAVD 88

USCS:	Munsell:	Comments:
SP	Wet - 5Y-7/3 Dry - 2.5Y-7/2 Washed - 2.5Y-8/2	

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
106.06	104.70	0.01	0.00	#200 - 1.32 #230 - 1.30			0

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
5/8"	-4.00	16.00	0.00	0.00	0.00	0.00
7/16"	-3.50	11.31	0.00	0.00	0.00	0.00
5/16"	-3.00	8.00	0.00	0.00	0.00	0.00
3.5	-2.50	5.66	0.00	0.00	0.00	0.00
5	-2.00	4.00	0.37	0.35	0.37	0.35
7	-1.50	2.83	0.15	0.14	0.52	0.49
10	-1.00	2.00	0.36	0.34	0.88	0.83
14	-0.50	1.41	0.37	0.35	1.25	1.18
18	0.00	1.00	0.49	0.46	1.74	1.64
25	0.50	0.71	1.16	1.09	2.90	2.73
35	1.00	0.50	5.35	5.04	8.25	7.77
40	1.25	0.42	7.48	7.05	15.73	14.82
45	1.50	0.35	6.23	5.87	21.96	20.69
50	1.75	0.30	23.77	22.41	45.73	43.10
60	2.00	0.25	23.96	22.59	69.69	65.69
70	2.25	0.21	18.03	17.00	87.72	82.69
80	2.50	0.18	10.83	10.21	98.55	92.90
120	3.00	0.13	5.84	5.51	104.39	98.41
170	3.50	0.09	0.26	0.25	104.65	98.66
200	3.75	0.07	0.02	0.02	104.67	98.68
230	4.00	0.06	0.02	0.02	104.69	98.70

Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.69	2.28	2.14	1.83	1.55	1.30	0.73

Moment	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
Statistics	1.76	0.30	0.63	-1.99	11.92

ALABAMA DIVC-10.GPJ FL DEP ROSS.GDT 3/14/11

Granularmetric Report

Depths and elevations based on measured values

Project Name: Dauphin Island Shore Protection

Sample Name: DIVC-10-03 #3

Analysis Date: 02-23-10

Analyzed By: GL

Coastal Planning & Engineering
2481 NW Boca Raton Blvd, Boca Raton
FL 33431
ph (561) 391-8102
fax (561) 391-9116

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
1,789,459	64,265	Alabama State Plane West	-23.8 NAVD 88

USCS:	Munsell:	Comments:
SP	Wet - 5Y-6/1 Dry - 5Y-7/1 Washed - 5Y-7/1	

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
98.29	97.31	0.01	0.00	#200 - 1.04 #230 - 1.02			0

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
5/8"	-4.00	16.00	0.00	0.00	0.00	0.00
7/16"	-3.50	11.31	0.00	0.00	0.00	0.00
5/16"	-3.00	8.00	0.00	0.00	0.00	0.00
3.5	-2.50	5.66	0.00	0.00	0.00	0.00
5	-2.00	4.00	0.00	0.00	0.00	0.00
7	-1.50	2.83	0.00	0.00	0.00	0.00
10	-1.00	2.00	0.05	0.05	0.05	0.05
14	-0.50	1.41	0.04	0.04	0.09	0.09
18	0.00	1.00	0.07	0.07	0.16	0.16
25	0.50	0.71	0.24	0.24	0.40	0.40
35	1.00	0.50	2.02	2.06	2.42	2.46
40	1.25	0.42	4.58	4.66	7.00	7.12
45	1.50	0.35	8.32	8.46	15.32	15.58
50	1.75	0.30	20.77	21.13	36.09	36.71
60	2.00	0.25	22.41	22.80	58.50	59.51
70	2.25	0.21	18.49	18.81	76.99	78.32
80	2.50	0.18	13.29	13.52	90.28	91.84
120	3.00	0.13	6.51	6.62	96.79	98.46
170	3.50	0.09	0.44	0.45	97.23	98.91
200	3.75	0.07	0.05	0.05	97.28	98.96
230	4.00	0.06	0.02	0.02	97.30	98.98

Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.74	2.36	2.21	1.90	1.61	1.50	1.14

Moment	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
Statistics	1.89	0.27	0.46	-0.36	5.07

ALABAMA DIVC-10.GPJ FL DEP ROSS.GDT 3/14/11

Granularmetric Report

Depths and elevations based on measured values

Project Name: Dauphin Island Shore Protection

Sample Name: DIVC-10-03 #4

Analysis Date: 02-16-10

Analyzed By: PB

Coastal Planning & Engineering
2481 NW Boca Raton Blvd, Boca Raton
FL 33431
ph (561) 391-8102
fax (561) 391-9116

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
1,789,459	64,265	Alabama State Plane West	-26.0 NAVD 88

USCS:	Munsell:	Comments:
SP	Wet - 5Y-7/1 Dry - 2.5Y-8/1 Washed - 2.5Y-8/1	

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
101.40	100.00	0.02	0.10	#200 - 1.53 #230 - 1.49			1

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
5/8"	-4.00	16.00	0.00	0.00	0.00	0.00
7/16"	-3.50	11.31	0.00	0.00	0.00	0.00
5/16"	-3.00	8.00	0.00	0.00	0.00	0.00
3.5	-2.50	5.66	0.04	0.04	0.04	0.04
5	-2.00	4.00	0.50	0.49	0.54	0.53
7	-1.50	2.83	0.33	0.33	0.87	0.86
10	-1.00	2.00	0.42	0.41	1.29	1.27
14	-0.50	1.41	0.45	0.44	1.74	1.71
18	0.00	1.00	0.64	0.63	2.38	2.34
25	0.50	0.71	1.35	1.33	3.73	3.67
35	1.00	0.50	6.36	6.27	10.09	9.94
40	1.25	0.42	10.28	10.14	20.37	20.08
45	1.50	0.35	10.72	10.57	31.09	30.65
50	1.75	0.30	30.70	30.28	61.79	60.93
60	2.00	0.25	19.14	18.88	80.93	79.81
70	2.25	0.21	10.36	10.22	91.29	90.03
80	2.50	0.18	5.28	5.21	96.57	95.24
120	3.00	0.13	2.88	2.84	99.45	98.08
170	3.50	0.09	0.33	0.33	99.78	98.41
200	3.75	0.07	0.06	0.06	99.84	98.47
230	4.00	0.06	0.04	0.04	99.88	98.51

Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.49	2.10	1.94	1.66	1.37	1.15	0.61

Moment Statistics	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
	1.58	0.33	0.65	-2.13	12.81

ALABAMA DIVC-10.GPJ FL DEP ROSS.GDT 3/14/11

Granularmetric Report

Depths and elevations based on measured values

Project Name: Dauphin Island Shore Protection

Sample Name: DIVC-10-03 #5

Analysis Date: 02-16-10

Analyzed By: GL

Coastal Planning & Engineering
2481 NW Boca Raton Blvd, Boca Raton
FL 33431
ph (561) 391-8102
fax (561) 391-9116

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
1,789,459	64,265	Alabama State Plane West	-30.8 NAVD 88

USCS:	Munsell:	Comments:
SP	Wet - 5Y-6/1 Dry - 2.5Y-7/1 Washed - 2.5Y-7/1	

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
100.88	99.62	0.02	0.02	#200 - 1.30 #230 - 1.28			0

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
5/8"	-4.00	16.00	0.00	0.00	0.00	0.00
7/16"	-3.50	11.31	0.00	0.00	0.00	0.00
5/16"	-3.00	8.00	0.00	0.00	0.00	0.00
3.5	-2.50	5.66	0.00	0.00	0.00	0.00
5	-2.00	4.00	0.00	0.00	0.00	0.00
7	-1.50	2.83	0.01	0.01	0.01	0.01
10	-1.00	2.00	0.01	0.01	0.02	0.02
14	-0.50	1.41	0.02	0.02	0.04	0.04
18	0.00	1.00	0.02	0.02	0.06	0.06
25	0.50	0.71	0.05	0.05	0.11	0.11
35	1.00	0.50	0.12	0.12	0.23	0.23
40	1.25	0.42	0.20	0.20	0.43	0.43
45	1.50	0.35	0.35	0.35	0.78	0.78
50	1.75	0.30	1.99	1.97	2.77	2.75
60	2.00	0.25	6.05	6.00	8.82	8.75
70	2.25	0.21	15.95	15.81	24.77	24.56
80	2.50	0.18	30.25	29.99	55.02	54.55
120	3.00	0.13	41.38	41.02	96.40	95.57
170	3.50	0.09	3.00	2.97	99.40	98.54
200	3.75	0.07	0.16	0.16	99.56	98.70
230	4.00	0.06	0.02	0.02	99.58	98.72

Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.99	2.86	2.75	2.46	2.25	2.11	1.84

Moment	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
Statistics	2.46	0.18	0.36	-0.99	8.9

ALABAMA DIVC-10.GPJ FL DEP ROSS.GDT 3/14/11

Granularmetric Report

Depths and elevations based on measured values

Project Name: Dauphin Island Shore Protection

Sample Name: DIVC-10-03 #6

Analysis Date: 02-24-10

Analyzed By: GL

Coastal Planning & Engineering
2481 NW Boca Raton Blvd, Boca Raton
FL 33431
ph (561) 391-8102
fax (561) 391-9116

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
1,789,459	64,265	Alabama State Plane West	-33.8 NAVD 88

USCS:	Munsell:	Comments:
SP	Wet - 5Y-5/1 Dry - 5Y-6/1 Washed - 5Y-6/1	

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
99.50	97.99	0.08	0.00	#200 - 1.71 #230 - 1.61			0

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
5/8"	-4.00	16.00	0.00	0.00	0.00	0.00
7/16"	-3.50	11.31	0.00	0.00	0.00	0.00
5/16"	-3.00	8.00	0.00	0.00	0.00	0.00
3.5	-2.50	5.66	0.00	0.00	0.00	0.00
5	-2.00	4.00	0.02	0.02	0.02	0.02
7	-1.50	2.83	0.07	0.07	0.09	0.09
10	-1.00	2.00	0.21	0.21	0.30	0.30
14	-0.50	1.41	0.29	0.29	0.59	0.59
18	0.00	1.00	0.30	0.30	0.89	0.89
25	0.50	0.71	0.30	0.30	1.19	1.19
35	1.00	0.50	0.38	0.38	1.57	1.57
40	1.25	0.42	0.64	0.64	2.21	2.21
45	1.50	0.35	0.52	0.52	2.73	2.73
50	1.75	0.30	2.82	2.83	5.55	5.56
60	2.00	0.25	6.02	6.05	11.57	11.61
70	2.25	0.21	11.40	11.46	22.97	23.07
80	2.50	0.18	21.70	21.81	44.67	44.88
120	3.00	0.13	43.69	43.91	88.36	88.79
170	3.50	0.09	9.03	9.08	97.39	97.87
200	3.75	0.07	0.42	0.42	97.81	98.29
230	4.00	0.06	0.10	0.10	97.91	98.39

Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
3.34	2.95	2.84	2.56	2.27	2.10	1.70

Moment Statistics	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
	2.49	0.18	0.55	-2.51	16.19

ALABAMA DIVC-10.GPJ FL DEP ROSS.GDT 3/14/11

Granularmetric Report

Depths and elevations based on measured values

Project Name: Dauphin Island Shore Protection

Sample Name: DIVC-10-03 #7

Analysis Date: 02-24-10

Analyzed By: GL

Coastal Planning & Engineering
2481 NW Boca Raton Blvd, Boca Raton
FL 33431
ph (561) 391-8102
fax (561) 391-9116

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
1,789,459	64,265	Alabama State Plane West	-36.6 NAVD 88

USCS:	Munsell:	Comments:
SP	Wet - 5Y-6/1 Dry - 5Y-7/1 Washed - 5Y-7/1	

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
95.87	94.19	0.02	0.00	#200 - 1.82 #230 - 1.78			0

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
5/8"	-4.00	16.00	0.00	0.00	0.00	0.00
7/16"	-3.50	11.31	0.00	0.00	0.00	0.00
5/16"	-3.00	8.00	0.00	0.00	0.00	0.00
3.5	-2.50	5.66	0.00	0.00	0.00	0.00
5	-2.00	4.00	0.00	0.00	0.00	0.00
7	-1.50	2.83	0.00	0.00	0.00	0.00
10	-1.00	2.00	0.02	0.02	0.02	0.02
14	-0.50	1.41	0.03	0.03	0.05	0.05
18	0.00	1.00	0.02	0.02	0.07	0.07
25	0.50	0.71	0.04	0.04	0.11	0.11
35	1.00	0.50	0.14	0.15	0.25	0.26
40	1.25	0.42	0.27	0.28	0.52	0.54
45	1.50	0.35	0.40	0.42	0.92	0.96
50	1.75	0.30	4.19	4.37	5.11	5.33
60	2.00	0.25	10.54	10.99	15.65	16.32
70	2.25	0.21	20.46	21.34	36.11	37.66
80	2.50	0.18	31.18	32.52	67.29	70.18
120	3.00	0.13	25.17	26.25	92.46	96.43
170	3.50	0.09	1.55	1.62	94.01	98.05
200	3.75	0.07	0.12	0.13	94.13	98.18
230	4.00	0.06	0.04	0.04	94.17	98.22

Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.97	2.76	2.59	2.34	2.10	1.99	1.73

Moment Statistics	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
	2.33	0.20	0.37	-0.65	7.28

ALABAMA DIVC-10.GPJ FL DEP ROSS.GDT 3/14/11

Granularmetric Report

Depths and elevations based on measured values

Project Name: Dauphin Island Shore Protection

Sample Name: DIVC-10-04 #1

Analysis Date: 02-23-10

Analyzed By: GL

Coastal Planning & Engineering
2481 NW Boca Raton Blvd, Boca Raton
FL 33431
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fax (561) 391-9116

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
1,787,891	59,735	Alabama State Plane West	-23.2 NAVD 88

USCS:	Munsell:	Comments:
SP	Wet - 5Y-6/3 Dry - 5Y-7/2 Washed - 5Y-7/2	

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
95.75	94.62	0.02	0.01	#200 - 1.24 #230 - 1.22			0

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
5/8"	-4.00	16.00	0.00	0.00	0.00	0.00
7/16"	-3.50	11.31	0.00	0.00	0.00	0.00
5/16"	-3.00	8.00	0.00	0.00	0.00	0.00
3.5	-2.50	5.66	0.00	0.00	0.00	0.00
5	-2.00	4.00	0.04	0.04	0.04	0.04
7	-1.50	2.83	0.06	0.06	0.10	0.10
10	-1.00	2.00	0.05	0.05	0.15	0.15
14	-0.50	1.41	0.04	0.04	0.19	0.19
18	0.00	1.00	0.06	0.06	0.25	0.25
25	0.50	0.71	0.20	0.21	0.45	0.46
35	1.00	0.50	1.03	1.08	1.48	1.54
40	1.25	0.42	1.30	1.36	2.78	2.90
45	1.50	0.35	2.74	2.86	5.52	5.76
50	1.75	0.30	9.18	9.59	14.70	15.35
60	2.00	0.25	15.78	16.48	30.48	31.83
70	2.25	0.21	19.33	20.19	49.81	52.02
80	2.50	0.18	20.51	21.42	70.32	73.44
120	3.00	0.13	22.79	23.80	93.11	97.24
170	3.50	0.09	1.41	1.47	94.52	98.71
200	3.75	0.07	0.05	0.05	94.57	98.76
230	4.00	0.06	0.02	0.02	94.59	98.78

Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.95	2.72	2.53	2.22	1.90	1.76	1.43

Moment	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
Statistics	2.19	0.22	0.5	-1.3	10.05

ALABAMA DIVC-10.GPJ FL DEP ROSS.GDT 3/14/11

Granularmetric Report

Depths and elevations based on measured values

Project Name: Dauphin Island Shore Protection

Sample Name: DIVC-10-04 #2

Analysis Date: 02-23-10

Analyzed By: GL

Coastal Planning & Engineering
2481 NW Boca Raton Blvd, Boca Raton
FL 33431
ph (561) 391-8102
fax (561) 391-9116

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
1,787,891	59,735	Alabama State Plane West	-27.1 NAVD 88

USCS:	Munsell:	Comments:
SP	Wet - 5Y-6/1 Dry - 5Y-7/1 Washed - 5Y-7/1	

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
107.92	106.80	0.01	0.00	#200 - 1.06 #230 - 1.04			0

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
5/8"	-4.00	16.00	0.00	0.00	0.00	0.00
7/16"	-3.50	11.31	0.00	0.00	0.00	0.00
5/16"	-3.00	8.00	0.00	0.00	0.00	0.00
3.5	-2.50	5.66	0.00	0.00	0.00	0.00
5	-2.00	4.00	0.00	0.00	0.00	0.00
7	-1.50	2.83	0.05	0.05	0.05	0.05
10	-1.00	2.00	0.16	0.15	0.21	0.20
14	-0.50	1.41	0.11	0.10	0.32	0.30
18	0.00	1.00	0.18	0.17	0.50	0.47
25	0.50	0.71	0.32	0.30	0.82	0.77
35	1.00	0.50	1.18	1.09	2.00	1.86
40	1.25	0.42	2.12	1.96	4.12	3.82
45	1.50	0.35	4.69	4.35	8.81	8.17
50	1.75	0.30	12.59	11.67	21.40	19.84
60	2.00	0.25	19.22	17.81	40.62	37.65
70	2.25	0.21	25.55	23.67	66.17	61.32
80	2.50	0.18	26.29	24.36	92.46	85.68
120	3.00	0.13	13.31	12.33	105.77	98.01
170	3.50	0.09	0.94	0.87	106.71	98.88
200	3.75	0.07	0.06	0.06	106.77	98.94
230	4.00	0.06	0.02	0.02	106.79	98.96

Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.88	2.48	2.39	2.13	1.82	1.67	1.32

Moment	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
Statistics	2.08	0.24	0.48	-1.39	10.08

ALABAMA DIVC-10.GPJ FL DEP ROSS.GDT 3/14/11

Granularmetric Report

Depths and elevations based on measured values

Project Name: Dauphin Island Shore Protection

Sample Name: DIVC-10-04 #3

Analysis Date: 02-24-10

Analyzed By: GL

Coastal Planning & Engineering
2481 NW Boca Raton Blvd, Boca Raton
FL 33431
ph (561) 391-8102
fax (561) 391-9116

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
1,787,891	59,735	Alabama State Plane West	-30.1 NAVD 88

USCS:	Munsell:	Comments:
SP	Wet - 5Y-6/1 Dry - 5Y-7/1 Washed - 5Y-7/1	

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
91.73	90.62	0.01	0.00	#200 - 1.23 #230 - 1.22			0

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
5/8"	-4.00	16.00	0.00	0.00	0.00	0.00
7/16"	-3.50	11.31	0.00	0.00	0.00	0.00
5/16"	-3.00	8.00	0.00	0.00	0.00	0.00
3.5	-2.50	5.66	0.00	0.00	0.00	0.00
5	-2.00	4.00	0.00	0.00	0.00	0.00
7	-1.50	2.83	0.00	0.00	0.00	0.00
10	-1.00	2.00	0.07	0.08	0.07	0.08
14	-0.50	1.41	0.15	0.16	0.22	0.24
18	0.00	1.00	0.10	0.11	0.32	0.35
25	0.50	0.71	0.18	0.20	0.50	0.55
35	1.00	0.50	0.50	0.55	1.00	1.10
40	1.25	0.42	0.89	0.97	1.89	2.07
45	1.50	0.35	2.12	2.31	4.01	4.38
50	1.75	0.30	6.02	6.56	10.03	10.94
60	2.00	0.25	15.06	16.42	25.09	27.36
70	2.25	0.21	24.98	27.23	50.07	54.59
80	2.50	0.18	26.45	28.83	76.52	83.42
120	3.00	0.13	13.40	14.61	89.92	98.03
170	3.50	0.09	0.64	0.70	90.56	98.73
200	3.75	0.07	0.04	0.04	90.60	98.77
230	4.00	0.06	0.01	0.01	90.61	98.78

Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.90	2.52	2.43	2.21	1.96	1.83	1.52

Moment	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
Statistics	2.18	0.22	0.42	-1.53	11.57

ALABAMA DIVC-10.GPJ FL DEP ROSS.GDT 3/14/11

Granularmetric Report

Depths and elevations based on measured values

Project Name: Dauphin Island Shore Protection

Sample Name: DIVC-10-04 #4

Analysis Date: 02-23-10

Analyzed By: GL

Coastal Planning & Engineering
2481 NW Boca Raton Blvd, Boca Raton
FL 33431
ph (561) 391-8102
fax (561) 391-9116

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
1,787,891	59,735	Alabama State Plane West	-34.2 NAVD 88

USCS:	Munsell:	Comments:
SP	Wet - 5Y-5/2 Dry - 5Y-7/1 Washed - 5Y-7/1	

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
95.07	93.34	0.03	0.00	#200 - 1.90 #230 - 1.86			0

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
5/8"	-4.00	16.00	0.00	0.00	0.00	0.00
7/16"	-3.50	11.31	0.00	0.00	0.00	0.00
5/16"	-3.00	8.00	0.00	0.00	0.00	0.00
3.5	-2.50	5.66	0.00	0.00	0.00	0.00
5	-2.00	4.00	0.00	0.00	0.00	0.00
7	-1.50	2.83	0.02	0.02	0.02	0.02
10	-1.00	2.00	0.02	0.02	0.04	0.04
14	-0.50	1.41	0.05	0.05	0.09	0.09
18	0.00	1.00	0.06	0.06	0.15	0.15
25	0.50	0.71	0.09	0.09	0.24	0.24
35	1.00	0.50	0.19	0.20	0.43	0.44
40	1.25	0.42	0.31	0.33	0.74	0.77
45	1.50	0.35	0.46	0.48	1.20	1.25
50	1.75	0.30	2.82	2.97	4.02	4.22
60	2.00	0.25	5.40	5.68	9.42	9.90
70	2.25	0.21	10.24	10.77	19.66	20.67
80	2.50	0.18	19.39	20.40	39.05	41.07
120	3.00	0.13	47.51	49.97	86.56	91.04
170	3.50	0.09	6.47	6.81	93.03	97.85
200	3.75	0.07	0.24	0.25	93.27	98.10
230	4.00	0.06	0.04	0.04	93.31	98.14

Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
3.29	2.93	2.84	2.59	2.30	2.14	1.78

Moment Statistics	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
	2.53	0.17	0.42	-1.49	10.7

ALABAMA DIVC-10.GPJ FL DEP ROSS.GDT 3/14/11

Granularmetric Report

Depths and elevations based on measured values

Project Name: Dauphin Island Shore Protection

Sample Name: DIVC-10-04 #5

Analysis Date: 02-24-10

Analyzed By: GL

Coastal Planning & Engineering
2481 NW Boca Raton Blvd, Boca Raton
FL 33431
ph (561) 391-8102
fax (561) 391-9116

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
1,787,891	59,735	Alabama State Plane West	-37.1 NAVD 88

USCS:	Munsell:	Comments:
SP	Wet - 5Y-6/1 Dry - 5Y-7/1 Washed - 5Y-7/1	

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
97.15	95.82	0.07	0.00	#200 - 1.47 #230 - 1.45			0

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
5/8"	-4.00	16.00	0.00	0.00	0.00	0.00
7/16"	-3.50	11.31	0.00	0.00	0.00	0.00
5/16"	-3.00	8.00	0.00	0.00	0.00	0.00
3.5	-2.50	5.66	0.00	0.00	0.00	0.00
5	-2.00	4.00	0.00	0.00	0.00	0.00
7	-1.50	2.83	0.00	0.00	0.00	0.00
10	-1.00	2.00	0.04	0.04	0.04	0.04
14	-0.50	1.41	0.08	0.08	0.12	0.12
18	0.00	1.00	0.09	0.09	0.21	0.21
25	0.50	0.71	0.18	0.19	0.39	0.40
35	1.00	0.50	1.30	1.34	1.69	1.74
40	1.25	0.42	2.46	2.53	4.15	4.27
45	1.50	0.35	5.55	5.71	9.70	9.98
50	1.75	0.30	11.17	11.50	20.87	21.48
60	2.00	0.25	13.52	13.92	34.39	35.40
70	2.25	0.21	21.57	22.20	55.96	57.60
80	2.50	0.18	21.78	22.42	77.74	80.02
120	3.00	0.13	16.71	17.20	94.45	97.22
170	3.50	0.09	1.18	1.21	95.63	98.43
200	3.75	0.07	0.10	0.10	95.73	98.53
230	4.00	0.06	0.02	0.02	95.75	98.55

Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.94	2.62	2.44	2.16	1.81	1.63	1.28

Moment	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
Statistics	2.12	0.23	0.5	-0.72	5.2

ALABAMA DIVC-10.GPJ FL DEP ROSS.GDT 3/14/11

Granularmetric Report

Depths and elevations based on measured values

Project Name: Dauphin Island Shore Protection

Sample Name: DIVC-10-05 #1

Analysis Date: 02-23-10

Analyzed By: GL

Coastal Planning & Engineering
2481 NW Boca Raton Blvd, Boca Raton
FL 33431
ph (561) 391-8102
fax (561) 391-9116

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
1,782,592	57,111	Alabama State Plane West	-34.6 NAVD 88

USCS:	Munsell:	Comments:
SP	Wet - 5Y-6/2 Dry - 5Y-7/1 Washed - 5Y-7/1	

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
97.42	96.21	0.01	0.00	#200 - 1.31 #230 - 1.27			0

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
5/8"	-4.00	16.00	0.00	0.00	0.00	0.00
7/16"	-3.50	11.31	0.00	0.00	0.00	0.00
5/16"	-3.00	8.00	0.00	0.00	0.00	0.00
3.5	-2.50	5.66	0.00	0.00	0.00	0.00
5	-2.00	4.00	0.14	0.14	0.14	0.14
7	-1.50	2.83	0.03	0.03	0.17	0.17
10	-1.00	2.00	0.18	0.18	0.35	0.35
14	-0.50	1.41	0.20	0.21	0.55	0.56
18	0.00	1.00	0.14	0.14	0.69	0.70
25	0.50	0.71	0.37	0.38	1.06	1.08
35	1.00	0.50	1.27	1.30	2.33	2.38
40	1.25	0.42	4.40	4.52	6.73	6.90
45	1.50	0.35	6.72	6.90	13.45	13.80
50	1.75	0.30	14.41	14.79	27.86	28.59
60	2.00	0.25	22.29	22.88	50.15	51.47
70	2.25	0.21	20.01	20.54	70.16	72.01
80	2.50	0.18	15.49	15.90	85.65	87.91
120	3.00	0.13	9.24	9.48	94.89	97.39
170	3.50	0.09	1.16	1.19	96.05	98.58
200	3.75	0.07	0.11	0.11	96.16	98.69
230	4.00	0.06	0.04	0.04	96.20	98.73

Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.87	2.44	2.30	1.98	1.69	1.54	1.14

Moment	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
Statistics	1.96	0.26	0.54	-1.5	12.06

ALABAMA DIVC-10.GPJ FL DEP ROSS.GDT 3/14/11

Granularmetric Report

Depths and elevations based on measured values

Project Name: Dauphin Island Shore Protection

Sample Name: DIVC-10-05 #2

Analysis Date: 02-16-10

Analyzed By: GL

Coastal Planning & Engineering
2481 NW Boca Raton Blvd, Boca Raton
FL 33431
ph (561) 391-8102
fax (561) 391-9116

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
1,782,592	57,111	Alabama State Plane West	-37.1 NAVD 88

USCS:	Munsell:	Comments:
SW	Wet - 5Y-5/2 Dry - 5Y-7/1 Washed - 5Y-7/1	

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
103.01	102.05	0.02	0.31	#200 - 1.34 #230 - 1.26			1

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
5/8"	-4.00	16.00	0.00	0.00	0.00	0.00
7/16"	-3.50	11.31	1.06	1.03	1.06	1.03
5/16"	-3.00	8.00	0.00	0.00	1.06	1.03
3.5	-2.50	5.66	0.08	0.08	1.14	1.11
5	-2.00	4.00	0.28	0.27	1.42	1.38
7	-1.50	2.83	0.58	0.56	2.00	1.94
10	-1.00	2.00	0.13	0.13	2.13	2.07
14	-0.50	1.41	0.14	0.14	2.27	2.21
18	0.00	1.00	0.21	0.20	2.48	2.41
25	0.50	0.71	0.41	0.40	2.89	2.81
35	1.00	0.50	2.61	2.53	5.50	5.34
40	1.25	0.42	3.81	3.70	9.31	9.04
45	1.50	0.35	7.92	7.69	17.23	16.73
50	1.75	0.30	14.44	14.02	31.67	30.75
60	2.00	0.25	13.72	13.32	45.39	44.07
70	2.25	0.21	14.97	14.53	60.36	58.60
80	2.50	0.18	19.55	18.98	79.91	77.58
120	3.00	0.13	19.34	18.77	99.25	96.35
170	3.50	0.09	2.32	2.25	101.57	98.60
200	3.75	0.07	0.06	0.06	101.63	98.66
230	4.00	0.06	0.08	0.08	101.71	98.74

Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.96	2.67	2.47	2.10	1.65	1.48	0.93

Moment	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
Statistics	1.96	0.26	0.91	-3.36	20.05

ALABAMA DIVC-10.GPJ FL DEP ROSS.GDT 3/14/11

Granularmetric Report

Depths and elevations based on measured values

Project Name: Dauphin Island Shore Protection

Sample Name: DIVC-10-05 #3

Analysis Date: 02-23-10

Analyzed By: GL

Coastal Planning & Engineering
2481 NW Boca Raton Blvd, Boca Raton
FL 33431
ph (561) 391-8102
fax (561) 391-9116

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
1,782,592	57,111	Alabama State Plane West	-38.7 NAVD 88

USCS:	Munsell:	Comments:
SW	Wet - 5Y-4/3 Dry - 5Y-6/2 Washed - 5Y-6/2	

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
106.94	105.30	0.03	0.00	#200 - 1.65 #230 - 1.58			9

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
1"	-4.75	26.91	0.00	0.00	0.00	0.00
5/8"	-4.00	16.00	12.33	11.53	12.33	11.53
7/16"	-3.50	11.31	4.14	3.87	16.47	15.40
5/16"	-3.00	8.00	3.34	3.12	19.81	18.52
3.5	-2.50	5.66	5.78	5.40	25.59	23.92
5	-2.00	4.00	4.09	3.82	29.68	27.74
7	-1.50	2.83	5.70	5.33	35.38	33.07
10	-1.00	2.00	4.85	4.54	40.23	37.61
14	-0.50	1.41	3.72	3.48	43.95	41.09
18	0.00	1.00	3.68	3.44	47.63	44.53
25	0.50	0.71	4.20	3.93	51.83	48.46
35	1.00	0.50	8.26	7.72	60.09	56.18
40	1.25	0.42	8.07	7.55	68.16	63.73
45	1.50	0.35	8.71	8.14	76.87	71.87
50	1.75	0.30	11.70	10.94	88.57	82.81
60	2.00	0.25	6.09	5.69	94.66	88.50
70	2.25	0.21	3.83	3.58	98.49	92.08
80	2.50	0.18	3.22	3.01	101.71	95.09
120	3.00	0.13	2.72	2.54	104.43	97.63
170	3.50	0.09	0.62	0.58	105.05	98.21
200	3.75	0.07	0.15	0.14	105.20	98.35
230	4.00	0.06	0.07	0.07	105.27	98.42

Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.49	1.80	1.57	0.60	-2.36	-3.40	-4.42

Moment Statistics	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
	-0.38	1.30	2.3	-0.5	1.84

ALABAMA DIVC-10.GPJ FL DEP ROSS.GDT 3/14/11

Granularmetric Report

Depths and elevations based on measured values

Project Name: Dauphin Island Shore Protection

Sample Name: DIVC-10-05 #4

Analysis Date: 02-16-10

Analyzed By: GL

Coastal Planning & Engineering
2481 NW Boca Raton Blvd, Boca Raton
FL 33431
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fax (561) 391-9116

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
1,782,592	57,111	Alabama State Plane West	-40.1 NAVD 88

USCS:	Munsell:	Comments:
SP	Wet - 5Y-6/2 Dry - 5Y-7/1 Washed - 5Y-7/1	

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
118.63	116.92	0.00	0.01	#200 - 1.48 #230 - 1.47			0

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
5/8"	-4.00	16.00	0.00	0.00	0.00	0.00
7/16"	-3.50	11.31	0.50	0.42	0.50	0.42
5/16"	-3.00	8.00	0.00	0.00	0.50	0.42
3.5	-2.50	5.66	0.12	0.10	0.62	0.52
5	-2.00	4.00	0.01	0.01	0.63	0.53
7	-1.50	2.83	0.07	0.06	0.70	0.59
10	-1.00	2.00	0.10	0.08	0.80	0.67
14	-0.50	1.41	0.12	0.10	0.92	0.77
18	0.00	1.00	0.17	0.14	1.09	0.91
25	0.50	0.71	0.39	0.33	1.48	1.24
35	1.00	0.50	2.72	2.29	4.20	3.53
40	1.25	0.42	4.07	3.43	8.27	6.96
45	1.50	0.35	10.18	8.58	18.45	15.54
50	1.75	0.30	19.34	16.30	37.79	31.84
60	2.00	0.25	25.67	21.64	63.46	53.48
70	2.25	0.21	23.31	19.65	86.77	73.13
80	2.50	0.18	17.94	15.12	104.71	88.25
120	3.00	0.13	11.24	9.47	115.95	97.72
170	3.50	0.09	0.91	0.77	116.86	98.49
200	3.75	0.07	0.04	0.03	116.90	98.52
230	4.00	0.06	0.01	0.01	116.91	98.53

Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.86	2.43	2.28	1.96	1.65	1.51	1.11

Moment	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
Statistics	1.91	0.27	0.65	-3.6	30.79

ALABAMA DIVC-10.GPJ FL DEP ROSS.GDT 3/14/11

Granularmetric Report

Depths and elevations based on measured values

Project Name: Dauphin Island Shore Protection

Sample Name: DIVC-10-05 #5

Analysis Date: 02-24-10

Analyzed By: GL

Coastal Planning & Engineering
2481 NW Boca Raton Blvd, Boca Raton
FL 33431
ph (561) 391-8102
fax (561) 391-9116

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
1,782,592	57,111	Alabama State Plane West	-42.0 NAVD 88

USCS:	Munsell:	Comments:
SP	Wet - 5Y-5/2 Dry - 5Y-6/2 Washed - 5Y-7/1	

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
91.59	89.06	0.03	0.00	#200 - 2.83 #230 - 2.79			0

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
5/8"	-4.00	16.00	0.00	0.00	0.00	0.00
7/16"	-3.50	11.31	0.00	0.00	0.00	0.00
5/16"	-3.00	8.00	0.00	0.00	0.00	0.00
3.5	-2.50	5.66	0.00	0.00	0.00	0.00
5	-2.00	4.00	0.00	0.00	0.00	0.00
7	-1.50	2.83	0.03	0.03	0.03	0.03
10	-1.00	2.00	0.07	0.08	0.10	0.11
14	-0.50	1.41	0.09	0.10	0.19	0.21
18	0.00	1.00	0.14	0.15	0.33	0.36
25	0.50	0.71	0.28	0.31	0.61	0.67
35	1.00	0.50	1.80	1.97	2.41	2.64
40	1.25	0.42	4.43	4.84	6.84	7.48
45	1.50	0.35	7.86	8.58	14.70	16.06
50	1.75	0.30	18.22	19.89	32.92	35.95
60	2.00	0.25	18.46	20.16	51.38	56.11
70	2.25	0.21	15.01	16.39	66.39	72.50
80	2.50	0.18	12.65	13.81	79.04	86.31
120	3.00	0.13	8.82	9.63	87.86	95.94
170	3.50	0.09	1.02	1.11	88.88	97.05
200	3.75	0.07	0.11	0.12	88.99	97.17
230	4.00	0.06	0.04	0.04	89.03	97.21

Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.95	2.46	2.30	1.92	1.61	1.50	1.12

Moment	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
Statistics	1.92	0.26	0.52	-0.45	5.85

ALABAMA DIVC-10.GPJ FL DEP ROSS.GDT 3/14/11

Granularmetric Report

Depths and elevations based on measured values

Project Name: Dauphin Island Shore Protection

Sample Name: DIVC-10-05 #6

Analysis Date: 02-24-10

Analyzed By: GL

Coastal Planning & Engineering
2481 NW Boca Raton Blvd, Boca Raton
FL 33431
ph (561) 391-8102
fax (561) 391-9116

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
1,782,592	57,111	Alabama State Plane West	-44.2 NAVD 88

USCS:	Munsell:	Comments:
SW	Wet - 5Y-5/2 Dry - 5Y-6/1 Washed - 5Y-6/1	

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
94.32	92.99	0.03	0.00	#200 - 1.59 #230 - 1.45			1

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
5/8"	-4.00	16.00	0.00	0.00	0.00	0.00
7/16"	-3.50	11.31	0.00	0.00	0.00	0.00
5/16"	-3.00	8.00	0.00	0.00	0.00	0.00
3.5	-2.50	5.66	0.00	0.00	0.00	0.00
5	-2.00	4.00	0.60	0.64	0.60	0.64
7	-1.50	2.83	0.59	0.63	1.19	1.27
10	-1.00	2.00	1.13	1.20	2.32	2.47
14	-0.50	1.41	2.16	2.29	4.48	4.76
18	0.00	1.00	2.33	2.47	6.81	7.23
25	0.50	0.71	2.06	2.18	8.87	9.41
35	1.00	0.50	3.88	4.11	12.75	13.52
40	1.25	0.42	3.20	3.39	15.95	16.91
45	1.50	0.35	4.01	4.25	19.96	21.16
50	1.75	0.30	8.15	8.64	28.11	29.80
60	2.00	0.25	15.11	16.02	43.22	45.82
70	2.25	0.21	21.30	22.58	64.52	68.40
80	2.50	0.18	18.22	19.32	82.74	87.72
120	3.00	0.13	9.00	9.54	91.74	97.26
170	3.50	0.09	1.01	1.07	92.75	98.33
200	3.75	0.07	0.08	0.08	92.83	98.41
230	4.00	0.06	0.13	0.14	92.96	98.55

Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.88	2.45	2.34	2.05	1.61	1.18	-0.45

Moment	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
Statistics	1.78	0.29	0.94	-1.87	6.91

Granularmetric Report

Depths and elevations based on measured values

Project Name: Dauphin Island Shore Protection

Sample Name: DIVC-10-06 #1

Analysis Date: 02-23-10

Analyzed By: GL

Coastal Planning & Engineering
2481 NW Boca Raton Blvd, Boca Raton
FL 33431
ph (561) 391-8102
fax (561) 391-9116

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
1,776,733	59,425	Alabama State Plane West	-27.3 NAVD 88

USCS:	Munsell:	Comments:
SP	Wet - 5Y-6/3 Dry - 5Y-7/2 Washed - 5Y-7/2	

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
97.00	96.24	0.02	0.01	#200 - 0.86 #230 - 0.83			1

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
5/8"	-4.00	16.00	0.00	0.00	0.00	0.00
7/16"	-3.50	11.31	0.00	0.00	0.00	0.00
5/16"	-3.00	8.00	0.00	0.00	0.00	0.00
3.5	-2.50	5.66	0.24	0.25	0.24	0.25
5	-2.00	4.00	0.54	0.56	0.78	0.81
7	-1.50	2.83	0.68	0.70	1.46	1.51
10	-1.00	2.00	0.46	0.47	1.92	1.98
14	-0.50	1.41	0.55	0.57	2.47	2.55
18	0.00	1.00	0.88	0.91	3.35	3.46
25	0.50	0.71	1.86	1.92	5.21	5.38
35	1.00	0.50	6.80	7.01	12.01	12.39
40	1.25	0.42	7.11	7.33	19.12	19.72
45	1.50	0.35	9.71	10.01	28.83	29.73
50	1.75	0.30	14.68	15.13	43.51	44.86
60	2.00	0.25	16.25	16.75	59.76	61.61
70	2.25	0.21	12.70	13.09	72.46	74.70
80	2.50	0.18	12.67	13.06	85.13	87.76
120	3.00	0.13	10.13	10.44	95.26	98.20
170	3.50	0.09	0.80	0.82	96.06	99.02
200	3.75	0.07	0.12	0.12	96.18	99.14
230	4.00	0.06	0.03	0.03	96.21	99.17

Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.85	2.43	2.26	1.83	1.38	1.12	0.40

Moment Statistics	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
	1.72	0.30	0.84	-1.84	9.1

ALABAMA DIVC-10.GPJ FL DEP ROSS.GDT 3/14/11

Granularmetric Report

Depths and elevations based on measured values

Project Name: Dauphin Island Shore Protection

Sample Name: DIVC-10-06 #2

Analysis Date: 02-23-10

Analyzed By: GL

Coastal Planning & Engineering
2481 NW Boca Raton Blvd, Boca Raton
FL 33431
ph (561) 391-8102
fax (561) 391-9116

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
1,776,733	59,425	Alabama State Plane West	-28.7 NAVD 88

USCS:	Munsell:	Comments:
SP	Wet - 5Y-6/2 Dry - 5Y-7/2 Washed - 5Y-7/2	

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
96.83	95.12	0.02	0.00	#200 - 1.85 #230 - 1.80			0

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
5/8"	-4.00	16.00	0.00	0.00	0.00	0.00
7/16"	-3.50	11.31	0.00	0.00	0.00	0.00
5/16"	-3.00	8.00	0.00	0.00	0.00	0.00
3.5	-2.50	5.66	0.00	0.00	0.00	0.00
5	-2.00	4.00	0.01	0.01	0.01	0.01
7	-1.50	2.83	0.01	0.01	0.02	0.02
10	-1.00	2.00	0.01	0.01	0.03	0.03
14	-0.50	1.41	0.05	0.05	0.08	0.08
18	0.00	1.00	0.05	0.05	0.13	0.13
25	0.50	0.71	0.13	0.13	0.26	0.26
35	1.00	0.50	0.44	0.45	0.70	0.71
40	1.25	0.42	1.82	1.88	2.52	2.59
45	1.50	0.35	3.76	3.88	6.28	6.47
50	1.75	0.30	21.39	22.09	27.67	28.56
60	2.00	0.25	24.66	25.47	52.33	54.03
70	2.25	0.21	26.29	27.15	78.62	81.18
80	2.50	0.18	10.79	11.14	89.41	92.32
120	3.00	0.13	4.30	4.44	93.71	96.76
170	3.50	0.09	1.12	1.16	94.83	97.92
200	3.75	0.07	0.22	0.23	95.05	98.15
230	4.00	0.06	0.05	0.05	95.10	98.20

Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.80	2.31	2.19	1.96	1.71	1.61	1.41

Moment	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
Statistics	1.96	0.26	0.4	-0.07	8.8

ALABAMA DIVC-10.GPJ FL DEP ROSS.GDT 3/14/11

Granularmetric Report

Depths and elevations based on measured values

Project Name: Dauphin Island Shore Protection

Sample Name: DIVC-10-06 #3

Analysis Date: 03-01-10

Analyzed By: GL

Coastal Planning & Engineering
2481 NW Boca Raton Blvd, Boca Raton
FL 33431
ph (561) 391-8102
fax (561) 391-9116

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
1,776,733	59,425	Alabama State Plane West	-32.0 NAVD 88

USCS:	Munsell:	Comments:
SP-SC	Wet - 5Y-5/1 Dry - 5Y-6/1 Washed - 5Y-7/1	

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
91.36	82.91	0.12	0.00	#200 - 9.83 #230 - 9.39			0

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
5/8"	-4.00	16.00	0.00	0.00	0.00	0.00
7/16"	-3.50	11.31	0.00	0.00	0.00	0.00
5/16"	-3.00	8.00	0.00	0.00	0.00	0.00
3.5	-2.50	5.66	0.00	0.00	0.00	0.00
5	-2.00	4.00	0.00	0.00	0.00	0.00
7	-1.50	2.83	0.04	0.04	0.04	0.04
10	-1.00	2.00	0.04	0.04	0.08	0.08
14	-0.50	1.41	0.05	0.05	0.13	0.13
18	0.00	1.00	0.04	0.04	0.17	0.17
25	0.50	0.71	0.13	0.14	0.30	0.31
35	1.00	0.50	0.25	0.27	0.55	0.58
40	1.25	0.42	0.58	0.63	1.13	1.21
45	1.50	0.35	1.01	1.11	2.14	2.32
50	1.75	0.30	2.38	2.61	4.52	4.93
60	2.00	0.25	5.40	5.91	9.92	10.84
70	2.25	0.21	10.13	11.09	20.05	21.93
80	2.50	0.18	22.85	25.01	42.90	46.94
120	3.00	0.13	32.88	35.99	75.78	82.93
170	3.50	0.09	5.90	6.46	81.68	89.39
200	3.75	0.07	0.71	0.78	82.39	90.17
230	4.00	0.06	0.40	0.44	82.79	90.61

Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
	3.08	2.89	2.54	2.28	2.12	1.75

Moment Statistics	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
	2.48	0.18	0.47	-1.24	10.59

ALABAMA DIVC-10.GPJ FL DEP ROSS.GDT 3/14/11

Granularmetric Report

Depths and elevations based on measured values

Project Name: Dauphin Island Shore Protection

Sample Name: DIVC-10-07 #1

Analysis Date: 02-17-10

Analyzed By: GL

Coastal Planning & Engineering
2481 NW Boca Raton Blvd, Boca Raton
FL 33431
ph (561) 391-8102
fax (561) 391-9116

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
1,761,210	86,107	Alabama State Plane West	-28.6 NAVD 88

USCS:	Munsell:	Comments:
SP-SC	Wet - 5Y-3/2 Dry - 5Y-6/1 Washed - 5Y-7/1	

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
95.66	90.23	0.00	0.01	#200 - 5.75 #230 - 5.71			0

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
5/8"	-4.00	16.00	0.00	0.00	0.00	0.00
7/16"	-3.50	11.31	0.00	0.00	0.00	0.00
5/16"	-3.00	8.00	0.00	0.00	0.00	0.00
3.5	-2.50	5.66	0.00	0.00	0.00	0.00
5	-2.00	4.00	0.00	0.00	0.00	0.00
7	-1.50	2.83	0.24	0.25	0.24	0.25
10	-1.00	2.00	0.52	0.54	0.76	0.79
14	-0.50	1.41	0.43	0.45	1.19	1.24
18	0.00	1.00	0.60	0.63	1.79	1.87
25	0.50	0.71	1.26	1.32	3.05	3.19
35	1.00	0.50	6.71	7.01	9.76	10.20
40	1.25	0.42	9.51	9.94	19.27	20.14
45	1.50	0.35	15.31	16.00	34.58	36.14
50	1.75	0.30	22.65	23.68	57.23	59.82
60	2.00	0.25	15.30	15.99	72.53	75.81
70	2.25	0.21	10.02	10.47	82.55	86.28
80	2.50	0.18	5.04	5.27	87.59	91.55
120	3.00	0.13	2.30	2.40	89.89	93.95
170	3.50	0.09	0.24	0.25	90.13	94.20
200	3.75	0.07	0.05	0.05	90.18	94.25
230	4.00	0.06	0.04	0.04	90.22	94.29

Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
	2.20	1.99	1.65	1.33	1.15	0.63

Moment Statistics	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
	1.57	0.34	0.6	-1.36	8.6

ALABAMA DIVC-10.GPJ FL DEP ROSS.GDT 3/14/11

Granularmetric Report

Depths and elevations based on measured values

Project Name: Dauphin Island Shore Protection

Sample Name: DIVC-10-07 #2

Analysis Date: 03-01-10

Analyzed By: GL

Coastal Planning & Engineering
2481 NW Boca Raton Blvd, Boca Raton
FL 33431
ph (561) 391-8102
fax (561) 391-9116

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
1,761,210	86,107	Alabama State Plane West	-33.0 NAVD 88

USCS:	Munsell:	Comments:
SC	Wet - 5Y-3/2 Dry - 5Y-5/1 Washed - 5Y-7/1	

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
89.94	66.77	0.83	0.00	#200 - 29.26 #230 - 26.69			0

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
5/8"	-4.00	16.00	0.00	0.00	0.00	0.00
7/16"	-3.50	11.31	0.00	0.00	0.00	0.00
5/16"	-3.00	8.00	0.00	0.00	0.00	0.00
3.5	-2.50	5.66	0.00	0.00	0.00	0.00
5	-2.00	4.00	0.02	0.02	0.02	0.02
7	-1.50	2.83	0.12	0.13	0.14	0.15
10	-1.00	2.00	0.16	0.18	0.30	0.33
14	-0.50	1.41	0.11	0.12	0.41	0.45
18	0.00	1.00	0.23	0.26	0.64	0.71
25	0.50	0.71	0.47	0.52	1.11	1.23
35	1.00	0.50	0.48	0.53	1.59	1.76
40	1.25	0.42	0.24	0.27	1.83	2.03
45	1.50	0.35	0.21	0.23	2.04	2.26
50	1.75	0.30	1.01	1.12	3.05	3.38
60	2.00	0.25	5.34	5.94	8.39	9.32
70	2.25	0.21	10.31	11.46	18.70	20.78
80	2.50	0.18	12.33	13.71	31.03	34.49
120	3.00	0.13	19.48	21.66	50.51	56.15
170	3.50	0.09	9.74	10.83	60.25	66.98
200	3.75	0.07	3.38	3.76	63.63	70.74
230	4.00	0.06	2.31	2.57	65.94	73.31

Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
			2.86	2.33	2.15	1.82

Moment	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
Statistics	2.57	0.17	0.69	-1.43	9.82

ALABAMA DIVC-10.GPJ FL DEP ROSS.GDT 3/14/11

Granularmetric Report

Depths and elevations based on measured values

Project Name: Dauphin Island Shore Protection

Sample Name: DIVC-10-07 #3

Analysis Date: 03-01-10

Analyzed By: GL

Coastal Planning & Engineering
2481 NW Boca Raton Blvd, Boca Raton
FL 33431
ph (561) 391-8102
fax (561) 391-9116

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
1,761,210	86,107	Alabama State Plane West	-37.1 NAVD 88

USCS:	Munsell:	Comments:
SC	Wet - 5Y-3/2 Dry - 5Y-5/1 Washed - 5Y-7/1	

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
91.72	68.87	0.72	0.01	#200 - 27.51 #230 - 25.70			0

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
5/8"	-4.00	16.00	0.00	0.00	0.00	0.00
7/16"	-3.50	11.31	0.00	0.00	0.00	0.00
5/16"	-3.00	8.00	0.00	0.00	0.00	0.00
3.5	-2.50	5.66	0.00	0.00	0.00	0.00
5	-2.00	4.00	0.00	0.00	0.00	0.00
7	-1.50	2.83	0.01	0.01	0.01	0.01
10	-1.00	2.00	0.06	0.07	0.07	0.08
14	-0.50	1.41	0.05	0.05	0.12	0.13
18	0.00	1.00	0.03	0.03	0.15	0.16
25	0.50	0.71	0.06	0.07	0.21	0.23
35	1.00	0.50	0.08	0.09	0.29	0.32
40	1.25	0.42	0.10	0.11	0.39	0.43
45	1.50	0.35	0.29	0.32	0.68	0.75
50	1.75	0.30	1.41	1.54	2.09	2.29
60	2.00	0.25	8.48	9.25	10.57	11.54
70	2.25	0.21	15.11	16.47	25.68	28.01
80	2.50	0.18	15.98	17.42	41.66	45.43
120	3.00	0.13	16.08	17.53	57.74	62.96
170	3.50	0.09	6.60	7.20	64.34	70.16
200	3.75	0.07	2.14	2.33	66.48	72.49
230	4.00	0.06	1.66	1.81	68.14	74.30

Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
			2.63	2.20	2.07	1.82

Moment Statistics	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
	2.47	0.18	0.54	0.01	6.6

ALABAMA DIVC-10.GPJ FL DEP ROSS.GDT 3/14/11

Granularmetric Report

Depths and elevations based on measured values

Project Name: Dauphin Island Shore Protection

Sample Name: DIVC-10-08 #1

Analysis Date: 02-16-10

Analyzed By: GL

Coastal Planning & Engineering
2481 NW Boca Raton Blvd, Boca Raton
FL 33431
ph (561) 391-8102
fax (561) 391-9116

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
1,775,889	79,005	Alabama State Plane West	-20.8 NAVD 88

USCS:	Munsell:	Comments:
SP	Wet - 5Y-7/1 Dry - 2.5Y-7/1 Washed - 2.5Y-7/1	

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
106.50	105.18	0.01	0.00	#200 - 1.25 #230 - 1.24			0

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
5/8"	-4.00	16.00	0.00	0.00	0.00	0.00
7/16"	-3.50	11.31	0.00	0.00	0.00	0.00
5/16"	-3.00	8.00	0.00	0.00	0.00	0.00
3.5	-2.50	5.66	0.00	0.00	0.00	0.00
5	-2.00	4.00	0.04	0.04	0.04	0.04
7	-1.50	2.83	0.13	0.12	0.17	0.16
10	-1.00	2.00	0.26	0.24	0.43	0.40
14	-0.50	1.41	0.45	0.42	0.88	0.82
18	0.00	1.00	0.68	0.64	1.56	1.46
25	0.50	0.71	0.75	0.70	2.31	2.16
35	1.00	0.50	2.01	1.89	4.32	4.05
40	1.25	0.42	3.09	2.90	7.41	6.95
45	1.50	0.35	5.66	5.31	13.07	12.26
50	1.75	0.30	12.17	11.43	25.24	23.69
60	2.00	0.25	16.78	15.76	42.02	39.45
70	2.25	0.21	22.94	21.54	64.96	60.99
80	2.50	0.18	25.30	23.76	90.26	84.75
120	3.00	0.13	13.84	13.00	104.10	97.75
170	3.50	0.09	1.04	0.98	105.14	98.73
200	3.75	0.07	0.02	0.02	105.16	98.75
230	4.00	0.06	0.01	0.01	105.17	98.76

Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.89	2.49	2.40	2.12	1.77	1.58	1.08

Moment	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
Statistics	2.03	0.24	0.6	-1.88	10.36

ALABAMA DIVC-10.GPJ FL DEP ROSS.GDT 3/14/11

Granularmetric Report

Depths and elevations based on measured values

Project Name: Dauphin Island Shore Protection

Sample Name: DIVC-10-08 #2

Analysis Date: 02-16-10

Analyzed By: GL

Coastal Planning & Engineering
2481 NW Boca Raton Blvd, Boca Raton
FL 33431
ph (561) 391-8102
fax (561) 391-9116

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
1,775,889	79,005	Alabama State Plane West	-23.6 NAVD 88

USCS:	Munsell:	Comments:
SP	Wet - 5Y-6/1 Dry - 5Y-6/1 Washed - 5Y-6/1	

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
98.30	96.33	0.01	0.00	#200 - 2.12 #230 - 2.03			0

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
5/8"	-4.00	16.00	0.00	0.00	0.00	0.00
7/16"	-3.50	11.31	0.00	0.00	0.00	0.00
5/16"	-3.00	8.00	0.00	0.00	0.00	0.00
3.5	-2.50	5.66	0.00	0.00	0.00	0.00
5	-2.00	4.00	0.00	0.00	0.00	0.00
7	-1.50	2.83	0.11	0.11	0.11	0.11
10	-1.00	2.00	0.14	0.14	0.25	0.25
14	-0.50	1.41	0.28	0.28	0.53	0.53
18	0.00	1.00	0.25	0.25	0.78	0.78
25	0.50	0.71	0.29	0.30	1.07	1.08
35	1.00	0.50	0.28	0.28	1.35	1.36
40	1.25	0.42	0.21	0.21	1.56	1.57
45	1.50	0.35	0.06	0.06	1.62	1.63
50	1.75	0.30	0.56	0.57	2.18	2.20
60	2.00	0.25	1.02	1.04	3.20	3.24
70	2.25	0.21	2.84	2.89	6.04	6.13
80	2.50	0.18	9.47	9.63	15.51	15.76
120	3.00	0.13	66.94	68.10	82.45	83.86
170	3.50	0.09	13.46	13.69	95.91	97.55
200	3.75	0.07	0.32	0.33	96.23	97.88
230	4.00	0.06	0.09	0.09	96.32	97.97

Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
3.41	3.01	2.93	2.75	2.57	2.50	2.15

Moment	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
Statistics	2.71	0.15	0.47	-4.36	33.4

ALABAMA DIVC-10.GPJ FL DEP ROSS.GDT 3/14/11

Granularmetric Report

Depths and elevations based on measured values

Project Name: Dauphin Island Shore Protection

Sample Name: DIVC-10-08 #3

Analysis Date: 02-17-10

Analyzed By: PB

Coastal Planning & Engineering
2481 NW Boca Raton Blvd, Boca Raton
FL 33431
ph (561) 391-8102
fax (561) 391-9116

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
1,775,889	79,005	Alabama State Plane West	-29.1 NAVD 88

USCS:	Munsell:	Comments:
SP-SC	Wet - 5Y-4/2 Dry - 5Y-6/1 Washed - 5Y-6/1	

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
90.11	85.35	0.06	0.00	#200 - 5.85 #230 - 5.36			0

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
5/8"	-4.00	16.00	0.00	0.00	0.00	0.00
7/16"	-3.50	11.31	0.00	0.00	0.00	0.00
5/16"	-3.00	8.00	0.00	0.00	0.00	0.00
3.5	-2.50	5.66	0.00	0.00	0.00	0.00
5	-2.00	4.00	0.00	0.00	0.00	0.00
7	-1.50	2.83	0.00	0.00	0.00	0.00
10	-1.00	2.00	0.01	0.01	0.01	0.01
14	-0.50	1.41	0.08	0.09	0.09	0.10
18	0.00	1.00	0.10	0.11	0.19	0.21
25	0.50	0.71	0.15	0.17	0.34	0.38
35	1.00	0.50	0.32	0.36	0.66	0.74
40	1.25	0.42	0.50	0.55	1.16	1.29
45	1.50	0.35	0.95	1.05	2.11	2.34
50	1.75	0.30	2.18	2.42	4.29	4.76
60	2.00	0.25	5.29	5.87	9.58	10.63
70	2.25	0.21	11.32	12.56	20.90	23.19
80	2.50	0.18	23.89	26.51	44.79	49.70
120	3.00	0.13	32.09	35.61	76.88	85.31
170	3.50	0.09	7.06	7.83	83.94	93.14
200	3.75	0.07	0.91	1.01	84.85	94.15
230	4.00	0.06	0.44	0.49	85.29	94.64

Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
	2.98	2.86	2.50	2.27	2.11	1.76

Moment Statistics	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
	2.49	0.18	0.48	-0.92	7.84

ALABAMA DIVC-10.GPJ FL DEP ROSS.GDT 3/14/11

Granularmetric Report

Depths and elevations based on measured values

Project Name: Dauphin Island Shore Protection

Sample Name: DIVC-10-08 #4

Analysis Date: 02-17-10

Analyzed By: PB

Coastal Planning & Engineering
2481 NW Boca Raton Blvd, Boca Raton
FL 33431
ph (561) 391-8102
fax (561) 391-9116

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
1,775,889	79,005	Alabama State Plane West	-30.6 NAVD 88

USCS:	Munsell:	Comments:
SP	Wet - 5Y-4/2 Dry - 5Y-6/1 Washed - 5Y-6/1	

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
97.48	94.82	0.03	0.02	#200 - 2.83 #230 - 2.79			0

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
5/8"	-4.00	16.00	0.00	0.00	0.00	0.00
7/16"	-3.50	11.31	0.00	0.00	0.00	0.00
5/16"	-3.00	8.00	0.00	0.00	0.00	0.00
3.5	-2.50	5.66	0.07	0.07	0.07	0.07
5	-2.00	4.00	0.00	0.00	0.07	0.07
7	-1.50	2.83	0.03	0.03	0.10	0.10
10	-1.00	2.00	0.02	0.02	0.12	0.12
14	-0.50	1.41	0.04	0.04	0.16	0.16
18	0.00	1.00	0.08	0.08	0.24	0.24
25	0.50	0.71	0.08	0.08	0.32	0.32
35	1.00	0.50	0.22	0.23	0.54	0.55
40	1.25	0.42	0.40	0.41	0.94	0.96
45	1.50	0.35	1.06	1.09	2.00	2.05
50	1.75	0.30	3.59	3.68	5.59	5.73
60	2.00	0.25	10.05	10.31	15.64	16.04
70	2.25	0.21	22.86	23.45	38.50	39.49
80	2.50	0.18	34.52	35.41	73.02	74.90
120	3.00	0.13	20.77	21.31	93.79	96.21
170	3.50	0.09	0.85	0.87	94.64	97.08
200	3.75	0.07	0.09	0.09	94.73	97.17
230	4.00	0.06	0.04	0.04	94.77	97.21

Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.97	2.71	2.50	2.32	2.10	2.00	1.70

Moment Statistics	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
	2.29	0.20	0.4	-2.61	28.51

ALABAMA DIVC-10.GPJ FL DEP ROSS.GDT 3/14/11

Granularmetric Report

Depths and elevations based on measured values

Project Name: Dauphin Island Shore Protection

Sample Name: DIVC-10-09 #1

Analysis Date: 09-21-10

Analyzed By: TH

Coastal Planning & Engineering
2481 NW Boca Raton Blvd, Boca Raton
FL 33431
ph (561) 391-8102
fax (561) 391-9116

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
1,787,827	64,695	Alabama State Plane West	-23.6 NAVD 88

USCS:	Munsell:	Comments:
SP	Wet - 5Y-5/1 Dry - 5Y-7/2 Washed - 5Y-8/2	

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
99.26	98.20	0.00	0.00	#200 - 1.08 #230 - 1.07			0

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
5/8"	-4.00	16.00	0.00	0.00	0.00	0.00
7/16"	-3.50	11.31	0.00	0.00	0.00	0.00
5/16"	-3.00	8.00	0.00	0.00	0.00	0.00
3.5	-2.50	5.66	0.00	0.00	0.00	0.00
5	-2.00	4.00	0.00	0.00	0.00	0.00
7	-1.50	2.83	0.00	0.00	0.00	0.00
10	-1.00	2.00	0.00	0.00	0.00	0.00
14	-0.50	1.41	0.03	0.03	0.03	0.03
18	0.00	1.00	0.03	0.03	0.06	0.06
25	0.50	0.71	0.17	0.17	0.23	0.23
35	1.00	0.50	1.04	1.05	1.27	1.28
40	1.25	0.42	1.73	1.74	3.00	3.02
45	1.50	0.35	3.70	3.73	6.70	6.75
50	1.75	0.30	9.80	9.87	16.50	16.62
60	2.00	0.25	18.26	18.40	34.76	35.02
70	2.25	0.21	24.42	24.60	59.18	59.62
80	2.50	0.18	27.08	27.28	86.26	86.90
120	3.00	0.13	11.02	11.10	97.28	98.00
170	3.50	0.09	0.90	0.91	98.18	98.91
200	3.75	0.07	0.01	0.01	98.19	98.92
230	4.00	0.06	0.01	0.01	98.20	98.93

Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.86	2.47	2.39	2.15	1.86	1.73	1.38

Moment	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
Statistics	2.11	0.23	0.42	-0.62	4.95

ALABAMA DIVC-10.GPJ FL DEP ROSS.GDT 3/14/11

Granularmetric Report

Depths and elevations based on measured values

Project Name: Dauphin Island Shore Protection

Sample Name: DIVC-10-09 #2

Analysis Date: 09-21-10

Analyzed By: TH

Coastal Planning & Engineering
2481 NW Boca Raton Blvd, Boca Raton
FL 33431
ph (561) 391-8102
fax (561) 391-9116

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
1,787,827	64,695	Alabama State Plane West	-28.6 NAVD 88

USCS:	Munsell:	Comments:
SP	Wet - 5Y-5/1 Dry - 5Y-6/2 Washed - 5Y-7/2	

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
128.53	126.90	0.01	0.00	#200 - 1.29 #230 - 1.28			0

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
5/8"	-4.00	16.00	0.00	0.00	0.00	0.00
7/16"	-3.50	11.31	0.00	0.00	0.00	0.00
5/16"	-3.00	8.00	0.00	0.00	0.00	0.00
3.5	-2.50	5.66	0.00	0.00	0.00	0.00
5	-2.00	4.00	0.15	0.12	0.15	0.12
7	-1.50	2.83	0.21	0.16	0.36	0.28
10	-1.00	2.00	0.25	0.19	0.61	0.47
14	-0.50	1.41	0.37	0.29	0.98	0.76
18	0.00	1.00	0.53	0.41	1.51	1.17
25	0.50	0.71	1.16	0.90	2.67	2.07
35	1.00	0.50	3.68	2.86	6.35	4.93
40	1.25	0.42	2.84	2.21	9.19	7.14
45	1.50	0.35	5.18	4.03	14.37	11.17
50	1.75	0.30	16.95	13.19	31.32	24.36
60	2.00	0.25	26.39	20.53	57.71	44.89
70	2.25	0.21	25.51	19.85	83.22	64.74
80	2.50	0.18	26.40	20.54	109.62	85.28
120	3.00	0.13	16.22	12.62	125.84	97.90
170	3.50	0.09	1.00	0.78	126.84	98.68
200	3.75	0.07	0.04	0.03	126.88	98.71
230	4.00	0.06	0.01	0.01	126.89	98.72

Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.89	2.48	2.37	2.06	1.76	1.59	1.01

Moment	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
Statistics	2	0.25	0.6	-1.94	11.55

ALABAMA DIVC-10.GPJ FL DEP ROSS.GDT 3/14/11

Granularmetric Report

Depths and elevations based on measured values

Project Name: Dauphin Island Shore Protection

Sample Name: DIVC-10-09 #3

Analysis Date: 09-21-10

Analyzed By: TH

Coastal Planning & Engineering
2481 NW Boca Raton Blvd, Boca Raton
FL 33431
ph (561) 391-8102
fax (561) 391-9116

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
1,787,827	64,695	Alabama State Plane West	-34.1 NAVD 88

USCS:	Munsell:	Comments:
SP	Wet - 5Y-5/1 Dry - 5Y-6/1 Washed - 5Y-7/1	

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
113.09	111.06	0.04	0.09	#200 - 2.05 #230 - 1.93			0

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
5/8"	-4.00	16.00	0.00	0.00	0.00	0.00
7/16"	-3.50	11.31	0.00	0.00	0.00	0.00
5/16"	-3.00	8.00	0.00	0.00	0.00	0.00
3.5	-2.50	5.66	0.05	0.04	0.05	0.04
5	-2.00	4.00	0.00	0.00	0.05	0.04
7	-1.50	2.83	0.01	0.01	0.06	0.05
10	-1.00	2.00	0.09	0.08	0.15	0.13
14	-0.50	1.41	0.06	0.05	0.21	0.18
18	0.00	1.00	0.08	0.07	0.29	0.25
25	0.50	0.71	0.06	0.05	0.35	0.30
35	1.00	0.50	0.24	0.21	0.59	0.51
40	1.25	0.42	0.24	0.21	0.83	0.72
45	1.50	0.35	0.76	0.67	1.59	1.39
50	1.75	0.30	4.09	3.62	5.68	5.01
60	2.00	0.25	11.34	10.03	17.02	15.04
70	2.25	0.21	20.38	18.02	37.40	33.06
80	2.50	0.18	36.74	32.49	74.14	65.55
120	3.00	0.13	32.48	28.72	106.62	94.27
170	3.50	0.09	3.89	3.44	110.51	97.71
200	3.75	0.07	0.27	0.24	110.78	97.95
230	4.00	0.06	0.14	0.12	110.92	98.07

Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
3.11	2.82	2.66	2.38	2.14	2.01	1.75

Moment	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
Statistics	2.37	0.19	0.43	-1.79	19.18

ALABAMA DIVC-10.GPJ FL DEP ROSS.GDT 3/14/11

Granularmetric Report

Depths and elevations based on measured values

Project Name: Dauphin Island Shore Protection

Sample Name: DIVC-10-10 #1

Analysis Date: 09-21-10

Analyzed By: TH

Coastal Planning & Engineering
2481 NW Boca Raton Blvd, Boca Raton
FL 33431
ph (561) 391-8102
fax (561) 391-9116

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
1,788,794	64,755	Alabama State Plane West	-18.2 NAVD 88

USCS:	Munsell:	Comments:
SP	Wet - 5Y-6/2 Dry - 5Y-7/2 Washed - 5Y-7/2	

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
118.82	117.74	0.01	0.01	#200 - 0.96 #230 - 0.93			0

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
5/8"	-4.00	16.00	0.00	0.00	0.00	0.00
7/16"	-3.50	11.31	0.00	0.00	0.00	0.00
5/16"	-3.00	8.00	0.00	0.00	0.00	0.00
3.5	-2.50	5.66	0.00	0.00	0.00	0.00
5	-2.00	4.00	0.12	0.10	0.12	0.10
7	-1.50	2.83	0.06	0.05	0.18	0.15
10	-1.00	2.00	0.06	0.05	0.24	0.20
14	-0.50	1.41	0.06	0.05	0.30	0.25
18	0.00	1.00	0.19	0.16	0.49	0.41
25	0.50	0.71	0.40	0.34	0.89	0.75
35	1.00	0.50	2.57	2.16	3.46	2.91
40	1.25	0.42	2.96	2.49	6.42	5.40
45	1.50	0.35	6.98	5.87	13.40	11.27
50	1.75	0.30	19.58	16.48	32.98	27.75
60	2.00	0.25	29.36	24.71	62.34	52.46
70	2.25	0.21	23.95	20.16	86.29	72.62
80	2.50	0.18	19.60	16.50	105.89	89.12
120	3.00	0.13	10.97	9.23	116.86	98.35
170	3.50	0.09	0.79	0.66	117.65	99.01
200	3.75	0.07	0.04	0.03	117.69	99.04
230	4.00	0.06	0.03	0.03	117.72	99.07

Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.82	2.42	2.29	1.98	1.71	1.57	1.21

Moment	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
Statistics	1.97	0.26	0.5	-1.34	11.52

ALABAMA DIVC-10.GPJ FL DEP ROSS.GDT 3/14/11

Granularmetric Report

Depths and elevations based on measured values

Project Name: Dauphin Island Shore Protection

Sample Name: DIVC-10-10 #2

Analysis Date: 09-21-10

Analyzed By: TH

Coastal Planning & Engineering
2481 NW Boca Raton Blvd, Boca Raton
FL 33431
ph (561) 391-8102
fax (561) 391-9116

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
1,788,794	64,755	Alabama State Plane West	-20.0 NAVD 88

USCS:	Munsell:	Comments:
SP	Wet - 5Y-6/2 Dry - 5Y-7/2 Washed - 5Y-8/2	

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
116.26	114.85	0.01	0.02	#200 - 1.26 #230 - 1.23			1

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
5/8"	-4.00	16.00	0.00	0.00	0.00	0.00
7/16"	-3.50	11.31	0.00	0.00	0.00	0.00
5/16"	-3.00	8.00	0.00	0.00	0.00	0.00
3.5	-2.50	5.66	0.14	0.12	0.14	0.12
5	-2.00	4.00	0.28	0.24	0.42	0.36
7	-1.50	2.83	0.35	0.30	0.77	0.66
10	-1.00	2.00	0.57	0.49	1.34	1.15
14	-0.50	1.41	0.78	0.67	2.12	1.82
18	0.00	1.00	1.16	1.00	3.28	2.82
25	0.50	0.71	2.59	2.23	5.87	5.05
35	1.00	0.50	10.88	9.36	16.75	14.41
40	1.25	0.42	9.87	8.49	26.62	22.90
45	1.50	0.35	14.88	12.80	41.50	35.70
50	1.75	0.30	24.78	21.31	66.28	57.01
60	2.00	0.25	22.73	19.55	89.01	76.56
70	2.25	0.21	13.65	11.74	102.66	88.30
80	2.50	0.18	8.75	7.53	111.41	95.83
120	3.00	0.13	3.08	2.65	114.49	98.48
170	3.50	0.09	0.25	0.22	114.74	98.70
200	3.75	0.07	0.05	0.04	114.79	98.74
230	4.00	0.06	0.03	0.03	114.82	98.77

Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.47	2.16	1.98	1.67	1.29	1.05	0.49

Moment	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
Statistics	1.56	0.34	0.69	-1.75	9.46

ALABAMA DIVC-10.GPJ FL DEP ROSS.GDT 3/14/11

Granularmetric Report

Depths and elevations based on measured values

Project Name: Dauphin Island Shore Protection

Sample Name: DIVC-10-10 #3

Analysis Date: 09-21-10

Analyzed By: TH

Coastal Planning & Engineering
2481 NW Boca Raton Blvd, Boca Raton
FL 33431
ph (561) 391-8102
fax (561) 391-9116

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
1,788,794	64,755	Alabama State Plane West	-25.2 NAVD 88

USCS:	Munsell:	Comments:
SP	Wet - 5Y-5/1 Dry - 5Y-8/2 Washed - 5Y-8/1	

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
108.70	107.54	0.02	0.01	#200 - 1.09 #230 - 1.08			0

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
5/8"	-4.00	16.00	0.00	0.00	0.00	0.00
7/16"	-3.50	11.31	0.00	0.00	0.00	0.00
5/16"	-3.00	8.00	0.00	0.00	0.00	0.00
3.5	-2.50	5.66	0.00	0.00	0.00	0.00
5	-2.00	4.00	0.03	0.03	0.03	0.03
7	-1.50	2.83	0.00	0.00	0.03	0.03
10	-1.00	2.00	0.06	0.06	0.09	0.09
14	-0.50	1.41	0.11	0.10	0.20	0.19
18	0.00	1.00	0.26	0.24	0.46	0.43
25	0.50	0.71	0.98	0.90	1.44	1.33
35	1.00	0.50	5.87	5.40	7.31	6.73
40	1.25	0.42	6.19	5.69	13.50	12.42
45	1.50	0.35	10.79	9.93	24.29	22.35
50	1.75	0.30	19.26	17.72	43.55	40.07
60	2.00	0.25	19.22	17.68	62.77	57.75
70	2.25	0.21	17.54	16.14	80.31	73.89
80	2.50	0.18	15.63	14.38	95.94	88.27
120	3.00	0.13	11.17	10.28	107.11	98.55
170	3.50	0.09	0.37	0.34	107.48	98.89
200	3.75	0.07	0.02	0.02	107.50	98.91
230	4.00	0.06	0.01	0.01	107.51	98.92

Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.83	2.43	2.27	1.89	1.54	1.34	0.84

Moment Statistics	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
	1.86	0.28	0.57	-0.65	4.65

ALABAMA DIVC-10.GPJ FL DEP ROSS.GDT 3/14/11

Granularmetric Report

Depths and elevations based on measured values

Project Name: Dauphin Island Shore Protection

Sample Name: DIVC-10-10 #4

Analysis Date: 09-21-10

Analyzed By: TH

Coastal Planning & Engineering
2481 NW Boca Raton Blvd, Boca Raton
FL 33431
ph (561) 391-8102
fax (561) 391-9116

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
1,788,794	64,755	Alabama State Plane West	-27.7 NAVD 88

USCS:	Munsell:	Comments:
SP	Wet - 5Y-5/1 Dry - 5Y-7/2 Washed - 5Y-7/1	

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
108.86	106.94	0.01	0.03	#200 - 1.82 #230 - 1.79			0

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
5/8"	-4.00	16.00	0.00	0.00	0.00	0.00
7/16"	-3.50	11.31	0.00	0.00	0.00	0.00
5/16"	-3.00	8.00	0.00	0.00	0.00	0.00
3.5	-2.50	5.66	0.12	0.11	0.12	0.11
5	-2.00	4.00	0.03	0.03	0.15	0.14
7	-1.50	2.83	0.23	0.21	0.38	0.35
10	-1.00	2.00	0.44	0.40	0.82	0.75
14	-0.50	1.41	0.76	0.70	1.58	1.45
18	0.00	1.00	0.91	0.84	2.49	2.29
25	0.50	0.71	1.18	1.08	3.67	3.37
35	1.00	0.50	3.01	2.77	6.68	6.14
40	1.25	0.42	2.81	2.58	9.49	8.72
45	1.50	0.35	5.47	5.02	14.96	13.74
50	1.75	0.30	13.00	11.94	27.96	25.68
60	2.00	0.25	20.58	18.91	48.54	44.59
70	2.25	0.21	22.72	20.87	71.26	65.46
80	2.50	0.18	23.00	21.13	94.26	86.59
120	3.00	0.13	12.00	11.02	106.26	97.61
170	3.50	0.09	0.55	0.51	106.81	98.12
200	3.75	0.07	0.06	0.06	106.87	98.18
230	4.00	0.06	0.03	0.03	106.90	98.21

Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.88	2.47	2.36	2.06	1.74	1.55	0.79

Moment Statistics	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
	1.95	0.26	0.67	-2.22	11.67

ALABAMA DIVC-10.GPJ FL DEP ROSS.GDT 3/14/11

Granularmetric Report

Depths and elevations based on measured values

Project Name: Dauphin Island Shore Protection

Sample Name: DIVC-10-10 #5

Analysis Date: 09-21-10

Analyzed By: TH

Coastal Planning & Engineering
2481 NW Boca Raton Blvd, Boca Raton
FL 33431
ph (561) 391-8102
fax (561) 391-9116

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
1,788,794	64,755	Alabama State Plane West	-34.2 NAVD 88

USCS:	Munsell:	Comments:
SP	Wet - 5Y-5/2 Dry - 5Y-6/1 Washed - 5Y-7/1	

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
108.36	106.20	0.02	0.06	#200 - 2.12 #230 - 2.07			0

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
5/8"	-4.00	16.00	0.00	0.00	0.00	0.00
7/16"	-3.50	11.31	0.00	0.00	0.00	0.00
5/16"	-3.00	8.00	0.00	0.00	0.00	0.00
3.5	-2.50	5.66	0.05	0.05	0.05	0.05
5	-2.00	4.00	0.00	0.00	0.05	0.05
7	-1.50	2.83	0.00	0.00	0.05	0.05
10	-1.00	2.00	0.00	0.00	0.05	0.05
14	-0.50	1.41	0.01	0.01	0.06	0.06
18	0.00	1.00	0.03	0.03	0.09	0.09
25	0.50	0.71	0.09	0.08	0.18	0.17
35	1.00	0.50	1.57	1.45	1.75	1.62
40	1.25	0.42	2.53	2.33	4.28	3.95
45	1.50	0.35	2.34	2.16	6.62	6.11
50	1.75	0.30	22.19	20.48	28.81	26.59
60	2.00	0.25	26.34	24.31	55.15	50.90
70	2.25	0.21	24.23	22.36	79.38	73.26
80	2.50	0.18	19.03	17.56	98.41	90.82
120	3.00	0.13	7.10	6.55	105.51	97.37
170	3.50	0.09	0.43	0.40	105.94	97.77
200	3.75	0.07	0.12	0.11	106.06	97.88
230	4.00	0.06	0.05	0.05	106.11	97.93

Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.82	2.40	2.27	1.99	1.73	1.62	1.37

Moment	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
Statistics	1.99	0.25	0.42	-0.83	11.74

ALABAMA DIVC-10.GPJ FL DEP ROSS.GDT 3/14/11

Granularmetric Report

Depths and elevations based on measured values

Project Name: Dauphin Island Shore Protection

Sample Name: DIVC-10-11 #1

Analysis Date: 09-21-10

Analyzed By: TH

Coastal Planning & Engineering
2481 NW Boca Raton Blvd, Boca Raton
FL 33431
ph (561) 391-8102
fax (561) 391-9116

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
1,788,371	63,930	Alabama State Plane West	-20.2 NAVD 88

USCS:	Munsell:	Comments:
SP	Wet - 2.5Y-6/2 Dry - 2.5Y-7/2 Washed - 2.5Y-8/2	

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
105.55	104.29	0.01	0.02	#200 - 1.22 #230 - 1.21			0

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
5/8"	-4.00	16.00	0.00	0.00	0.00	0.00
7/16"	-3.50	11.31	0.00	0.00	0.00	0.00
5/16"	-3.00	8.00	0.00	0.00	0.00	0.00
3.5	-2.50	5.66	0.00	0.00	0.00	0.00
5	-2.00	4.00	0.00	0.00	0.00	0.00
7	-1.50	2.83	0.00	0.00	0.00	0.00
10	-1.00	2.00	0.00	0.00	0.00	0.00
14	-0.50	1.41	0.02	0.02	0.02	0.02
18	0.00	1.00	0.08	0.08	0.10	0.10
25	0.50	0.71	0.22	0.21	0.32	0.31
35	1.00	0.50	1.53	1.45	1.85	1.76
40	1.25	0.42	2.35	2.23	4.20	3.99
45	1.50	0.35	5.26	4.98	9.46	8.97
50	1.75	0.30	13.94	13.21	23.40	22.18
60	2.00	0.25	21.35	20.23	44.75	42.41
70	2.25	0.21	21.71	20.57	66.46	62.98
80	2.50	0.18	23.12	21.90	89.58	84.88
120	3.00	0.13	14.03	13.29	103.61	98.17
170	3.50	0.09	0.60	0.57	104.21	98.74
200	3.75	0.07	0.04	0.04	104.25	98.78
230	4.00	0.06	0.01	0.01	104.26	98.79

Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.88	2.49	2.39	2.09	1.78	1.63	1.30

Moment Statistics	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
	2.07	0.24	0.46	-0.49	4.14

ALABAMA DIVC-10.GPJ FL DEP ROSS.GDT 3/14/11

Granularmetric Report

Depths and elevations based on measured values

Project Name: Dauphin Island Shore Protection

Sample Name: DIVC-10-11 #2

Analysis Date: 09-21-10

Analyzed By: TH

Coastal Planning & Engineering
2481 NW Boca Raton Blvd, Boca Raton
FL 33431
ph (561) 391-8102
fax (561) 391-9116

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
1,788,371	63,930	Alabama State Plane West	-25.2 NAVD 88

USCS:	Munsell:	Comments:
SP	Wet - 5Y-7/2 Dry - 5Y-7/1 Washed - 5Y-7/1	

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
97.73	96.96	0.01	0.02	#200 - 0.85 #230 - 0.84			0

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
5/8"	-4.00	16.00	0.00	0.00	0.00	0.00
7/16"	-3.50	11.31	0.00	0.00	0.00	0.00
5/16"	-3.00	8.00	0.00	0.00	0.00	0.00
3.5	-2.50	5.66	0.00	0.00	0.00	0.00
5	-2.00	4.00	0.09	0.09	0.09	0.09
7	-1.50	2.83	0.00	0.00	0.09	0.09
10	-1.00	2.00	0.01	0.01	0.10	0.10
14	-0.50	1.41	0.02	0.02	0.12	0.12
18	0.00	1.00	0.04	0.04	0.16	0.16
25	0.50	0.71	0.08	0.08	0.24	0.24
35	1.00	0.50	0.59	0.60	0.83	0.84
40	1.25	0.42	0.91	0.93	1.74	1.77
45	1.50	0.35	2.15	2.20	3.89	3.97
50	1.75	0.30	10.50	10.74	14.39	14.71
60	2.00	0.25	22.49	23.01	36.88	37.72
70	2.25	0.21	28.67	29.34	65.55	67.06
80	2.50	0.18	22.41	22.93	87.96	89.99
120	3.00	0.13	8.79	8.99	96.75	98.98
170	3.50	0.09	0.15	0.15	96.90	99.13
200	3.75	0.07	0.02	0.02	96.92	99.15
230	4.00	0.06	0.01	0.01	96.93	99.16

Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.78	2.43	2.34	2.10	1.86	1.76	1.52

Moment	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
Statistics	2.09	0.23	0.39	-1.74	19

ALABAMA DIVC-10.GPJ FL DEP ROSS.GDT 3/14/11

Granularmetric Report

Depths and elevations based on measured values

Project Name: Dauphin Island Shore Protection

Sample Name: DIVC-10-11 #3

Analysis Date: 09-21-10

Analyzed By: TH

Coastal Planning & Engineering
2481 NW Boca Raton Blvd, Boca Raton
FL 33431
ph (561) 391-8102
fax (561) 391-9116

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
1,788,371	63,930	Alabama State Plane West	-29.2 NAVD 88

USCS:	Munsell:	Comments:
SP	Wet - 5Y-7/2 Dry - 5Y-7/1 Washed - 5Y-7/1	

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
119.38	118.13	0.02	0.05	#200 - 1.14 #230 - 1.11			0

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
5/8"	-4.00	16.00	0.00	0.00	0.00	0.00
7/16"	-3.50	11.31	0.00	0.00	0.00	0.00
5/16"	-3.00	8.00	0.00	0.00	0.00	0.00
3.5	-2.50	5.66	0.00	0.00	0.00	0.00
5	-2.00	4.00	0.00	0.00	0.00	0.00
7	-1.50	2.83	0.00	0.00	0.00	0.00
10	-1.00	2.00	0.01	0.01	0.01	0.01
14	-0.50	1.41	0.06	0.05	0.07	0.06
18	0.00	1.00	0.04	0.03	0.11	0.09
25	0.50	0.71	0.09	0.08	0.20	0.17
35	1.00	0.50	0.16	0.13	0.36	0.30
40	1.25	0.42	0.39	0.33	0.75	0.63
45	1.50	0.35	1.58	1.32	2.33	1.95
50	1.75	0.30	9.10	7.62	11.43	9.57
60	2.00	0.25	24.92	20.87	36.35	30.44
70	2.25	0.21	33.13	27.75	69.48	58.19
80	2.50	0.18	33.65	28.19	103.13	86.38
120	3.00	0.13	13.76	11.53	116.89	97.91
170	3.50	0.09	1.06	0.89	117.95	98.80
200	3.75	0.07	0.07	0.06	118.02	98.86
230	4.00	0.06	0.03	0.03	118.05	98.89

Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.87	2.48	2.40	2.18	1.93	1.83	1.60

Moment	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
Statistics	2.17	0.22	0.36	-0.4	7.32

ALABAMA DIVC-10.GPJ FL DEP ROSS.GDT 3/14/11

Granularmetric Report

Depths and elevations based on measured values

Project Name: Dauphin Island Shore Protection

Sample Name: DIVC-10-11 #4

Analysis Date: 09-21-10

Analyzed By: TH

Coastal Planning & Engineering
2481 NW Boca Raton Blvd, Boca Raton
FL 33431
ph (561) 391-8102
fax (561) 391-9116

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
1,788,371	63,930	Alabama State Plane West	-32.6 NAVD 88

USCS:	Munsell:	Comments:
SP	Wet - 5Y-6/2 Dry - 5Y-6/1 Washed - 5Y-7/1	

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
109.99	107.03	0.06	0.05	#200 - 2.92 #230 - 2.78			0

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
5/8"	-4.00	16.00	0.00	0.00	0.00	0.00
7/16"	-3.50	11.31	0.00	0.00	0.00	0.00
5/16"	-3.00	8.00	0.00	0.00	0.00	0.00
3.5	-2.50	5.66	0.05	0.05	0.05	0.05
5	-2.00	4.00	0.01	0.01	0.06	0.06
7	-1.50	2.83	0.14	0.13	0.20	0.19
10	-1.00	2.00	0.09	0.08	0.29	0.27
14	-0.50	1.41	0.30	0.27	0.59	0.54
18	0.00	1.00	0.32	0.29	0.91	0.83
25	0.50	0.71	0.49	0.45	1.40	1.28
35	1.00	0.50	1.30	1.18	2.70	2.46
40	1.25	0.42	1.07	0.97	3.77	3.43
45	1.50	0.35	1.84	1.67	5.61	5.10
50	1.75	0.30	4.71	4.28	10.32	9.38
60	2.00	0.25	8.41	7.65	18.73	17.03
70	2.25	0.21	12.44	11.31	31.17	28.34
80	2.50	0.18	23.72	21.57	54.89	49.91
120	3.00	0.13	43.25	39.32	98.14	89.23
170	3.50	0.09	8.19	7.45	106.33	96.68
200	3.75	0.07	0.44	0.40	106.77	97.08
230	4.00	0.06	0.15	0.14	106.92	97.22

Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
3.39	2.93	2.82	2.50	2.18	1.97	1.49

Moment Statistics	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
	2.41	0.19	0.6	-2.17	13.16

ALABAMA DIVC-10.GPJ FL DEP ROSS.GDT 3/14/11

Granularmetric Report

Depths and elevations based on measured values

Project Name: Dauphin Island Shore Protection

Sample Name: DIVC-10-11 #5

Analysis Date: 09-22-10

Analyzed By: JR

Coastal Planning & Engineering
2481 NW Boca Raton Blvd, Boca Raton
FL 33431
ph (561) 391-8102
fax (561) 391-9116

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
1,788,371	63,930	Alabama State Plane West	-34.7 NAVD 88

USCS:	Munsell:	Comments:
SP-SC	Wet - 5Y-6/3 Dry - 5Y-6/1 Washed - 5Y-7/1	

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
94.18	89.65	0.14	0.03	#200 - 5.28 #230 - 4.98			0

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
5/8"	-4.00	16.00	0.00	0.00	0.00	0.00
7/16"	-3.50	11.31	0.00	0.00	0.00	0.00
5/16"	-3.00	8.00	0.00	0.00	0.00	0.00
3.5	-2.50	5.66	0.16	0.17	0.16	0.17
5	-2.00	4.00	0.12	0.13	0.28	0.30
7	-1.50	2.83	0.32	0.34	0.60	0.64
10	-1.00	2.00	0.48	0.51	1.08	1.15
14	-0.50	1.41	0.51	0.54	1.59	1.69
18	0.00	1.00	0.45	0.48	2.04	2.17
25	0.50	0.71	0.51	0.54	2.55	2.71
35	1.00	0.50	0.90	0.96	3.45	3.67
40	1.25	0.42	0.76	0.81	4.21	4.48
45	1.50	0.35	1.57	1.67	5.78	6.15
50	1.75	0.30	4.82	5.12	10.60	11.27
60	2.00	0.25	9.86	10.47	20.46	21.74
70	2.25	0.21	15.38	16.33	35.84	38.07
80	2.50	0.18	23.01	24.43	58.85	62.50
120	3.00	0.13	25.38	26.95	84.23	89.45
170	3.50	0.09	4.44	4.71	88.67	94.16
200	3.75	0.07	0.53	0.56	89.20	94.72
230	4.00	0.06	0.28	0.30	89.48	95.02

Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
3.98	2.90	2.73	2.37	2.05	1.86	1.33

Moment	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
Statistics	2.26	0.21	0.73	-2.75	15.58

ALABAMA DIVC-10.GPJ FL DEP ROSS.GDT 3/14/11

Granularmetric Report

Depths and elevations based on measured values

Project Name: Dauphin Island Shore Protection

Sample Name: DIVC-10-12 #1

Analysis Date: 09-22-10

Analyzed By: JR

Coastal Planning & Engineering
2481 NW Boca Raton Blvd, Boca Raton
FL 33431
ph (561) 391-8102
fax (561) 391-9116

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
1,788,442	63,059	Alabama State Plane West	-23.3 NAVD 88

USCS:	Munsell:	Comments:
SP	Wet - 2.5Y-5/1 Dry - 5Y-8/2 Washed - 5Y-8/2	

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
114.66	113.65	0.01	0.18	#200 - 1.09 #230 - 1.08			0

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
5/8"	-4.00	16.00	0.00	0.00	0.00	0.00
7/16"	-3.50	11.31	0.00	0.00	0.00	0.00
5/16"	-3.00	8.00	0.00	0.00	0.00	0.00
3.5	-2.50	5.66	0.00	0.00	0.00	0.00
5	-2.00	4.00	0.00	0.00	0.00	0.00
7	-1.50	2.83	0.01	0.01	0.01	0.01
10	-1.00	2.00	0.05	0.04	0.06	0.05
14	-0.50	1.41	0.08	0.07	0.14	0.12
18	0.00	1.00	0.09	0.08	0.23	0.20
25	0.50	0.71	0.29	0.25	0.52	0.45
35	1.00	0.50	2.33	2.03	2.85	2.48
40	1.25	0.42	3.19	2.78	6.04	5.26
45	1.50	0.35	5.69	4.96	11.73	10.22
50	1.75	0.30	19.89	17.35	31.62	27.57
60	2.00	0.25	25.76	22.47	57.38	50.04
70	2.25	0.21	22.91	19.98	80.29	70.02
80	2.50	0.18	20.67	18.03	100.96	88.05
120	3.00	0.13	11.70	10.20	112.66	98.25
170	3.50	0.09	0.71	0.62	113.37	98.87
200	3.75	0.07	0.05	0.04	113.42	98.91
230	4.00	0.06	0.01	0.01	113.43	98.92

Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.84	2.44	2.32	2.00	1.71	1.58	1.23

Moment Statistics	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
	1.99	0.25	0.47	-0.63	5.72

ALABAMA DIVC-10.GPJ FL DEP ROSS.GDT 3/14/11

Granularmetric Report

Depths and elevations based on measured values

Project Name: Dauphin Island Shore Protection

Sample Name: DIVC-10-12 #2

Analysis Date: 09-22-10

Analyzed By: JR

Coastal Planning & Engineering
2481 NW Boca Raton Blvd, Boca Raton
FL 33431
ph (561) 391-8102
fax (561) 391-9116

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
1,788,442	63,059	Alabama State Plane West	-26.3 NAVD 88

USCS:	Munsell:	Comments:
SP	Wet - 2.5Y-5/1 Dry - 5Y-7/2 Washed - 5Y-8/2	

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
90.44	89.40	0.01	0.10	#200 - 1.25 #230 - 1.25			0

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
5/8"	-4.00	16.00	0.00	0.00	0.00	0.00
7/16"	-3.50	11.31	0.00	0.00	0.00	0.00
5/16"	-3.00	8.00	0.00	0.00	0.00	0.00
3.5	-2.50	5.66	0.00	0.00	0.00	0.00
5	-2.00	4.00	0.04	0.04	0.04	0.04
7	-1.50	2.83	0.15	0.17	0.19	0.21
10	-1.00	2.00	0.14	0.15	0.33	0.36
14	-0.50	1.41	0.24	0.27	0.57	0.63
18	0.00	1.00	0.27	0.30	0.84	0.93
25	0.50	0.71	0.52	0.57	1.36	1.50
35	1.00	0.50	2.16	2.39	3.52	3.89
40	1.25	0.42	2.84	3.14	6.36	7.03
45	1.50	0.35	5.55	6.14	11.91	13.17
50	1.75	0.30	13.28	14.68	25.19	27.85
60	2.00	0.25	20.21	22.35	45.40	50.20
70	2.25	0.21	18.89	20.89	64.29	71.09
80	2.50	0.18	16.32	18.05	80.61	89.14
120	3.00	0.13	8.22	9.09	88.83	98.23
170	3.50	0.09	0.44	0.49	89.27	98.72
200	3.75	0.07	0.03	0.03	89.30	98.75
230	4.00	0.06	0.00	0.00	89.30	98.75

Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.82	2.43	2.30	2.00	1.70	1.55	1.09

Moment	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
Statistics	1.95	0.26	0.55	-1.75	11.33

ALABAMA DIVC-10.GPJ FL DEP ROSS.GDT 3/14/11

Granularmetric Report

Depths and elevations based on measured values

Project Name: Dauphin Island Shore Protection

Sample Name: DIVC-10-12 #3

Analysis Date: 09-22-10

Analyzed By: JR

Coastal Planning & Engineering
2481 NW Boca Raton Blvd, Boca Raton
FL 33431
ph (561) 391-8102
fax (561) 391-9116

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
1,788,442	63,059	Alabama State Plane West	-30.7 NAVD 88

USCS:	Munsell:	Comments:
SP	Wet - 2.5Y-5/1 Dry - 5Y-7/1 Washed - 5Y-7/1	

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
108.70	107.25	0.03	0.13	#200 - 1.59 #230 - 1.50			1

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
5/8"	-4.00	16.00	0.00	0.00	0.00	0.00
7/16"	-3.50	11.31	0.00	0.00	0.00	0.00
5/16"	-3.00	8.00	0.00	0.00	0.00	0.00
3.5	-2.50	5.66	0.20	0.18	0.20	0.18
5	-2.00	4.00	0.08	0.07	0.28	0.25
7	-1.50	2.83	0.47	0.43	0.75	0.68
10	-1.00	2.00	0.65	0.60	1.40	1.28
14	-0.50	1.41	0.81	0.75	2.21	2.03
18	0.00	1.00	1.01	0.93	3.22	2.96
25	0.50	0.71	1.60	1.47	4.82	4.43
35	1.00	0.50	5.11	4.70	9.93	9.13
40	1.25	0.42	4.64	4.27	14.57	13.40
45	1.50	0.35	3.22	2.96	17.79	16.36
50	1.75	0.30	20.91	19.24	38.70	35.60
60	2.00	0.25	24.23	22.29	62.93	57.89
70	2.25	0.21	15.85	14.58	78.78	72.47
80	2.50	0.18	15.31	14.08	94.09	86.55
120	3.00	0.13	10.79	9.93	104.88	96.48
170	3.50	0.09	1.90	1.75	106.78	98.23
200	3.75	0.07	0.20	0.18	106.98	98.41
230	4.00	0.06	0.10	0.09	107.08	98.50

Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.93	2.45	2.29	1.91	1.61	1.47	0.56

Moment	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
Statistics	1.84	0.28	0.76	-1.86	9.79

ALABAMA DIVC-10.GPJ FL DEP ROSS.GDT 3/14/11

Granularmetric Report

Depths and elevations based on measured values

Project Name: Dauphin Island Shore Protection

Sample Name: DIVC-10-12 #4

Analysis Date: 09-22-10

Analyzed By: JR

Coastal Planning & Engineering
2481 NW Boca Raton Blvd, Boca Raton
FL 33431
ph (561) 391-8102
fax (561) 391-9116

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
1,788,442	63,059	Alabama State Plane West	-35.6 NAVD 88

USCS:	Munsell:	Comments:
SP	Wet - 5Y-5/1 Dry - 5Y-7/1 Washed - 5Y-7/1	

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
97.91	95.08	0.02	0.15	#200 - 3.17 #230 - 3.06			0

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
5/8"	-4.00	16.00	0.00	0.00	0.00	0.00
7/16"	-3.50	11.31	0.00	0.00	0.00	0.00
5/16"	-3.00	8.00	0.00	0.00	0.00	0.00
3.5	-2.50	5.66	0.24	0.25	0.24	0.25
5	-2.00	4.00	0.17	0.17	0.41	0.42
7	-1.50	2.83	0.19	0.19	0.60	0.61
10	-1.00	2.00	0.39	0.40	0.99	1.01
14	-0.50	1.41	0.67	0.68	1.66	1.69
18	0.00	1.00	0.89	0.91	2.55	2.60
25	0.50	0.71	1.41	1.44	3.96	4.04
35	1.00	0.50	3.41	3.48	7.37	7.52
40	1.25	0.42	3.27	3.34	10.64	10.86
45	1.50	0.35	4.59	4.69	15.23	15.55
50	1.75	0.30	8.06	8.23	23.29	23.78
60	2.00	0.25	10.70	10.93	33.99	34.71
70	2.25	0.21	13.46	13.75	47.45	48.46
80	2.50	0.18	22.02	22.49	69.47	70.95
120	3.00	0.13	21.80	22.27	91.27	93.22
170	3.50	0.09	3.27	3.34	94.54	96.56
200	3.75	0.07	0.26	0.27	94.80	96.83
230	4.00	0.06	0.11	0.11	94.91	96.94

Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
3.27	2.79	2.59	2.27	1.78	1.51	0.64

Moment Statistics	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
	2.07	0.24	0.8	-1.99	9.76

ALABAMA DIVC-10.GPJ FL DEP ROSS.GDT 3/14/11

Granularmetric Report

Depths and elevations based on measured values

Project Name: Dauphin Island Shore Protection

Sample Name: DIVC-10-13 #1

Analysis Date: 09-22-10

Analyzed By: JR

Coastal Planning & Engineering
2481 NW Boca Raton Blvd, Boca Raton
FL 33431
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fax (561) 391-9116

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
1,789,373	63,248	Alabama State Plane West	-20.4 NAVD 88

USCS:	Munsell:	Comments:
SP	Wet - 2.5Y-6/2 Dry - 5Y-7/2 Washed - 5Y-8/2	

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
114.81	113.56	0.01	0.03	#200 - 1.12 #230 - 1.11			0

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
5/8"	-4.00	16.00	0.00	0.00	0.00	0.00
7/16"	-3.50	11.31	0.00	0.00	0.00	0.00
5/16"	-3.00	8.00	0.00	0.00	0.00	0.00
3.5	-2.50	5.66	0.13	0.11	0.13	0.11
5	-2.00	4.00	0.00	0.00	0.13	0.11
7	-1.50	2.83	0.06	0.05	0.19	0.16
10	-1.00	2.00	0.15	0.13	0.34	0.29
14	-0.50	1.41	0.17	0.15	0.51	0.44
18	0.00	1.00	0.30	0.26	0.81	0.70
25	0.50	0.71	0.58	0.51	1.39	1.21
35	1.00	0.50	2.13	1.86	3.52	3.07
40	1.25	0.42	2.67	2.33	6.19	5.40
45	1.50	0.35	6.23	5.43	12.42	10.83
50	1.75	0.30	18.78	16.36	31.20	27.19
60	2.00	0.25	23.06	20.09	54.26	47.28
70	2.25	0.21	27.40	23.87	81.66	71.15
80	2.50	0.18	20.05	17.46	101.71	88.61
120	3.00	0.13	11.39	9.92	113.10	98.53
170	3.50	0.09	0.37	0.32	113.47	98.85
200	3.75	0.07	0.03	0.03	113.50	98.88
230	4.00	0.06	0.01	0.01	113.51	98.89

Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.82	2.43	2.31	2.03	1.72	1.58	1.21

Moment	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
Statistics	1.98	0.25	0.52	-1.98	15.11

ALABAMA DIVC-10.GPJ FL DEP ROSS.GDT 3/14/11

Granularmetric Report

Depths and elevations based on measured values

Project Name: Dauphin Island Shore Protection

Sample Name: DIVC-10-13 #2

Analysis Date: 09-22-10

Analyzed By: JR

Coastal Planning & Engineering
2481 NW Boca Raton Blvd, Boca Raton
FL 33431
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fax (561) 391-9116

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
1,789,373	63,248	Alabama State Plane West	-28.9 NAVD 88

USCS:	Munsell:	Comments:
SP	Wet - 5Y-6/2 Dry - 5Y-7/2 Washed - 5Y-7/1	

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
121.17	119.69	0.01	0.07	#200 - 1.31 #230 - 1.30			0

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
5/8"	-4.00	16.00	0.00	0.00	0.00	0.00
7/16"	-3.50	11.31	0.00	0.00	0.00	0.00
5/16"	-3.00	8.00	0.00	0.00	0.00	0.00
3.5	-2.50	5.66	0.00	0.00	0.00	0.00
5	-2.00	4.00	0.00	0.00	0.00	0.00
7	-1.50	2.83	0.02	0.02	0.02	0.02
10	-1.00	2.00	0.07	0.06	0.09	0.08
14	-0.50	1.41	0.13	0.11	0.22	0.19
18	0.00	1.00	0.23	0.19	0.45	0.38
25	0.50	0.71	0.50	0.41	0.95	0.79
35	1.00	0.50	2.14	1.77	3.09	2.56
40	1.25	0.42	2.74	2.26	5.83	4.82
45	1.50	0.35	4.96	4.09	10.79	8.91
50	1.75	0.30	13.19	10.89	23.98	19.80
60	2.00	0.25	22.61	18.66	46.59	38.46
70	2.25	0.21	29.62	24.44	76.21	62.90
80	2.50	0.18	28.94	23.88	105.15	86.78
120	3.00	0.13	13.31	10.98	118.46	97.76
170	3.50	0.09	1.05	0.87	119.51	98.63
200	3.75	0.07	0.07	0.06	119.58	98.69
230	4.00	0.06	0.01	0.01	119.59	98.70

Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.87	2.47	2.38	2.12	1.82	1.66	1.26

Moment Statistics	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
	2.07	0.24	0.48	-1.16	7.67

ALABAMA DIVC-10.GPJ FL DEP ROSS.GDT 3/14/11

Granularmetric Report

Depths and elevations based on measured values

Project Name: Dauphin Island Shore Protection

Sample Name: DIVC-10-13 #3

Analysis Date: 09-22-10

Analyzed By: JR

Coastal Planning & Engineering
2481 NW Boca Raton Blvd, Boca Raton
FL 33431
ph (561) 391-8102
fax (561) 391-9116

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
1,789,373	63,248	Alabama State Plane West	-33.5 NAVD 88

USCS:	Munsell:	Comments:
SP	Wet - 5Y-6/1 Dry - 5Y-7/2 Washed - 5Y-7/1	

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
106.51	101.59	0.02	0.06	#200 - 4.73 #230 - 4.68			0

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
5/8"	-4.00	16.00	0.00	0.00	0.00	0.00
7/16"	-3.50	11.31	0.00	0.00	0.00	0.00
5/16"	-3.00	8.00	0.00	0.00	0.00	0.00
3.5	-2.50	5.66	0.00	0.00	0.00	0.00
5	-2.00	4.00	0.00	0.00	0.00	0.00
7	-1.50	2.83	0.00	0.00	0.00	0.00
10	-1.00	2.00	0.06	0.06	0.06	0.06
14	-0.50	1.41	0.10	0.09	0.16	0.15
18	0.00	1.00	0.16	0.15	0.32	0.30
25	0.50	0.71	0.21	0.20	0.53	0.50
35	1.00	0.50	0.66	0.62	1.19	1.12
40	1.25	0.42	0.73	0.69	1.92	1.81
45	1.50	0.35	1.47	1.38	3.39	3.19
50	1.75	0.30	6.61	6.21	10.00	9.40
60	2.00	0.25	13.87	13.02	23.87	22.42
70	2.25	0.21	23.63	22.19	47.50	44.61
80	2.50	0.18	27.03	25.38	74.53	69.99
120	3.00	0.13	24.55	23.05	99.08	93.04
170	3.50	0.09	2.24	2.10	101.32	95.14
200	3.75	0.07	0.14	0.13	101.46	95.27
230	4.00	0.06	0.05	0.05	101.51	95.32

Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
3.47	2.80	2.61	2.30	2.03	1.88	1.57

Moment Statistics	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
	2.26	0.21	0.46	-1.15	8.81

ALABAMA DIVC-10.GPJ FL DEP ROSS.GDT 3/14/11

Granularmetric Report

Depths and elevations based on measured values

Project Name: Dauphin Island Shore Protection

Sample Name: DIVC-10-14 #1

Analysis Date: 09-22-10

Analyzed By: JR

Coastal Planning & Engineering
2481 NW Boca Raton Blvd, Boca Raton
FL 33431
ph (561) 391-8102
fax (561) 391-9116

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
1,789,853	68,589	Alabama State Plane West	-15.9 NAVD 88

USCS:	Munsell:	Comments:
SP	Wet - 2.5Y-6/2 Dry - 5Y-7/2 Washed - 2.5Y-8/1	

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
104.39	103.02	0.01	0.11	#200 - 1.46 #230 - 1.44			0

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
5/8"	-4.00	16.00	0.00	0.00	0.00	0.00
7/16"	-3.50	11.31	0.00	0.00	0.00	0.00
5/16"	-3.00	8.00	0.00	0.00	0.00	0.00
3.5	-2.50	5.66	0.47	0.45	0.47	0.45
5	-2.00	4.00	0.13	0.12	0.60	0.57
7	-1.50	2.83	0.24	0.23	0.84	0.80
10	-1.00	2.00	0.52	0.50	1.36	1.30
14	-0.50	1.41	0.90	0.86	2.26	2.16
18	0.00	1.00	1.40	1.34	3.66	3.50
25	0.50	0.71	3.44	3.30	7.10	6.80
35	1.00	0.50	11.11	10.64	18.21	17.44
40	1.25	0.42	9.14	8.76	27.35	26.20
45	1.50	0.35	12.15	11.64	39.50	37.84
50	1.75	0.30	17.09	16.37	56.59	54.21
60	2.00	0.25	16.34	15.65	72.93	69.86
70	2.25	0.21	13.04	12.49	85.97	82.35
80	2.50	0.18	11.68	11.19	97.65	93.54
120	3.00	0.13	5.01	4.80	102.66	98.34
170	3.50	0.09	0.18	0.17	102.84	98.51
200	3.75	0.07	0.03	0.03	102.87	98.54
230	4.00	0.06	0.02	0.02	102.89	98.56

Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.65	2.29	2.10	1.69	1.22	0.93	0.23

Moment	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
Statistics	1.56	0.34	0.79	-1.62	8.34

ALABAMA DIVC-10.GPJ FL DEP ROSS.GDT 3/14/11

Granularmetric Report

Depths and elevations based on measured values

Project Name: Dauphin Island Shore Protection

Sample Name: DIVC-10-14 #2

Analysis Date: 09-22-10

Analyzed By: JR

Coastal Planning & Engineering
2481 NW Boca Raton Blvd, Boca Raton
FL 33431
ph (561) 391-8102
fax (561) 391-9116

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
1,789,853	68,589	Alabama State Plane West	-18.9 NAVD 88

USCS:	Munsell:	Comments:
SP	Wet - 5Y-7/1 Dry - 5Y-7/1 Washed - 5Y-7/1	

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
98.91	97.82	0.00	0.01	#200 - 1.16 #230 - 1.12			0

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
5/8"	-4.00	16.00	0.00	0.00	0.00	0.00
7/16"	-3.50	11.31	0.00	0.00	0.00	0.00
5/16"	-3.00	8.00	0.00	0.00	0.00	0.00
3.5	-2.50	5.66	0.00	0.00	0.00	0.00
5	-2.00	4.00	0.07	0.07	0.07	0.07
7	-1.50	2.83	0.06	0.06	0.13	0.13
10	-1.00	2.00	0.07	0.07	0.20	0.20
14	-0.50	1.41	0.07	0.07	0.27	0.27
18	0.00	1.00	0.09	0.09	0.36	0.36
25	0.50	0.71	0.13	0.13	0.49	0.49
35	1.00	0.50	0.57	0.58	1.06	1.07
40	1.25	0.42	0.73	0.74	1.79	1.81
45	1.50	0.35	0.77	0.78	2.56	2.59
50	1.75	0.30	7.76	7.85	10.32	10.44
60	2.00	0.25	14.59	14.75	24.91	25.19
70	2.25	0.21	24.67	24.94	49.58	50.13
80	2.50	0.18	25.80	26.08	75.38	76.21
120	3.00	0.13	21.15	21.38	96.53	97.59
170	3.50	0.09	1.18	1.19	97.71	98.78
200	3.75	0.07	0.06	0.06	97.77	98.84
230	4.00	0.06	0.04	0.04	97.81	98.88

Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.94	2.68	2.49	2.25	2.00	1.84	1.58

Moment Statistics	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
	2.23	0.21	0.46	-1.98	17.45

ALABAMA DIVC-10.GPJ FL DEP ROSS.GDT 3/14/11

Granularmetric Report

Depths and elevations based on measured values

Project Name: Dauphin Island Shore Protection

Sample Name: DIVC-10-14 #3

Analysis Date: 09-22-10

Analyzed By: JR

Coastal Planning & Engineering
2481 NW Boca Raton Blvd, Boca Raton
FL 33431
ph (561) 391-8102
fax (561) 391-9116

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
1,789,853	68,589	Alabama State Plane West	-20.8 NAVD 88

USCS:	Munsell:	Comments:
SP	Wet - 5Y-6/1 Dry - 5Y-6/1 Washed - 5Y-6/1	

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
101.24	98.66	0.02	0.07	#200 - 2.67 #230 - 2.64			0

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
5/8"	-4.00	16.00	0.00	0.00	0.00	0.00
7/16"	-3.50	11.31	0.00	0.00	0.00	0.00
5/16"	-3.00	8.00	0.00	0.00	0.00	0.00
3.5	-2.50	5.66	0.58	0.57	0.58	0.57
5	-2.00	4.00	0.25	0.25	0.83	0.82
7	-1.50	2.83	0.16	0.16	0.99	0.98
10	-1.00	2.00	0.26	0.26	1.25	1.24
14	-0.50	1.41	0.47	0.46	1.72	1.70
18	0.00	1.00	0.44	0.43	2.16	2.13
25	0.50	0.71	1.08	1.07	3.24	3.20
35	1.00	0.50	3.91	3.86	7.15	7.06
40	1.25	0.42	4.26	4.21	11.41	11.27
45	1.50	0.35	8.46	8.36	19.87	19.63
50	1.75	0.30	17.37	17.16	37.24	36.79
60	2.00	0.25	21.97	21.70	59.21	58.49
70	2.25	0.21	18.77	18.54	77.98	77.03
80	2.50	0.18	13.54	13.37	91.52	90.40
120	3.00	0.13	6.28	6.20	97.80	96.60
170	3.50	0.09	0.66	0.65	98.46	97.25
200	3.75	0.07	0.08	0.08	98.54	97.33
230	4.00	0.06	0.03	0.03	98.57	97.36

Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.87	2.38	2.22	1.90	1.58	1.39	0.73

Moment Statistics	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
	1.8	0.29	0.71	-2.69	16.14

ALABAMA DIVC-10.GPJ FL DEP ROSS.GDT 3/14/11

Granularmetric Report

Depths and elevations based on measured values

Project Name: Dauphin Island Shore Protection

Sample Name: DIVC-10-14 #4

Analysis Date: 09-23-10

Analyzed By: JR

Coastal Planning & Engineering
2481 NW Boca Raton Blvd, Boca Raton
FL 33431
ph (561) 391-8102
fax (561) 391-9116

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
1,789,853	68,589	Alabama State Plane West	-24.9 NAVD 88

USCS:	Munsell:	Comments:
SP	Wet - 5Y-6/1 Dry - 5Y-6/1 Washed - 5Y-6/1	

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
110.48	108.71	0.02	0.05	#200 - 1.67 #230 - 1.66			0

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
5/8"	-4.00	16.00	0.00	0.00	0.00	0.00
7/16"	-3.50	11.31	0.00	0.00	0.00	0.00
5/16"	-3.00	8.00	0.00	0.00	0.00	0.00
3.5	-2.50	5.66	0.00	0.00	0.00	0.00
5	-2.00	4.00	0.00	0.00	0.00	0.00
7	-1.50	2.83	0.02	0.02	0.02	0.02
10	-1.00	2.00	0.07	0.06	0.09	0.08
14	-0.50	1.41	0.08	0.07	0.17	0.15
18	0.00	1.00	0.43	0.39	0.60	0.54
25	0.50	0.71	0.40	0.36	1.00	0.90
35	1.00	0.50	0.56	0.51	1.56	1.41
40	1.25	0.42	0.54	0.49	2.10	1.90
45	1.50	0.35	0.20	0.18	2.30	2.08
50	1.75	0.30	16.32	14.77	18.62	16.85
60	2.00	0.25	23.03	20.85	41.65	37.70
70	2.25	0.21	26.15	23.67	67.80	61.37
80	2.50	0.18	22.81	20.65	90.61	82.02
120	3.00	0.13	17.12	15.50	107.73	97.52
170	3.50	0.09	0.84	0.76	108.57	98.28
200	3.75	0.07	0.06	0.05	108.63	98.33
230	4.00	0.06	0.01	0.01	108.64	98.34

Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.92	2.56	2.42	2.13	1.85	1.74	1.55

Moment	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
Statistics	2.12	0.23	0.45	-1.25	10.11

ALABAMA DIVC-10.GPJ FL DEP ROSS.GDT 3/14/11

Granularmetric Report

Depths and elevations based on measured values

Project Name: Dauphin Island Shore Protection

Sample Name: DIVC-10-14 #5

Analysis Date: 09-23-10

Analyzed By: JR

Coastal Planning & Engineering
2481 NW Boca Raton Blvd, Boca Raton
FL 33431
ph (561) 391-8102
fax (561) 391-9116

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
1,789,853	68,589	Alabama State Plane West	-30.9 NAVD 88

USCS:	Munsell:	Comments:
SP	Wet - 5Y-6/2 Dry - 5Y-6/1 Washed - 5Y-7/1	

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
106.15	101.93	0.07	0.04	#200 - 4.36 #230 - 4.08			0

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
5/8"	-4.00	16.00	0.00	0.00	0.00	0.00
7/16"	-3.50	11.31	0.00	0.00	0.00	0.00
5/16"	-3.00	8.00	0.00	0.00	0.00	0.00
3.5	-2.50	5.66	0.00	0.00	0.00	0.00
5	-2.00	4.00	0.00	0.00	0.00	0.00
7	-1.50	2.83	0.02	0.02	0.02	0.02
10	-1.00	2.00	0.01	0.01	0.03	0.03
14	-0.50	1.41	0.04	0.04	0.07	0.07
18	0.00	1.00	0.06	0.06	0.13	0.13
25	0.50	0.71	0.07	0.07	0.20	0.20
35	1.00	0.50	0.17	0.16	0.37	0.36
40	1.25	0.42	0.14	0.13	0.51	0.49
45	1.50	0.35	0.23	0.22	0.74	0.71
50	1.75	0.30	1.03	0.97	1.77	1.68
60	2.00	0.25	5.32	5.01	7.09	6.69
70	2.25	0.21	15.84	14.92	22.93	21.61
80	2.50	0.18	39.98	37.66	62.91	59.27
120	3.00	0.13	34.29	32.30	97.20	91.57
170	3.50	0.09	3.79	3.57	100.99	95.14
200	3.75	0.07	0.53	0.50	101.52	95.64
230	4.00	0.06	0.30	0.28	101.82	95.92

Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
3.48	2.88	2.74	2.44	2.27	2.16	1.92

Moment Statistics	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
	2.46	0.18	0.37	-0.91	13.09

ALABAMA DIVC-10.GPJ FL DEP ROSS.GDT 3/14/11

Granularmetric Report

Depths and elevations based on measured values

Project Name: Dauphin Island Shore Protection

Sample Name: DIVC-10-15 #1

Analysis Date: 09-23-10

Analyzed By: JR

Coastal Planning & Engineering
2481 NW Boca Raton Blvd, Boca Raton
FL 33431
ph (561) 391-8102
fax (561) 391-9116

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
1,790,086	67,775	Alabama State Plane West	-16.0 NAVD 88

USCS:	Munsell:	Comments:
SW	Wet - 2.5Y-6/2 Dry - 2.5Y-7/2 Washed - 2.5Y-8/2	

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
113.92	113.30	0.01	0.05	#200 - 0.63 #230 - 0.62			1

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
5/8"	-4.00	16.00	0.00	0.00	0.00	0.00
7/16"	-3.50	11.31	0.00	0.00	0.00	0.00
5/16"	-3.00	8.00	0.15	0.13	0.15	0.13
3.5	-2.50	5.66	1.06	0.93	1.21	1.06
5	-2.00	4.00	0.46	0.40	1.67	1.46
7	-1.50	2.83	0.45	0.40	2.12	1.86
10	-1.00	2.00	0.70	0.61	2.82	2.47
14	-0.50	1.41	0.64	0.56	3.46	3.03
18	0.00	1.00	1.04	0.91	4.50	3.94
25	0.50	0.71	2.51	2.20	7.01	6.14
35	1.00	0.50	10.09	8.86	17.10	15.00
40	1.25	0.42	8.06	7.08	25.16	22.08
45	1.50	0.35	11.70	10.27	36.86	32.35
50	1.75	0.30	19.49	17.11	56.35	49.46
60	2.00	0.25	19.36	16.99	75.71	66.45
70	2.25	0.21	15.76	13.83	91.47	80.28
80	2.50	0.18	15.64	13.73	107.11	94.01
120	3.00	0.13	5.86	5.14	112.97	99.15
170	3.50	0.09	0.21	0.18	113.18	99.33
200	3.75	0.07	0.04	0.04	113.22	99.37
230	4.00	0.06	0.01	0.01	113.23	99.38

Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.60	2.32	2.15	1.76	1.32	1.04	0.24

Moment	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
Statistics	1.61	0.33	0.87	-2.31	11.23

ALABAMA DIVC-10.GPJ FL DEP ROSS.GDT 3/14/11

Granularmetric Report

Depths and elevations based on measured values

Project Name: Dauphin Island Shore Protection

Sample Name: DIVC-10-15 #2

Analysis Date: 09-23-10

Analyzed By: JR

Coastal Planning & Engineering
2481 NW Boca Raton Blvd, Boca Raton
FL 33431
ph (561) 391-8102
fax (561) 391-9116

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
1,790,086	67,775	Alabama State Plane West	-19.0 NAVD 88

USCS:	Munsell:	Comments:
SP	Wet - 5Y-6/1 Dry - 5Y-7/1 Washed - 5Y-8/1	

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
94.60	93.46	0.01	0.00	#200 - 1.21 #230 - 1.21			0

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
5/8"	-4.00	16.00	0.00	0.00	0.00	0.00
7/16"	-3.50	11.31	0.00	0.00	0.00	0.00
5/16"	-3.00	8.00	0.00	0.00	0.00	0.00
3.5	-2.50	5.66	0.14	0.15	0.14	0.15
5	-2.00	4.00	0.04	0.04	0.18	0.19
7	-1.50	2.83	0.15	0.16	0.33	0.35
10	-1.00	2.00	0.27	0.29	0.60	0.64
14	-0.50	1.41	0.27	0.29	0.87	0.93
18	0.00	1.00	0.36	0.38	1.23	1.31
25	0.50	0.71	0.52	0.55	1.75	1.86
35	1.00	0.50	1.79	1.89	3.54	3.75
40	1.25	0.42	1.88	1.99	5.42	5.74
45	1.50	0.35	5.43	5.74	10.85	11.48
50	1.75	0.30	15.96	16.87	26.81	28.35
60	2.00	0.25	22.48	23.76	49.29	52.11
70	2.25	0.21	22.74	24.04	72.03	76.15
80	2.50	0.18	15.14	16.00	87.17	92.15
120	3.00	0.13	5.96	6.30	93.13	98.45
170	3.50	0.09	0.29	0.31	93.42	98.76
200	3.75	0.07	0.03	0.03	93.45	98.79
230	4.00	0.06	0.00	0.00	93.45	98.79

Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.73	2.37	2.24	1.98	1.70	1.57	1.16

Moment	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
Statistics	1.92	0.26	0.56	-2.7	18.67

ALABAMA DIVC-10.GPJ FL DEP ROSS.GDT 3/14/11

Granularmetric Report

Depths and elevations based on measured values

Project Name: Dauphin Island Shore Protection

Sample Name: DIVC-10-15 #3

Analysis Date: 09-23-10

Analyzed By: JR

Coastal Planning & Engineering
2481 NW Boca Raton Blvd, Boca Raton
FL 33431
ph (561) 391-8102
fax (561) 391-9116

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
1,790,086	67,775	Alabama State Plane West	-21.1 NAVD 88

USCS:	Munsell:	Comments:
SP	Wet - 5Y-5/1 Dry - 5Y-6/1 Washed - 5Y-7/1	

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
101.40	100.09	0.01	0.05	#200 - 1.39 #230 - 1.35			0

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
5/8"	-4.00	16.00	0.00	0.00	0.00	0.00
7/16"	-3.50	11.31	0.00	0.00	0.00	0.00
5/16"	-3.00	8.00	0.00	0.00	0.00	0.00
3.5	-2.50	5.66	0.00	0.00	0.00	0.00
5	-2.00	4.00	0.00	0.00	0.00	0.00
7	-1.50	2.83	0.05	0.05	0.05	0.05
10	-1.00	2.00	0.06	0.06	0.11	0.11
14	-0.50	1.41	0.09	0.09	0.20	0.20
18	0.00	1.00	0.17	0.17	0.37	0.37
25	0.50	0.71	0.24	0.24	0.61	0.61
35	1.00	0.50	0.75	0.74	1.36	1.35
40	1.25	0.42	0.69	0.68	2.05	2.03
45	1.50	0.35	1.61	1.59	3.66	3.62
50	1.75	0.30	5.61	5.53	9.27	9.15
60	2.00	0.25	15.04	14.83	24.31	23.98
70	2.25	0.21	26.02	25.66	50.33	49.64
80	2.50	0.18	31.60	31.16	81.93	80.80
120	3.00	0.13	17.37	17.13	99.30	97.93
170	3.50	0.09	0.61	0.60	99.91	98.53
200	3.75	0.07	0.08	0.08	99.99	98.61
230	4.00	0.06	0.04	0.04	100.03	98.65

Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.91	2.59	2.45	2.25	2.01	1.87	1.56

Moment Statistics	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
	2.21	0.22	0.43	-1.8	13.69

ALABAMA DIVC-10.GPJ FL DEP ROSS.GDT 3/14/11

Granularmetric Report

Depths and elevations based on measured values

Project Name: Dauphin Island Shore Protection

Sample Name: DIVC-10-15 #4

Analysis Date: 09-23-10

Analyzed By: JR

Coastal Planning & Engineering
2481 NW Boca Raton Blvd, Boca Raton
FL 33431
ph (561) 391-8102
fax (561) 391-9116

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
1,790,086	67,775	Alabama State Plane West	-27.0 NAVD 88

USCS:	Munsell:	Comments:
SP	Wet - 5Y-5/1 Dry - 5Y-6/1 Washed - 5Y-7/1	

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
122.69	120.45	0.02	0.07	#200 - 1.94 #230 - 1.89			0

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
5/8"	-4.00	16.00	0.00	0.00	0.00	0.00
7/16"	-3.50	11.31	0.00	0.00	0.00	0.00
5/16"	-3.00	8.00	0.00	0.00	0.00	0.00
3.5	-2.50	5.66	0.07	0.06	0.07	0.06
5	-2.00	4.00	0.24	0.20	0.31	0.26
7	-1.50	2.83	0.14	0.11	0.45	0.37
10	-1.00	2.00	0.20	0.16	0.65	0.53
14	-0.50	1.41	0.23	0.19	0.88	0.72
18	0.00	1.00	0.30	0.24	1.18	0.96
25	0.50	0.71	0.39	0.32	1.57	1.28
35	1.00	0.50	0.61	0.50	2.18	1.78
40	1.25	0.42	0.45	0.37	2.63	2.15
45	1.50	0.35	0.92	0.75	3.55	2.90
50	1.75	0.30	8.76	7.14	12.31	10.04
60	2.00	0.25	29.33	23.91	41.64	33.95
70	2.25	0.21	29.67	24.18	71.31	58.13
80	2.50	0.18	26.84	21.88	98.15	80.01
120	3.00	0.13	20.52	16.73	118.67	96.74
170	3.50	0.09	1.48	1.21	120.15	97.95
200	3.75	0.07	0.13	0.11	120.28	98.06
230	4.00	0.06	0.06	0.05	120.34	98.11

Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.95	2.62	2.44	2.17	1.91	1.81	1.57

Moment	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
Statistics	2.15	0.23	0.53	-3.05	24.46

ALABAMA DIVC-10.GPJ FL DEP ROSS.GDT 3/14/11

Granularmetric Report

Depths and elevations based on measured values

Project Name: Dauphin Island Shore Protection

Sample Name: DIVC-10-16 #1

Analysis Date: 09-23-10

Analyzed By: JR

Coastal Planning & Engineering
2481 NW Boca Raton Blvd, Boca Raton
FL 33431
ph (561) 391-8102
fax (561) 391-9116

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
1,790,971	68,178	Alabama State Plane West	-14.0 NAVD 88

USCS:	Munsell:	Comments:
SP	Wet - 5Y-5/1 Dry - 5Y-7/2 Washed - 5Y-7/2	

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
97.49	96.19	0.01	0.06	#200 - 1.42 #230 - 1.40			1

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
5/8"	-4.00	16.00	0.00	0.00	0.00	0.00
7/16"	-3.50	11.31	0.00	0.00	0.00	0.00
5/16"	-3.00	8.00	0.00	0.00	0.00	0.00
3.5	-2.50	5.66	0.05	0.05	0.05	0.05
5	-2.00	4.00	0.10	0.10	0.15	0.15
7	-1.50	2.83	0.48	0.49	0.63	0.64
10	-1.00	2.00	0.30	0.31	0.93	0.95
14	-0.50	1.41	0.34	0.35	1.27	1.30
18	0.00	1.00	0.60	0.62	1.87	1.92
25	0.50	0.71	1.08	1.11	2.95	3.03
35	1.00	0.50	4.58	4.70	7.53	7.73
40	1.25	0.42	4.97	5.10	12.50	12.83
45	1.50	0.35	8.58	8.80	21.08	21.63
50	1.75	0.30	18.12	18.59	39.20	40.22
60	2.00	0.25	20.59	21.12	59.79	61.34
70	2.25	0.21	19.05	19.54	78.84	80.88
80	2.50	0.18	13.46	13.81	92.30	94.69
120	3.00	0.13	3.62	3.71	95.92	98.40
170	3.50	0.09	0.15	0.15	96.07	98.55
200	3.75	0.07	0.03	0.03	96.10	98.58
230	4.00	0.06	0.02	0.02	96.12	98.60

Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.54	2.31	2.17	1.87	1.55	1.34	0.71

Moment Statistics	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
	1.77	0.29	0.63	-2.18	12.19

ALABAMA DIVC-10.GPJ FL DEP ROSS.GDT 3/14/11

Granularmetric Report

Depths and elevations based on measured values

Project Name: Dauphin Island Shore Protection

Sample Name: DIVC-10-16 #2

Analysis Date: 09-23-10

Analyzed By: JR

Coastal Planning & Engineering
2481 NW Boca Raton Blvd, Boca Raton
FL 33431
ph (561) 391-8102
fax (561) 391-9116

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
1,790,971	68,178	Alabama State Plane West	-15.9 NAVD 88

USCS:	Munsell:	Comments:
SP	Wet - 5Y-6/1 Dry - 5Y-8/1 Washed - 5Y-8/1	

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
111.00	109.83	0.02	0.04	#200 - 1.09 #230 - 1.08			0

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
5/8"	-4.00	16.00	0.00	0.00	0.00	0.00
7/16"	-3.50	11.31	0.00	0.00	0.00	0.00
5/16"	-3.00	8.00	0.50	0.45	0.50	0.45
3.5	-2.50	5.66	0.15	0.14	0.65	0.59
5	-2.00	4.00	0.00	0.00	0.65	0.59
7	-1.50	2.83	0.19	0.17	0.84	0.76
10	-1.00	2.00	0.11	0.10	0.95	0.86
14	-0.50	1.41	0.06	0.05	1.01	0.91
18	0.00	1.00	0.15	0.14	1.16	1.05
25	0.50	0.71	0.23	0.21	1.39	1.26
35	1.00	0.50	1.18	1.06	2.57	2.32
40	1.25	0.42	1.33	1.20	3.90	3.52
45	1.50	0.35	2.77	2.50	6.67	6.02
50	1.75	0.30	9.77	8.80	16.44	14.82
60	2.00	0.25	24.21	21.81	40.65	36.63
70	2.25	0.21	34.02	30.65	74.67	67.28
80	2.50	0.18	24.67	22.23	99.34	89.51
120	3.00	0.13	9.72	8.76	109.06	98.27
170	3.50	0.09	0.65	0.59	109.71	98.86
200	3.75	0.07	0.05	0.05	109.76	98.91
230	4.00	0.06	0.01	0.01	109.77	98.92

Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.81	2.44	2.34	2.11	1.87	1.76	1.40

Moment	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
Statistics	2.05	0.24	0.6	-4.71	39.4

ALABAMA DIVC-10.GPJ FL DEP ROSS.GDT 3/14/11

Granularmetric Report

Depths and elevations based on measured values

Project Name: Dauphin Island Shore Protection

Sample Name: DIVC-10-16 #3

Analysis Date: 09-23-10

Analyzed By: JR

Coastal Planning & Engineering
2481 NW Boca Raton Blvd, Boca Raton
FL 33431
ph (561) 391-8102
fax (561) 391-9116

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
1,790,971	68,178	Alabama State Plane West	-21.1 NAVD 88

USCS:	Munsell:	Comments:
SP	Wet - 5Y-5/1 Dry - 5Y-6/1 Washed - 5Y-7/1	

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
98.66	96.74	0.02	0.08	#200 - 2.18 #230 - 2.07			0

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
5/8"	-4.00	16.00	0.00	0.00	0.00	0.00
7/16"	-3.50	11.31	0.00	0.00	0.00	0.00
5/16"	-3.00	8.00	0.00	0.00	0.00	0.00
3.5	-2.50	5.66	0.00	0.00	0.00	0.00
5	-2.00	4.00	0.14	0.14	0.14	0.14
7	-1.50	2.83	0.21	0.21	0.35	0.35
10	-1.00	2.00	0.27	0.27	0.62	0.62
14	-0.50	1.41	0.34	0.34	0.96	0.96
18	0.00	1.00	0.75	0.76	1.71	1.72
25	0.50	0.71	1.36	1.38	3.07	3.10
35	1.00	0.50	4.18	4.24	7.25	7.34
40	1.25	0.42	5.40	5.47	12.65	12.81
45	1.50	0.35	10.62	10.76	23.27	23.57
50	1.75	0.30	9.46	9.59	32.73	33.16
60	2.00	0.25	12.83	13.00	45.56	46.16
70	2.25	0.21	14.92	15.12	60.48	61.28
80	2.50	0.18	20.28	20.56	80.76	81.84
120	3.00	0.13	14.30	14.49	95.06	96.33
170	3.50	0.09	1.29	1.31	96.35	97.64
200	3.75	0.07	0.18	0.18	96.53	97.82
230	4.00	0.06	0.11	0.11	96.64	97.93

Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.95	2.57	2.42	2.06	1.54	1.32	0.72

Moment	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
Statistics	1.93	0.26	0.71	-1.37	7.32

ALABAMA DIVC-10.GPJ FL DEP ROSS.GDT 3/14/11

Granularmetric Report

Depths and elevations based on measured values

Project Name: Dauphin Island Shore Protection

Sample Name: DIVC-10-16 #4

Analysis Date: 09-23-10

Analyzed By: JR

Coastal Planning & Engineering
2481 NW Boca Raton Blvd, Boca Raton
FL 33431
ph (561) 391-8102
fax (561) 391-9116

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
1,790,971	68,178	Alabama State Plane West	-26.1 NAVD 88

USCS:	Munsell:	Comments:
SP	Wet - 5Y-5/1 Dry - 5Y-6/1 Washed - 5Y-7/1	

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
93.08	91.12	0.01	0.01	#200 - 2.22 #230 - 2.13			0

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
5/8"	-4.00	16.00	0.00	0.00	0.00	0.00
7/16"	-3.50	11.31	0.00	0.00	0.00	0.00
5/16"	-3.00	8.00	0.00	0.00	0.00	0.00
3.5	-2.50	5.66	0.06	0.06	0.06	0.06
5	-2.00	4.00	0.04	0.04	0.10	0.10
7	-1.50	2.83	0.15	0.16	0.25	0.26
10	-1.00	2.00	0.21	0.23	0.46	0.49
14	-0.50	1.41	0.28	0.30	0.74	0.79
18	0.00	1.00	0.45	0.48	1.19	1.27
25	0.50	0.71	0.75	0.81	1.94	2.08
35	1.00	0.50	0.95	1.02	2.89	3.10
40	1.25	0.42	0.79	0.85	3.68	3.95
45	1.50	0.35	1.11	1.19	4.79	5.14
50	1.75	0.30	6.10	6.55	10.89	11.69
60	2.00	0.25	12.82	13.77	23.71	25.46
70	2.25	0.21	24.89	26.74	48.60	52.20
80	2.50	0.18	24.04	25.83	72.64	78.03
120	3.00	0.13	17.21	18.49	89.85	96.52
170	3.50	0.09	1.02	1.10	90.87	97.62
200	3.75	0.07	0.15	0.16	91.02	97.78
230	4.00	0.06	0.08	0.09	91.10	97.87

Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.96	2.66	2.47	2.23	1.99	1.83	1.47

Moment	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
Statistics	2.17	0.22	0.57	-2.73	17.57

ALABAMA DIVC-10.GPJ FL DEP ROSS.GDT 3/14/11

Granularmetric Report

Depths and elevations based on measured values

Project Name: Dauphin Island Shore Protection

Sample Name: DIVC-10-17 #1

Analysis Date: 09-24-10

Analyzed By: JR

Coastal Planning & Engineering
2481 NW Boca Raton Blvd, Boca Raton
FL 33431
ph (561) 391-8102
fax (561) 391-9116

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
1,790,952	67,304	Alabama State Plane West	-15.9 NAVD 88

USCS:	Munsell:	Comments:
SP	Wet - 5Y-4/1 Dry - 2.5Y-7/2 Washed - 2.5Y-7/3	

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
107.71	106.17	0.01	0.09	#200 - 1.54 #230 - 1.52			0

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
5/8"	-4.00	16.00	0.00	0.00	0.00	0.00
7/16"	-3.50	11.31	0.00	0.00	0.00	0.00
5/16"	-3.00	8.00	0.00	0.00	0.00	0.00
3.5	-2.50	5.66	0.00	0.00	0.00	0.00
5	-2.00	4.00	0.10	0.09	0.10	0.09
7	-1.50	2.83	0.16	0.15	0.26	0.24
10	-1.00	2.00	0.25	0.23	0.51	0.47
14	-0.50	1.41	0.19	0.18	0.70	0.65
18	0.00	1.00	0.31	0.29	1.01	0.94
25	0.50	0.71	0.62	0.58	1.63	1.52
35	1.00	0.50	3.01	2.79	4.64	4.31
40	1.25	0.42	3.04	2.82	7.68	7.13
45	1.50	0.35	6.34	5.89	14.02	13.02
50	1.75	0.30	15.66	14.54	29.68	27.56
60	2.00	0.25	25.32	23.51	55.00	51.07
70	2.25	0.21	25.81	23.96	80.81	75.03
80	2.50	0.18	19.48	18.09	100.29	93.12
120	3.00	0.13	5.45	5.06	105.74	98.18
170	3.50	0.09	0.26	0.24	106.00	98.42
200	3.75	0.07	0.04	0.04	106.04	98.46
230	4.00	0.06	0.02	0.02	106.06	98.48

Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.69	2.37	2.25	1.99	1.71	1.55	1.06

Moment Statistics	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
	1.92	0.26	0.53	-2.18	14.11

ALABAMA DIVC-10.GPJ FL DEP ROSS.GDT 3/14/11

Granularmetric Report

Depths and elevations based on measured values

Project Name: Dauphin Island Shore Protection

Sample Name: DIVC-10-17 #2

Analysis Date: 09-24-10

Analyzed By: JR

Coastal Planning & Engineering
2481 NW Boca Raton Blvd, Boca Raton
FL 33431
ph (561) 391-8102
fax (561) 391-9116

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
1,790,952	67,304	Alabama State Plane West	-17.2 NAVD 88

USCS:	Munsell:	Comments:
SW	Wet - 2.5Y-6/2 Dry - 2.5Y-8/2 Washed - 2.5Y-8/2	

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
90.32	89.00	0.00	0.07	#200 - 1.55 #230 - 1.53			1

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
5/8"	-4.00	16.00	0.00	0.00	0.00	0.00
7/16"	-3.50	11.31	1.39	1.54	1.39	1.54
5/16"	-3.00	8.00	0.00	0.00	1.39	1.54
3.5	-2.50	5.66	0.13	0.14	1.52	1.68
5	-2.00	4.00	0.40	0.44	1.92	2.12
7	-1.50	2.83	0.06	0.07	1.98	2.19
10	-1.00	2.00	0.26	0.29	2.24	2.48
14	-0.50	1.41	0.35	0.39	2.59	2.87
18	0.00	1.00	0.37	0.41	2.96	3.28
25	0.50	0.71	0.68	0.75	3.64	4.03
35	1.00	0.50	2.64	2.92	6.28	6.95
40	1.25	0.42	3.02	3.34	9.30	10.29
45	1.50	0.35	5.61	6.21	14.91	16.50
50	1.75	0.30	13.77	15.25	28.68	31.75
60	2.00	0.25	17.23	19.08	45.91	50.83
70	2.25	0.21	20.31	22.49	66.22	73.32
80	2.50	0.18	15.91	17.62	82.13	90.94
120	3.00	0.13	6.57	7.27	88.70	98.21
170	3.50	0.09	0.21	0.23	88.91	98.44
200	3.75	0.07	0.01	0.01	88.92	98.45
230	4.00	0.06	0.02	0.02	88.94	98.47

Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.78	2.40	2.27	1.99	1.64	1.48	0.67

Moment	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
Statistics	1.8	0.29	0.95	-3.84	21.42

ALABAMA DIVC-10.GPJ FL DEP ROSS.GDT 3/14/11

Granularmetric Report

Depths and elevations based on measured values

Project Name: Dauphin Island Shore Protection

Sample Name: DIVC-10-17 #3

Analysis Date: 09-24-10

Analyzed By: JR

Coastal Planning & Engineering
2481 NW Boca Raton Blvd, Boca Raton
FL 33431
ph (561) 391-8102
fax (561) 391-9116

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
1,790,952	67,304	Alabama State Plane West	-18.5 NAVD 88

USCS:	Munsell:	Comments:
SP	Wet - 5Y-6/1 Dry - 5Y-8/1 Washed - 5Y-8/1	

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
92.72	91.84	0.00	0.03	#200 - 0.99 #230 - 0.99			0

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
5/8"	-4.00	16.00	0.00	0.00	0.00	0.00
7/16"	-3.50	11.31	0.00	0.00	0.00	0.00
5/16"	-3.00	8.00	0.00	0.00	0.00	0.00
3.5	-2.50	5.66	0.00	0.00	0.00	0.00
5	-2.00	4.00	0.00	0.00	0.00	0.00
7	-1.50	2.83	0.08	0.09	0.08	0.09
10	-1.00	2.00	0.10	0.11	0.18	0.20
14	-0.50	1.41	0.11	0.12	0.29	0.32
18	0.00	1.00	0.10	0.11	0.39	0.43
25	0.50	0.71	0.21	0.23	0.60	0.66
35	1.00	0.50	0.89	0.96	1.49	1.62
40	1.25	0.42	1.19	1.28	2.68	2.90
45	1.50	0.35	3.49	3.76	6.17	6.66
50	1.75	0.30	11.51	12.41	17.68	19.07
60	2.00	0.25	24.36	26.27	42.04	45.34
70	2.25	0.21	27.78	29.96	69.82	75.30
80	2.50	0.18	17.25	18.60	87.07	93.90
120	3.00	0.13	4.31	4.65	91.38	98.55
170	3.50	0.09	0.39	0.42	91.77	98.97
200	3.75	0.07	0.04	0.04	91.81	99.01
230	4.00	0.06	0.00	0.00	91.81	99.01

Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.62	2.37	2.25	2.04	1.81	1.69	1.39

Moment Statistics	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
	2.01	0.25	0.42	-1.95	16.38

ALABAMA DIVC-10.GPJ FL DEP ROSS.GDT 3/14/11

Granularmetric Report

Depths and elevations based on measured values

Project Name: Dauphin Island Shore Protection

Sample Name: DIVC-10-17 #4

Analysis Date: 09-24-10

Analyzed By: JR

Coastal Planning & Engineering
2481 NW Boca Raton Blvd, Boca Raton
FL 33431
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fax (561) 391-9116

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
1,790,952	67,304	Alabama State Plane West	-22.2 NAVD 88

USCS:	Munsell:	Comments:
SP	Wet - 5Y-5/1 Dry - 5Y-6/1 Washed - 5Y-7/1	

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
113.60	111.62	0.01	0.11	#200 - 1.87 #230 - 1.86			1

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
5/8"	-4.00	16.00	0.00	0.00	0.00	0.00
7/16"	-3.50	11.31	0.00	0.00	0.00	0.00
5/16"	-3.00	8.00	0.00	0.00	0.00	0.00
3.5	-2.50	5.66	0.59	0.52	0.59	0.52
5	-2.00	4.00	0.41	0.36	1.00	0.88
7	-1.50	2.83	0.66	0.58	1.66	1.46
10	-1.00	2.00	0.53	0.47	2.19	1.93
14	-0.50	1.41	0.69	0.61	2.88	2.54
18	0.00	1.00	0.88	0.77	3.76	3.31
25	0.50	0.71	1.37	1.21	5.13	4.52
35	1.00	0.50	3.08	2.71	8.21	7.23
40	1.25	0.42	2.43	2.14	10.64	9.37
45	1.50	0.35	5.30	4.67	15.94	14.04
50	1.75	0.30	14.39	12.67	30.33	26.71
60	2.00	0.25	20.35	17.91	50.68	44.62
70	2.25	0.21	21.43	18.86	72.11	63.48
80	2.50	0.18	20.19	17.77	92.30	81.25
120	3.00	0.13	17.49	15.40	109.79	96.65
170	3.50	0.09	1.59	1.40	111.38	98.05
200	3.75	0.07	0.09	0.08	111.47	98.13
230	4.00	0.06	0.01	0.01	111.48	98.14

Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.95	2.59	2.41	2.07	1.72	1.54	0.59

Moment	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
Statistics	1.94	0.26	0.83	-2.61	13.12

ALABAMA DIVC-10.GPJ FL DEP ROSS.GDT 3/14/11

Granularmetric Report

Depths and elevations based on measured values

Project Name: Dauphin Island Shore Protection

Sample Name: DIVC-10-17 #5

Analysis Date: 09-24-10

Analyzed By: JR

Coastal Planning & Engineering
2481 NW Boca Raton Blvd, Boca Raton
FL 33431
ph (561) 391-8102
fax (561) 391-9116

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
1,790,952	67,304	Alabama State Plane West	-29.2 NAVD 88

USCS:	Munsell:	Comments:
SP	Wet - 5Y-5/1 Dry - 5Y-6/1 Washed - 5Y-6/1	

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
94.56	92.22	0.02	0.05	#200 - 2.65 #230 - 2.57			0

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
5/8"	-4.00	16.00	0.00	0.00	0.00	0.00
7/16"	-3.50	11.31	0.00	0.00	0.00	0.00
5/16"	-3.00	8.00	0.00	0.00	0.00	0.00
3.5	-2.50	5.66	0.00	0.00	0.00	0.00
5	-2.00	4.00	0.05	0.05	0.05	0.05
7	-1.50	2.83	0.00	0.00	0.05	0.05
10	-1.00	2.00	0.00	0.00	0.05	0.05
14	-0.50	1.41	0.02	0.02	0.07	0.07
18	0.00	1.00	0.03	0.03	0.10	0.10
25	0.50	0.71	0.08	0.08	0.18	0.18
35	1.00	0.50	0.23	0.24	0.41	0.42
40	1.25	0.42	0.35	0.37	0.76	0.79
45	1.50	0.35	0.81	0.86	1.57	1.65
50	1.75	0.30	2.84	3.00	4.41	4.65
60	2.00	0.25	7.54	7.97	11.95	12.62
70	2.25	0.21	19.59	20.72	31.54	33.34
80	2.50	0.18	35.43	37.47	66.97	70.81
120	3.00	0.13	23.55	24.90	90.52	95.71
170	3.50	0.09	1.40	1.48	91.92	97.19
200	3.75	0.07	0.15	0.16	92.07	97.35
230	4.00	0.06	0.08	0.08	92.15	97.43

Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.99	2.76	2.58	2.36	2.15	2.04	1.76

Moment Statistics	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
	2.35	0.20	0.38	-1.58	17.72

ALABAMA DIVC-10.GPJ FL DEP ROSS.GDT 3/14/11

Granularmetric Report

Depths and elevations based on measured values

Project Name: Dauphin Island Shore Protection

Sample Name: DIVC-10-18 #1

Analysis Date: 09-24-10

Analyzed By: JR

Coastal Planning & Engineering
2481 NW Boca Raton Blvd, Boca Raton
FL 33431
ph (561) 391-8102
fax (561) 391-9116

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
1,790,332	66,495	Alabama State Plane West	-17.5 NAVD 88

USCS:	Munsell:	Comments:
SP	Wet - 2.5Y-6/2 Dry - 2.5Y-7/2 Washed - 2.5Y-8/2	

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
96.88	95.63	0.00	0.12	#200 - 1.43 #230 - 1.42			0

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
5/8"	-4.00	16.00	0.00	0.00	0.00	0.00
7/16"	-3.50	11.31	0.00	0.00	0.00	0.00
5/16"	-3.00	8.00	0.00	0.00	0.00	0.00
3.5	-2.50	5.66	0.12	0.12	0.12	0.12
5	-2.00	4.00	0.02	0.02	0.14	0.14
7	-1.50	2.83	0.05	0.05	0.19	0.19
10	-1.00	2.00	0.11	0.11	0.30	0.30
14	-0.50	1.41	0.18	0.19	0.48	0.49
18	0.00	1.00	0.21	0.22	0.69	0.71
25	0.50	0.71	0.53	0.55	1.22	1.26
35	1.00	0.50	3.45	3.56	4.67	4.82
40	1.25	0.42	4.22	4.36	8.89	9.18
45	1.50	0.35	5.21	5.38	14.10	14.56
50	1.75	0.30	24.98	25.78	39.08	40.34
60	2.00	0.25	24.55	25.34	63.63	65.68
70	2.25	0.21	17.38	17.94	81.01	83.62
80	2.50	0.18	10.32	10.65	91.33	94.27
120	3.00	0.13	4.03	4.16	95.36	98.43
170	3.50	0.09	0.12	0.12	95.48	98.55
200	3.75	0.07	0.02	0.02	95.50	98.57
230	4.00	0.06	0.01	0.01	95.51	98.58

Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.59	2.26	2.13	1.85	1.60	1.51	1.01

Moment Statistics	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
	1.82	0.28	0.51	-2.02	15.97

ALABAMA DIVC-10.GPJ FL DEP ROSS.GDT 3/14/11

Granularmetric Report

Depths and elevations based on measured values

Project Name: Dauphin Island Shore Protection

Sample Name: DIVC-10-18 #2

Analysis Date: 09-24-10

Analyzed By: JR

Coastal Planning & Engineering
2481 NW Boca Raton Blvd, Boca Raton
FL 33431
ph (561) 391-8102
fax (561) 391-9116

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
1,790,332	66,495	Alabama State Plane West	-19.9 NAVD 88

USCS:	Munsell:	Comments:
SP	Wet - 5Y-6/1 Dry - 5Y-8/1 Washed - 5Y-8/1	

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
99.38	98.08	0.01	0.07	#200 - 1.39 #230 - 1.39			0

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
5/8"	-4.00	16.00	0.00	0.00	0.00	0.00
7/16"	-3.50	11.31	0.00	0.00	0.00	0.00
5/16"	-3.00	8.00	0.00	0.00	0.00	0.00
3.5	-2.50	5.66	0.00	0.00	0.00	0.00
5	-2.00	4.00	0.00	0.00	0.00	0.00
7	-1.50	2.83	0.08	0.08	0.08	0.08
10	-1.00	2.00	0.04	0.04	0.12	0.12
14	-0.50	1.41	0.07	0.07	0.19	0.19
18	0.00	1.00	0.09	0.09	0.28	0.28
25	0.50	0.71	0.22	0.22	0.50	0.50
35	1.00	0.50	1.34	1.35	1.84	1.85
40	1.25	0.42	2.18	2.19	4.02	4.04
45	1.50	0.35	4.55	4.58	8.57	8.62
50	1.75	0.30	13.04	13.12	21.61	21.74
60	2.00	0.25	16.87	16.98	38.48	38.72
70	2.25	0.21	17.35	17.46	55.83	56.18
80	2.50	0.18	25.54	25.70	81.37	81.88
120	3.00	0.13	15.93	16.03	97.30	97.91
170	3.50	0.09	0.67	0.67	97.97	98.58
200	3.75	0.07	0.03	0.03	98.00	98.61
230	4.00	0.06	0.00	0.00	98.00	98.61

Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.91	2.57	2.43	2.16	1.80	1.64	1.30

Moment Statistics	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
	2.1	0.23	0.49	-1.11	7.85

ALABAMA DIVC-10.GPJ FL DEP ROSS.GDT 3/14/11

Granularmetric Report

Depths and elevations based on measured values

Project Name: Dauphin Island Shore Protection

Sample Name: DIVC-10-18 #3

Analysis Date: 09-24-10

Analyzed By: JR

Coastal Planning & Engineering
2481 NW Boca Raton Blvd, Boca Raton
FL 33431
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fax (561) 391-9116

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
1,790,332	66,495	Alabama State Plane West	-22.6 NAVD 88

USCS:	Munsell:	Comments:
SP	Wet - 2.5Y-5/1 Dry - 2.5Y-7/1 Washed - 2.5Y-7/1	

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
101.35	100.21	0.01	0.07	#200 - 1.19 #230 - 1.18			0

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
5/8"	-4.00	16.00	0.00	0.00	0.00	0.00
7/16"	-3.50	11.31	0.00	0.00	0.00	0.00
5/16"	-3.00	8.00	0.00	0.00	0.00	0.00
3.5	-2.50	5.66	0.00	0.00	0.00	0.00
5	-2.00	4.00	0.10	0.10	0.10	0.10
7	-1.50	2.83	0.08	0.08	0.18	0.18
10	-1.00	2.00	0.06	0.06	0.24	0.24
14	-0.50	1.41	0.09	0.09	0.33	0.33
18	0.00	1.00	0.13	0.13	0.46	0.46
25	0.50	0.71	0.31	0.31	0.77	0.77
35	1.00	0.50	2.25	2.22	3.02	2.99
40	1.25	0.42	3.14	3.10	6.16	6.09
45	1.50	0.35	5.40	5.33	11.56	11.42
50	1.75	0.30	21.18	20.90	32.74	32.32
60	2.00	0.25	25.56	25.22	58.30	57.54
70	2.25	0.21	20.43	20.16	78.73	77.70
80	2.50	0.18	12.36	12.20	91.09	89.90
120	3.00	0.13	8.40	8.29	99.49	98.19
170	3.50	0.09	0.55	0.54	100.04	98.73
200	3.75	0.07	0.08	0.08	100.12	98.81
230	4.00	0.06	0.01	0.01	100.13	98.82

Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.81	2.38	2.22	1.93	1.66	1.55	1.16

Moment Statistics	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
	1.92	0.26	0.5	-1.36	12.3

ALABAMA DIVC-10.GPJ FL DEP ROSS.GDT 3/14/11

Granularmetric Report

Depths and elevations based on measured values

Project Name: Dauphin Island Shore Protection

Sample Name: DIVC-10-18 #4

Analysis Date: 09-24-10

Analyzed By: JR

Coastal Planning & Engineering
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fax (561) 391-9116

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
1,790,332	66,495	Alabama State Plane West	-25.6 NAVD 88

USCS:	Munsell:	Comments:
SP	Wet - 2.5Y-5/1 Dry - 5Y-7/1 Washed - 5Y-7/1	

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
96.71	95.32	0.01	0.04	#200 - 1.53 #230 - 1.49			0

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
5/8"	-4.00	16.00	0.00	0.00	0.00	0.00
7/16"	-3.50	11.31	0.00	0.00	0.00	0.00
5/16"	-3.00	8.00	0.00	0.00	0.00	0.00
3.5	-2.50	5.66	0.00	0.00	0.00	0.00
5	-2.00	4.00	0.00	0.00	0.00	0.00
7	-1.50	2.83	0.01	0.01	0.01	0.01
10	-1.00	2.00	0.05	0.05	0.06	0.06
14	-0.50	1.41	0.03	0.03	0.09	0.09
18	0.00	1.00	0.10	0.10	0.19	0.19
25	0.50	0.71	0.12	0.12	0.31	0.31
35	1.00	0.50	0.28	0.29	0.59	0.60
40	1.25	0.42	0.36	0.37	0.95	0.97
45	1.50	0.35	0.76	0.79	1.71	1.76
50	1.75	0.30	3.41	3.53	5.12	5.29
60	2.00	0.25	6.69	6.92	11.81	12.21
70	2.25	0.21	12.76	13.19	24.57	25.40
80	2.50	0.18	31.09	32.15	55.66	57.55
120	3.00	0.13	36.90	38.16	92.56	95.71
170	3.50	0.09	2.58	2.67	95.14	98.38
200	3.75	0.07	0.09	0.09	95.23	98.47
230	4.00	0.06	0.04	0.04	95.27	98.51

Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.99	2.85	2.73	2.44	2.24	2.07	1.73

Moment Statistics	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
	2.42	0.19	0.41	-1.6	11.66

ALABAMA DIVC-10.GPJ FL DEP ROSS.GDT 3/14/11

Granularmetric Report

Depths and elevations based on measured values

Project Name: Dauphin Island Shore Protection

Sample Name: DIVC-10-18 #5

Analysis Date: 09-24-10

Analyzed By: JR

Coastal Planning & Engineering
2481 NW Boca Raton Blvd, Boca Raton
FL 33431
ph (561) 391-8102
fax (561) 391-9116

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
1,790,332	66,495	Alabama State Plane West	-27.2 NAVD 88

USCS:	Munsell:	Comments:
SW	Wet - 2.5Y-5/1 Dry - 5Y-6/1 Washed - 5Y-6/1	

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
93.09	90.19	0.01	0.19	#200 - 3.37 #230 - 3.32			1

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
5/8"	-4.00	16.00	0.00	0.00	0.00	0.00
7/16"	-3.50	11.31	0.00	0.00	0.00	0.00
5/16"	-3.00	8.00	0.00	0.00	0.00	0.00
3.5	-2.50	5.66	0.33	0.35	0.33	0.35
5	-2.00	4.00	0.30	0.32	0.63	0.67
7	-1.50	2.83	0.69	0.74	1.32	1.41
10	-1.00	2.00	0.63	0.68	1.95	2.09
14	-0.50	1.41	0.95	1.02	2.90	3.11
18	0.00	1.00	1.02	1.10	3.92	4.21
25	0.50	0.71	1.09	1.17	5.01	5.38
35	1.00	0.50	1.86	2.00	6.87	7.38
40	1.25	0.42	1.66	1.78	8.53	9.16
45	1.50	0.35	1.98	2.13	10.51	11.29
50	1.75	0.30	9.94	10.68	20.45	21.97
60	2.00	0.25	11.73	12.60	32.18	34.57
70	2.25	0.21	13.43	14.43	45.61	49.00
80	2.50	0.18	17.64	18.95	63.25	67.95
120	3.00	0.13	22.89	24.59	86.14	92.54
170	3.50	0.09	3.67	3.94	89.81	96.48
200	3.75	0.07	0.14	0.15	89.95	96.63
230	4.00	0.06	0.05	0.05	90.00	96.68

Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
3.31	2.83	2.64	2.26	1.81	1.61	0.34

Moment	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
Statistics	2.07	0.24	0.9	-2.36	10.6

ALABAMA DIVC-10.GPJ FL DEP ROSS.GDT 3/14/11

Granularmetric Report

Depths and elevations based on measured values

Project Name: Dauphin Island Shore Protection

Sample Name: DIVC-10-18 #6

Analysis Date: 09-24-10

Analyzed By: JR

Coastal Planning & Engineering
2481 NW Boca Raton Blvd, Boca Raton
FL 33431
ph (561) 391-8102
fax (561) 391-9116

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
1,790,332	66,495	Alabama State Plane West	-31.8 NAVD 88

USCS:	Munsell:	Comments:
SP	Wet - 5Y-6/1 Dry - 5Y-6/1 Washed - 5Y-6/1	

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
103.89	102.24	0.01	0.13	#200 - 1.79 #230 - 1.72			0

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
5/8"	-4.00	16.00	0.00	0.00	0.00	0.00
7/16"	-3.50	11.31	0.00	0.00	0.00	0.00
5/16"	-3.00	8.00	0.00	0.00	0.00	0.00
3.5	-2.50	5.66	0.00	0.00	0.00	0.00
5	-2.00	4.00	0.00	0.00	0.00	0.00
7	-1.50	2.83	0.02	0.02	0.02	0.02
10	-1.00	2.00	0.06	0.06	0.08	0.08
14	-0.50	1.41	0.09	0.09	0.17	0.17
18	0.00	1.00	0.14	0.13	0.31	0.30
25	0.50	0.71	0.19	0.18	0.50	0.48
35	1.00	0.50	0.53	0.51	1.03	0.99
40	1.25	0.42	1.65	1.59	2.68	2.58
45	1.50	0.35	7.77	7.48	10.45	10.06
50	1.75	0.30	29.64	28.53	40.09	38.59
60	2.00	0.25	27.48	26.45	67.57	65.04
70	2.25	0.21	13.97	13.45	81.54	78.49
80	2.50	0.18	10.34	9.95	91.88	88.44
120	3.00	0.13	8.66	8.34	100.54	96.78
170	3.50	0.09	1.31	1.26	101.85	98.04
200	3.75	0.07	0.18	0.17	102.03	98.21
230	4.00	0.06	0.07	0.07	102.10	98.28

Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.89	2.39	2.19	1.86	1.63	1.55	1.33

Moment	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
Statistics	1.92	0.26	0.46	0.01	7.4

ALABAMA DIVC-10.GPJ FL DEP ROSS.GDT 3/14/11

Granularmetric Report

Depths and elevations based on measured values

Project Name: Dauphin Island Shore Protection

Sample Name: DIVC-10-19 #1

Analysis Date: 09-24-10

Analyzed By: JR

Coastal Planning & Engineering
2481 NW Boca Raton Blvd, Boca Raton
FL 33431
ph (561) 391-8102
fax (561) 391-9116

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
1,791,209	66,338	Alabama State Plane West	-18.2 NAVD 88

USCS:	Munsell:	Comments:
SP	Wet - 5Y-7/2 Dry - 5Y-8/2 Washed - 5Y-8/2	

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
89.70	88.59	0.01	0.16	#200 - 1.41 #230 - 1.40			0

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
5/8"	-4.00	16.00	0.00	0.00	0.00	0.00
7/16"	-3.50	11.31	0.00	0.00	0.00	0.00
5/16"	-3.00	8.00	0.00	0.00	0.00	0.00
3.5	-2.50	5.66	0.00	0.00	0.00	0.00
5	-2.00	4.00	0.00	0.00	0.00	0.00
7	-1.50	2.83	0.08	0.09	0.08	0.09
10	-1.00	2.00	0.25	0.28	0.33	0.37
14	-0.50	1.41	0.21	0.23	0.54	0.60
18	0.00	1.00	0.30	0.33	0.84	0.93
25	0.50	0.71	0.59	0.66	1.43	1.59
35	1.00	0.50	2.30	2.56	3.73	4.15
40	1.25	0.42	2.77	3.09	6.50	7.24
45	1.50	0.35	3.49	3.89	9.99	11.13
50	1.75	0.30	16.27	18.14	26.26	29.27
60	2.00	0.25	18.00	20.07	44.26	49.34
70	2.25	0.21	18.52	20.65	62.78	69.99
80	2.50	0.18	17.12	19.09	79.90	89.08
120	3.00	0.13	8.28	9.23	88.18	98.31
170	3.50	0.09	0.23	0.26	88.41	98.57
200	3.75	0.07	0.02	0.02	88.43	98.59
230	4.00	0.06	0.01	0.01	88.44	98.60

Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.82	2.43	2.32	2.01	1.69	1.57	1.07

Moment Statistics	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
	1.96	0.26	0.54	-1.66	10.03

ALABAMA DIVC-10.GPJ FL DEP ROSS.GDT 3/14/11

Granularmetric Report

Depths and elevations based on measured values

Project Name: Dauphin Island Shore Protection

Sample Name: DIVC-10-19 #2

Analysis Date: 09-24-10

Analyzed By: JR

Coastal Planning & Engineering
2481 NW Boca Raton Blvd, Boca Raton
FL 33431
ph (561) 391-8102
fax (561) 391-9116

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
1,791,209	66,338	Alabama State Plane West	-20.5 NAVD 88

USCS:	Munsell:	Comments:
SP	Wet - 5Y-7/1 Dry - 2.5Y-7/1 Washed - 2.5Y-7/1	

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
90.56	89.53	0.00	0.01	#200 - 1.16 #230 - 1.15			0

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
5/8"	-4.00	16.00	0.00	0.00	0.00	0.00
7/16"	-3.50	11.31	0.00	0.00	0.00	0.00
5/16"	-3.00	8.00	0.00	0.00	0.00	0.00
3.5	-2.50	5.66	0.19	0.21	0.19	0.21
5	-2.00	4.00	0.02	0.02	0.21	0.23
7	-1.50	2.83	0.16	0.18	0.37	0.41
10	-1.00	2.00	0.24	0.27	0.61	0.68
14	-0.50	1.41	0.33	0.36	0.94	1.04
18	0.00	1.00	0.43	0.47	1.37	1.51
25	0.50	0.71	0.85	0.94	2.22	2.45
35	1.00	0.50	4.00	4.42	6.22	6.87
40	1.25	0.42	5.28	5.83	11.50	12.70
45	1.50	0.35	9.15	10.10	20.65	22.80
50	1.75	0.30	15.01	16.57	35.66	39.37
60	2.00	0.25	15.32	16.92	50.98	56.29
70	2.25	0.21	13.92	15.37	64.90	71.66
80	2.50	0.18	13.64	15.06	78.54	86.72
120	3.00	0.13	10.08	11.13	88.62	97.85
170	3.50	0.09	0.84	0.93	89.46	98.78
200	3.75	0.07	0.05	0.06	89.51	98.84
230	4.00	0.06	0.01	0.01	89.52	98.85

Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.87	2.45	2.31	1.91	1.53	1.33	0.79

Moment Statistics	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
	1.85	0.28	0.67	-1.64	10.41

ALABAMA DIVC-10.GPJ FL DEP ROSS.GDT 3/14/11

Granularmetric Report

Depths and elevations based on measured values

Project Name: Dauphin Island Shore Protection

Sample Name: DIVC-10-19 #3

Analysis Date: 09-27-10

Analyzed By: JR

Coastal Planning & Engineering
2481 NW Boca Raton Blvd, Boca Raton
FL 33431
ph (561) 391-8102
fax (561) 391-9116

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
1,791,209	66,338	Alabama State Plane West	-22.2 NAVD 88

USCS:	Munsell:	Comments:
SP	Wet - 5Y-6/1 Dry - 2.5Y-7/1 Washed - 2.5Y-7/1	

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
87.89	86.57	0.00	0.01	#200 - 1.52 #230 - 1.51			0

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
5/8"	-4.00	16.00	0.00	0.00	0.00	0.00
7/16"	-3.50	11.31	0.00	0.00	0.00	0.00
5/16"	-3.00	8.00	0.00	0.00	0.00	0.00
3.5	-2.50	5.66	0.00	0.00	0.00	0.00
5	-2.00	4.00	0.11	0.13	0.11	0.13
7	-1.50	2.83	0.03	0.03	0.14	0.16
10	-1.00	2.00	0.13	0.15	0.27	0.31
14	-0.50	1.41	0.13	0.15	0.40	0.46
18	0.00	1.00	0.19	0.22	0.59	0.68
25	0.50	0.71	0.19	0.22	0.78	0.90
35	1.00	0.50	0.21	0.24	0.99	1.14
40	1.25	0.42	0.16	0.18	1.15	1.32
45	1.50	0.35	0.02	0.02	1.17	1.34
50	1.75	0.30	1.19	1.35	2.36	2.69
60	2.00	0.25	5.22	5.94	7.58	8.63
70	2.25	0.21	16.60	18.89	24.18	27.52
80	2.50	0.18	30.53	34.74	54.71	62.26
120	3.00	0.13	30.43	34.62	85.14	96.88
170	3.50	0.09	1.38	1.57	86.52	98.45
200	3.75	0.07	0.03	0.03	86.55	98.48
230	4.00	0.06	0.01	0.01	86.56	98.49

Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.97	2.81	2.68	2.41	2.22	2.10	1.85

Moment	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
Statistics	2.4	0.19	0.45	-3.87	33.26

ALABAMA DIVC-10.GPJ FL DEP ROSS.GDT 3/14/11

Granularmetric Report

Depths and elevations based on measured values

Project Name: Dauphin Island Shore Protection

Sample Name: DIVC-10-19 #4

Analysis Date: 09-27-10

Analyzed By: JR

Coastal Planning & Engineering
2481 NW Boca Raton Blvd, Boca Raton
FL 33431
ph (561) 391-8102
fax (561) 391-9116

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
1,791,209	66,338	Alabama State Plane West	-23.9 NAVD 88

USCS:	Munsell:	Comments:
SP	Wet - 5Y-5/1 Dry - 5Y-6/1 Washed - 5Y-7/1	

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
86.49	84.48	0.05	0.05	#200 - 2.53 #230 - 2.46			0

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
5/8"	-4.00	16.00	0.00	0.00	0.00	0.00
7/16"	-3.50	11.31	0.00	0.00	0.00	0.00
5/16"	-3.00	8.00	0.00	0.00	0.00	0.00
3.5	-2.50	5.66	0.00	0.00	0.00	0.00
5	-2.00	4.00	0.15	0.17	0.15	0.17
7	-1.50	2.83	0.21	0.24	0.36	0.41
10	-1.00	2.00	0.35	0.40	0.71	0.81
14	-0.50	1.41	0.58	0.67	1.29	1.48
18	0.00	1.00	0.92	1.06	2.21	2.54
25	0.50	0.71	1.04	1.20	3.25	3.74
35	1.00	0.50	1.63	1.88	4.88	5.62
40	1.25	0.42	1.29	1.49	6.17	7.11
45	1.50	0.35	2.53	2.93	8.70	10.04
50	1.75	0.30	6.67	7.71	15.37	17.75
60	2.00	0.25	10.71	12.38	26.08	30.13
70	2.25	0.21	12.82	14.82	38.90	44.95
80	2.50	0.18	18.08	20.90	56.98	65.85
120	3.00	0.13	22.95	26.53	79.93	92.38
170	3.50	0.09	4.21	4.87	84.14	97.25
200	3.75	0.07	0.19	0.22	84.33	97.47
230	4.00	0.06	0.06	0.07	84.39	97.54

Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
3.27	2.84	2.67	2.31	1.90	1.69	0.84

Moment	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
Statistics	2.17	0.22	0.75	-2.04	9.79

ALABAMA DIVC-10.GPJ FL DEP ROSS.GDT 3/14/11

Granularmetric Report

Depths and elevations based on measured values

Project Name: Dauphin Island Shore Protection

Sample Name: DIVC-10-19 #5

Analysis Date: 09-27-10

Analyzed By: JR

Coastal Planning & Engineering
2481 NW Boca Raton Blvd, Boca Raton
FL 33431
ph (561) 391-8102
fax (561) 391-9116

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
1,791,209	66,338	Alabama State Plane West	-29.5 NAVD 88

USCS:	Munsell:	Comments:
SP	Wet - 5Y-6/1 Dry - 2.5Y-7/1 Washed - 2.5Y-7/1	

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
99.41	98.34	0.01	0.08	#200 - 1.19 #230 - 1.18			0

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
5/8"	-4.00	16.00	0.00	0.00	0.00	0.00
7/16"	-3.50	11.31	0.00	0.00	0.00	0.00
5/16"	-3.00	8.00	0.00	0.00	0.00	0.00
3.5	-2.50	5.66	0.00	0.00	0.00	0.00
5	-2.00	4.00	0.00	0.00	0.00	0.00
7	-1.50	2.83	0.02	0.02	0.02	0.02
10	-1.00	2.00	0.03	0.03	0.05	0.05
14	-0.50	1.41	0.04	0.04	0.09	0.09
18	0.00	1.00	0.03	0.03	0.12	0.12
25	0.50	0.71	0.08	0.08	0.20	0.20
35	1.00	0.50	0.36	0.36	0.56	0.56
40	1.25	0.42	0.76	0.76	1.32	1.32
45	1.50	0.35	1.10	1.11	2.42	2.43
50	1.75	0.30	18.49	18.60	20.91	21.03
60	2.00	0.25	31.07	31.25	51.98	52.28
70	2.25	0.21	22.39	22.52	74.37	74.80
80	2.50	0.18	14.45	14.54	88.82	89.34
120	3.00	0.13	8.96	9.01	97.78	98.35
170	3.50	0.09	0.44	0.44	98.22	98.79
200	3.75	0.07	0.02	0.02	98.24	98.81
230	4.00	0.06	0.01	0.01	98.25	98.82

Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.81	2.41	2.25	1.98	1.78	1.68	1.53

Moment	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
Statistics	2.02	0.25	0.38	-0.31	8.68

ALABAMA DIVC-10.GPJ FL DEP ROSS.GDT 3/14/11

Granularmetric Report

Depths and elevations based on measured values

Project Name: Dauphin Island Shore Protection

Sample Name: DIVC-10-20 #1

Analysis Date: 09-28-10

Analyzed By: TD

Coastal Planning & Engineering
2481 NW Boca Raton Blvd, Boca Raton
FL 33431
ph (561) 391-8102
fax (561) 391-9116

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
1,790,576	65,529	Alabama State Plane West	-19.4 NAVD 88

USCS:	Munsell:	Comments:
SP	Wet - 5Y-7/2 Dry - 2.5Y-8/1 Washed - 2.5Y-8/1	

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
92.81	91.65	0.00	0.05	#200 - 1.33 #230 - 1.32			0

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
5/8"	-4.00	16.00	0.00	0.00	0.00	0.00
7/16"	-3.50	11.31	0.00	0.00	0.00	0.00
5/16"	-3.00	8.00	0.00	0.00	0.00	0.00
3.5	-2.50	5.66	0.00	0.00	0.00	0.00
5	-2.00	4.00	0.10	0.11	0.10	0.11
7	-1.50	2.83	0.03	0.03	0.13	0.14
10	-1.00	2.00	0.23	0.25	0.36	0.39
14	-0.50	1.41	0.15	0.16	0.51	0.55
18	0.00	1.00	0.30	0.32	0.81	0.87
25	0.50	0.71	0.66	0.71	1.47	1.58
35	1.00	0.50	3.40	3.66	4.87	5.24
40	1.25	0.42	4.23	4.56	9.10	9.80
45	1.50	0.35	7.15	7.70	16.25	17.50
50	1.75	0.30	13.75	14.82	30.00	32.32
60	2.00	0.25	18.22	19.63	48.22	51.95
70	2.25	0.21	19.68	21.20	67.90	73.15
80	2.50	0.18	16.41	17.68	84.31	90.83
120	3.00	0.13	6.95	7.49	91.26	98.32
170	3.50	0.09	0.28	0.30	91.54	98.62
200	3.75	0.07	0.05	0.05	91.59	98.67
230	4.00	0.06	0.01	0.01	91.60	98.68

Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.78	2.40	2.28	1.98	1.63	1.45	0.97

Moment	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
Statistics	1.9	0.27	0.56	-1.57	9.78

ALABAMA DIVC-10.GPJ FL DEP ROSS.GDT 3/14/11

Granularmetric Report

Depths and elevations based on measured values

Project Name: Dauphin Island Shore Protection

Sample Name: DIVC-10-20 #2

Analysis Date: 09-28-10

Analyzed By: TD

Coastal Planning & Engineering
2481 NW Boca Raton Blvd, Boca Raton
FL 33431
ph (561) 391-8102
fax (561) 391-9116

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
1,790,576	65,529	Alabama State Plane West	-24.7 NAVD 88

USCS:	Munsell:	Comments:
SP	Wet - 5Y-6/1 Dry - 2.5Y-7/1 Washed - 2.5Y-7/1	

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
124.28	122.58	0.03	0.01	#200 - 1.41 #230 - 1.41			0

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
5/8"	-4.00	16.00	0.00	0.00	0.00	0.00
7/16"	-3.50	11.31	0.00	0.00	0.00	0.00
5/16"	-3.00	8.00	0.00	0.00	0.00	0.00
3.5	-2.50	5.66	0.00	0.00	0.00	0.00
5	-2.00	4.00	0.00	0.00	0.00	0.00
7	-1.50	2.83	0.10	0.08	0.10	0.08
10	-1.00	2.00	0.00	0.00	0.10	0.08
14	-0.50	1.41	0.06	0.05	0.16	0.13
18	0.00	1.00	0.04	0.03	0.20	0.16
25	0.50	0.71	0.14	0.11	0.34	0.27
35	1.00	0.50	1.32	1.06	1.66	1.33
40	1.25	0.42	2.10	1.69	3.76	3.02
45	1.50	0.35	5.46	4.39	9.22	7.41
50	1.75	0.30	15.84	12.75	25.06	20.16
60	2.00	0.25	25.18	20.26	50.24	40.42
70	2.25	0.21	27.94	22.48	78.18	62.90
80	2.50	0.18	29.41	23.66	107.59	86.56
120	3.00	0.13	14.42	11.60	122.01	98.16
170	3.50	0.09	0.53	0.43	122.54	98.59
200	3.75	0.07	0.00	0.00	122.54	98.59
230	4.00	0.06	0.00	0.00	122.54	98.59

Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.86	2.47	2.38	2.11	1.81	1.67	1.36

Moment Statistics	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
	2.07	0.24	0.44	-1.01	8.68

ALABAMA DIVC-10.GPJ FL DEP ROSS.GDT 3/14/11

Granularmetric Report

Depths and elevations based on measured values

Project Name: Dauphin Island Shore Protection

Sample Name: DIVC-10-20 #3

Analysis Date: 09-28-10

Analyzed By: TD

Coastal Planning & Engineering
2481 NW Boca Raton Blvd, Boca Raton
FL 33431
ph (561) 391-8102
fax (561) 391-9116

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
1,790,576	65,529	Alabama State Plane West	-29.1 NAVD 88

USCS:	Munsell:	Comments:
SP	Wet - 5Y-5/1 Dry - 2.5Y-6/1 Washed - 2.5Y-7/1	

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
114.18	110.46	0.06	0.03	#200 - 3.40 #230 - 3.31			0

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
5/8"	-4.00	16.00	0.00	0.00	0.00	0.00
7/16"	-3.50	11.31	0.00	0.00	0.00	0.00
5/16"	-3.00	8.00	0.00	0.00	0.00	0.00
3.5	-2.50	5.66	0.00	0.00	0.00	0.00
5	-2.00	4.00	0.01	0.01	0.01	0.01
7	-1.50	2.83	0.02	0.02	0.03	0.03
10	-1.00	2.00	0.19	0.17	0.22	0.20
14	-0.50	1.41	0.30	0.26	0.52	0.46
18	0.00	1.00	0.36	0.32	0.88	0.78
25	0.50	0.71	0.44	0.39	1.32	1.17
35	1.00	0.50	1.21	1.06	2.53	2.23
40	1.25	0.42	1.63	1.43	4.16	3.66
45	1.50	0.35	4.21	3.69	8.37	7.35
50	1.75	0.30	10.67	9.34	19.04	16.69
60	2.00	0.25	15.82	13.86	34.86	30.55
70	2.25	0.21	19.76	17.31	54.62	47.86
80	2.50	0.18	24.10	21.11	78.72	68.97
120	3.00	0.13	27.28	23.89	106.00	92.86
170	3.50	0.09	4.04	3.54	110.04	96.40
200	3.75	0.07	0.23	0.20	110.27	96.60
230	4.00	0.06	0.10	0.09	110.37	96.69

Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
3.30	2.81	2.63	2.28	1.90	1.73	1.34

Moment	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
Statistics	2.21	0.22	0.57	-1.32	8.39

ALABAMA DIVC-10.GPJ FL DEP ROSS.GDT 3/14/11

Granularmetric Report

Depths and elevations based on measured values

Project Name: Dauphin Island Shore Protection

Sample Name: DIVC-10-20 #4

Analysis Date: 09-28-10

Analyzed By: TD

Coastal Planning & Engineering
2481 NW Boca Raton Blvd, Boca Raton
FL 33431
ph (561) 391-8102
fax (561) 391-9116

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
1,790,576	65,529	Alabama State Plane West	-33.4 NAVD 88

USCS:	Munsell:	Comments:
SP	Wet - 5Y-5/1 Dry - 2.5Y-6/1 Washed - 2.5Y-8/2	

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
100.26	96.93	0.09	0.08	#200 - 3.65 #230 - 3.49			0

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
5/8"	-4.00	16.00	0.00	0.00	0.00	0.00
7/16"	-3.50	11.31	0.00	0.00	0.00	0.00
5/16"	-3.00	8.00	0.00	0.00	0.00	0.00
3.5	-2.50	5.66	0.00	0.00	0.00	0.00
5	-2.00	4.00	0.00	0.00	0.00	0.00
7	-1.50	2.83	0.00	0.00	0.00	0.00
10	-1.00	2.00	0.00	0.00	0.00	0.00
14	-0.50	1.41	0.03	0.03	0.03	0.03
18	0.00	1.00	0.01	0.01	0.04	0.04
25	0.50	0.71	0.03	0.03	0.07	0.07
35	1.00	0.50	0.10	0.10	0.17	0.17
40	1.25	0.42	0.22	0.22	0.39	0.39
45	1.50	0.35	1.23	1.23	1.62	1.62
50	1.75	0.30	6.62	6.60	8.24	8.22
60	2.00	0.25	18.01	17.96	26.25	26.18
70	2.25	0.21	30.28	30.20	56.53	56.38
80	2.50	0.18	23.75	23.69	80.28	80.07
120	3.00	0.13	14.76	14.72	95.04	94.79
170	3.50	0.09	1.30	1.30	96.34	96.09
200	3.75	0.07	0.26	0.26	96.60	96.35
230	4.00	0.06	0.16	0.16	96.76	96.51

Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
3.08	2.63	2.45	2.20	1.98	1.86	1.63

Moment	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
Statistics	2.21	0.22	0.37	0.19	5.52

ALABAMA DIVC-10.GPJ FL DEP ROSS.GDT 3/14/11

Granularmetric Report

Depths and elevations based on measured values

Project Name: Dauphin Island Shore Protection

Sample Name: DIVC-10-21 #1

Analysis Date: 09-29-10

Analyzed By: JR

Coastal Planning & Engineering
2481 NW Boca Raton Blvd, Boca Raton
FL 33431
ph (561) 391-8102
fax (561) 391-9116

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
1,791,351	65,352	Alabama State Plane West	-19.9 NAVD 88

USCS:	Munsell:	Comments:
SP	Wet - 5Y-5/2 Dry - 2.5Y-7/2 Washed - 5Y-7/1	

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
128.04	126.48	0.01	0.09	#200 - 1.32 #230 - 1.31			1

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
5/8"	-4.00	16.00	0.00	0.00	0.00	0.00
7/16"	-3.50	11.31	0.00	0.00	0.00	0.00
5/16"	-3.00	8.00	0.00	0.00	0.00	0.00
3.5	-2.50	5.66	0.15	0.12	0.15	0.12
5	-2.00	4.00	0.50	0.39	0.65	0.51
7	-1.50	2.83	0.36	0.28	1.01	0.79
10	-1.00	2.00	0.53	0.41	1.54	1.20
14	-0.50	1.41	0.73	0.57	2.27	1.77
18	0.00	1.00	0.75	0.59	3.02	2.36
25	0.50	0.71	1.55	1.21	4.57	3.57
35	1.00	0.50	7.50	5.86	12.07	9.43
40	1.25	0.42	8.52	6.65	20.59	16.08
45	1.50	0.35	13.21	10.32	33.80	26.40
50	1.75	0.30	21.34	16.67	55.14	43.07
60	2.00	0.25	22.58	17.64	77.72	60.71
70	2.25	0.21	21.43	16.74	99.15	77.45
80	2.50	0.18	20.27	15.83	119.42	93.28
120	3.00	0.13	6.58	5.14	126.00	98.42
170	3.50	0.09	0.31	0.24	126.31	98.66
200	3.75	0.07	0.03	0.02	126.34	98.68
230	4.00	0.06	0.01	0.01	126.35	98.69

Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.67	2.35	2.21	1.85	1.47	1.25	0.62

Moment Statistics	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
	1.74	0.30	0.71	-2.09	11.25

ALABAMA DIVC-10.GPJ FL DEP ROSS.GDT 3/14/11

Granularmetric Report

Depths and elevations based on measured values

Project Name: Dauphin Island Shore Protection

Sample Name: DIVC-10-21 #2

Analysis Date: 09-29-10

Analyzed By: JR

Coastal Planning & Engineering
2481 NW Boca Raton Blvd, Boca Raton
FL 33431
ph (561) 391-8102
fax (561) 391-9116

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
1,791,351	65,352	Alabama State Plane West	-21.7 NAVD 88

USCS:	Munsell:	Comments:
SP	Wet - 5Y-6/2 Dry - 2.5Y-8/1 Washed - 2.5Y-8/1	

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
105.79	104.74	0.01	0.08	#200 - 1.10 #230 - 1.09			0

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
5/8"	-4.00	16.00	0.00	0.00	0.00	0.00
7/16"	-3.50	11.31	0.00	0.00	0.00	0.00
5/16"	-3.00	8.00	0.00	0.00	0.00	0.00
3.5	-2.50	5.66	0.24	0.23	0.24	0.23
5	-2.00	4.00	0.13	0.12	0.37	0.35
7	-1.50	2.83	0.16	0.15	0.53	0.50
10	-1.00	2.00	0.32	0.30	0.85	0.80
14	-0.50	1.41	0.51	0.48	1.36	1.28
18	0.00	1.00	0.64	0.60	2.00	1.88
25	0.50	0.71	1.62	1.53	3.62	3.41
35	1.00	0.50	9.69	9.16	13.31	12.57
40	1.25	0.42	9.02	8.53	22.33	21.10
45	1.50	0.35	8.16	7.71	30.49	28.81
50	1.75	0.30	30.66	28.98	61.15	57.79
60	2.00	0.25	19.44	18.38	80.59	76.17
70	2.25	0.21	11.65	11.01	92.24	87.18
80	2.50	0.18	7.77	7.34	100.01	94.52
120	3.00	0.13	4.25	4.02	104.26	98.54
170	3.50	0.09	0.34	0.32	104.60	98.86
200	3.75	0.07	0.04	0.04	104.64	98.90
230	4.00	0.06	0.01	0.01	104.65	98.91

Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.56	2.18	1.98	1.68	1.38	1.10	0.59

Moment	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
Statistics	1.62	0.33	0.65	-1.75	11.06

ALABAMA DIVC-10.GPJ FL DEP ROSS.GDT 3/14/11

Granularmetric Report

Depths and elevations based on measured values

Project Name: Dauphin Island Shore Protection

Sample Name: DIVC-10-21 #3

Analysis Date: 09-30-10

Analyzed By: JD

Coastal Planning & Engineering
2481 NW Boca Raton Blvd, Boca Raton
FL 33431
ph (561) 391-8102
fax (561) 391-9116

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
1,791,351	65,352	Alabama State Plane West	-23.5 NAVD 88

USCS:	Munsell:	Comments:
SP	Wet - 5Y-6/1 Dry - 5Y-8/1 Washed - 5Y-8/1	

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
97.38	96.13	0.04	0.08	#200 - 1.47 #230 - 1.42			1

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
5/8"	-4.00	16.00	0.00	0.00	0.00	0.00
7/16"	-3.50	11.31	0.00	0.00	0.00	0.00
5/16"	-3.00	8.00	0.00	0.00	0.00	0.00
3.5	-2.50	5.66	0.24	0.25	0.24	0.25
5	-2.00	4.00	0.11	0.11	0.35	0.36
7	-1.50	2.83	0.52	0.53	0.87	0.89
10	-1.00	2.00	0.46	0.47	1.33	1.36
14	-0.50	1.41	0.45	0.46	1.78	1.82
18	0.00	1.00	0.54	0.55	2.32	2.37
25	0.50	0.71	0.59	0.61	2.91	2.98
35	1.00	0.50	1.46	1.50	4.37	4.48
40	1.25	0.42	1.71	1.76	6.08	6.24
45	1.50	0.35	1.28	1.31	7.36	7.55
50	1.75	0.30	16.52	16.96	23.88	24.51
60	2.00	0.25	22.38	22.98	46.26	47.49
70	2.25	0.21	21.38	21.96	67.64	69.45
80	2.50	0.18	18.14	18.63	85.78	88.08
120	3.00	0.13	9.43	9.68	95.21	97.76
170	3.50	0.09	0.62	0.64	95.83	98.40
200	3.75	0.07	0.13	0.13	95.96	98.53
230	4.00	0.06	0.05	0.05	96.01	98.58

Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.86	2.45	2.32	2.03	1.76	1.62	1.07

Moment	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
Statistics	1.96	0.26	0.68	-3	17.7

ALABAMA DIVC-10.GPJ FL DEP ROSS.GDT 3/14/11

Granularmetric Report

Depths and elevations based on measured values

Project Name: Dauphin Island Shore Protection

Sample Name: DIVC-10-21 #4

Analysis Date: 09-30-10

Analyzed By: JD

Coastal Planning & Engineering
2481 NW Boca Raton Blvd, Boca Raton
FL 33431
ph (561) 391-8102
fax (561) 391-9116

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
1,791,351	65,352	Alabama State Plane West	-26.0 NAVD 88

USCS:	Munsell:	Comments:
SP	Wet - 5Y-6/1 Dry - 2.5Y-7/1 Washed - 2.5Y-7/1	

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
102.09	100.04	0.02	0.05	#200 - 2.07 #230 - 2.05			0

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
5/8"	-4.00	16.00	0.00	0.00	0.00	0.00
7/16"	-3.50	11.31	0.00	0.00	0.00	0.00
5/16"	-3.00	8.00	0.00	0.00	0.00	0.00
3.5	-2.50	5.66	0.12	0.12	0.12	0.12
5	-2.00	4.00	0.16	0.16	0.28	0.28
7	-1.50	2.83	0.13	0.13	0.41	0.41
10	-1.00	2.00	0.12	0.12	0.53	0.53
14	-0.50	1.41	0.15	0.15	0.68	0.68
18	0.00	1.00	0.18	0.18	0.86	0.86
25	0.50	0.71	0.18	0.18	1.04	1.04
35	1.00	0.50	0.27	0.26	1.31	1.30
40	1.25	0.42	0.22	0.22	1.53	1.52
45	1.50	0.35	0.66	0.65	2.19	2.17
50	1.75	0.30	2.84	2.78	5.03	4.95
60	2.00	0.25	7.29	7.14	12.32	12.09
70	2.25	0.21	14.15	13.86	26.47	25.95
80	2.50	0.18	26.87	26.32	53.34	52.27
120	3.00	0.13	39.13	38.33	92.47	90.60
170	3.50	0.09	7.04	6.90	99.51	97.50
200	3.75	0.07	0.44	0.43	99.95	97.93
230	4.00	0.06	0.02	0.02	99.97	97.95

Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
3.32	2.91	2.80	2.48	2.23	2.07	1.75

Moment	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
Statistics	2.45	0.18	0.56	-3.46	27.78

ALABAMA DIVC-10.GPJ FL DEP ROSS.GDT 3/14/11

Granularmetric Report

Depths and elevations based on measured values

Project Name: Dauphin Island Shore Protection

Sample Name: DIVC-10-21 #5

Analysis Date: 09-30-10

Analyzed By: JD

Coastal Planning & Engineering
2481 NW Boca Raton Blvd, Boca Raton
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ph (561) 391-8102
fax (561) 391-9116

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
1,791,351	65,352	Alabama State Plane West	-27.4 NAVD 88

USCS:	Munsell:	Comments:
SW-SC	Wet - 5Y-4/1 Dry - 2.5Y-6/1 Washed - 2.5Y-6/1	

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
103.76	96.08	0.04	0.05	#200 - 7.55 #230 - 7.50			1

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
5/8"	-4.00	16.00	0.00	0.00	0.00	0.00
7/16"	-3.50	11.31	0.00	0.00	0.00	0.00
5/16"	-3.00	8.00	0.65	0.63	0.65	0.63
3.5	-2.50	5.66	0.36	0.35	1.01	0.98
5	-2.00	4.00	0.45	0.43	1.46	1.41
7	-1.50	2.83	0.20	0.19	1.66	1.60
10	-1.00	2.00	0.48	0.46	2.14	2.06
14	-0.50	1.41	0.75	0.72	2.89	2.78
18	0.00	1.00	0.95	0.92	3.84	3.70
25	0.50	0.71	1.11	1.07	4.95	4.77
35	1.00	0.50	2.09	2.01	7.04	6.78
40	1.25	0.42	1.72	1.66	8.76	8.44
45	1.50	0.35	3.77	3.63	12.53	12.07
50	1.75	0.30	9.25	8.91	21.78	20.98
60	2.00	0.25	13.45	12.96	35.23	33.94
70	2.25	0.21	14.48	13.96	49.71	47.90
80	2.50	0.18	20.39	19.65	70.10	67.55
120	3.00	0.13	21.83	21.04	91.93	88.59
170	3.50	0.09	3.76	3.62	95.69	92.21
200	3.75	0.07	0.25	0.24	95.94	92.45
230	4.00	0.06	0.05	0.05	95.99	92.50

Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
	2.89	2.68	2.28	1.83	1.61	0.56

Moment	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
Statistics	2.04	0.24	0.94	-2.79	13.89

ALABAMA DIVC-10.GPJ FL DEP ROSS.GDT 3/14/11

Granularmetric Report

Depths and elevations based on measured values

Project Name: Dauphin Island Shore Protection

Sample Name: DIVC-10-21 #6

Analysis Date: 09-28-10

Analyzed By: JR

Coastal Planning & Engineering
2481 NW Boca Raton Blvd, Boca Raton
FL 33431
ph (561) 391-8102
fax (561) 391-9116

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
1,791,351	65,352	Alabama State Plane West	-34.9 NAVD 88

USCS:	Munsell:	Comments:
SP	Wet - 5Y-5/1 Dry - 2.5Y-6/1 Washed - 5Y-6/1	

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
107.09	105.33	0.01	0.07	#200 - 1.78 #230 - 1.72			0

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
5/8"	-4.00	16.00	0.00	0.00	0.00	0.00
7/16"	-3.50	11.31	0.00	0.00	0.00	0.00
5/16"	-3.00	8.00	0.00	0.00	0.00	0.00
3.5	-2.50	5.66	0.00	0.00	0.00	0.00
5	-2.00	4.00	0.00	0.00	0.00	0.00
7	-1.50	2.83	0.00	0.00	0.00	0.00
10	-1.00	2.00	0.00	0.00	0.00	0.00
14	-0.50	1.41	0.01	0.01	0.01	0.01
18	0.00	1.00	0.02	0.02	0.03	0.03
25	0.50	0.71	0.09	0.08	0.12	0.11
35	1.00	0.50	0.10	0.09	0.22	0.20
40	1.25	0.42	0.22	0.21	0.44	0.41
45	1.50	0.35	0.18	0.17	0.62	0.58
50	1.75	0.30	14.75	13.77	15.37	14.35
60	2.00	0.25	32.39	30.25	47.76	44.60
70	2.25	0.21	29.67	27.71	77.43	72.31
80	2.50	0.18	18.79	17.55	96.22	89.86
120	3.00	0.13	8.19	7.65	104.41	97.51
170	3.50	0.09	0.68	0.63	105.09	98.14
200	3.75	0.07	0.09	0.08	105.18	98.22
230	4.00	0.06	0.06	0.06	105.24	98.28

Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.84	2.42	2.29	2.05	1.84	1.76	1.58

Moment	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
Statistics	2.07	0.24	0.34	0.43	5.56

ALABAMA DIVC-10.GPJ FL DEP ROSS.GDT 3/14/11

Granularmetric Report

Depths and elevations based on measured values

Project Name: Dauphin Island Shore Protection

Sample Name: DIVC-10-22 #1

Analysis Date: 09-28-10

Analyzed By: JR

Coastal Planning & Engineering
2481 NW Boca Raton Blvd, Boca Raton
FL 33431
ph (561) 391-8102
fax (561) 391-9116

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
1,792,791	65,318	Alabama State Plane West	-22.1 NAVD 88

USCS:	Munsell:	Comments:
SP	Wet - 5Y-5/1 Dry - 2.5Y-6/1 Washed - 5Y-6/1	

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
107.20	105.87	0.01	0.02	#200 - 1.30 #230 - 1.26			0

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
5/8"	-4.00	16.00	0.00	0.00	0.00	0.00
7/16"	-3.50	11.31	0.00	0.00	0.00	0.00
5/16"	-3.00	8.00	0.00	0.00	0.00	0.00
3.5	-2.50	5.66	0.00	0.00	0.00	0.00
5	-2.00	4.00	0.04	0.04	0.04	0.04
7	-1.50	2.83	0.15	0.14	0.19	0.18
10	-1.00	2.00	0.15	0.14	0.34	0.32
14	-0.50	1.41	0.29	0.27	0.63	0.59
18	0.00	1.00	0.48	0.45	1.11	1.04
25	0.50	0.71	0.80	0.75	1.91	1.79
35	1.00	0.50	2.67	2.49	4.58	4.28
40	1.25	0.42	3.26	3.04	7.84	7.32
45	1.50	0.35	1.94	1.81	9.78	9.13
50	1.75	0.30	19.84	18.51	29.62	27.64
60	2.00	0.25	19.48	18.17	49.10	45.81
70	2.25	0.21	19.17	17.88	68.27	63.69
80	2.50	0.18	17.40	16.23	85.67	79.92
120	3.00	0.13	18.48	17.24	104.15	97.16
170	3.50	0.09	1.56	1.46	105.71	98.62
200	3.75	0.07	0.09	0.08	105.80	98.70
230	4.00	0.06	0.04	0.04	105.84	98.74

Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.94	2.62	2.42	2.06	1.71	1.59	1.06

Moment Statistics	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
	2.03	0.24	0.6	-1.41	8.83

ALABAMA DIVC-10.GPJ FL DEP ROSS.GDT 3/14/11

Granularmetric Report

Depths and elevations based on measured values

Project Name: Dauphin Island Shore Protection

Sample Name: DIVC-10-22 #2

Analysis Date: 09-28-10

Analyzed By: JR

Coastal Planning & Engineering
2481 NW Boca Raton Blvd, Boca Raton
FL 33431
ph (561) 391-8102
fax (561) 391-9116

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
1,792,791	65,318	Alabama State Plane West	-26.1 NAVD 88

USCS:	Munsell:	Comments:
SP	Wet - 5Y-5/1 Dry - 2.5Y-7/1 Washed - 2.5Y-8/1	

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
100.61	98.55	0.01	0.09	#200 - 2.18 #230 - 2.14			0

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
5/8"	-4.00	16.00	0.00	0.00	0.00	0.00
7/16"	-3.50	11.31	0.00	0.00	0.00	0.00
5/16"	-3.00	8.00	0.00	0.00	0.00	0.00
3.5	-2.50	5.66	0.00	0.00	0.00	0.00
5	-2.00	4.00	0.09	0.09	0.09	0.09
7	-1.50	2.83	0.02	0.02	0.11	0.11
10	-1.00	2.00	0.10	0.10	0.21	0.21
14	-0.50	1.41	0.13	0.13	0.34	0.34
18	0.00	1.00	0.14	0.14	0.48	0.48
25	0.50	0.71	0.17	0.17	0.65	0.65
35	1.00	0.50	1.03	1.02	1.68	1.67
40	1.25	0.42	2.87	2.85	4.55	4.52
45	1.50	0.35	2.18	2.17	6.73	6.69
50	1.75	0.30	44.35	44.08	51.08	50.77
60	2.00	0.25	22.26	22.13	73.34	72.90
70	2.25	0.21	12.34	12.27	85.68	85.17
80	2.50	0.18	7.68	7.63	93.36	92.80
120	3.00	0.13	4.66	4.63	98.02	97.43
170	3.50	0.09	0.35	0.35	98.37	97.78
200	3.75	0.07	0.04	0.04	98.41	97.82
230	4.00	0.06	0.04	0.04	98.45	97.86

Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.74	2.23	2.04	1.75	1.60	1.55	1.31

Moment Statistics	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
	1.82	0.28	0.43	-1.27	16.99

ALABAMA DIVC-10.GPJ FL DEP ROSS.GDT 3/14/11

Granularmetric Report

Depths and elevations based on measured values

Project Name: Dauphin Island Shore Protection

Sample Name: DIVC-10-22 #3

Analysis Date: 09-28-10

Analyzed By: JR

Coastal Planning & Engineering
2481 NW Boca Raton Blvd, Boca Raton
FL 33431
ph (561) 391-8102
fax (561) 391-9116

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
1,792,791	65,318	Alabama State Plane West	-30.9 NAVD 88

USCS:	Munsell:	Comments:
SP	Wet - 5Y-5/1 Dry - 2.5Y-8/1 Washed - 2.5Y-8/1	

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
107.16	105.96	0.01	0.05	#200 - 1.16 #230 - 1.15			1

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
5/8"	-4.00	16.00	0.00	0.00	0.00	0.00
7/16"	-3.50	11.31	0.00	0.00	0.00	0.00
5/16"	-3.00	8.00	0.00	0.00	0.00	0.00
3.5	-2.50	5.66	0.41	0.38	0.41	0.38
5	-2.00	4.00	0.22	0.21	0.63	0.59
7	-1.50	2.83	0.57	0.53	1.20	1.12
10	-1.00	2.00	0.60	0.56	1.80	1.68
14	-0.50	1.41	0.81	0.76	2.61	2.44
18	0.00	1.00	1.17	1.09	3.78	3.53
25	0.50	0.71	4.52	4.22	8.30	7.75
35	1.00	0.50	16.07	15.00	24.37	22.75
40	1.25	0.42	11.36	10.60	35.73	33.35
45	1.50	0.35	14.97	13.97	50.70	47.32
50	1.75	0.30	19.77	18.45	70.47	65.77
60	2.00	0.25	15.11	14.10	85.58	79.87
70	2.25	0.21	9.49	8.86	95.07	88.73
80	2.50	0.18	6.19	5.78	101.26	94.51
120	3.00	0.13	4.04	3.77	105.30	98.28
170	3.50	0.09	0.52	0.49	105.82	98.77
200	3.75	0.07	0.07	0.07	105.89	98.84
230	4.00	0.06	0.01	0.01	105.90	98.85

Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.56	2.12	1.91	1.54	1.05	0.78	0.17

Moment Statistics	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
	1.42	0.37	0.78	-1.43	7.98

ALABAMA DIVC-10.GPJ FL DEP ROSS.GDT 3/14/11

Granularmetric Report

Depths and elevations based on measured values

Project Name: Dauphin Island Shore Protection

Sample Name: DIVC-10-22 #4

Analysis Date: 09-28-10

Analyzed By: JR

Coastal Planning & Engineering
2481 NW Boca Raton Blvd, Boca Raton
FL 33431
ph (561) 391-8102
fax (561) 391-9116

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
1,792,791	65,318	Alabama State Plane West	-32.8 NAVD 88

USCS:	Munsell:	Comments:
SW	Wet - 5Y-5/1 Dry - 2.5Y-7/1 Washed - 2.5Y-7/1	

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
102.91	101.33	0.04	0.07	#200 - 1.71 #230 - 1.66			8

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
5/8"	-4.00	16.00	0.00	0.00	0.00	0.00
7/16"	-3.50	11.31	0.00	0.00	0.00	0.00
5/16"	-3.00	8.00	0.00	0.00	0.00	0.00
3.5	-2.50	5.66	1.34	1.30	1.34	1.30
5	-2.00	4.00	3.36	3.26	4.70	4.56
7	-1.50	2.83	4.59	4.46	9.29	9.02
10	-1.00	2.00	4.45	4.32	13.74	13.34
14	-0.50	1.41	3.89	3.78	17.63	17.12
18	0.00	1.00	2.69	2.61	20.32	19.73
25	0.50	0.71	2.39	2.32	22.71	22.05
35	1.00	0.50	3.22	3.13	25.93	25.18
40	1.25	0.42	1.92	1.87	27.85	27.05
45	1.50	0.35	2.66	2.58	30.51	29.63
50	1.75	0.30	10.32	10.03	40.83	39.66
60	2.00	0.25	14.43	14.02	55.26	53.68
70	2.25	0.21	14.78	14.36	70.04	68.04
80	2.50	0.18	14.10	13.70	84.14	81.74
120	3.00	0.13	15.23	14.80	99.37	96.54
170	3.50	0.09	1.69	1.64	101.06	98.18
200	3.75	0.07	0.11	0.11	101.17	98.29
230	4.00	0.06	0.05	0.05	101.22	98.34

Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.95	2.58	2.38	1.93	0.97	-0.65	-1.95

Moment	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
Statistics	1.35	0.39	1.52	-1.23	3.3

ALABAMA DIVC-10.GPJ FL DEP ROSS.GDT 3/14/11

Granularmetric Report

Depths and elevations based on measured values

Project Name: Dauphin Island Shore Protection

Sample Name: DIVC-10-23 #1

Analysis Date: 09-28-10

Analyzed By: JR

Coastal Planning & Engineering
2481 NW Boca Raton Blvd, Boca Raton
FL 33431
ph (561) 391-8102
fax (561) 391-9116

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
1,791,669	59,181	Alabama State Plane West	-19.7 NAVD 88

USCS:	Munsell:	Comments:
SP	Wet - 2.5Y-6/2 Dry - 2.5Y-8/1 Washed - 2.5Y-8/1	

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
102.82	101.67	0.01	0.00	#200 - 1.12 #230 - 1.12			0

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
5/8"	-4.00	16.00	0.00	0.00	0.00	0.00
7/16"	-3.50	11.31	0.00	0.00	0.00	0.00
5/16"	-3.00	8.00	0.00	0.00	0.00	0.00
3.5	-2.50	5.66	0.00	0.00	0.00	0.00
5	-2.00	4.00	0.00	0.00	0.00	0.00
7	-1.50	2.83	0.00	0.00	0.00	0.00
10	-1.00	2.00	0.11	0.11	0.11	0.11
14	-0.50	1.41	0.13	0.13	0.24	0.24
18	0.00	1.00	0.16	0.16	0.40	0.40
25	0.50	0.71	0.35	0.34	0.75	0.74
35	1.00	0.50	1.58	1.54	2.33	2.28
40	1.25	0.42	1.90	1.85	4.23	4.13
45	1.50	0.35	0.13	0.13	4.36	4.26
50	1.75	0.30	14.63	14.23	18.99	18.49
60	2.00	0.25	15.37	14.95	34.36	33.44
70	2.25	0.21	21.03	20.45	55.39	53.89
80	2.50	0.18	24.99	24.30	80.38	78.19
120	3.00	0.13	20.29	19.73	100.67	97.92
170	3.50	0.09	0.93	0.90	101.60	98.82
200	3.75	0.07	0.06	0.06	101.66	98.88
230	4.00	0.06	0.00	0.00	101.66	98.88

Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.93	2.65	2.47	2.20	1.86	1.71	1.51

Moment Statistics	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
	2.15	0.23	0.49	-1.24	7.92

ALABAMA DIVC-10.GPJ FL DEP ROSS.GDT 3/14/11

Granularmetric Report

Depths and elevations based on measured values

Project Name: Dauphin Island Shore Protection

Sample Name: DIVC-10-23 #2

Analysis Date: 09-28-10

Analyzed By: JR

Coastal Planning & Engineering
2481 NW Boca Raton Blvd, Boca Raton
FL 33431
ph (561) 391-8102
fax (561) 391-9116

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
1,791,669	59,181	Alabama State Plane West	-25.0 NAVD 88

USCS:	Munsell:	Comments:
SP	Wet - 2.5Y-6/2 Dry - 2.5Y-7/1 Washed - 5Y-8/1	

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
102.02	100.65	0.01	0.07	#200 - 1.43 #230 - 1.40			0

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
5/8"	-4.00	16.00	0.00	0.00	0.00	0.00
7/16"	-3.50	11.31	0.00	0.00	0.00	0.00
5/16"	-3.00	8.00	0.00	0.00	0.00	0.00
3.5	-2.50	5.66	0.00	0.00	0.00	0.00
5	-2.00	4.00	0.00	0.00	0.00	0.00
7	-1.50	2.83	0.01	0.01	0.01	0.01
10	-1.00	2.00	0.04	0.04	0.05	0.05
14	-0.50	1.41	0.05	0.05	0.10	0.10
18	0.00	1.00	0.09	0.09	0.19	0.19
25	0.50	0.71	0.10	0.10	0.29	0.29
35	1.00	0.50	0.74	0.73	1.03	1.02
40	1.25	0.42	1.14	1.12	2.17	2.14
45	1.50	0.35	3.13	3.07	5.30	5.21
50	1.75	0.30	9.81	9.62	15.11	14.83
60	2.00	0.25	16.18	15.86	31.29	30.69
70	2.25	0.21	20.81	20.40	52.10	51.09
80	2.50	0.18	25.52	25.01	77.62	76.10
120	3.00	0.13	20.08	19.68	97.70	95.78
170	3.50	0.09	2.62	2.57	100.32	98.35
200	3.75	0.07	0.22	0.22	100.54	98.57
230	4.00	0.06	0.03	0.03	100.57	98.60

Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.98	2.70	2.49	2.24	1.91	1.77	1.48

Moment Statistics	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
	2.21	0.22	0.47	-0.62	6.13

ALABAMA DIVC-10.GPJ FL DEP ROSS.GDT 3/14/11

Granularmetric Report

Depths and elevations based on measured values

Project Name: Dauphin Island Shore Protection

Sample Name: DIVC-10-23 #3

Analysis Date: 09-28-10

Analyzed By: JR

Coastal Planning & Engineering
2481 NW Boca Raton Blvd, Boca Raton
FL 33431
ph (561) 391-8102
fax (561) 391-9116

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
1,791,669	59,181	Alabama State Plane West	-30.5 NAVD 88

USCS:	Munsell:	Comments:
SP	Wet - 2.5Y-4/1 Dry - 2.5Y-7/2 Washed - 2.5Y-8/1	

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
100.29	98.30	0.08	0.14	#200 - 2.32 #230 - 2.19			0

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
5/8"	-4.00	16.00	0.00	0.00	0.00	0.00
7/16"	-3.50	11.31	0.00	0.00	0.00	0.00
5/16"	-3.00	8.00	0.00	0.00	0.00	0.00
3.5	-2.50	5.66	0.00	0.00	0.00	0.00
5	-2.00	4.00	0.10	0.10	0.10	0.10
7	-1.50	2.83	0.00	0.00	0.10	0.10
10	-1.00	2.00	0.01	0.01	0.11	0.11
14	-0.50	1.41	0.03	0.03	0.14	0.14
18	0.00	1.00	0.07	0.07	0.21	0.21
25	0.50	0.71	0.17	0.17	0.38	0.38
35	1.00	0.50	1.04	1.04	1.42	1.42
40	1.25	0.42	1.39	1.39	2.81	2.81
45	1.50	0.35	0.85	0.85	3.66	3.66
50	1.75	0.30	11.46	11.43	15.12	15.09
60	2.00	0.25	15.03	14.99	30.15	30.08
70	2.25	0.21	17.06	17.01	47.21	47.09
80	2.50	0.18	17.59	17.54	64.80	64.63
120	3.00	0.13	29.63	29.54	94.43	94.17
170	3.50	0.09	3.22	3.21	97.65	97.38
200	3.75	0.07	0.30	0.30	97.95	97.68
230	4.00	0.06	0.13	0.13	98.08	97.81

Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
3.13	2.83	2.68	2.29	1.92	1.77	1.53

Moment Statistics	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
	2.26	0.21	0.52	-1.06	9.19

ALABAMA DIVC-10.GPJ FL DEP ROSS.GDT 3/14/11

Granularmetric Report

Depths and elevations based on measured values

Project Name: Dauphin Island Shore Protection

Sample Name: DIVC-10-23 #4

Analysis Date: 09-28-10

Analyzed By: JR

Coastal Planning & Engineering
2481 NW Boca Raton Blvd, Boca Raton
FL 33431
ph (561) 391-8102
fax (561) 391-9116

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
1,791,669	59,181	Alabama State Plane West	-34.5 NAVD 88

USCS:	Munsell:	Comments:
SW	Wet - 5Y-5/1 Dry - 2.5Y-7/1 Washed - 2.5Y-8/1	

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
99.95	98.37	0.00	0.03	#200 - 1.63 #230 - 1.61			1

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
5/8"	-4.00	16.00	0.00	0.00	0.00	0.00
7/16"	-3.50	11.31	0.00	0.00	0.00	0.00
5/16"	-3.00	8.00	0.00	0.00	0.00	0.00
3.5	-2.50	5.66	0.80	0.80	0.80	0.80
5	-2.00	4.00	0.44	0.44	1.24	1.24
7	-1.50	2.83	0.50	0.50	1.74	1.74
10	-1.00	2.00	0.78	0.78	2.52	2.52
14	-0.50	1.41	0.81	0.81	3.33	3.33
18	0.00	1.00	0.96	0.96	4.29	4.29
25	0.50	0.71	1.13	1.13	5.42	5.42
35	1.00	0.50	2.64	2.64	8.06	8.06
40	1.25	0.42	2.58	2.58	10.64	10.64
45	1.50	0.35	0.19	0.19	10.83	10.83
50	1.75	0.30	15.55	15.56	26.38	26.39
60	2.00	0.25	16.45	16.46	42.83	42.85
70	2.25	0.21	21.45	21.46	64.28	64.31
80	2.50	0.18	19.13	19.14	83.41	83.45
120	3.00	0.13	13.89	13.90	97.30	97.35
170	3.50	0.09	0.92	0.92	98.22	98.27
200	3.75	0.07	0.10	0.10	98.32	98.37
230	4.00	0.06	0.02	0.02	98.34	98.39

Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.92	2.52	2.39	2.08	1.73	1.58	0.31

Moment	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
Statistics	1.91	0.27	0.88	-2.76	13

ALABAMA DIVC-10.GPJ FL DEP ROSS.GDT 3/14/11

Granularmetric Report

Depths and elevations based on measured values

Project Name: Dauphin Island Shore Protection

Sample Name: DIVC-10-24 #1

Analysis Date: 09-28-10

Analyzed By: JR

Coastal Planning & Engineering
2481 NW Boca Raton Blvd, Boca Raton
FL 33431
ph (561) 391-8102
fax (561) 391-9116

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
1,790,945	59,401	Alabama State Plane West	-23.6 NAVD 88

USCS:	Munsell:	Comments:
SP	Wet - 2.5Y-6/2 Dry - 2.5Y-7/1 Washed - 2.5Y-8/1	

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
93.13	91.88	0.01	0.01	#200 - 1.43 #230 - 1.38			0

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
5/8"	-4.00	16.00	0.00	0.00	0.00	0.00
7/16"	-3.50	11.31	0.00	0.00	0.00	0.00
5/16"	-3.00	8.00	0.00	0.00	0.00	0.00
3.5	-2.50	5.66	0.00	0.00	0.00	0.00
5	-2.00	4.00	0.00	0.00	0.00	0.00
7	-1.50	2.83	0.00	0.00	0.00	0.00
10	-1.00	2.00	0.02	0.02	0.02	0.02
14	-0.50	1.41	0.04	0.04	0.06	0.06
18	0.00	1.00	0.03	0.03	0.09	0.09
25	0.50	0.71	0.06	0.06	0.15	0.15
35	1.00	0.50	0.41	0.44	0.56	0.59
40	1.25	0.42	0.59	0.63	1.15	1.22
45	1.50	0.35	0.90	0.97	2.05	2.19
50	1.75	0.30	3.67	3.94	5.72	6.13
60	2.00	0.25	7.86	8.44	13.58	14.57
70	2.25	0.21	16.27	17.47	29.85	32.04
80	2.50	0.18	31.76	34.10	61.61	66.14
120	3.00	0.13	27.65	29.69	89.26	95.83
170	3.50	0.09	2.40	2.58	91.66	98.41
200	3.75	0.07	0.15	0.16	91.81	98.57
230	4.00	0.06	0.05	0.05	91.86	98.62

Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.99	2.80	2.65	2.38	2.15	2.02	1.68

Moment	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
Statistics	2.37	0.19	0.41	-0.98	7.69

ALABAMA DIVC-10.GPJ FL DEP ROSS.GDT 3/14/11

Granularmetric Report

Depths and elevations based on measured values

Project Name: Dauphin Island Shore Protection

Sample Name: DIVC-10-24 #2

Analysis Date: 09-29-10

Analyzed By: JR

Coastal Planning & Engineering
2481 NW Boca Raton Blvd, Boca Raton
FL 33431
ph (561) 391-8102
fax (561) 391-9116

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
1,790,945	59,401	Alabama State Plane West	-26.6 NAVD 88

USCS:	Munsell:	Comments:
SP	Wet - 2.5Y-6/2 Dry - 5Y-7/1 Washed - 5Y-8/1	

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
93.88	92.92	0.01	0.11	#200 - 1.19 #230 - 1.15			0

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
5/8"	-4.00	16.00	0.00	0.00	0.00	0.00
7/16"	-3.50	11.31	0.00	0.00	0.00	0.00
5/16"	-3.00	8.00	0.00	0.00	0.00	0.00
3.5	-2.50	5.66	0.00	0.00	0.00	0.00
5	-2.00	4.00	0.00	0.00	0.00	0.00
7	-1.50	2.83	0.01	0.01	0.01	0.01
10	-1.00	2.00	0.03	0.03	0.04	0.04
14	-0.50	1.41	0.07	0.07	0.11	0.11
18	0.00	1.00	0.10	0.11	0.21	0.22
25	0.50	0.71	0.27	0.29	0.48	0.51
35	1.00	0.50	1.86	1.98	2.34	2.49
40	1.25	0.42	3.03	3.23	5.37	5.72
45	1.50	0.35	2.67	2.84	8.04	8.56
50	1.75	0.30	22.59	24.06	30.63	32.62
60	2.00	0.25	22.63	24.11	53.26	56.73
70	2.25	0.21	18.44	19.64	71.70	76.37
80	2.50	0.18	13.71	14.60	85.41	90.97
120	3.00	0.13	6.94	7.39	92.35	98.36
170	3.50	0.09	0.26	0.28	92.61	98.64
200	3.75	0.07	0.16	0.17	92.77	98.81
230	4.00	0.06	0.04	0.04	92.81	98.85

Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.77	2.38	2.23	1.93	1.67	1.58	1.19

Moment	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
Statistics	1.94	0.26	0.45	-0.53	6.47

ALABAMA DIVC-10.GPJ FL DEP ROSS.GDT 3/14/11

Granularmetric Report

Depths and elevations based on measured values

Project Name: Dauphin Island Shore Protection

Sample Name: DIVC-10-24 #3

Analysis Date: 09-29-10

Analyzed By: JR

Coastal Planning & Engineering
2481 NW Boca Raton Blvd, Boca Raton
FL 33431
ph (561) 391-8102
fax (561) 391-9116

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
1,790,945	59,401	Alabama State Plane West	-29.4 NAVD 88

USCS:	Munsell:	Comments:
SW	Wet - 5Y-4/1 Dry - 2.5Y-6/2 Washed - 5Y-7/1	

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
96.22	92.81	0.02	0.05	#200 - 3.71 #230 - 3.63			1

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
5/8"	-4.00	16.00	0.00	0.00	0.00	0.00
7/16"	-3.50	11.31	0.00	0.00	0.00	0.00
5/16"	-3.00	8.00	0.00	0.00	0.00	0.00
3.5	-2.50	5.66	0.23	0.24	0.23	0.24
5	-2.00	4.00	0.75	0.78	0.98	1.02
7	-1.50	2.83	0.49	0.51	1.47	1.53
10	-1.00	2.00	0.88	0.91	2.35	2.44
14	-0.50	1.41	1.10	1.14	3.45	3.58
18	0.00	1.00	0.98	1.02	4.43	4.60
25	0.50	0.71	0.92	0.96	5.35	5.56
35	1.00	0.50	1.11	1.15	6.46	6.71
40	1.25	0.42	0.76	0.79	7.22	7.50
45	1.50	0.35	1.46	1.52	8.68	9.02
50	1.75	0.30	3.04	3.16	11.72	12.18
60	2.00	0.25	5.98	6.21	17.70	18.39
70	2.25	0.21	11.44	11.89	29.14	30.28
80	2.50	0.18	26.76	27.81	55.90	58.09
120	3.00	0.13	33.46	34.77	89.36	92.86
170	3.50	0.09	3.10	3.22	92.46	96.08
200	3.75	0.07	0.20	0.21	92.66	96.29
230	4.00	0.06	0.08	0.08	92.74	96.37

Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
3.33	2.87	2.74	2.43	2.14	1.90	0.21

Moment	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
Statistics	2.22	0.21	0.92	-2.91	12.64

ALABAMA DIVC-10.GPJ FL DEP ROSS.GDT 3/14/11

Granularmetric Report

Depths and elevations based on measured values

Project Name: Dauphin Island Shore Protection

Sample Name: DIVC-10-24 #4

Analysis Date: 09-29-10

Analyzed By: JR

Coastal Planning & Engineering
2481 NW Boca Raton Blvd, Boca Raton
FL 33431
ph (561) 391-8102
fax (561) 391-9116

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
1,790,945	59,401	Alabama State Plane West	-33.6 NAVD 88

USCS:	Munsell:	Comments:
SP	Wet - 5Y-5/1 Dry - 2.5Y-7/1 Washed - 5Y-8/1	

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
105.87	104.59	0.01	0.05	#200 - 1.25 #230 - 1.25			0

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
5/8"	-4.00	16.00	0.00	0.00	0.00	0.00
7/16"	-3.50	11.31	0.00	0.00	0.00	0.00
5/16"	-3.00	8.00	0.00	0.00	0.00	0.00
3.5	-2.50	5.66	0.00	0.00	0.00	0.00
5	-2.00	4.00	0.00	0.00	0.00	0.00
7	-1.50	2.83	0.01	0.01	0.01	0.01
10	-1.00	2.00	0.02	0.02	0.03	0.03
14	-0.50	1.41	0.04	0.04	0.07	0.07
18	0.00	1.00	0.08	0.08	0.15	0.15
25	0.50	0.71	0.13	0.12	0.28	0.27
35	1.00	0.50	0.79	0.75	1.07	1.02
40	1.25	0.42	1.56	1.47	2.63	2.49
45	1.50	0.35	1.10	1.04	3.73	3.53
50	1.75	0.30	17.90	16.91	21.63	20.44
60	2.00	0.25	26.35	24.89	47.98	45.33
70	2.25	0.21	25.35	23.94	73.33	69.27
80	2.50	0.18	18.48	17.46	91.81	86.73
120	3.00	0.13	12.07	11.40	103.88	98.13
170	3.50	0.09	0.62	0.59	104.50	98.72
200	3.75	0.07	0.03	0.03	104.53	98.75
230	4.00	0.06	0.00	0.00	104.53	98.75

Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.86	2.46	2.33	2.05	1.80	1.68	1.52

Moment Statistics	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
	2.06	0.24	0.41	-0.45	6.49

ALABAMA DIVC-10.GPJ FL DEP ROSS.GDT 3/14/11

Granularmetric Report

Depths and elevations based on measured values

Project Name: Dauphin Island Shore Protection

Sample Name: DIVC-10-24 #5

Analysis Date: 09-29-10

Analyzed By: JR

Coastal Planning & Engineering
2481 NW Boca Raton Blvd, Boca Raton
FL 33431
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fax (561) 391-9116

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
1,790,945	59,401	Alabama State Plane West	-37.6 NAVD 88

USCS:	Munsell:	Comments:
SP	Wet - 5Y-5/1 Dry - 2.5Y-7/1 Washed - 2.5Y-8/1	

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
103.09	101.74	0.01	0.05	#200 - 1.41 #230 - 1.37			0

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
5/8"	-4.00	16.00	0.00	0.00	0.00	0.00
7/16"	-3.50	11.31	0.00	0.00	0.00	0.00
5/16"	-3.00	8.00	0.00	0.00	0.00	0.00
3.5	-2.50	5.66	0.00	0.00	0.00	0.00
5	-2.00	4.00	0.00	0.00	0.00	0.00
7	-1.50	2.83	0.00	0.00	0.00	0.00
10	-1.00	2.00	0.02	0.02	0.02	0.02
14	-0.50	1.41	0.04	0.04	0.06	0.06
18	0.00	1.00	0.07	0.07	0.13	0.13
25	0.50	0.71	0.12	0.12	0.25	0.25
35	1.00	0.50	0.45	0.44	0.70	0.69
40	1.25	0.42	0.61	0.59	1.31	1.28
45	1.50	0.35	1.27	1.23	2.58	2.51
50	1.75	0.30	5.88	5.70	8.46	8.21
60	2.00	0.25	14.88	14.43	23.34	22.64
70	2.25	0.21	24.72	23.98	48.06	46.62
80	2.50	0.18	31.98	31.02	80.04	77.64
120	3.00	0.13	20.23	19.62	100.27	97.26
170	3.50	0.09	1.31	1.27	101.58	98.53
200	3.75	0.07	0.06	0.06	101.64	98.59
230	4.00	0.06	0.04	0.04	101.68	98.63

Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.94	2.66	2.48	2.28	2.02	1.88	1.61

Moment Statistics	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
	2.25	0.21	0.4	-0.83	7.49

ALABAMA DIVC-10.GPJ FL DEP ROSS.GDT 3/14/11

Granularmetric Report

Depths and elevations based on measured values

Project Name: Dauphin Island Shore Protection

Sample Name: DIVC-10-25 #1

Analysis Date: 09-29-10

Analyzed By: JR

Coastal Planning & Engineering
2481 NW Boca Raton Blvd, Boca Raton
FL 33431
ph (561) 391-8102
fax (561) 391-9116

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
1,789,873	59,320	Alabama State Plane West	-27.5 NAVD 88

USCS:	Munsell:	Comments:
SP	Wet - 2.5Y-6/3 Dry - 5Y-7/1 Washed - 5Y-7/1	

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
99.65	97.37	0.03	0.20	#200 - 2.56 #230 - 2.54			0

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
5/8"	-4.00	16.00	0.00	0.00	0.00	0.00
7/16"	-3.50	11.31	0.00	0.00	0.00	0.00
5/16"	-3.00	8.00	0.00	0.00	0.00	0.00
3.5	-2.50	5.66	0.00	0.00	0.00	0.00
5	-2.00	4.00	0.02	0.02	0.02	0.02
7	-1.50	2.83	0.02	0.02	0.04	0.04
10	-1.00	2.00	0.04	0.04	0.08	0.08
14	-0.50	1.41	0.07	0.07	0.15	0.15
18	0.00	1.00	0.12	0.12	0.27	0.27
25	0.50	0.71	0.20	0.20	0.47	0.47
35	1.00	0.50	1.11	1.11	1.58	1.58
40	1.25	0.42	1.31	1.31	2.89	2.89
45	1.50	0.35	0.48	0.48	3.37	3.37
50	1.75	0.30	8.77	8.80	12.14	12.17
60	2.00	0.25	11.16	11.20	23.30	23.37
70	2.25	0.21	15.43	15.48	38.73	38.85
80	2.50	0.18	24.12	24.20	62.85	63.05
120	3.00	0.13	31.76	31.87	94.61	94.92
170	3.50	0.09	2.42	2.43	97.03	97.35
200	3.75	0.07	0.09	0.09	97.12	97.44
230	4.00	0.06	0.02	0.02	97.14	97.46

Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
3.02	2.83	2.69	2.37	2.03	1.84	1.55

Moment Statistics	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
	2.3	0.20	0.5	-1.34	8.58

ALABAMA DIVC-10.GPJ FL DEP ROSS.GDT 3/14/11

Granularmetric Report

Depths and elevations based on measured values

Project Name: Dauphin Island Shore Protection

Sample Name: DIVC-10-25 #2

Analysis Date: 09-29-10

Analyzed By: JR

Coastal Planning & Engineering
2481 NW Boca Raton Blvd, Boca Raton
FL 33431
ph (561) 391-8102
fax (561) 391-9116

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
1,789,873	59,320	Alabama State Plane West	-31.7 NAVD 88

USCS:	Munsell:	Comments:
SP	Wet - 5Y-5/1 Dry - 2.5Y-6/1 Washed - 2.5Y-8/1	

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
95.71	93.88	0.01	0.06	#200 - 2.05 #230 - 1.99			0

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
5/8"	-4.00	16.00	0.00	0.00	0.00	0.00
7/16"	-3.50	11.31	0.00	0.00	0.00	0.00
5/16"	-3.00	8.00	0.00	0.00	0.00	0.00
3.5	-2.50	5.66	0.00	0.00	0.00	0.00
5	-2.00	4.00	0.00	0.00	0.00	0.00
7	-1.50	2.83	0.01	0.01	0.01	0.01
10	-1.00	2.00	0.01	0.01	0.02	0.02
14	-0.50	1.41	0.04	0.04	0.06	0.06
18	0.00	1.00	0.07	0.07	0.13	0.13
25	0.50	0.71	0.14	0.15	0.27	0.28
35	1.00	0.50	0.63	0.66	0.90	0.94
40	1.25	0.42	0.67	0.70	1.57	1.64
45	1.50	0.35	1.26	1.32	2.83	2.96
50	1.75	0.30	3.67	3.83	6.50	6.79
60	2.00	0.25	5.94	6.21	12.44	13.00
70	2.25	0.21	10.12	10.57	22.56	23.57
80	2.50	0.18	20.52	21.44	43.08	45.01
120	3.00	0.13	44.00	45.97	87.08	90.98
170	3.50	0.09	6.44	6.73	93.52	97.71
200	3.75	0.07	0.23	0.24	93.75	97.95
230	4.00	0.06	0.06	0.06	93.81	98.01

Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
3.30	2.92	2.83	2.55	2.27	2.07	1.63

Moment	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
Statistics	2.49	0.18	0.47	-1.3	7.43

ALABAMA DIVC-10.GPJ FL DEP ROSS.GDT 3/14/11

Granularmetric Report

Depths and elevations based on measured values

Project Name: Dauphin Island Shore Protection

Sample Name: DIVC-10-25 #3

Analysis Date: 09-29-10

Analyzed By: JD

Coastal Planning & Engineering
2481 NW Boca Raton Blvd, Boca Raton
FL 33431
ph (561) 391-8102
fax (561) 391-9116

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
1,789,873	59,320	Alabama State Plane West	-34.2 NAVD 88

USCS:	Munsell:	Comments:
SP	Wet - 5Y-5/1 Dry - 2.5Y-7/1 Washed - 5Y-7/1	

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
102.26	100.91	0.02	0.06	#200 - 1.45 #230 - 1.40			0

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
5/8"	-4.00	16.00	0.00	0.00	0.00	0.00
7/16"	-3.50	11.31	0.00	0.00	0.00	0.00
5/16"	-3.00	8.00	0.00	0.00	0.00	0.00
3.5	-2.50	5.66	0.00	0.00	0.00	0.00
5	-2.00	4.00	0.00	0.00	0.00	0.00
7	-1.50	2.83	0.07	0.07	0.07	0.07
10	-1.00	2.00	0.06	0.06	0.13	0.13
14	-0.50	1.41	0.13	0.13	0.26	0.26
18	0.00	1.00	0.24	0.23	0.50	0.49
25	0.50	0.71	0.43	0.42	0.93	0.91
35	1.00	0.50	2.02	1.98	2.95	2.89
40	1.25	0.42	2.61	2.55	5.56	5.44
45	1.50	0.35	5.22	5.10	10.78	10.54
50	1.75	0.30	17.15	16.77	27.93	27.31
60	2.00	0.25	23.48	22.96	51.41	50.27
70	2.25	0.21	19.66	19.23	71.07	69.50
80	2.50	0.18	15.78	15.43	86.85	84.93
120	3.00	0.13	12.73	12.45	99.58	97.38
170	3.50	0.09	1.15	1.12	100.73	98.50
200	3.75	0.07	0.05	0.05	100.78	98.55
230	4.00	0.06	0.05	0.05	100.83	98.60

Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.90	2.48	2.34	2.00	1.72	1.58	1.21

Moment Statistics	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
	2	0.25	0.52	-0.89	7.51

ALABAMA DIVC-10.GPJ FL DEP ROSS.GDT 3/14/11

Granularmetric Report

Depths and elevations based on measured values

Project Name: Dauphin Island Shore Protection

Sample Name: DIVC-10-26 #1

Analysis Date: 09-29-10

Analyzed By: JD

Coastal Planning & Engineering
2481 NW Boca Raton Blvd, Boca Raton
FL 33431
ph (561) 391-8102
fax (561) 391-9116

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
1,788,778	60,203	Alabama State Plane West	-20.1 NAVD 88

USCS:	Munsell:	Comments:
SP	Wet - 2.5Y-6/3 Dry - 2.5Y-7/4 Washed - 2.5Y-8/3	

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
99.10	97.66	0.04	0.08	#200 - 1.67 #230 - 1.57			0

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
5/8"	-4.00	16.00	0.00	0.00	0.00	0.00
7/16"	-3.50	11.31	0.00	0.00	0.00	0.00
5/16"	-3.00	8.00	0.00	0.00	0.00	0.00
3.5	-2.50	5.66	0.44	0.44	0.44	0.44
5	-2.00	4.00	0.00	0.00	0.44	0.44
7	-1.50	2.83	0.28	0.28	0.72	0.72
10	-1.00	2.00	0.24	0.24	0.96	0.96
14	-0.50	1.41	0.66	0.67	1.62	1.63
18	0.00	1.00	1.64	1.65	3.26	3.28
25	0.50	0.71	3.96	4.00	7.22	7.28
35	1.00	0.50	9.65	9.74	16.87	17.02
40	1.25	0.42	6.93	6.99	23.80	24.01
45	1.50	0.35	11.72	11.83	35.52	35.84
50	1.75	0.30	17.26	17.42	52.78	53.26
60	2.00	0.25	15.54	15.68	68.32	68.94
70	2.25	0.21	11.72	11.83	80.04	80.77
80	2.50	0.18	9.48	9.57	89.52	90.34
120	3.00	0.13	6.63	6.69	96.15	97.03
170	3.50	0.09	1.13	1.14	97.28	98.17
200	3.75	0.07	0.16	0.16	97.44	98.33
230	4.00	0.06	0.10	0.10	97.54	98.43

Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.85	2.33	2.13	1.70	1.27	0.95	0.22

Moment	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
Statistics	1.61	0.33	0.8	-1.31	7.53

ALABAMA DIVC-10.GPJ FL DEP ROSS.GDT 3/14/11

Granularmetric Report

Depths and elevations based on measured values

Project Name: Dauphin Island Shore Protection

Sample Name: DIVC-10-26 #2

Analysis Date: 09-29-10

Analyzed By: JD

Coastal Planning & Engineering
2481 NW Boca Raton Blvd, Boca Raton
FL 33431
ph (561) 391-8102
fax (561) 391-9116

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
1,788,778	60,203	Alabama State Plane West	-23.2 NAVD 88

USCS:	Munsell:	Comments:
SP	Wet - 2.5Y-6/2 Dry - 2.5Y-7/2 Washed - 2.5Y-8/2	

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
96.86	95.71	0.01	0.05	#200 - 1.25 #230 - 1.24			0

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
5/8"	-4.00	16.00	0.00	0.00	0.00	0.00
7/16"	-3.50	11.31	0.00	0.00	0.00	0.00
5/16"	-3.00	8.00	0.00	0.00	0.00	0.00
3.5	-2.50	5.66	0.00	0.00	0.00	0.00
5	-2.00	4.00	0.05	0.05	0.05	0.05
7	-1.50	2.83	0.21	0.22	0.26	0.27
10	-1.00	2.00	0.06	0.06	0.32	0.33
14	-0.50	1.41	0.05	0.05	0.37	0.38
18	0.00	1.00	0.16	0.17	0.53	0.55
25	0.50	0.71	0.32	0.33	0.85	0.88
35	1.00	0.50	1.39	1.44	2.24	2.32
40	1.25	0.42	1.74	1.80	3.98	4.12
45	1.50	0.35	0.08	0.08	4.06	4.20
50	1.75	0.30	16.97	17.52	21.03	21.72
60	2.00	0.25	18.52	19.12	39.55	40.84
70	2.25	0.21	20.84	21.52	60.39	62.36
80	2.50	0.18	20.11	20.76	80.50	83.12
120	3.00	0.13	14.22	14.68	94.72	97.80
170	3.50	0.09	0.87	0.90	95.59	98.70
200	3.75	0.07	0.05	0.05	95.64	98.75
230	4.00	0.06	0.01	0.01	95.65	98.76

Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.90	2.53	2.40	2.11	1.79	1.67	1.51

Moment	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
Statistics	2.08	0.24	0.51	-1.84	14.38

ALABAMA DIVC-10.GPJ FL DEP ROSS.GDT 3/14/11

Granularmetric Report

Depths and elevations based on measured values

Project Name: Dauphin Island Shore Protection

Sample Name: DIVC-10-26 #3

Analysis Date: 09-29-10

Analyzed By: JD

Coastal Planning & Engineering
2481 NW Boca Raton Blvd, Boca Raton
FL 33431
ph (561) 391-8102
fax (561) 391-9116

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
1,788,778	60,203	Alabama State Plane West	-26.2 NAVD 88

USCS:	Munsell:	Comments:
SP	Wet - 2.5Y-6/2 Dry - 2.5Y-7/2 Washed - 2.5Y-8/2	

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
97.12	96.10	0.01	0.03	#200 - 1.13 #230 - 1.11			0

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
5/8"	-4.00	16.00	0.00	0.00	0.00	0.00
7/16"	-3.50	11.31	0.00	0.00	0.00	0.00
5/16"	-3.00	8.00	0.00	0.00	0.00	0.00
3.5	-2.50	5.66	0.00	0.00	0.00	0.00
5	-2.00	4.00	0.05	0.05	0.05	0.05
7	-1.50	2.83	0.05	0.05	0.10	0.10
10	-1.00	2.00	0.05	0.05	0.15	0.15
14	-0.50	1.41	0.05	0.05	0.20	0.20
18	0.00	1.00	0.07	0.07	0.27	0.27
25	0.50	0.71	0.12	0.12	0.39	0.39
35	1.00	0.50	0.50	0.51	0.89	0.90
40	1.25	0.42	0.70	0.72	1.59	1.62
45	1.50	0.35	1.53	1.58	3.12	3.20
50	1.75	0.30	6.74	6.94	9.86	10.14
60	2.00	0.25	13.86	14.27	23.72	24.41
70	2.25	0.21	22.29	22.95	46.01	47.36
80	2.50	0.18	31.74	32.68	77.75	80.04
120	3.00	0.13	17.30	17.81	95.05	97.85
170	3.50	0.09	0.92	0.95	95.97	98.80
200	3.75	0.07	0.07	0.07	96.04	98.87
230	4.00	0.06	0.02	0.02	96.06	98.89

Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.92	2.61	2.46	2.27	2.01	1.85	1.56

Moment	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
Statistics	2.22	0.21	0.43	-1.91	17.09

ALABAMA DIVC-10.GPJ FL DEP ROSS.GDT 3/14/11

Granularmetric Report

Depths and elevations based on measured values

Project Name: Dauphin Island Shore Protection

Sample Name: DIVC-10-26 #4

Analysis Date: 09-29-10

Analyzed By: JD

Coastal Planning & Engineering
2481 NW Boca Raton Blvd, Boca Raton
FL 33431
ph (561) 391-8102
fax (561) 391-9116

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
1,788,778	60,203	Alabama State Plane West	-30.2 NAVD 88

USCS:	Munsell:	Comments:
SP	Wet - 5Y-5/1 Dry - 2.5Y-7/1 Washed - 2.5Y-7/1	

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
97.90	96.20	0.02	0.06	#200 - 1.84 #230 - 1.80			1

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
5/8"	-4.00	16.00	0.00	0.00	0.00	0.00
7/16"	-3.50	11.31	0.00	0.00	0.00	0.00
5/16"	-3.00	8.00	0.25	0.26	0.25	0.26
3.5	-2.50	5.66	0.05	0.05	0.30	0.31
5	-2.00	4.00	0.24	0.25	0.54	0.56
7	-1.50	2.83	0.33	0.34	0.87	0.90
10	-1.00	2.00	0.46	0.47	1.33	1.37
14	-0.50	1.41	0.71	0.73	2.04	2.10
18	0.00	1.00	1.10	1.12	3.14	3.22
25	0.50	0.71	2.10	2.15	5.24	5.37
35	1.00	0.50	7.77	7.94	13.01	13.31
40	1.25	0.42	5.95	6.08	18.96	19.39
45	1.50	0.35	4.26	4.35	23.22	23.74
50	1.75	0.30	20.65	21.09	43.87	44.83
60	2.00	0.25	16.58	16.94	60.45	61.77
70	2.25	0.21	13.92	14.22	74.37	75.99
80	2.50	0.18	12.02	12.28	86.39	88.27
120	3.00	0.13	8.92	9.11	95.31	97.38
170	3.50	0.09	0.68	0.69	95.99	98.07
200	3.75	0.07	0.09	0.09	96.08	98.16
230	4.00	0.06	0.04	0.04	96.12	98.20

Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.87	2.41	2.23	1.83	1.51	1.11	0.41

Moment Statistics	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
	1.72	0.30	0.8	-1.88	9.99

ALABAMA DIVC-10.GPJ FL DEP ROSS.GDT 3/14/11

Granularmetric Report

Depths and elevations based on measured values

Project Name: Dauphin Island Shore Protection

Sample Name: DIVC-10-27 #1

Analysis Date: 09-29-10

Analyzed By: JR

Coastal Planning & Engineering
2481 NW Boca Raton Blvd, Boca Raton
FL 33431
ph (561) 391-8102
fax (561) 391-9116

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
1,789,530	60,098	Alabama State Plane West	-20.7 NAVD 88

USCS:	Munsell:	Comments:
SP	Wet - 5Y-7/2 Dry - 2.5Y-8/1 Washed - 5Y-8/1	

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
99.29	98.32	0.02	0.06	#200 - 1.08 #230 - 1.07			0

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
5/8"	-4.00	16.00	0.00	0.00	0.00	0.00
7/16"	-3.50	11.31	0.00	0.00	0.00	0.00
5/16"	-3.00	8.00	0.00	0.00	0.00	0.00
3.5	-2.50	5.66	0.00	0.00	0.00	0.00
5	-2.00	4.00	0.00	0.00	0.00	0.00
7	-1.50	2.83	0.08	0.08	0.08	0.08
10	-1.00	2.00	0.05	0.05	0.13	0.13
14	-0.50	1.41	0.12	0.12	0.25	0.25
18	0.00	1.00	0.18	0.18	0.43	0.43
25	0.50	0.71	0.38	0.38	0.81	0.81
35	1.00	0.50	1.77	1.78	2.58	2.59
40	1.25	0.42	1.92	1.93	4.50	4.52
45	1.50	0.35	3.90	3.93	8.40	8.45
50	1.75	0.30	10.22	10.29	18.62	18.74
60	2.00	0.25	15.38	15.49	34.00	34.23
70	2.25	0.21	18.66	18.79	52.66	53.02
80	2.50	0.18	25.90	26.09	78.56	79.11
120	3.00	0.13	18.27	18.40	96.83	97.51
170	3.50	0.09	1.34	1.35	98.17	98.86
200	3.75	0.07	0.06	0.06	98.23	98.92
230	4.00	0.06	0.01	0.01	98.24	98.93

Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.93	2.63	2.46	2.21	1.85	1.68	1.28

Moment	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
Statistics	2.14	0.23	0.52	-1.3	8.23

ALABAMA DIVC-10.GPJ FL DEP ROSS.GDT 3/14/11

Granularmetric Report

Depths and elevations based on measured values

Project Name: Dauphin Island Shore Protection

Sample Name: DIVC-10-27 #2

Analysis Date: 09-30-10

Analyzed By: JD

Coastal Planning & Engineering
2481 NW Boca Raton Blvd, Boca Raton
FL 33431
ph (561) 391-8102
fax (561) 391-9116

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
1,789,530	60,098	Alabama State Plane West	-23.7 NAVD 88

USCS:	Munsell:	Comments:
SP	Wet - 5Y-6/2 Dry - 2.5Y-7/2 Washed - 2.5Y-7/1	

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
96.06	95.00	0.01	0.00	#200 - 1.13 #230 - 1.12			0

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
5/8"	-4.00	16.00	0.00	0.00	0.00	0.00
7/16"	-3.50	11.31	0.00	0.00	0.00	0.00
5/16"	-3.00	8.00	0.00	0.00	0.00	0.00
3.5	-2.50	5.66	0.00	0.00	0.00	0.00
5	-2.00	4.00	0.00	0.00	0.00	0.00
7	-1.50	2.83	0.02	0.02	0.02	0.02
10	-1.00	2.00	0.04	0.04	0.06	0.06
14	-0.50	1.41	0.08	0.08	0.14	0.14
18	0.00	1.00	0.05	0.05	0.19	0.19
25	0.50	0.71	0.13	0.14	0.32	0.33
35	1.00	0.50	0.37	0.39	0.69	0.72
40	1.25	0.42	0.50	0.52	1.19	1.24
45	1.50	0.35	0.02	0.02	1.21	1.26
50	1.75	0.30	8.38	8.72	9.59	9.98
60	2.00	0.25	15.37	16.00	24.96	25.98
70	2.25	0.21	20.69	21.54	45.65	47.52
80	2.50	0.18	27.18	28.29	72.83	75.81
120	3.00	0.13	21.24	22.11	94.07	97.92
170	3.50	0.09	0.88	0.92	94.95	98.84
200	3.75	0.07	0.03	0.03	94.98	98.87
230	4.00	0.06	0.01	0.01	94.99	98.88

Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.93	2.69	2.49	2.27	1.98	1.84	1.61

Moment Statistics	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
	2.24	0.21	0.41	-1.16	10.05

ALABAMA DIVC-10.GPJ FL DEP ROSS.GDT 3/14/11

Granularmetric Report

Depths and elevations based on measured values

Project Name: Dauphin Island Shore Protection

Sample Name: DIVC-10-27 #3

Analysis Date: 09-30-10

Analyzed By: JD

Coastal Planning & Engineering
2481 NW Boca Raton Blvd, Boca Raton
FL 33431
ph (561) 391-8102
fax (561) 391-9116

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
1,789,530	60,098	Alabama State Plane West	-25.9 NAVD 88

USCS:	Munsell:	Comments:
SP	Wet - 5Y-6/1 Dry - 5Y-7/1 Washed - 2.5Y-7/1	

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
93.23	92.07	0.01	0.00	#200 - 1.28 #230 - 1.26			0

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
5/8"	-4.00	16.00	0.00	0.00	0.00	0.00
7/16"	-3.50	11.31	0.00	0.00	0.00	0.00
5/16"	-3.00	8.00	0.00	0.00	0.00	0.00
3.5	-2.50	5.66	0.00	0.00	0.00	0.00
5	-2.00	4.00	0.00	0.00	0.00	0.00
7	-1.50	2.83	0.02	0.02	0.02	0.02
10	-1.00	2.00	0.02	0.02	0.04	0.04
14	-0.50	1.41	0.03	0.03	0.07	0.07
18	0.00	1.00	0.04	0.04	0.11	0.11
25	0.50	0.71	0.14	0.15	0.25	0.26
35	1.00	0.50	0.65	0.70	0.90	0.96
40	1.25	0.42	0.78	0.84	1.68	1.80
45	1.50	0.35	1.71	1.83	3.39	3.63
50	1.75	0.30	5.50	5.90	8.89	9.53
60	2.00	0.25	9.12	9.78	18.01	19.31
70	2.25	0.21	14.89	15.97	32.90	35.28
80	2.50	0.18	30.78	33.02	63.68	68.30
120	3.00	0.13	26.97	28.93	90.65	97.23
170	3.50	0.09	1.34	1.44	91.99	98.67
200	3.75	0.07	0.05	0.05	92.04	98.72
230	4.00	0.06	0.02	0.02	92.06	98.74

Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.96	2.77	2.62	2.36	2.09	1.92	1.56

Moment Statistics	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
	2.32	0.20	0.43	-1.26	8.03

ALABAMA DIVC-10.GPJ FL DEP ROSS.GDT 3/14/11

Granularmetric Report

Depths and elevations based on measured values

Project Name: Dauphin Island Shore Protection

Sample Name: DIVC-10-28 #1

Analysis Date: 09-30-10

Analyzed By: JD

Coastal Planning & Engineering
2481 NW Boca Raton Blvd, Boca Raton
FL 33431
ph (561) 391-8102
fax (561) 391-9116

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
1,790,597	60,122	Alabama State Plane West	-20.7 NAVD 88

USCS:	Munsell:	Comments:
SP	Wet - 5Y-6/2 Dry - 2.5Y-7/2 Washed - 5Y-8/1	

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
95.60	94.50	0.01	0.05	#200 - 1.25 #230 - 1.21			0

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
5/8"	-4.00	16.00	0.00	0.00	0.00	0.00
7/16"	-3.50	11.31	0.00	0.00	0.00	0.00
5/16"	-3.00	8.00	0.00	0.00	0.00	0.00
3.5	-2.50	5.66	0.00	0.00	0.00	0.00
5	-2.00	4.00	0.00	0.00	0.00	0.00
7	-1.50	2.83	0.02	0.02	0.02	0.02
10	-1.00	2.00	0.11	0.12	0.13	0.14
14	-0.50	1.41	0.09	0.09	0.22	0.23
18	0.00	1.00	0.11	0.12	0.33	0.35
25	0.50	0.71	0.23	0.24	0.56	0.59
35	1.00	0.50	1.33	1.39	1.89	1.98
40	1.25	0.42	1.59	1.66	3.48	3.64
45	1.50	0.35	0.41	0.43	3.89	4.07
50	1.75	0.30	13.74	14.37	17.63	18.44
60	2.00	0.25	17.94	18.77	35.57	37.21
70	2.25	0.21	20.86	21.82	56.43	59.03
80	2.50	0.18	21.86	22.87	78.29	81.90
120	3.00	0.13	14.95	15.64	93.24	97.54
170	3.50	0.09	1.07	1.12	94.31	98.66
200	3.75	0.07	0.09	0.09	94.40	98.75
230	4.00	0.06	0.04	0.04	94.44	98.79

Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.92	2.57	2.42	2.15	1.84	1.71	1.52

Moment	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
Statistics	2.12	0.23	0.48	-1.12	8.88

ALABAMA DIVC-10.GPJ FL DEP ROSS.GDT 3/14/11

Granularmetric Report

Depths and elevations based on measured values

Project Name: Dauphin Island Shore Protection

Sample Name: DIVC-10-28 #2

Analysis Date: 09-30-10

Analyzed By: JD

Coastal Planning & Engineering
2481 NW Boca Raton Blvd, Boca Raton
FL 33431
ph (561) 391-8102
fax (561) 391-9116

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
1,790,597	60,122	Alabama State Plane West	-23.7 NAVD 88

USCS:	Munsell:	Comments:
SP	Wet - 5Y-6/1 Dry - 2.5Y-7/1 Washed - 5Y-8/1	

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
98.50	97.40	0.01	0.00	#200 - 1.16 #230 - 1.14			0

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
5/8"	-4.00	16.00	0.00	0.00	0.00	0.00
7/16"	-3.50	11.31	0.00	0.00	0.00	0.00
5/16"	-3.00	8.00	0.00	0.00	0.00	0.00
3.5	-2.50	5.66	0.00	0.00	0.00	0.00
5	-2.00	4.00	0.00	0.00	0.00	0.00
7	-1.50	2.83	0.01	0.01	0.01	0.01
10	-1.00	2.00	0.02	0.02	0.03	0.03
14	-0.50	1.41	0.06	0.06	0.09	0.09
18	0.00	1.00	0.02	0.02	0.11	0.11
25	0.50	0.71	0.15	0.15	0.26	0.26
35	1.00	0.50	0.88	0.89	1.14	1.15
40	1.25	0.42	1.32	1.34	2.46	2.49
45	1.50	0.35	3.22	3.27	5.68	5.76
50	1.75	0.30	8.79	8.92	14.47	14.68
60	2.00	0.25	13.28	13.48	27.75	28.16
70	2.25	0.21	17.91	18.18	45.66	46.34
80	2.50	0.18	29.31	29.76	74.97	76.10
120	3.00	0.13	21.22	21.54	96.19	97.64
170	3.50	0.09	1.12	1.14	97.31	98.78
200	3.75	0.07	0.06	0.06	97.37	98.84
230	4.00	0.06	0.02	0.02	97.39	98.86

Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.94	2.68	2.49	2.28	1.94	1.77	1.44

Moment	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
Statistics	2.21	0.22	0.46	-0.89	5.95

ALABAMA DIVC-10.GPJ FL DEP ROSS.GDT 3/14/11

Granularmetric Report

Depths and elevations based on measured values

Project Name: Dauphin Island Shore Protection

Sample Name: DIVC-10-28 #3

Analysis Date: 09-30-10

Analyzed By: JD

Coastal Planning & Engineering
2481 NW Boca Raton Blvd, Boca Raton
FL 33431
ph (561) 391-8102
fax (561) 391-9116

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
1,790,597	60,122	Alabama State Plane West	-26.4 NAVD 88

USCS:	Munsell:	Comments:
SP	Wet - 5Y-5/1 Dry - 2.5Y-7/1 Washed - 5Y-7/1	

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
93.68	92.33	0.00	0.01	#200 - 1.48 #230 - 1.45			0

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
5/8"	-4.00	16.00	0.00	0.00	0.00	0.00
7/16"	-3.50	11.31	0.00	0.00	0.00	0.00
5/16"	-3.00	8.00	0.00	0.00	0.00	0.00
3.5	-2.50	5.66	0.08	0.09	0.08	0.09
5	-2.00	4.00	0.11	0.12	0.19	0.21
7	-1.50	2.83	0.02	0.02	0.21	0.23
10	-1.00	2.00	0.04	0.04	0.25	0.27
14	-0.50	1.41	0.04	0.04	0.29	0.31
18	0.00	1.00	0.05	0.05	0.34	0.36
25	0.50	0.71	0.10	0.11	0.44	0.47
35	1.00	0.50	0.40	0.43	0.84	0.90
40	1.25	0.42	0.39	0.42	1.23	1.32
45	1.50	0.35	0.03	0.03	1.26	1.35
50	1.75	0.30	3.08	3.29	4.34	4.64
60	2.00	0.25	4.94	5.27	9.28	9.91
70	2.25	0.21	9.99	10.66	19.27	20.57
80	2.50	0.18	25.46	27.18	44.73	47.75
120	3.00	0.13	44.30	47.29	89.03	95.04
170	3.50	0.09	3.16	3.37	92.19	98.41
200	3.75	0.07	0.10	0.11	92.29	98.52
230	4.00	0.06	0.03	0.03	92.32	98.55

Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
3.00	2.88	2.79	2.52	2.29	2.14	1.77

Moment Statistics	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
	2.48	0.18	0.46	-3.74	35.09

ALABAMA DIVC-10.GPJ FL DEP ROSS.GDT 3/14/11

Granularmetric Report

Depths and elevations based on measured values

Project Name: Dauphin Island Shore Protection

Sample Name: DIVC-10-28 #4

Analysis Date: 09-30-10

Analyzed By: JD

Coastal Planning & Engineering
2481 NW Boca Raton Blvd, Boca Raton
FL 33431
ph (561) 391-8102
fax (561) 391-9116

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
1,790,597	60,122	Alabama State Plane West	-27.0 NAVD 88

USCS:	Munsell:	Comments:
SC	Wet - 5Y-4/2 Dry - 5Y-6/2 Washed - 5Y-7/1	

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
93.32	81.24	0.03	0.03	#200 - 13.13 #230 - 13.00			0

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
5/8"	-4.00	16.00	0.00	0.00	0.00	0.00
7/16"	-3.50	11.31	0.00	0.00	0.00	0.00
5/16"	-3.00	8.00	0.00	0.00	0.00	0.00
3.5	-2.50	5.66	0.00	0.00	0.00	0.00
5	-2.00	4.00	0.00	0.00	0.00	0.00
7	-1.50	2.83	0.03	0.03	0.03	0.03
10	-1.00	2.00	0.01	0.01	0.04	0.04
14	-0.50	1.41	0.01	0.01	0.05	0.05
18	0.00	1.00	0.07	0.08	0.12	0.13
25	0.50	0.71	0.02	0.02	0.14	0.15
35	1.00	0.50	0.22	0.24	0.36	0.39
40	1.25	0.42	0.42	0.45	0.78	0.84
45	1.50	0.35	1.02	1.09	1.80	1.93
50	1.75	0.30	3.44	3.69	5.24	5.62
60	2.00	0.25	5.70	6.11	10.94	11.73
70	2.25	0.21	8.09	8.67	19.03	20.40
80	2.50	0.18	21.72	23.27	40.75	43.67
120	3.00	0.13	35.56	38.11	76.31	81.78
170	3.50	0.09	4.44	4.76	80.75	86.54
200	3.75	0.07	0.31	0.33	81.06	86.87
230	4.00	0.06	0.12	0.13	81.18	87.00

Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
	3.23	2.91	2.58	2.30	2.12	1.71

Moment	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
Statistics	2.47	0.18	0.44	-1.19	8.84

ALABAMA DIVC-10.GPJ FL DEP ROSS.GDT 3/14/11

Granularmetric Report

Depths and elevations based on measured values

Project Name: Dauphin Island Shore Protection

Sample Name: DIVC-10-28 #5

Analysis Date: 09-30-10

Analyzed By: JR

Coastal Planning & Engineering
2481 NW Boca Raton Blvd, Boca Raton
FL 33431
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fax (561) 391-9116

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
1,790,597	60,122	Alabama State Plane West	-32.0 NAVD 88

USCS:	Munsell:	Comments:
SP	Wet - 2.5Y-6/1 Dry - 2.5Y-7/1 Washed - 5Y-7/1	

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
98.89	97.86	0.00	0.01	#200 - 1.06 #230 - 1.05			0

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
5/8"	-4.00	16.00	0.00	0.00	0.00	0.00
7/16"	-3.50	11.31	0.00	0.00	0.00	0.00
5/16"	-3.00	8.00	0.49	0.50	0.49	0.50
3.5	-2.50	5.66	0.00	0.00	0.49	0.50
5	-2.00	4.00	0.00	0.00	0.49	0.50
7	-1.50	2.83	0.01	0.01	0.50	0.51
10	-1.00	2.00	0.06	0.06	0.56	0.57
14	-0.50	1.41	0.12	0.12	0.68	0.69
18	0.00	1.00	0.16	0.16	0.84	0.85
25	0.50	0.71	0.30	0.30	1.14	1.15
35	1.00	0.50	1.86	1.88	3.00	3.03
40	1.25	0.42	3.42	3.46	6.42	6.49
45	1.50	0.35	3.64	3.68	10.06	10.17
50	1.75	0.30	26.05	26.34	36.11	36.51
60	2.00	0.25	26.52	26.82	62.63	63.33
70	2.25	0.21	18.38	18.59	81.01	81.92
80	2.50	0.18	11.38	11.51	92.39	93.43
120	3.00	0.13	5.15	5.21	97.54	98.64
170	3.50	0.09	0.27	0.27	97.81	98.91
200	3.75	0.07	0.03	0.03	97.84	98.94
230	4.00	0.06	0.01	0.01	97.85	98.95

Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.65	2.30	2.16	1.88	1.64	1.56	1.14

Moment Statistics	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
	1.86	0.28	0.57	-3.99	36.1

ALABAMA DIVC-10.GPJ FL DEP ROSS.GDT 3/14/11

Granularmetric Report

Depths and elevations based on measured values

Project Name: Dauphin Island Shore Protection

Sample Name: DIVC-10-28 #6

Analysis Date: 09-30-10

Analyzed By: JR

Coastal Planning & Engineering
2481 NW Boca Raton Blvd, Boca Raton
FL 33431
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fax (561) 391-9116

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
1,790,597	60,122	Alabama State Plane West	-36.0 NAVD 88

USCS:	Munsell:	Comments:
SP	Wet - 2.5Y-6/1 Dry - 2.5Y-7/1 Washed - 5Y-7/1	

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
106.37	105.34	0.00	0.02	#200 - 0.99 #230 - 0.97			0

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
5/8"	-4.00	16.00	0.00	0.00	0.00	0.00
7/16"	-3.50	11.31	0.00	0.00	0.00	0.00
5/16"	-3.00	8.00	0.00	0.00	0.00	0.00
3.5	-2.50	5.66	0.00	0.00	0.00	0.00
5	-2.00	4.00	0.02	0.02	0.02	0.02
7	-1.50	2.83	0.03	0.03	0.05	0.05
10	-1.00	2.00	0.06	0.06	0.11	0.11
14	-0.50	1.41	0.18	0.17	0.29	0.28
18	0.00	1.00	0.25	0.24	0.54	0.52
25	0.50	0.71	0.34	0.32	0.88	0.84
35	1.00	0.50	1.70	1.60	2.58	2.44
40	1.25	0.42	3.31	3.11	5.89	5.55
45	1.50	0.35	8.40	7.90	14.29	13.45
50	1.75	0.30	18.85	17.72	33.14	31.17
60	2.00	0.25	25.99	24.43	59.13	55.60
70	2.25	0.21	22.15	20.82	81.28	76.42
80	2.50	0.18	16.20	15.23	97.48	91.65
120	3.00	0.13	7.39	6.95	104.87	98.60
170	3.50	0.09	0.41	0.39	105.28	98.99
200	3.75	0.07	0.02	0.02	105.30	99.01
230	4.00	0.06	0.02	0.02	105.32	99.03

Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.74	2.37	2.23	1.94	1.66	1.54	1.21

Moment	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
Statistics	1.93	0.26	0.47	-1.07	8.81

ALABAMA DIVC-10.GPJ FL DEP ROSS.GDT 3/14/11

Granularmetric Report

Depths and elevations based on measured values

Project Name: Dauphin Island Shore Protection

Sample Name: DIVC-10-29 #1

Analysis Date: 09-30-10

Analyzed By: JR

Coastal Planning & Engineering
2481 NW Boca Raton Blvd, Boca Raton
FL 33431
ph (561) 391-8102
fax (561) 391-9116

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
1,791,549	60,168	Alabama State Plane West	-22.0 NAVD 88

USCS:	Munsell:	Comments:
SP	Wet - 5Y-5/2 Dry - 2.5Y-7/2 Washed - 5Y-8/1	

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
97.79	96.85	0.01	0.02	#200 - 1.02 #230 - 1.01			0

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
5/8"	-4.00	16.00	0.00	0.00	0.00	0.00
7/16"	-3.50	11.31	0.00	0.00	0.00	0.00
5/16"	-3.00	8.00	0.00	0.00	0.00	0.00
3.5	-2.50	5.66	0.27	0.28	0.27	0.28
5	-2.00	4.00	0.09	0.09	0.36	0.37
7	-1.50	2.83	0.18	0.18	0.54	0.55
10	-1.00	2.00	0.18	0.18	0.72	0.73
14	-0.50	1.41	0.28	0.29	1.00	1.02
18	0.00	1.00	0.51	0.52	1.51	1.54
25	0.50	0.71	1.47	1.50	2.98	3.04
35	1.00	0.50	6.33	6.47	9.31	9.51
40	1.25	0.42	5.46	5.58	14.77	15.09
45	1.50	0.35	4.43	4.53	19.20	19.62
50	1.75	0.30	21.76	22.25	40.96	41.87
60	2.00	0.25	17.79	18.19	58.75	60.06
70	2.25	0.21	15.44	15.79	74.19	75.85
80	2.50	0.18	14.29	14.61	88.48	90.46
120	3.00	0.13	8.01	8.19	96.49	98.65
170	3.50	0.09	0.30	0.31	96.79	98.96
200	3.75	0.07	0.02	0.02	96.81	98.98
230	4.00	0.06	0.01	0.01	96.82	98.99

Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.78	2.39	2.24	1.86	1.56	1.30	0.65

Moment	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
Statistics	1.8	0.29	0.67	-1.93	11.68

ALABAMA DIVC-10.GPJ FL DEP ROSS.GDT 3/14/11

Granularmetric Report

Depths and elevations based on measured values

Project Name: Dauphin Island Shore Protection

Sample Name: DIVC-10-29 #2

Analysis Date: 09-30-10

Analyzed By: JR

Coastal Planning & Engineering
2481 NW Boca Raton Blvd, Boca Raton
FL 33431
ph (561) 391-8102
fax (561) 391-9116

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
1,791,549	60,168	Alabama State Plane West	-24.2 NAVD 88

USCS:	Munsell:	Comments:
SP	Wet - 2.5Y-6/2 Dry - 2.5Y-7/1 Washed - 5Y-8/1	

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
102.13	100.98	0.00	0.01	#200 - 1.13 #230 - 1.12			0

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
5/8"	-4.00	16.00	0.00	0.00	0.00	0.00
7/16"	-3.50	11.31	0.00	0.00	0.00	0.00
5/16"	-3.00	8.00	0.00	0.00	0.00	0.00
3.5	-2.50	5.66	0.00	0.00	0.00	0.00
5	-2.00	4.00	0.00	0.00	0.00	0.00
7	-1.50	2.83	0.10	0.10	0.10	0.10
10	-1.00	2.00	0.01	0.01	0.11	0.11
14	-0.50	1.41	0.02	0.02	0.13	0.13
18	0.00	1.00	0.05	0.05	0.18	0.18
25	0.50	0.71	0.09	0.09	0.27	0.27
35	1.00	0.50	0.63	0.62	0.90	0.89
40	1.25	0.42	0.92	0.90	1.82	1.79
45	1.50	0.35	1.61	1.58	3.43	3.37
50	1.75	0.30	5.75	5.63	9.18	9.00
60	2.00	0.25	10.65	10.43	19.83	19.43
70	2.25	0.21	19.05	18.65	38.88	38.08
80	2.50	0.18	34.57	33.85	73.45	71.93
120	3.00	0.13	26.03	25.49	99.48	97.42
170	3.50	0.09	1.39	1.36	100.87	98.78
200	3.75	0.07	0.09	0.09	100.96	98.87
230	4.00	0.06	0.01	0.01	100.97	98.88

Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.95	2.74	2.56	2.34	2.07	1.92	1.57

Moment Statistics	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
	2.3	0.20	0.43	-1.6	12.63

ALABAMA DIVC-10.GPJ FL DEP ROSS.GDT 3/14/11

Granularmetric Report

Depths and elevations based on measured values

Project Name: Dauphin Island Shore Protection

Sample Name: DIVC-10-29 #3

Analysis Date: 09-30-10

Analyzed By: JR

Coastal Planning & Engineering
2481 NW Boca Raton Blvd, Boca Raton
FL 33431
ph (561) 391-8102
fax (561) 391-9116

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
1,791,549	60,168	Alabama State Plane West	-29.6 NAVD 88

USCS:	Munsell:	Comments:
SP	Wet - 5Y-6/1 Dry - 5Y-8/1 Washed - 5Y-7/1	

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
94.60	93.71	0.01	0.06	#200 - 1.01 #230 - 1.01			0

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
5/8"	-4.00	16.00	0.00	0.00	0.00	0.00
7/16"	-3.50	11.31	0.00	0.00	0.00	0.00
5/16"	-3.00	8.00	0.25	0.26	0.25	0.26
3.5	-2.50	5.66	0.12	0.13	0.37	0.39
5	-2.00	4.00	0.05	0.05	0.42	0.44
7	-1.50	2.83	0.03	0.03	0.45	0.47
10	-1.00	2.00	0.10	0.11	0.55	0.58
14	-0.50	1.41	0.13	0.14	0.68	0.72
18	0.00	1.00	0.15	0.16	0.83	0.88
25	0.50	0.71	0.40	0.42	1.23	1.30
35	1.00	0.50	2.78	2.94	4.01	4.24
40	1.25	0.42	4.11	4.34	8.12	8.58
45	1.50	0.35	3.46	3.66	11.58	12.24
50	1.75	0.30	26.08	27.57	37.66	39.81
60	2.00	0.25	22.19	23.46	59.85	63.27
70	2.25	0.21	16.08	17.00	75.93	80.27
80	2.50	0.18	11.55	12.21	87.48	92.48
120	3.00	0.13	5.76	6.09	93.24	98.57
170	3.50	0.09	0.36	0.38	93.60	98.95
200	3.75	0.07	0.04	0.04	93.64	98.99
230	4.00	0.06	0.00	0.00	93.64	98.99

Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.71	2.33	2.17	1.86	1.62	1.53	1.04

Moment Statistics	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
	1.84	0.28	0.58	-3.09	26.1

ALABAMA DIVC-10.GPJ FL DEP ROSS.GDT 3/14/11

Granularmetric Report

Depths and elevations based on measured values

Project Name: Dauphin Island Shore Protection

Sample Name: DIVC-10-29 #4

Analysis Date: 09-30-10

Analyzed By: JR

Coastal Planning & Engineering
2481 NW Boca Raton Blvd, Boca Raton
FL 33431
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fax (561) 391-9116

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
1,791,549	60,168	Alabama State Plane West	-33.6 NAVD 88

USCS:	Munsell:	Comments:
SP	Wet - 5Y-6/1 Dry - 2.5Y-7/1 Washed - 5Y-7/1	

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
103.00	101.93	0.01	0.00	#200 - 1.04 #230 - 1.04			0

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
5/8"	-4.00	16.00	0.00	0.00	0.00	0.00
7/16"	-3.50	11.31	0.00	0.00	0.00	0.00
5/16"	-3.00	8.00	0.00	0.00	0.00	0.00
3.5	-2.50	5.66	0.00	0.00	0.00	0.00
5	-2.00	4.00	0.00	0.00	0.00	0.00
7	-1.50	2.83	0.05	0.05	0.05	0.05
10	-1.00	2.00	0.18	0.17	0.23	0.22
14	-0.50	1.41	0.17	0.17	0.40	0.39
18	0.00	1.00	0.33	0.32	0.73	0.71
25	0.50	0.71	0.70	0.68	1.43	1.39
35	1.00	0.50	2.80	2.72	4.23	4.11
40	1.25	0.42	3.82	3.71	8.05	7.82
45	1.50	0.35	7.76	7.53	15.81	15.35
50	1.75	0.30	16.34	15.86	32.15	31.21
60	2.00	0.25	20.67	20.07	52.82	51.28
70	2.25	0.21	19.28	18.72	72.10	70.00
80	2.50	0.18	19.69	19.12	91.79	89.12
120	3.00	0.13	9.35	9.08	101.14	98.20
170	3.50	0.09	0.75	0.73	101.89	98.93
200	3.75	0.07	0.03	0.03	101.92	98.96
230	4.00	0.06	0.00	0.00	101.92	98.96

Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.82	2.43	2.32	1.98	1.65	1.51	1.06

Moment	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
Statistics	1.94	0.26	0.54	-1.17	7.5

ALABAMA DIVC-10.GPJ FL DEP ROSS.GDT 3/14/11

Granularmetric Report

Depths and elevations based on measured values

Project Name: Dauphin Island Shore Protection

Sample Name: DIVC-10-29 #5

Analysis Date: 09-30-10

Analyzed By: JR

Coastal Planning & Engineering
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FL 33431
ph (561) 391-8102
fax (561) 391-9116

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
1,791,549	60,168	Alabama State Plane West	-37.1 NAVD 88

USCS:	Munsell:	Comments:
SW	Wet - 5Y-5/1 Dry - 2.5Y-6/1 Washed - 5Y-7/1	

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
100.49	98.40	0.03	0.26	#200 - 2.41 #230 - 2.37			2

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
5/8"	-4.00	16.00	0.00	0.00	0.00	0.00
7/16"	-3.50	11.31	0.00	0.00	0.00	0.00
5/16"	-3.00	8.00	0.55	0.55	0.55	0.55
3.5	-2.50	5.66	0.65	0.65	1.20	1.20
5	-2.00	4.00	1.04	1.03	2.24	2.23
7	-1.50	2.83	0.94	0.94	3.18	3.17
10	-1.00	2.00	1.63	1.62	4.81	4.79
14	-0.50	1.41	1.60	1.59	6.41	6.38
18	0.00	1.00	1.49	1.48	7.90	7.86
25	0.50	0.71	1.23	1.22	9.13	9.08
35	1.00	0.50	1.27	1.26	10.40	10.34
40	1.25	0.42	0.94	0.94	11.34	11.28
45	1.50	0.35	0.15	0.15	11.49	11.43
50	1.75	0.30	10.09	10.04	21.58	21.47
60	2.00	0.25	16.14	16.06	37.72	37.53
70	2.25	0.21	18.70	18.61	56.42	56.14
80	2.50	0.18	21.18	21.08	77.60	77.22
120	3.00	0.13	18.35	18.26	95.95	95.48
170	3.50	0.09	1.82	1.81	97.77	97.29
200	3.75	0.07	0.30	0.30	98.07	97.59
230	4.00	0.06	0.04	0.04	98.11	97.63

Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.99	2.69	2.47	2.17	1.80	1.61	-0.93

Moment	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
Statistics	1.89	0.27	1.12	-2.47	9.44

ALABAMA DIVC-10.GPJ FL DEP ROSS.GDT 3/14/11

Granularmetric Report

Depths and elevations based on measured values

Project Name: Dauphin Island Shore Protection

Sample Name: DIVC-10-29 #6

Analysis Date: 09-30-10

Analyzed By: JR

Coastal Planning & Engineering
2481 NW Boca Raton Blvd, Boca Raton
FL 33431
ph (561) 391-8102
fax (561) 391-9116

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
1,791,549	60,168	Alabama State Plane West	-40.9 NAVD 88

USCS:	Munsell:	Comments:
SP	Wet - 5Y-5/1 Dry - 2.5Y-6/2 Washed - 5Y-7/1	

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
92.86	90.85	0.08	0.09	#200 - 2.52 #230 - 2.35			0

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
5/8"	-4.00	16.00	0.00	0.00	0.00	0.00
7/16"	-3.50	11.31	0.00	0.00	0.00	0.00
5/16"	-3.00	8.00	0.00	0.00	0.00	0.00
3.5	-2.50	5.66	0.00	0.00	0.00	0.00
5	-2.00	4.00	0.00	0.00	0.00	0.00
7	-1.50	2.83	0.01	0.01	0.01	0.01
10	-1.00	2.00	0.03	0.03	0.04	0.04
14	-0.50	1.41	0.03	0.03	0.07	0.07
18	0.00	1.00	0.03	0.03	0.10	0.10
25	0.50	0.71	0.03	0.03	0.13	0.13
35	1.00	0.50	0.06	0.06	0.19	0.19
40	1.25	0.42	0.04	0.04	0.23	0.23
45	1.50	0.35	0.09	0.10	0.32	0.33
50	1.75	0.30	0.52	0.56	0.84	0.89
60	2.00	0.25	2.91	3.13	3.75	4.02
70	2.25	0.21	8.40	9.05	12.15	13.07
80	2.50	0.18	26.22	28.24	38.37	41.31
120	3.00	0.13	42.59	45.86	80.96	87.17
170	3.50	0.09	9.08	9.78	90.04	96.95
200	3.75	0.07	0.49	0.53	90.53	97.48
230	4.00	0.06	0.16	0.17	90.69	97.65

Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
3.40	2.97	2.87	2.59	2.36	2.28	2.03

Moment Statistics	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
	2.6	0.16	0.37	-0.98	12.68

ALABAMA DIVC-10.GPJ FL DEP ROSS.GDT 3/14/11

Granularmetric Report

Depths and elevations based on measured values

Project Name: Dauphin Island Shore Protection

Sample Name: DIVC-10-30 #1

Analysis Date: 10-01-10

Analyzed By: JR

Coastal Planning & Engineering
2481 NW Boca Raton Blvd, Boca Raton
FL 33431
ph (561) 391-8102
fax (561) 391-9116

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
1,791,226	58,662	Alabama State Plane West	-20.3 NAVD 88

USCS:	Munsell:	Comments:
SP	Wet - 5Y-7/2 Dry - 5Y-8/1 Washed - 5Y-8/1	

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
102.59	101.77	0.00	0.08	#200 - 0.88 #230 - 0.87			0

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
5/8"	-4.00	16.00	0.00	0.00	0.00	0.00
7/16"	-3.50	11.31	0.00	0.00	0.00	0.00
5/16"	-3.00	8.00	0.00	0.00	0.00	0.00
3.5	-2.50	5.66	0.00	0.00	0.00	0.00
5	-2.00	4.00	0.00	0.00	0.00	0.00
7	-1.50	2.83	0.06	0.06	0.06	0.06
10	-1.00	2.00	0.06	0.06	0.12	0.12
14	-0.50	1.41	0.11	0.11	0.23	0.23
18	0.00	1.00	0.21	0.20	0.44	0.43
25	0.50	0.71	0.45	0.44	0.89	0.87
35	1.00	0.50	2.03	1.98	2.92	2.85
40	1.25	0.42	2.25	2.19	5.17	5.04
45	1.50	0.35	1.52	1.48	6.69	6.52
50	1.75	0.30	16.64	16.22	23.33	22.74
60	2.00	0.25	21.18	20.65	44.51	43.39
70	2.25	0.21	20.17	19.66	64.68	63.05
80	2.50	0.18	21.25	20.71	85.93	83.76
120	3.00	0.13	15.17	14.79	101.10	98.55
170	3.50	0.09	0.55	0.54	101.65	99.09
200	3.75	0.07	0.03	0.03	101.68	99.12
230	4.00	0.06	0.01	0.01	101.69	99.13

Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.88	2.51	2.39	2.08	1.78	1.65	1.25

Moment	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
Statistics	2.06	0.24	0.5	-1.18	8.13

ALABAMA DIVC-10.GPJ FL DEP ROSS.GDT 3/14/11

Granularmetric Report

Depths and elevations based on measured values

Project Name: Dauphin Island Shore Protection

Sample Name: DIVC-10-30 #2

Analysis Date: 10-01-10

Analyzed By: JR

Coastal Planning & Engineering
2481 NW Boca Raton Blvd, Boca Raton
FL 33431
ph (561) 391-8102
fax (561) 391-9116

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
1,791,226	58,662	Alabama State Plane West	-22.0 NAVD 88

USCS:	Munsell:	Comments:
SP	Wet - 5Y-6/1 Dry - 5Y-7/1 Washed - 5Y-7/1	

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
99.92	98.37	0.04	0.02	#200 - 1.70 #230 - 1.62			0

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
5/8"	-4.00	16.00	0.00	0.00	0.00	0.00
7/16"	-3.50	11.31	0.00	0.00	0.00	0.00
5/16"	-3.00	8.00	0.00	0.00	0.00	0.00
3.5	-2.50	5.66	0.00	0.00	0.00	0.00
5	-2.00	4.00	0.07	0.07	0.07	0.07
7	-1.50	2.83	0.08	0.08	0.15	0.15
10	-1.00	2.00	0.06	0.06	0.21	0.21
14	-0.50	1.41	0.07	0.07	0.28	0.28
18	0.00	1.00	0.14	0.14	0.42	0.42
25	0.50	0.71	0.28	0.28	0.70	0.70
35	1.00	0.50	1.36	1.36	2.06	2.06
40	1.25	0.42	2.14	2.14	4.20	4.20
45	1.50	0.35	4.40	4.40	8.60	8.60
50	1.75	0.30	9.16	9.17	17.76	17.77
60	2.00	0.25	13.81	13.82	31.57	31.59
70	2.25	0.21	17.35	17.36	48.92	48.95
80	2.50	0.18	24.22	24.24	73.14	73.19
120	3.00	0.13	21.82	21.84	94.96	95.03
170	3.50	0.09	2.97	2.97	97.93	98.00
200	3.75	0.07	0.30	0.30	98.23	98.30
230	4.00	0.06	0.08	0.08	98.31	98.38

Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
3.00	2.75	2.54	2.26	1.88	1.70	1.30

Moment Statistics	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
	2.19	0.22	0.55	-1.29	9.53

ALABAMA DIVC-10.GPJ FL DEP ROSS.GDT 3/14/11

Granularmetric Report

Depths and elevations based on measured values

Project Name: Dauphin Island Shore Protection

Sample Name: DIVC-10-30 #3

Analysis Date: 10-01-10

Analyzed By: JR

Coastal Planning & Engineering
2481 NW Boca Raton Blvd, Boca Raton
FL 33431
ph (561) 391-8102
fax (561) 391-9116

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
1,791,226	58,662	Alabama State Plane West	-25.3 NAVD 88

USCS:	Munsell:	Comments:
SP	Wet - 5Y-6/1 Dry - 2.5Y-7/1 Washed - 2.5Y-8/1	

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
101.68	100.78	0.01	0.20	#200 - 1.15 #230 - 1.08			0

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
5/8"	-4.00	16.00	0.00	0.00	0.00	0.00
7/16"	-3.50	11.31	0.00	0.00	0.00	0.00
5/16"	-3.00	8.00	0.00	0.00	0.00	0.00
3.5	-2.50	5.66	0.00	0.00	0.00	0.00
5	-2.00	4.00	0.00	0.00	0.00	0.00
7	-1.50	2.83	0.00	0.00	0.00	0.00
10	-1.00	2.00	0.00	0.00	0.00	0.00
14	-0.50	1.41	0.01	0.01	0.01	0.01
18	0.00	1.00	0.02	0.02	0.03	0.03
25	0.50	0.71	0.09	0.09	0.12	0.12
35	1.00	0.50	0.25	0.25	0.37	0.37
40	1.25	0.42	0.48	0.47	0.85	0.84
45	1.50	0.35	2.98	2.93	3.83	3.77
50	1.75	0.30	6.03	5.93	9.86	9.70
60	2.00	0.25	12.73	12.52	22.59	22.22
70	2.25	0.21	6.32	6.22	28.91	28.44
80	2.50	0.18	19.48	19.16	48.39	47.60
120	3.00	0.13	47.69	46.90	96.08	94.50
170	3.50	0.09	4.21	4.14	100.29	98.64
200	3.75	0.07	0.21	0.21	100.50	98.85
230	4.00	0.06	0.07	0.07	100.57	98.92

Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
3.06	2.89	2.79	2.53	2.11	1.88	1.55

Moment	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
Statistics	2.43	0.19	0.47	-0.79	3.69

ALABAMA DIVC-10.GPJ FL DEP ROSS.GDT 3/14/11

Granularmetric Report

Depths and elevations based on measured values

Project Name: Dauphin Island Shore Protection

Sample Name: DIVC-10-30 #4

Analysis Date: 10-01-10

Analyzed By: JR

Coastal Planning & Engineering
2481 NW Boca Raton Blvd, Boca Raton
FL 33431
ph (561) 391-8102
fax (561) 391-9116

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
1,791,226	58,662	Alabama State Plane West	-29.3 NAVD 88

USCS:	Munsell:	Comments:
SP	Wet - 5Y-6/1 Dry - 5Y-7/1 Washed - 5Y-8/1	

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
101.35	100.48	0.01	0.01	#200 - 0.90 #230 - 0.87			0

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
5/8"	-4.00	16.00	0.00	0.00	0.00	0.00
7/16"	-3.50	11.31	0.00	0.00	0.00	0.00
5/16"	-3.00	8.00	0.00	0.00	0.00	0.00
3.5	-2.50	5.66	0.00	0.00	0.00	0.00
5	-2.00	4.00	0.02	0.02	0.02	0.02
7	-1.50	2.83	0.02	0.02	0.04	0.04
10	-1.00	2.00	0.03	0.03	0.07	0.07
14	-0.50	1.41	0.04	0.04	0.11	0.11
18	0.00	1.00	0.07	0.07	0.18	0.18
25	0.50	0.71	0.09	0.09	0.27	0.27
35	1.00	0.50	0.45	0.44	0.72	0.71
40	1.25	0.42	0.50	0.49	1.22	1.20
45	1.50	0.35	1.06	1.05	2.28	2.25
50	1.75	0.30	3.16	3.12	5.44	5.37
60	2.00	0.25	9.31	9.19	14.75	14.56
70	2.25	0.21	22.22	21.92	36.97	36.48
80	2.50	0.18	38.23	37.72	75.20	74.20
120	3.00	0.13	23.55	23.24	98.75	97.44
170	3.50	0.09	1.55	1.53	100.30	98.97
200	3.75	0.07	0.13	0.13	100.43	99.10
230	4.00	0.06	0.03	0.03	100.46	99.13

Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.95	2.71	2.52	2.34	2.12	2.02	1.72

Moment	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
Statistics	2.32	0.20	0.39	-1.62	15.01

ALABAMA DIVC-10.GPJ FL DEP ROSS.GDT 3/14/11

Granularmetric Report

Depths and elevations based on measured values

Project Name: Dauphin Island Shore Protection

Sample Name: DIVC-10-30 #5

Analysis Date: 10-01-10

Analyzed By: JR

Coastal Planning & Engineering
2481 NW Boca Raton Blvd, Boca Raton
FL 33431
ph (561) 391-8102
fax (561) 391-9116

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
1,791,226	58,662	Alabama State Plane West	-34.3 NAVD 88

USCS:	Munsell:	Comments:
SP	Wet - 5Y-4/1 Dry - 2.5Y-7/1 Washed - 2.5Y-8/1	

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
97.14	96.13	0.07	0.08	#200 - 1.38 #230 - 1.19			0

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
5/8"	-4.00	16.00	0.00	0.00	0.00	0.00
7/16"	-3.50	11.31	0.00	0.00	0.00	0.00
5/16"	-3.00	8.00	0.00	0.00	0.00	0.00
3.5	-2.50	5.66	0.00	0.00	0.00	0.00
5	-2.00	4.00	0.06	0.06	0.06	0.06
7	-1.50	2.83	0.18	0.19	0.24	0.25
10	-1.00	2.00	0.32	0.33	0.56	0.58
14	-0.50	1.41	0.31	0.32	0.87	0.90
18	0.00	1.00	0.45	0.46	1.32	1.36
25	0.50	0.71	0.60	0.62	1.92	1.98
35	1.00	0.50	2.13	2.19	4.05	4.17
40	1.25	0.42	1.99	2.05	6.04	6.22
45	1.50	0.35	0.25	0.26	6.29	6.48
50	1.75	0.30	10.69	11.00	16.98	17.48
60	2.00	0.25	10.40	10.71	27.38	28.19
70	2.25	0.21	10.47	10.78	37.85	38.97
80	2.50	0.18	15.88	16.35	53.73	55.32
120	3.00	0.13	35.08	36.11	88.81	91.43
170	3.50	0.09	6.52	6.71	95.33	98.14
200	3.75	0.07	0.47	0.48	95.80	98.62
230	4.00	0.06	0.18	0.19	95.98	98.81

Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
3.27	2.90	2.77	2.42	1.93	1.72	1.10

Moment	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
Statistics	2.29	0.20	0.69	-1.79	9.41

ALABAMA DIVC-10.GPJ FL DEP ROSS.GDT 3/14/11

Granularmetric Report

Depths and elevations based on measured values

Project Name: Dauphin Island Shore Protection

Sample Name: DIVC-10-30 #6

Analysis Date: 10-01-10

Analyzed By: JD

Coastal Planning & Engineering
2481 NW Boca Raton Blvd, Boca Raton
FL 33431
ph (561) 391-8102
fax (561) 391-9116

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
1,791,226	58,662	Alabama State Plane West	-37.3 NAVD 88

USCS:	Munsell:	Comments:
SP	Wet - 5Y-6/2 Dry - 2.5Y-8/1 Washed - 2.5Y-8/1	

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
99.51	97.94	0.02	0.06	#200 - 1.72 #230 - 1.67			0

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
5/8"	-4.00	16.00	0.00	0.00	0.00	0.00
7/16"	-3.50	11.31	0.00	0.00	0.00	0.00
5/16"	-3.00	8.00	0.00	0.00	0.00	0.00
3.5	-2.50	5.66	0.17	0.17	0.17	0.17
5	-2.00	4.00	0.06	0.06	0.23	0.23
7	-1.50	2.83	0.13	0.13	0.36	0.36
10	-1.00	2.00	0.25	0.25	0.61	0.61
14	-0.50	1.41	0.36	0.36	0.97	0.97
18	0.00	1.00	0.43	0.43	1.40	1.40
25	0.50	0.71	0.49	0.49	1.89	1.89
35	1.00	0.50	1.29	1.30	3.18	3.19
40	1.25	0.42	1.89	1.90	5.07	5.09
45	1.50	0.35	0.03	0.03	5.10	5.12
50	1.75	0.30	20.82	20.92	25.92	26.04
60	2.00	0.25	27.04	27.17	52.96	53.21
70	2.25	0.21	23.60	23.72	76.56	76.93
80	2.50	0.18	14.87	14.94	91.43	91.87
120	3.00	0.13	5.99	6.02	97.42	97.89
170	3.50	0.09	0.33	0.33	97.75	98.22
200	3.75	0.07	0.06	0.06	97.81	98.28
230	4.00	0.06	0.05	0.05	97.86	98.33

Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.76	2.37	2.23	1.97	1.74	1.63	1.24

Moment Statistics	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
	1.94	0.26	0.54	-3.07	22.47

ALABAMA DIVC-10.GPJ FL DEP ROSS.GDT 3/14/11

Granularmetric Report

Depths and elevations based on measured values

Project Name: Dauphin Island Shore Protection

Sample Name: DIVC-10-31 #1

Analysis Date: 10-05-10

Analyzed By: JR

Coastal Planning & Engineering
2481 NW Boca Raton Blvd, Boca Raton
FL 33431
ph (561) 391-8102
fax (561) 391-9116

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
1,790,189	63,831	Alabama State Plane West	-21.0 NAVD 88

USCS:	Munsell:	Comments:
SP	Wet - 5Y-7/2 Dry - 2.5Y-8/2 Washed - 2.5Y-8/2	

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
108.12	107.16	0.01	0.07	#200 - 0.95 #230 - 0.95			1

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
5/8"	-4.00	16.00	0.00	0.00	0.00	0.00
7/16"	-3.50	11.31	0.00	0.00	0.00	0.00
5/16"	-3.00	8.00	0.17	0.16	0.17	0.16
3.5	-2.50	5.66	0.06	0.06	0.23	0.22
5	-2.00	4.00	0.24	0.22	0.47	0.44
7	-1.50	2.83	0.34	0.31	0.81	0.75
10	-1.00	2.00	0.31	0.29	1.12	1.04
14	-0.50	1.41	0.33	0.31	1.45	1.35
18	0.00	1.00	0.52	0.48	1.97	1.83
25	0.50	0.71	1.19	1.10	3.16	2.93
35	1.00	0.50	6.75	6.24	9.91	9.17
40	1.25	0.42	6.54	6.05	16.45	15.22
45	1.50	0.35	4.40	4.07	20.85	19.29
50	1.75	0.30	37.61	34.79	58.46	54.08
60	2.00	0.25	26.05	24.09	84.51	78.17
70	2.25	0.21	13.35	12.35	97.86	90.52
80	2.50	0.18	6.72	6.22	104.58	96.74
120	3.00	0.13	2.33	2.16	106.91	98.90
170	3.50	0.09	0.14	0.13	107.05	99.03
200	3.75	0.07	0.02	0.02	107.07	99.05
230	4.00	0.06	0.00	0.00	107.07	99.05

Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.43	2.12	1.97	1.72	1.54	1.30	0.67

Moment	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
Statistics	1.66	0.32	0.61	-2.85	18.46

ALABAMA DIVC-10.GPJ FL DEP ROSS.GDT 3/14/11

Granularmetric Report

Depths and elevations based on measured values

Project Name: Dauphin Island Shore Protection

Sample Name: DIVC-10-31 #2

Analysis Date: 10-01-10

Analyzed By: JD

Coastal Planning & Engineering
2481 NW Boca Raton Blvd, Boca Raton
FL 33431
ph (561) 391-8102
fax (561) 391-9116

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
1,790,189	63,831	Alabama State Plane West	-23.2 NAVD 88

USCS:	Munsell:	Comments:
SP	Wet - 5Y-7/1 Dry - 2.5Y-8/1 Washed - 2.5Y-8/1	

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
99.45	98.63	0.01	0.04	#200 - 0.89 #230 - 0.88			0

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
5/8"	-4.00	16.00	0.00	0.00	0.00	0.00
7/16"	-3.50	11.31	0.00	0.00	0.00	0.00
5/16"	-3.00	8.00	0.00	0.00	0.00	0.00
3.5	-2.50	5.66	0.00	0.00	0.00	0.00
5	-2.00	4.00	0.00	0.00	0.00	0.00
7	-1.50	2.83	0.03	0.03	0.03	0.03
10	-1.00	2.00	0.02	0.02	0.05	0.05
14	-0.50	1.41	0.02	0.02	0.07	0.07
18	0.00	1.00	0.02	0.02	0.09	0.09
25	0.50	0.71	0.08	0.08	0.17	0.17
35	1.00	0.50	0.47	0.47	0.64	0.64
40	1.25	0.42	0.81	0.81	1.45	1.45
45	1.50	0.35	2.83	2.85	4.28	4.30
50	1.75	0.30	11.56	11.62	15.84	15.92
60	2.00	0.25	20.67	20.78	36.51	36.70
70	2.25	0.21	21.17	21.29	57.68	57.99
80	2.50	0.18	23.67	23.80	81.35	81.79
120	3.00	0.13	15.82	15.91	97.17	97.70
170	3.50	0.09	1.36	1.37	98.53	99.07
200	3.75	0.07	0.04	0.04	98.57	99.11
230	4.00	0.06	0.01	0.01	98.58	99.12

Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.92	2.57	2.43	2.16	1.86	1.75	1.52

Moment	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
Statistics	2.15	0.23	0.43	-0.48	6.53

ALABAMA DIVC-10.GPJ FL DEP ROSS.GDT 3/14/11

Granularmetric Report

Depths and elevations based on measured values

Project Name: Dauphin Island Shore Protection

Sample Name: DIVC-10-31 #3

Analysis Date: 10-01-10

Analyzed By: JD

Coastal Planning & Engineering
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FL 33431
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fax (561) 391-9116

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
1,790,189	63,831	Alabama State Plane West	-24.7 NAVD 88

USCS:	Munsell:	Comments:
SP	Wet - 5Y-6/1 Dry - 2.5Y-8/1 Washed - 2.5Y-8/1	

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
102.05	101.23	0.01	0.07	#200 - 0.90 #230 - 0.88			0

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
5/8"	-4.00	16.00	0.00	0.00	0.00	0.00
7/16"	-3.50	11.31	0.00	0.00	0.00	0.00
5/16"	-3.00	8.00	0.00	0.00	0.00	0.00
3.5	-2.50	5.66	0.00	0.00	0.00	0.00
5	-2.00	4.00	0.02	0.02	0.02	0.02
7	-1.50	2.83	0.07	0.07	0.09	0.09
10	-1.00	2.00	0.03	0.03	0.12	0.12
14	-0.50	1.41	0.03	0.03	0.15	0.15
18	0.00	1.00	0.07	0.07	0.22	0.22
25	0.50	0.71	0.16	0.16	0.38	0.38
35	1.00	0.50	0.82	0.80	1.20	1.18
40	1.25	0.42	1.36	1.33	2.56	2.51
45	1.50	0.35	0.04	0.04	2.60	2.55
50	1.75	0.30	21.50	21.07	24.10	23.62
60	2.00	0.25	28.51	27.94	52.61	51.56
70	2.25	0.21	22.25	21.80	74.86	73.36
80	2.50	0.18	16.96	16.62	91.82	89.98
120	3.00	0.13	8.77	8.59	100.59	98.57
170	3.50	0.09	0.50	0.49	101.09	99.06
200	3.75	0.07	0.04	0.04	101.13	99.10
230	4.00	0.06	0.02	0.02	101.15	99.12

Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.79	2.41	2.27	1.99	1.76	1.66	1.53

Moment Statistics	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
	2.02	0.25	0.41	-1.01	12.83

ALABAMA DIVC-10.GPJ FL DEP ROSS.GDT 3/14/11

Granularmetric Report

Depths and elevations based on measured values

Project Name: Dauphin Island Shore Protection

Sample Name: DIVC-10-31 #4

Analysis Date: 10-01-10

Analyzed By: JD

Coastal Planning & Engineering
2481 NW Boca Raton Blvd, Boca Raton
FL 33431
ph (561) 391-8102
fax (561) 391-9116

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
1,790,189	63,831	Alabama State Plane West	-26.5 NAVD 88

USCS:	Munsell:	Comments:
SP	Wet - 5Y-6/1 Dry - 2.5Y-8/1 Washed - 2.5Y-8/1	

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
102.74	101.71	0.01	0.04	#200 - 1.12 #230 - 1.07			1

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
5/8"	-4.00	16.00	0.00	0.00	0.00	0.00
7/16"	-3.50	11.31	0.00	0.00	0.00	0.00
5/16"	-3.00	8.00	0.00	0.00	0.00	0.00
3.5	-2.50	5.66	0.46	0.45	0.46	0.45
5	-2.00	4.00	0.24	0.23	0.70	0.68
7	-1.50	2.83	0.57	0.55	1.27	1.23
10	-1.00	2.00	0.96	0.93	2.23	2.16
14	-0.50	1.41	0.98	0.95	3.21	3.11
18	0.00	1.00	1.08	1.05	4.29	4.16
25	0.50	0.71	1.45	1.41	5.74	5.57
35	1.00	0.50	3.75	3.65	9.49	9.22
40	1.25	0.42	3.87	3.77	13.36	12.99
45	1.50	0.35	8.55	8.32	21.91	21.31
50	1.75	0.30	18.71	18.21	40.62	39.52
60	2.00	0.25	20.51	19.96	61.13	59.48
70	2.25	0.21	15.72	15.30	76.85	74.78
80	2.50	0.18	14.83	14.43	91.68	89.21
120	3.00	0.13	9.15	8.91	100.83	98.12
170	3.50	0.09	0.71	0.69	101.54	98.81
200	3.75	0.07	0.07	0.07	101.61	98.88
230	4.00	0.06	0.05	0.05	101.66	98.93

Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.82	2.41	2.25	1.88	1.55	1.34	0.30

Moment Statistics	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
	1.77	0.29	0.82	-2.27	10.9

ALABAMA DIVC-10.GPJ FL DEP ROSS.GDT 3/14/11

Granularmetric Report

Depths and elevations based on measured values

Project Name: Dauphin Island Shore Protection

Sample Name: DIVC-10-31 #5

Analysis Date: 10-04-10

Analyzed By: JR

Coastal Planning & Engineering
2481 NW Boca Raton Blvd, Boca Raton
FL 33431
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fax (561) 391-9116

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
1,790,189	63,831	Alabama State Plane West	-30.2 NAVD 88

USCS:	Munsell:	Comments:
SP	Wet - 5Y-5/1 Dry - 2.5Y-7/1 Washed - 2.5Y-7/1	

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
99.06	98.00	0.02	0.04	#200 - 1.21 #230 - 1.14			0

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
5/8"	-4.00	16.00	0.00	0.00	0.00	0.00
7/16"	-3.50	11.31	0.00	0.00	0.00	0.00
5/16"	-3.00	8.00	0.00	0.00	0.00	0.00
3.5	-2.50	5.66	0.00	0.00	0.00	0.00
5	-2.00	4.00	0.00	0.00	0.00	0.00
7	-1.50	2.83	0.00	0.00	0.00	0.00
10	-1.00	2.00	0.03	0.03	0.03	0.03
14	-0.50	1.41	0.07	0.07	0.10	0.10
18	0.00	1.00	0.13	0.13	0.23	0.23
25	0.50	0.71	0.13	0.13	0.36	0.36
35	1.00	0.50	0.33	0.33	0.69	0.69
40	1.25	0.42	0.36	0.36	1.05	1.05
45	1.50	0.35	0.06	0.06	1.11	1.11
50	1.75	0.30	3.44	3.47	4.55	4.58
60	2.00	0.25	5.54	5.59	10.09	10.17
70	2.25	0.21	9.08	9.17	19.17	19.34
80	2.50	0.18	16.77	16.93	35.94	36.27
120	3.00	0.13	50.28	50.76	86.22	87.03
170	3.50	0.09	11.32	11.43	97.54	98.46
200	3.75	0.07	0.33	0.33	97.87	98.79
230	4.00	0.06	0.07	0.07	97.94	98.86

Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
3.35	2.97	2.88	2.64	2.33	2.16	1.77

Moment	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
Statistics	2.58	0.17	0.46	-1.46	9.41

ALABAMA DIVC-10.GPJ FL DEP ROSS.GDT 3/14/11

Granularmetric Report

Depths and elevations based on measured values

Project Name: Dauphin Island Shore Protection

Sample Name: DIVC-10-31 #6

Analysis Date: 10-04-10

Analyzed By: JR

Coastal Planning & Engineering
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FL 33431
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fax (561) 391-9116

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
1,790,189	63,831	Alabama State Plane West	-35.9 NAVD 88

USCS:	Munsell:	Comments:
SP	Wet - 5Y-5/1 Dry - 2.5Y-6/1 Washed - 5Y-7/1	

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
101.42	98.44	0.02	0.02	#200 - 3.09 #230 - 2.96			0

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
5/8"	-4.00	16.00	0.00	0.00	0.00	0.00
7/16"	-3.50	11.31	0.00	0.00	0.00	0.00
5/16"	-3.00	8.00	0.00	0.00	0.00	0.00
3.5	-2.50	5.66	0.00	0.00	0.00	0.00
5	-2.00	4.00	0.00	0.00	0.00	0.00
7	-1.50	2.83	0.11	0.11	0.11	0.11
10	-1.00	2.00	0.21	0.21	0.32	0.32
14	-0.50	1.41	0.13	0.13	0.45	0.45
18	0.00	1.00	0.17	0.17	0.62	0.62
25	0.50	0.71	0.16	0.16	0.78	0.78
35	1.00	0.50	0.24	0.24	1.02	1.02
40	1.25	0.42	0.29	0.29	1.31	1.31
45	1.50	0.35	0.60	0.59	1.91	1.90
50	1.75	0.30	3.00	2.96	4.91	4.86
60	2.00	0.25	7.46	7.36	12.37	12.22
70	2.25	0.21	14.40	14.20	26.77	26.42
80	2.50	0.18	30.86	30.43	57.63	56.85
120	3.00	0.13	34.87	34.38	92.50	91.23
170	3.50	0.09	5.36	5.28	97.86	96.51
200	3.75	0.07	0.41	0.40	98.27	96.91
230	4.00	0.06	0.13	0.13	98.40	97.04

Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
3.36	2.89	2.76	2.44	2.23	2.07	1.75

Moment Statistics	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
	2.43	0.19	0.49	-2.42	18.93

ALABAMA DIVC-10.GPJ FL DEP ROSS.GDT 3/14/11

Granularmetric Report

Depths and elevations based on measured values

Project Name: Dauphin Island Shore Protection

Sample Name: DIVC-10-32 #1

Analysis Date: 10-04-10

Analyzed By: JR

Coastal Planning & Engineering
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FL 33431
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fax (561) 391-9116

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
1,793,136	64,325	Alabama State Plane West	-20.8 NAVD 88

USCS:	Munsell:	Comments:
SP	Wet - 5Y-6/2 Dry - 2.5Y-8/2 Washed - 2.5Y-8/2	

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
103.00	102.23	0.01	0.24	#200 - 1.00 #230 - 0.99			0

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
5/8"	-4.00	16.00	0.00	0.00	0.00	0.00
7/16"	-3.50	11.31	0.00	0.00	0.00	0.00
5/16"	-3.00	8.00	0.00	0.00	0.00	0.00
3.5	-2.50	5.66	0.00	0.00	0.00	0.00
5	-2.00	4.00	0.04	0.04	0.04	0.04
7	-1.50	2.83	0.06	0.06	0.10	0.10
10	-1.00	2.00	0.14	0.14	0.24	0.24
14	-0.50	1.41	0.15	0.15	0.39	0.39
18	0.00	1.00	0.24	0.23	0.63	0.62
25	0.50	0.71	0.52	0.50	1.15	1.12
35	1.00	0.50	3.16	3.07	4.31	4.19
40	1.25	0.42	3.90	3.79	8.21	7.98
45	1.50	0.35	0.05	0.05	8.26	8.03
50	1.75	0.30	27.13	26.34	35.39	34.37
60	2.00	0.25	24.25	23.54	59.64	57.91
70	2.25	0.21	21.07	20.46	80.71	78.37
80	2.50	0.18	15.11	14.67	95.82	93.04
120	3.00	0.13	5.83	5.66	101.65	98.70
170	3.50	0.09	0.28	0.27	101.93	98.97
200	3.75	0.07	0.03	0.03	101.96	99.00
230	4.00	0.06	0.01	0.01	101.97	99.01

Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.67	2.35	2.21	1.92	1.66	1.58	1.05

Moment	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
Statistics	1.9	0.27	0.49	-1.55	11.14

ALABAMA DIVC-10.GPJ FL DEP ROSS.GDT 3/14/11

Granularmetric Report

Depths and elevations based on measured values

Project Name: Dauphin Island Shore Protection

Sample Name: DIVC-10-32 #2

Analysis Date: 10-04-10

Analyzed By: JR

Coastal Planning & Engineering
2481 NW Boca Raton Blvd, Boca Raton
FL 33431
ph (561) 391-8102
fax (561) 391-9116

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
1,793,136	64,325	Alabama State Plane West	-23.4 NAVD 88

USCS:	Munsell:	Comments:
SP	Wet - 5Y-5/2 Dry - 2.5Y-7/2 Washed - 2.5Y-8/2	

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
99.86	97.78	0.01	0.03	#200 - 2.23 #230 - 2.13			0

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
5/8"	-4.00	16.00	0.00	0.00	0.00	0.00
7/16"	-3.50	11.31	0.00	0.00	0.00	0.00
5/16"	-3.00	8.00	0.00	0.00	0.00	0.00
3.5	-2.50	5.66	0.14	0.14	0.14	0.14
5	-2.00	4.00	0.00	0.00	0.14	0.14
7	-1.50	2.83	0.01	0.01	0.15	0.15
10	-1.00	2.00	0.02	0.02	0.17	0.17
14	-0.50	1.41	0.11	0.11	0.28	0.28
18	0.00	1.00	0.16	0.16	0.44	0.44
25	0.50	0.71	0.27	0.27	0.71	0.71
35	1.00	0.50	0.73	0.73	1.44	1.44
40	1.25	0.42	0.77	0.77	2.21	2.21
45	1.50	0.35	1.67	1.67	3.88	3.88
50	1.75	0.30	6.28	6.29	10.16	10.17
60	2.00	0.25	12.89	12.91	23.05	23.08
70	2.25	0.21	19.62	19.65	42.67	42.73
80	2.50	0.18	28.51	28.55	71.18	71.28
120	3.00	0.13	23.38	23.41	94.56	94.69
170	3.50	0.09	2.79	2.79	97.35	97.48
200	3.75	0.07	0.29	0.29	97.64	97.77
230	4.00	0.06	0.10	0.10	97.74	97.87

Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
3.06	2.77	2.58	2.31	2.02	1.86	1.54

Moment	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
Statistics	2.27	0.21	0.51	-2.18	19.51

ALABAMA DIVC-10.GPJ FL DEP ROSS.GDT 3/14/11

Granularmetric Report

Depths and elevations based on measured values

Project Name: Dauphin Island Shore Protection

Sample Name: DIVC-10-32 #3

Analysis Date: 10-04-10

Analyzed By: JR

Coastal Planning & Engineering
2481 NW Boca Raton Blvd, Boca Raton
FL 33431
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fax (561) 391-9116

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
1,793,136	64,325	Alabama State Plane West	-28.2 NAVD 88

USCS:	Munsell:	Comments:
SP	Wet - 5Y-6/1 Dry - 2.5Y-7/1 Washed - 2.5Y-7/1	

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
100.55	99.12	0.03	0.09	#200 - 1.62 #230 - 1.56			0

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
5/8"	-4.00	16.00	0.00	0.00	0.00	0.00
7/16"	-3.50	11.31	0.00	0.00	0.00	0.00
5/16"	-3.00	8.00	0.00	0.00	0.00	0.00
3.5	-2.50	5.66	0.00	0.00	0.00	0.00
5	-2.00	4.00	0.10	0.10	0.10	0.10
7	-1.50	2.83	0.16	0.16	0.26	0.26
10	-1.00	2.00	0.08	0.08	0.34	0.34
14	-0.50	1.41	0.11	0.11	0.45	0.45
18	0.00	1.00	0.13	0.13	0.58	0.58
25	0.50	0.71	0.22	0.22	0.80	0.80
35	1.00	0.50	1.11	1.10	1.91	1.90
40	1.25	0.42	1.23	1.22	3.14	3.12
45	1.50	0.35	2.81	2.79	5.95	5.91
50	1.75	0.30	8.81	8.76	14.76	14.67
60	2.00	0.25	19.40	19.29	34.16	33.96
70	2.25	0.21	25.10	24.96	59.26	58.92
80	2.50	0.18	23.20	23.07	82.46	81.99
120	3.00	0.13	15.32	15.24	97.78	97.23
170	3.50	0.09	1.04	1.03	98.82	98.26
200	3.75	0.07	0.12	0.12	98.94	98.38
230	4.00	0.06	0.06	0.06	99.00	98.44

Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.93	2.57	2.42	2.16	1.88	1.77	1.42

Moment Statistics	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
	2.13	0.23	0.5	-2.14	17.16

ALABAMA DIVC-10.GPJ FL DEP ROSS.GDT 3/14/11

Granularmetric Report

Depths and elevations based on measured values

Project Name: Dauphin Island Shore Protection

Sample Name: DIVC-10-32 #4

Analysis Date: 10-04-10

Analyzed By: JR

Coastal Planning & Engineering
2481 NW Boca Raton Blvd, Boca Raton
FL 33431
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fax (561) 391-9116

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
1,793,136	64,325	Alabama State Plane West	-31.2 NAVD 88

USCS:	Munsell:	Comments:
SP	Wet - 5Y-6/1 Dry - 2.5Y-8/1 Washed - 2.5Y-8/1	

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
103.37	102.50	0.02	0.15	#200 - 1.05 #230 - 1.01			0

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
5/8"	-4.00	16.00	0.00	0.00	0.00	0.00
7/16"	-3.50	11.31	0.00	0.00	0.00	0.00
5/16"	-3.00	8.00	0.00	0.00	0.00	0.00
3.5	-2.50	5.66	0.00	0.00	0.00	0.00
5	-2.00	4.00	0.00	0.00	0.00	0.00
7	-1.50	2.83	0.02	0.02	0.02	0.02
10	-1.00	2.00	0.07	0.07	0.09	0.09
14	-0.50	1.41	0.09	0.09	0.18	0.18
18	0.00	1.00	0.18	0.17	0.36	0.35
25	0.50	0.71	1.33	1.29	1.69	1.64
35	1.00	0.50	8.43	8.16	10.12	9.80
40	1.25	0.42	7.92	7.66	18.04	17.46
45	1.50	0.35	9.55	9.24	27.59	26.70
50	1.75	0.30	15.99	15.47	43.58	42.17
60	2.00	0.25	15.93	15.41	59.51	57.58
70	2.25	0.21	15.61	15.10	75.12	72.68
80	2.50	0.18	14.66	14.18	89.78	86.86
120	3.00	0.13	10.89	10.53	100.67	97.39
170	3.50	0.09	1.50	1.45	102.17	98.84
200	3.75	0.07	0.11	0.11	102.28	98.95
230	4.00	0.06	0.04	0.04	102.32	98.99

Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.89	2.45	2.29	1.88	1.45	1.20	0.71

Moment	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
Statistics	1.83	0.28	0.63	-0.38	3.51

ALABAMA DIVC-10.GPJ FL DEP ROSS.GDT 3/14/11

Granularmetric Report

Depths and elevations based on measured values

Project Name: Dauphin Island Shore Protection

Sample Name: DIVC-10-32 #5

Analysis Date: 10-04-10

Analyzed By: JR

Coastal Planning & Engineering
2481 NW Boca Raton Blvd, Boca Raton
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fax (561) 391-9116

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
1,793,136	64,325	Alabama State Plane West	-34.9 NAVD 88

USCS:	Munsell:	Comments:
SP	Wet - 5Y-5/1 Dry - 2.5Y-7/1 Washed - 5Y-7/1	

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
99.58	95.92	0.03	0.03	#200 - 3.84 #230 - 3.74			0

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
5/8"	-4.00	16.00	0.00	0.00	0.00	0.00
7/16"	-3.50	11.31	0.00	0.00	0.00	0.00
5/16"	-3.00	8.00	0.00	0.00	0.00	0.00
3.5	-2.50	5.66	0.00	0.00	0.00	0.00
5	-2.00	4.00	0.00	0.00	0.00	0.00
7	-1.50	2.83	0.08	0.08	0.08	0.08
10	-1.00	2.00	0.16	0.16	0.24	0.24
14	-0.50	1.41	0.17	0.17	0.41	0.41
18	0.00	1.00	0.21	0.21	0.62	0.62
25	0.50	0.71	0.39	0.39	1.01	1.01
35	1.00	0.50	1.18	1.18	2.19	2.19
40	1.25	0.42	1.42	1.43	3.61	3.62
45	1.50	0.35	0.06	0.06	3.67	3.68
50	1.75	0.30	11.57	11.62	15.24	15.30
60	2.00	0.25	16.07	16.14	31.31	31.44
70	2.25	0.21	20.83	20.92	52.14	52.36
80	2.50	0.18	19.49	19.57	71.63	71.93
120	3.00	0.13	20.52	20.61	92.15	92.54
170	3.50	0.09	3.36	3.37	95.51	95.91
200	3.75	0.07	0.25	0.25	95.76	96.16
230	4.00	0.06	0.10	0.10	95.86	96.26

Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
3.36	2.79	2.57	2.22	1.90	1.76	1.53

Moment Statistics	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
	2.19	0.22	0.54	-1.34	9.94

ALABAMA DIVC-10.GPJ FL DEP ROSS.GDT 3/14/11

Granularmetric Report

Depths and elevations based on measured values

Project Name: Dauphin Island Shore Protection

Sample Name: DIVC-10-33 #1

Analysis Date: 10-04-10

Analyzed By: JR

Coastal Planning & Engineering
2481 NW Boca Raton Blvd, Boca Raton
FL 33431
ph (561) 391-8102
fax (561) 391-9116

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
1,791,133	63,571	Alabama State Plane West	-21.6 NAVD 88

USCS:	Munsell:	Comments:
SP	Wet - 5Y-5/2 Dry - 2.5Y-8/2 Washed - 2.5Y-8/2	

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
101.17	100.21	0.01	0.03	#200 - 1.00 #230 - 0.99			0

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
5/8"	-4.00	16.00	0.00	0.00	0.00	0.00
7/16"	-3.50	11.31	0.00	0.00	0.00	0.00
5/16"	-3.00	8.00	0.00	0.00	0.00	0.00
3.5	-2.50	5.66	0.00	0.00	0.00	0.00
5	-2.00	4.00	0.00	0.00	0.00	0.00
7	-1.50	2.83	0.00	0.00	0.00	0.00
10	-1.00	2.00	0.02	0.02	0.02	0.02
14	-0.50	1.41	0.02	0.02	0.04	0.04
18	0.00	1.00	0.06	0.06	0.10	0.10
25	0.50	0.71	0.09	0.09	0.19	0.19
35	1.00	0.50	0.56	0.55	0.75	0.74
40	1.25	0.42	0.90	0.89	1.65	1.63
45	1.50	0.35	2.03	2.01	3.68	3.64
50	1.75	0.30	7.50	7.41	11.18	11.05
60	2.00	0.25	13.66	13.50	24.84	24.55
70	2.25	0.21	20.24	20.01	45.08	44.56
80	2.50	0.18	34.78	34.38	79.86	78.94
120	3.00	0.13	19.68	19.45	99.54	98.39
170	3.50	0.09	0.60	0.59	100.14	98.98
200	3.75	0.07	0.02	0.02	100.16	99.00
230	4.00	0.06	0.01	0.01	100.17	99.01

Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.91	2.63	2.47	2.29	2.01	1.84	1.55

Moment	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
Statistics	2.23	0.21	0.4	-0.93	6.29

ALABAMA DIVC-10.GPJ FL DEP ROSS.GDT 3/14/11

Granularmetric Report

Depths and elevations based on measured values

Project Name: Dauphin Island Shore Protection

Sample Name: DIVC-10-33 #2

Analysis Date: 10-04-10

Analyzed By: JR

Coastal Planning & Engineering
2481 NW Boca Raton Blvd, Boca Raton
FL 33431
ph (561) 391-8102
fax (561) 391-9116

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
1,791,133	63,571	Alabama State Plane West	-24.4 NAVD 88

USCS:	Munsell:	Comments:
SP	Wet - 5Y-5/2 Dry - 2.5Y-8/2 Washed - 2.5Y-8/2	

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
101.30	99.93	0.00	0.05	#200 - 1.43 #230 - 1.42			1

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
5/8"	-4.00	16.00	0.00	0.00	0.00	0.00
7/16"	-3.50	11.31	0.00	0.00	0.00	0.00
5/16"	-3.00	8.00	0.00	0.00	0.00	0.00
3.5	-2.50	5.66	0.46	0.45	0.46	0.45
5	-2.00	4.00	0.40	0.39	0.86	0.84
7	-1.50	2.83	0.28	0.28	1.14	1.12
10	-1.00	2.00	0.44	0.43	1.58	1.55
14	-0.50	1.41	0.51	0.50	2.09	2.05
18	0.00	1.00	0.71	0.70	2.80	2.75
25	0.50	0.71	1.40	1.38	4.20	4.13
35	1.00	0.50	4.36	4.30	8.56	8.43
40	1.25	0.42	3.58	3.53	12.14	11.96
45	1.50	0.35	0.07	0.07	12.21	12.03
50	1.75	0.30	19.52	19.27	31.73	31.30
60	2.00	0.25	13.33	13.16	45.06	44.46
70	2.25	0.21	17.19	16.97	62.25	61.43
80	2.50	0.18	20.56	20.30	82.81	81.73
120	3.00	0.13	16.49	16.28	99.30	98.01
170	3.50	0.09	0.55	0.54	99.85	98.55
200	3.75	0.07	0.02	0.02	99.87	98.57
230	4.00	0.06	0.01	0.01	99.88	98.58

Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.91	2.57	2.42	2.08	1.67	1.55	0.60

Moment	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
Statistics	1.94	0.26	0.8	-2.5	12.8

ALABAMA DIVC-10.GPJ FL DEP ROSS.GDT 3/14/11

Granularmetric Report

Depths and elevations based on measured values

Project Name: Dauphin Island Shore Protection

Sample Name: DIVC-10-33 #3

Analysis Date: 10-04-10

Analyzed By: JR

Coastal Planning & Engineering
2481 NW Boca Raton Blvd, Boca Raton
FL 33431
ph (561) 391-8102
fax (561) 391-9116

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
1,791,133	63,571	Alabama State Plane West	-27.5 NAVD 88

USCS:	Munsell:	Comments:
SP	Wet - 5Y-6/1 Dry - 5Y-8/1 Washed - 5Y-8/1	

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
99.44	97.68	0.02	0.07	#200 - 1.95 #230 - 1.87			0

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
5/8"	-4.00	16.00	0.00	0.00	0.00	0.00
7/16"	-3.50	11.31	0.00	0.00	0.00	0.00
5/16"	-3.00	8.00	0.00	0.00	0.00	0.00
3.5	-2.50	5.66	0.05	0.05	0.05	0.05
5	-2.00	4.00	0.15	0.15	0.20	0.20
7	-1.50	2.83	0.19	0.19	0.39	0.39
10	-1.00	2.00	0.22	0.22	0.61	0.61
14	-0.50	1.41	0.38	0.38	0.99	0.99
18	0.00	1.00	0.44	0.44	1.43	1.43
25	0.50	0.71	0.49	0.49	1.92	1.92
35	1.00	0.50	0.90	0.91	2.82	2.83
40	1.25	0.42	0.79	0.79	3.61	3.62
45	1.50	0.35	1.73	1.74	5.34	5.36
50	1.75	0.30	5.89	5.92	11.23	11.28
60	2.00	0.25	12.54	12.61	23.77	23.89
70	2.25	0.21	20.91	21.03	44.68	44.92
80	2.50	0.18	31.98	32.16	76.66	77.08
120	3.00	0.13	19.58	19.69	96.24	96.77
170	3.50	0.09	1.15	1.16	97.39	97.93
200	3.75	0.07	0.12	0.12	97.51	98.05
230	4.00	0.06	0.08	0.08	97.59	98.13

Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.96	2.68	2.48	2.29	2.01	1.84	1.45

Moment	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
Statistics	2.2	0.22	0.59	-3.06	19.72

ALABAMA DIVC-10.GPJ FL DEP ROSS.GDT 3/14/11

Granularmetric Report

Depths and elevations based on measured values

Project Name: Dauphin Island Shore Protection

Sample Name: DIVC-10-33 #4

Analysis Date: 10-04-10

Analyzed By: JR

Coastal Planning & Engineering
2481 NW Boca Raton Blvd, Boca Raton
FL 33431
ph (561) 391-8102
fax (561) 391-9116

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
1,791,133	63,571	Alabama State Plane West	-30.3 NAVD 88

USCS:	Munsell:	Comments:
SP-SM	Wet - 5Y-5/1 Dry - 5Y-6/2 Washed - 5Y-7/2	

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
100.59	95.41	0.04	0.07	#200 - 5.42 #230 - 5.24			0

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
5/8"	-4.00	16.00	0.00	0.00	0.00	0.00
7/16"	-3.50	11.31	0.00	0.00	0.00	0.00
5/16"	-3.00	8.00	0.00	0.00	0.00	0.00
3.5	-2.50	5.66	0.00	0.00	0.00	0.00
5	-2.00	4.00	0.24	0.24	0.24	0.24
7	-1.50	2.83	0.17	0.17	0.41	0.41
10	-1.00	2.00	0.27	0.27	0.68	0.68
14	-0.50	1.41	0.24	0.24	0.92	0.92
18	0.00	1.00	0.25	0.25	1.17	1.17
25	0.50	0.71	0.23	0.23	1.40	1.40
35	1.00	0.50	0.54	0.54	1.94	1.94
40	1.25	0.42	0.46	0.46	2.40	2.40
45	1.50	0.35	0.02	0.02	2.42	2.42
50	1.75	0.30	3.98	3.96	6.40	6.38
60	2.00	0.25	8.16	8.11	14.56	14.49
70	2.25	0.21	14.67	14.58	29.23	29.07
80	2.50	0.18	21.12	21.00	50.35	50.07
120	3.00	0.13	35.32	35.11	85.67	85.18
170	3.50	0.09	8.87	8.82	94.54	94.00
200	3.75	0.07	0.58	0.58	95.12	94.58
230	4.00	0.06	0.18	0.18	95.30	94.76

Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
	2.98	2.86	2.50	2.18	2.03	1.66

Moment Statistics	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
	2.43	0.19	0.62	-2.84	19.2

ALABAMA DIVC-10.GPJ FL DEP ROSS.GDT 3/14/11

Granularmetric Report

Depths and elevations based on measured values

Project Name: Dauphin Island Shore Protection

Sample Name: DIVC-10-33 #5

Analysis Date: 10-04-10

Analyzed By: JR

Coastal Planning & Engineering
2481 NW Boca Raton Blvd, Boca Raton
FL 33431
ph (561) 391-8102
fax (561) 391-9116

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
1,791,133	63,571	Alabama State Plane West	-33.6 NAVD 88

USCS:	Munsell:	Comments:
SP	Wet - 5Y-5/2 Dry - 5Y-6/2 Washed - 5Y-7/2	

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
97.86	94.98	0.06	0.04	#200 - 3.23 #230 - 3.06			0

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
5/8"	-4.00	16.00	0.00	0.00	0.00	0.00
7/16"	-3.50	11.31	0.00	0.00	0.00	0.00
5/16"	-3.00	8.00	0.00	0.00	0.00	0.00
3.5	-2.50	5.66	0.08	0.08	0.08	0.08
5	-2.00	4.00	0.02	0.02	0.10	0.10
7	-1.50	2.83	0.08	0.08	0.18	0.18
10	-1.00	2.00	0.15	0.15	0.33	0.33
14	-0.50	1.41	0.17	0.17	0.50	0.50
18	0.00	1.00	0.18	0.18	0.68	0.68
25	0.50	0.71	0.29	0.30	0.97	0.98
35	1.00	0.50	0.55	0.56	1.52	1.54
40	1.25	0.42	0.53	0.54	2.05	2.08
45	1.50	0.35	0.80	0.82	2.85	2.90
50	1.75	0.30	2.00	2.04	4.85	4.94
60	2.00	0.25	4.63	4.73	9.48	9.67
70	2.25	0.21	9.94	10.16	19.42	19.83
80	2.50	0.18	33.35	34.08	52.77	53.91
120	3.00	0.13	37.41	38.23	90.18	92.14
170	3.50	0.09	4.17	4.26	94.35	96.40
200	3.75	0.07	0.36	0.37	94.71	96.77
230	4.00	0.06	0.17	0.17	94.88	96.94

Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
3.34	2.89	2.78	2.47	2.29	2.16	1.75

Moment	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
Statistics	2.45	0.18	0.51	-3.26	25.4

ALABAMA DIVC-10.GPJ FL DEP ROSS.GDT 3/14/11

Granularmetric Report

Depths and elevations based on measured values

Project Name: Dauphin Island Shore Protection

Sample Name: DIVC-10-34 #1

Analysis Date: 10-05-10

Analyzed By: JR

Coastal Planning & Engineering
2481 NW Boca Raton Blvd, Boca Raton
FL 33431
ph (561) 391-8102
fax (561) 391-9116

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
1,792,066	63,658	Alabama State Plane West	-19.5 NAVD 88

USCS:	Munsell:	Comments:
SP	Wet - 5Y-6/2 Dry - 2.5Y-8/2 Washed - 2.5Y-8/2	

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
109.16	108.38	0.02	0.07	#200 - 0.84 #230 - 0.82			0

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
5/8"	-4.00	16.00	0.00	0.00	0.00	0.00
7/16"	-3.50	11.31	0.00	0.00	0.00	0.00
5/16"	-3.00	8.00	0.00	0.00	0.00	0.00
3.5	-2.50	5.66	0.23	0.21	0.23	0.21
5	-2.00	4.00	0.10	0.09	0.33	0.30
7	-1.50	2.83	0.16	0.15	0.49	0.45
10	-1.00	2.00	0.22	0.20	0.71	0.65
14	-0.50	1.41	0.29	0.27	1.00	0.92
18	0.00	1.00	0.56	0.51	1.56	1.43
25	0.50	0.71	1.99	1.82	3.55	3.25
35	1.00	0.50	9.60	8.79	13.15	12.04
40	1.25	0.42	7.61	6.97	20.76	19.01
45	1.50	0.35	3.08	2.82	23.84	21.83
50	1.75	0.30	28.86	26.44	52.70	48.27
60	2.00	0.25	19.41	17.78	72.11	66.05
70	2.25	0.21	14.41	13.20	86.52	79.25
80	2.50	0.18	13.02	11.93	99.54	91.18
120	3.00	0.13	7.96	7.29	107.50	98.47
170	3.50	0.09	0.67	0.61	108.17	99.08
200	3.75	0.07	0.09	0.08	108.26	99.16
230	4.00	0.06	0.02	0.02	108.28	99.18

Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.76	2.35	2.17	1.77	1.53	1.14	0.60

Moment Statistics	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
	1.74	0.30	0.68	-1.51	9.53

ALABAMA DIVC-10.GPJ FL DEP ROSS.GDT 3/14/11

Granularmetric Report

Depths and elevations based on measured values

Project Name: Dauphin Island Shore Protection

Sample Name: DIVC-10-34 #2

Analysis Date: 10-05-10

Analyzed By: JR

Coastal Planning & Engineering
2481 NW Boca Raton Blvd, Boca Raton
FL 33431
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fax (561) 391-9116

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
1,792,066	63,658	Alabama State Plane West	-21.8 NAVD 88

USCS:	Munsell:	Comments:
SP	Wet - 2.5Y-6/2 Dry - 2.5Y-7/1 Washed - 2.5Y-8/2	

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
108.70	107.39	0.05	0.08	#200 - 1.44 #230 - 1.33			0

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
5/8"	-4.00	16.00	0.00	0.00	0.00	0.00
7/16"	-3.50	11.31	0.00	0.00	0.00	0.00
5/16"	-3.00	8.00	0.00	0.00	0.00	0.00
3.5	-2.50	5.66	0.00	0.00	0.00	0.00
5	-2.00	4.00	0.00	0.00	0.00	0.00
7	-1.50	2.83	0.00	0.00	0.00	0.00
10	-1.00	2.00	0.02	0.02	0.02	0.02
14	-0.50	1.41	0.04	0.04	0.06	0.06
18	0.00	1.00	0.07	0.06	0.13	0.12
25	0.50	0.71	0.16	0.15	0.29	0.27
35	1.00	0.50	0.89	0.82	1.18	1.09
40	1.25	0.42	1.52	1.40	2.70	2.49
45	1.50	0.35	3.24	2.98	5.94	5.47
50	1.75	0.30	12.18	11.21	18.12	16.68
60	2.00	0.25	19.57	18.00	37.69	34.68
70	2.25	0.21	22.33	20.54	60.02	55.22
80	2.50	0.18	28.10	25.85	88.12	81.07
120	3.00	0.13	17.25	15.87	105.37	96.94
170	3.50	0.09	1.54	1.42	106.91	98.36
200	3.75	0.07	0.22	0.20	107.13	98.56
230	4.00	0.06	0.12	0.11	107.25	98.67

Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.94	2.59	2.44	2.19	1.87	1.73	1.46

Moment	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
Statistics	2.16	0.22	0.45	-0.45	5.31

ALABAMA DIVC-10.GPJ FL DEP ROSS.GDT 3/14/11

Granularmetric Report

Depths and elevations based on measured values

Project Name: Dauphin Island Shore Protection

Sample Name: DIVC-10-34 #3

Analysis Date: 10-05-10

Analyzed By: JR

Coastal Planning & Engineering
2481 NW Boca Raton Blvd, Boca Raton
FL 33431
ph (561) 391-8102
fax (561) 391-9116

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
1,792,066	63,658	Alabama State Plane West	-24.0 NAVD 88

USCS:	Munsell:	Comments:
SW	Wet - 2.5Y-6/2 Dry - 2.5Y-6/2 Washed - 2.5Y-7/1	

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
98.60	95.45	0.01	0.03	#200 - 3.29 #230 - 3.24			1

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
5/8"	-4.00	16.00	0.00	0.00	0.00	0.00
7/16"	-3.50	11.31	0.00	0.00	0.00	0.00
5/16"	-3.00	8.00	1.61	1.63	1.61	1.63
3.5	-2.50	5.66	0.06	0.06	1.67	1.69
5	-2.00	4.00	0.21	0.21	1.88	1.90
7	-1.50	2.83	0.52	0.53	2.40	2.43
10	-1.00	2.00	0.58	0.59	2.98	3.02
14	-0.50	1.41	0.67	0.68	3.65	3.70
18	0.00	1.00	0.87	0.88	4.52	4.58
25	0.50	0.71	1.04	1.05	5.56	5.63
35	1.00	0.50	2.03	2.06	7.59	7.69
40	1.25	0.42	1.63	1.65	9.22	9.34
45	1.50	0.35	2.47	2.51	11.69	11.85
50	1.75	0.30	7.57	7.68	19.26	19.53
60	2.00	0.25	16.93	17.17	36.19	36.70
70	2.25	0.21	23.19	23.52	59.38	60.22
80	2.50	0.18	23.47	23.80	82.85	84.02
120	3.00	0.13	11.32	11.48	94.17	95.50
170	3.50	0.09	1.09	1.11	95.26	96.61
200	3.75	0.07	0.10	0.10	95.36	96.71
230	4.00	0.06	0.05	0.05	95.41	96.76

Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.98	2.50	2.41	2.14	1.83	1.64	0.20

Moment	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
Statistics	1.92	0.26	0.99	-3.29	15.93

ALABAMA DIVC-10.GPJ FL DEP ROSS.GDT 3/14/11

Granularmetric Report

Depths and elevations based on measured values

Project Name: Dauphin Island Shore Protection

Sample Name: DIVC-10-34 #4

Analysis Date: 10-05-10

Analyzed By: JR

Coastal Planning & Engineering
2481 NW Boca Raton Blvd, Boca Raton
FL 33431
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fax (561) 391-9116

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
1,792,066	63,658	Alabama State Plane West	-24.8 NAVD 88

USCS:	Munsell:	Comments:
SW	Wet - 2.5Y-6/1 Dry - 2.5Y-8/1 Washed - 2.5Y-8/1	

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
102.24	100.98	0.05	0.07	#200 - 1.45 #230 - 1.36			3

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
5/8"	-4.00	16.00	0.00	0.00	0.00	0.00
7/16"	-3.50	11.31	1.16	1.13	1.16	1.13
5/16"	-3.00	8.00	0.69	0.67	1.85	1.80
3.5	-2.50	5.66	1.78	1.74	3.63	3.54
5	-2.00	4.00	1.29	1.26	4.92	4.80
7	-1.50	2.83	2.15	2.10	7.07	6.90
10	-1.00	2.00	2.49	2.44	9.56	9.34
14	-0.50	1.41	3.06	2.99	12.62	12.33
18	0.00	1.00	3.50	3.42	16.12	15.75
25	0.50	0.71	4.04	3.95	20.16	19.70
35	1.00	0.50	4.80	4.69	24.96	24.39
40	1.25	0.42	2.33	2.28	27.29	26.67
45	1.50	0.35	0.06	0.06	27.35	26.73
50	1.75	0.30	12.95	12.67	40.30	39.40
60	2.00	0.25	16.63	16.27	56.93	55.67
70	2.25	0.21	18.31	17.91	75.24	73.58
80	2.50	0.18	16.25	15.89	91.49	89.47
120	3.00	0.13	8.27	8.09	99.76	97.56
170	3.50	0.09	0.84	0.82	100.60	98.38
200	3.75	0.07	0.17	0.17	100.77	98.55
230	4.00	0.06	0.09	0.09	100.86	98.64

Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.84	2.41	2.27	1.91	1.07	0.03	-1.95

Moment	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
Statistics	1.38	0.38	1.45	-1.68	5.26

ALABAMA DIVC-10.GPJ FL DEP ROSS.GDT 3/14/11

Granularmetric Report

Depths and elevations based on measured values

Project Name: Dauphin Island Shore Protection

Sample Name: DIVC-10-34 #5

Analysis Date: 10-05-10

Analyzed By: JR

Coastal Planning & Engineering
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FL 33431
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fax (561) 391-9116

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
1,792,066	63,658	Alabama State Plane West	-27.6 NAVD 88

USCS:	Munsell:	Comments:
SP	Wet - 5Y-5/1 Dry - 5Y-7/1 Washed - 5Y-7/1	

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
94.07	93.15	0.01	0.00	#200 - 1.09 #230 - 0.99			0

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
5/8"	-4.00	16.00	0.00	0.00	0.00	0.00
7/16"	-3.50	11.31	0.00	0.00	0.00	0.00
5/16"	-3.00	8.00	0.00	0.00	0.00	0.00
3.5	-2.50	5.66	0.04	0.04	0.04	0.04
5	-2.00	4.00	0.07	0.07	0.11	0.11
7	-1.50	2.83	0.07	0.07	0.18	0.18
10	-1.00	2.00	0.09	0.10	0.27	0.28
14	-0.50	1.41	0.13	0.14	0.40	0.42
18	0.00	1.00	0.15	0.16	0.55	0.58
25	0.50	0.71	0.14	0.15	0.69	0.73
35	1.00	0.50	0.24	0.26	0.93	0.99
40	1.25	0.42	0.21	0.22	1.14	1.21
45	1.50	0.35	0.43	0.46	1.57	1.67
50	1.75	0.30	2.03	2.16	3.60	3.83
60	2.00	0.25	5.37	5.71	8.97	9.54
70	2.25	0.21	11.00	11.69	19.97	21.23
80	2.50	0.18	26.00	27.64	45.97	48.87
120	3.00	0.13	40.36	42.90	86.33	91.77
170	3.50	0.09	6.34	6.74	92.67	98.51
200	3.75	0.07	0.38	0.40	93.05	98.91
230	4.00	0.06	0.09	0.10	93.14	99.01

Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
3.24	2.91	2.80	2.51	2.28	2.14	1.80

Moment	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
Statistics	2.49	0.18	0.49	-3.07	26.15

ALABAMA DIVC-10.GPJ FL DEP ROSS.GDT 3/14/11

Granularmetric Report

Depths and elevations based on measured values

Project Name: Dauphin Island Shore Protection

Sample Name: DIVC-10-34 #6

Analysis Date: 10-05-10

Analyzed By: JR

Coastal Planning & Engineering
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FL 33431
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fax (561) 391-9116

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
1,792,066	63,658	Alabama State Plane West	-31.6 NAVD 88

USCS:	Munsell:	Comments:
SP	Wet - 5Y-5/1 Dry - 5Y-7/1 Washed - 5Y-7/1	

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
96.07	94.45	0.01	0.03	#200 - 1.75 #230 - 1.73			0

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
5/8"	-4.00	16.00	0.00	0.00	0.00	0.00
7/16"	-3.50	11.31	0.00	0.00	0.00	0.00
5/16"	-3.00	8.00	0.00	0.00	0.00	0.00
3.5	-2.50	5.66	0.00	0.00	0.00	0.00
5	-2.00	4.00	0.00	0.00	0.00	0.00
7	-1.50	2.83	0.00	0.00	0.00	0.00
10	-1.00	2.00	0.04	0.04	0.04	0.04
14	-0.50	1.41	0.03	0.03	0.07	0.07
18	0.00	1.00	0.04	0.04	0.11	0.11
25	0.50	0.71	0.06	0.06	0.17	0.17
35	1.00	0.50	0.10	0.10	0.27	0.27
40	1.25	0.42	0.09	0.09	0.36	0.36
45	1.50	0.35	0.73	0.76	1.09	1.12
50	1.75	0.30	2.80	2.91	3.89	4.03
60	2.00	0.25	9.17	9.55	13.06	13.58
70	2.25	0.21	21.67	22.56	34.73	36.14
80	2.50	0.18	52.94	55.11	87.67	91.25
120	3.00	0.13	6.24	6.50	93.91	97.75
170	3.50	0.09	0.37	0.39	94.28	98.14
200	3.75	0.07	0.11	0.11	94.39	98.25
230	4.00	0.06	0.02	0.02	94.41	98.27

Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.79	2.47	2.43	2.31	2.13	2.03	1.78

Moment	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
Statistics	2.26	0.21	0.29	-1.95	21.53

ALABAMA DIVC-10.GPJ FL DEP ROSS.GDT 3/14/11

Granularmetric Report

Depths and elevations based on measured values

Project Name: Dauphin Island Shore Protection

Sample Name: DIVC-10-34 #7

Analysis Date: 10-05-10

Analyzed By: JR

Coastal Planning & Engineering
2481 NW Boca Raton Blvd, Boca Raton
FL 33431
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fax (561) 391-9116

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
1,792,066	63,658	Alabama State Plane West	-35.4 NAVD 88

USCS:	Munsell:	Comments:
SP	Wet - 5Y-5/1 Dry - 5Y-7/1 Washed - 5Y-7/1	

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
95.21	91.68	0.04	0.04	#200 - 4.02 #230 - 3.80			0

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
5/8"	-4.00	16.00	0.00	0.00	0.00	0.00
7/16"	-3.50	11.31	0.00	0.00	0.00	0.00
5/16"	-3.00	8.00	0.00	0.00	0.00	0.00
3.5	-2.50	5.66	0.00	0.00	0.00	0.00
5	-2.00	4.00	0.00	0.00	0.00	0.00
7	-1.50	2.83	0.01	0.01	0.01	0.01
10	-1.00	2.00	0.04	0.04	0.05	0.05
14	-0.50	1.41	0.04	0.04	0.09	0.09
18	0.00	1.00	0.09	0.09	0.18	0.18
25	0.50	0.71	0.14	0.15	0.32	0.33
35	1.00	0.50	0.26	0.27	0.58	0.60
40	1.25	0.42	0.16	0.17	0.74	0.77
45	1.50	0.35	0.23	0.24	0.97	1.01
50	1.75	0.30	1.15	1.21	2.12	2.22
60	2.00	0.25	4.98	5.23	7.10	7.45
70	2.25	0.21	12.14	12.75	19.24	20.20
80	2.50	0.18	28.55	29.99	47.79	50.19
120	3.00	0.13	36.67	38.51	84.46	88.70
170	3.50	0.09	6.40	6.72	90.86	95.42
200	3.75	0.07	0.53	0.56	91.39	95.98
230	4.00	0.06	0.21	0.22	91.60	96.20

Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
3.47	2.94	2.82	2.50	2.29	2.17	1.88

Moment Statistics	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
	2.51	0.18	0.42	-1.27	12.17

ALABAMA DIVC-10.GPJ FL DEP ROSS.GDT 3/14/11

Granularmetric Report

Depths and elevations based on measured values

Project Name: Dauphin Island Shore Protection

Sample Name: DIVC-10-35 #1

Analysis Date: 10-06-10

Analyzed By: JR

Coastal Planning & Engineering
2481 NW Boca Raton Blvd, Boca Raton
FL 33431
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fax (561) 391-9116

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
1,792,192	64,538	Alabama State Plane West	-21.3 NAVD 88

USCS:	Munsell:	Comments:
SP	Wet - 5Y-5/1 Dry - 2.5Y-7/2 Washed - 2.5Y-8/2	

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
99.29	98.15	0.01	0.07	#200 - 1.26 #230 - 1.24			0

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
5/8"	-4.00	16.00	0.00	0.00	0.00	0.00
7/16"	-3.50	11.31	0.00	0.00	0.00	0.00
5/16"	-3.00	8.00	0.00	0.00	0.00	0.00
3.5	-2.50	5.66	0.00	0.00	0.00	0.00
5	-2.00	4.00	0.00	0.00	0.00	0.00
7	-1.50	2.83	0.03	0.03	0.03	0.03
10	-1.00	2.00	0.01	0.01	0.04	0.04
14	-0.50	1.41	0.05	0.05	0.09	0.09
18	0.00	1.00	0.10	0.10	0.19	0.19
25	0.50	0.71	0.23	0.23	0.42	0.42
35	1.00	0.50	1.52	1.53	1.94	1.95
40	1.25	0.42	2.00	2.01	3.94	3.96
45	1.50	0.35	0.09	0.09	4.03	4.05
50	1.75	0.30	14.43	14.53	18.46	18.58
60	2.00	0.25	16.50	16.62	34.96	35.20
70	2.25	0.21	23.78	23.95	58.74	59.15
80	2.50	0.18	27.35	27.55	86.09	86.70
120	3.00	0.13	11.49	11.57	97.58	98.27
170	3.50	0.09	0.45	0.45	98.03	98.72
200	3.75	0.07	0.02	0.02	98.05	98.74
230	4.00	0.06	0.02	0.02	98.07	98.76

Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.86	2.48	2.39	2.15	1.85	1.71	1.52

Moment	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
Statistics	2.11	0.23	0.44	-1.11	7.83

ALABAMA DIVC-10.GPJ FL DEP ROSS.GDT 3/14/11

Granularmetric Report

Depths and elevations based on measured values

Project Name: Dauphin Island Shore Protection

Sample Name: DIVC-10-35 #2

Analysis Date: 10-06-10

Analyzed By: JR

Coastal Planning & Engineering
2481 NW Boca Raton Blvd, Boca Raton
FL 33431
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fax (561) 391-9116

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
1,792,192	64,538	Alabama State Plane West	-24.1 NAVD 88

USCS:	Munsell:	Comments:
SP	Wet - 5Y-6/1 Dry - 5Y-7/1 Washed - 5Y-8/1	

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
100.65	99.60	0.01	0.01	#200 - 1.05 #230 - 1.04			0

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
5/8"	-4.00	16.00	0.00	0.00	0.00	0.00
7/16"	-3.50	11.31	0.00	0.00	0.00	0.00
5/16"	-3.00	8.00	0.00	0.00	0.00	0.00
3.5	-2.50	5.66	0.00	0.00	0.00	0.00
5	-2.00	4.00	0.14	0.14	0.14	0.14
7	-1.50	2.83	0.12	0.12	0.26	0.26
10	-1.00	2.00	0.21	0.21	0.47	0.47
14	-0.50	1.41	0.24	0.24	0.71	0.71
18	0.00	1.00	0.30	0.30	1.01	1.01
25	0.50	0.71	0.34	0.34	1.35	1.35
35	1.00	0.50	0.74	0.74	2.09	2.09
40	1.25	0.42	0.85	0.84	2.94	2.93
45	1.50	0.35	2.10	2.09	5.04	5.02
50	1.75	0.30	8.12	8.07	13.16	13.09
60	2.00	0.25	17.23	17.12	30.39	30.21
70	2.25	0.21	26.67	26.50	57.06	56.71
80	2.50	0.18	28.62	28.44	85.68	85.15
120	3.00	0.13	13.26	13.17	98.94	98.32
170	3.50	0.09	0.58	0.58	99.52	98.90
200	3.75	0.07	0.05	0.05	99.57	98.95
230	4.00	0.06	0.01	0.01	99.58	98.96

Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.87	2.49	2.41	2.19	1.92	1.79	1.50

Moment Statistics	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
	2.13	0.23	0.51	-2.94	21.12

ALABAMA DIVC-10.GPJ FL DEP ROSS.GDT 3/14/11

Granularmetric Report

Depths and elevations based on measured values

Project Name: Dauphin Island Shore Protection

Sample Name: DIVC-10-35 #3

Analysis Date: 10-06-10

Analyzed By: JR

Coastal Planning & Engineering
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Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
1,792,192	64,538	Alabama State Plane West	-27.4 NAVD 88

USCS:	Munsell:	Comments:
SP	Wet - 5Y-5/1 Dry - 5Y-6/1 Washed - 5Y-7/1	

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
95.30	94.01	0.03	0.13	#200 - 1.59 #230 - 1.51			1

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
5/8"	-4.00	16.00	0.00	0.00	0.00	0.00
7/16"	-3.50	11.31	0.00	0.00	0.00	0.00
5/16"	-3.00	8.00	0.00	0.00	0.00	0.00
3.5	-2.50	5.66	0.22	0.23	0.22	0.23
5	-2.00	4.00	0.38	0.40	0.60	0.63
7	-1.50	2.83	0.41	0.43	1.01	1.06
10	-1.00	2.00	0.74	0.78	1.75	1.84
14	-0.50	1.41	0.74	0.78	2.49	2.62
18	0.00	1.00	0.85	0.89	3.34	3.51
25	0.50	0.71	1.02	1.07	4.36	4.58
35	1.00	0.50	1.70	1.78	6.06	6.36
40	1.25	0.42	1.35	1.42	7.41	7.78
45	1.50	0.35	0.28	0.29	7.69	8.07
50	1.75	0.30	12.17	12.77	19.86	20.84
60	2.00	0.25	15.52	16.29	35.38	37.13
70	2.25	0.21	17.99	18.88	53.37	56.01
80	2.50	0.18	17.50	18.36	70.87	74.37
120	3.00	0.13	19.77	20.75	90.64	95.12
170	3.50	0.09	2.94	3.08	93.58	98.20
200	3.75	0.07	0.20	0.21	93.78	98.41
230	4.00	0.06	0.08	0.08	93.86	98.49

Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
3.00	2.73	2.52	2.17	1.81	1.66	0.62

Moment	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
Statistics	2.06	0.24	0.82	-2.51	12.33

ALABAMA DIVC-10.GPJ FL DEP ROSS.GDT 3/14/11

Granularmetric Report

Depths and elevations based on measured values

Project Name: Dauphin Island Shore Protection

Sample Name: DIVC-10-35 #4

Analysis Date: 10-06-10

Analyzed By: JR

Coastal Planning & Engineering
2481 NW Boca Raton Blvd, Boca Raton
FL 33431
ph (561) 391-8102
fax (561) 391-9116

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
1,792,192	64,538	Alabama State Plane West	-33.4 NAVD 88

USCS:	Munsell:	Comments:
SP	Wet - 5Y-6/1 Dry - 5Y-7/1 Washed - 5Y-7/1	

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
100.73	99.71	0.05	0.08	#200 - 1.28 #230 - 1.14			0

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
5/8"	-4.00	16.00	0.00	0.00	0.00	0.00
7/16"	-3.50	11.31	0.00	0.00	0.00	0.00
5/16"	-3.00	8.00	0.00	0.00	0.00	0.00
3.5	-2.50	5.66	0.00	0.00	0.00	0.00
5	-2.00	4.00	0.00	0.00	0.00	0.00
7	-1.50	2.83	0.01	0.01	0.01	0.01
10	-1.00	2.00	0.07	0.07	0.08	0.08
14	-0.50	1.41	0.03	0.03	0.11	0.11
18	0.00	1.00	0.08	0.08	0.19	0.19
25	0.50	0.71	0.08	0.08	0.27	0.27
35	1.00	0.50	0.24	0.24	0.51	0.51
40	1.25	0.42	0.19	0.19	0.70	0.70
45	1.50	0.35	0.47	0.47	1.17	1.17
50	1.75	0.30	4.10	4.07	5.27	5.24
60	2.00	0.25	12.64	12.55	17.91	17.79
70	2.25	0.21	22.18	22.02	40.09	39.81
80	2.50	0.18	33.91	33.66	74.00	73.47
120	3.00	0.13	23.03	22.86	97.03	96.33
170	3.50	0.09	2.16	2.14	99.19	98.47
200	3.75	0.07	0.25	0.25	99.44	98.72
230	4.00	0.06	0.14	0.14	99.58	98.86

Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.97	2.73	2.53	2.33	2.08	1.96	1.74

Moment Statistics	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
	2.32	0.20	0.4	-1	11.67

ALABAMA DIVC-10.GPJ FL DEP ROSS.GDT 3/14/11

Granularmetric Report

Depths and elevations based on measured values

Project Name: Dauphin Island Shore Protection

Sample Name: DIVC-10-36 #1

Analysis Date: 10-06-10

Analyzed By: JR

Coastal Planning & Engineering
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FL 33431
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fax (561) 391-9116

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
1,791,262	64,470	Alabama State Plane West	-20.3 NAVD 88

USCS:	Munsell:	Comments:
SP	Wet - 5Y-6/1 Dry - 5Y-7/2 Washed - 2.5Y-8/2	

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
100.06	99.01	0.00	0.02	#200 - 1.09 #230 - 1.07			0

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
5/8"	-4.00	16.00	0.00	0.00	0.00	0.00
7/16"	-3.50	11.31	0.00	0.00	0.00	0.00
5/16"	-3.00	8.00	0.00	0.00	0.00	0.00
3.5	-2.50	5.66	0.00	0.00	0.00	0.00
5	-2.00	4.00	0.00	0.00	0.00	0.00
7	-1.50	2.83	0.02	0.02	0.02	0.02
10	-1.00	2.00	0.05	0.05	0.07	0.07
14	-0.50	1.41	0.05	0.05	0.12	0.12
18	0.00	1.00	0.11	0.11	0.23	0.23
25	0.50	0.71	0.19	0.19	0.42	0.42
35	1.00	0.50	0.83	0.83	1.25	1.25
40	1.25	0.42	1.14	1.14	2.39	2.39
45	1.50	0.35	0.07	0.07	2.46	2.46
50	1.75	0.30	12.31	12.30	14.77	14.76
60	2.00	0.25	18.82	18.81	33.59	33.57
70	2.25	0.21	24.17	24.16	57.76	57.73
80	2.50	0.18	26.68	26.66	84.44	84.39
120	3.00	0.13	14.06	14.05	98.50	98.44
170	3.50	0.09	0.44	0.44	98.94	98.88
200	3.75	0.07	0.03	0.03	98.97	98.91
230	4.00	0.06	0.02	0.02	98.99	98.93

Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.88	2.50	2.41	2.17	1.89	1.77	1.55

Moment	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
Statistics	2.14	0.23	0.42	-1.16	9.54

ALABAMA DIVC-10.GPJ FL DEP ROSS.GDT 3/14/11

Granularmetric Report

Depths and elevations based on measured values

Project Name: Dauphin Island Shore Protection

Sample Name: DIVC-10-36 #2

Analysis Date: 10-06-10

Analyzed By: JR

Coastal Planning & Engineering
2481 NW Boca Raton Blvd, Boca Raton
FL 33431
ph (561) 391-8102
fax (561) 391-9116

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
1,791,262	64,470	Alabama State Plane West	-22.2 NAVD 88

USCS:	Munsell:	Comments:
SW	Wet - 5Y-7/2 Dry - 5Y-7/1 Washed - 5Y-8/1	

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
105.86	104.68	0.01	0.11	#200 - 1.24 #230 - 1.23			2

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
5/8"	-4.00	16.00	0.00	0.00	0.00	0.00
7/16"	-3.50	11.31	0.00	0.00	0.00	0.00
5/16"	-3.00	8.00	0.00	0.00	0.00	0.00
3.5	-2.50	5.66	0.63	0.60	0.63	0.60
5	-2.00	4.00	0.93	0.88	1.56	1.48
7	-1.50	2.83	0.97	0.92	2.53	2.40
10	-1.00	2.00	1.04	0.98	3.57	3.38
14	-0.50	1.41	1.30	1.23	4.87	4.61
18	0.00	1.00	1.20	1.13	6.07	5.74
25	0.50	0.71	1.75	1.65	7.82	7.39
35	1.00	0.50	6.35	6.00	14.17	13.39
40	1.25	0.42	5.78	5.46	19.95	18.85
45	1.50	0.35	10.78	10.18	30.73	29.03
50	1.75	0.30	21.26	20.08	51.99	49.11
60	2.00	0.25	20.31	19.19	72.30	68.30
70	2.25	0.21	15.34	14.49	87.64	82.79
80	2.50	0.18	11.44	10.81	99.08	93.60
120	3.00	0.13	5.12	4.84	104.20	98.44
170	3.50	0.09	0.30	0.28	104.50	98.72
200	3.75	0.07	0.04	0.04	104.54	98.76
230	4.00	0.06	0.01	0.01	104.55	98.77

Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.64	2.28	2.12	1.76	1.40	1.12	-0.33

Moment	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
Statistics	1.59	0.33	0.91	-2.27	9.71

ALABAMA DIVC-10.GPJ FL DEP ROSS.GDT 3/14/11

Granularmetric Report

Depths and elevations based on measured values

Project Name: Dauphin Island Shore Protection

Sample Name: DIVC-10-36 #3

Analysis Date: 10-06-10

Analyzed By: JR

Coastal Planning & Engineering
2481 NW Boca Raton Blvd, Boca Raton
FL 33431
ph (561) 391-8102
fax (561) 391-9116

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
1,791,262	64,470	Alabama State Plane West	-23.7 NAVD 88

USCS:	Munsell:	Comments:
SP	Wet - 5Y-7/1 Dry - 5Y-8/1 Washed - 5Y-8/1	

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
118.46	117.50	0.01	0.08	#200 - 0.91 #230 - 0.91			0

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
5/8"	-4.00	16.00	0.00	0.00	0.00	0.00
7/16"	-3.50	11.31	0.00	0.00	0.00	0.00
5/16"	-3.00	8.00	0.00	0.00	0.00	0.00
3.5	-2.50	5.66	0.50	0.42	0.50	0.42
5	-2.00	4.00	0.20	0.17	0.70	0.59
7	-1.50	2.83	0.24	0.20	0.94	0.79
10	-1.00	2.00	0.36	0.30	1.30	1.09
14	-0.50	1.41	0.45	0.38	1.75	1.47
18	0.00	1.00	0.88	0.74	2.63	2.21
25	0.50	0.71	3.50	2.95	6.13	5.16
35	1.00	0.50	16.70	14.10	22.83	19.26
40	1.25	0.42	12.77	10.78	35.60	30.04
45	1.50	0.35	13.45	11.35	49.05	41.39
50	1.75	0.30	28.81	24.32	77.86	65.71
60	2.00	0.25	17.05	14.39	94.91	80.10
70	2.25	0.21	10.53	8.89	105.44	88.99
80	2.50	0.18	6.73	5.68	112.17	94.67
120	3.00	0.13	4.75	4.01	116.92	98.68
170	3.50	0.09	0.45	0.38	117.37	99.06
200	3.75	0.07	0.03	0.03	117.40	99.09
230	4.00	0.06	0.00	0.00	117.40	99.09

Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.54	2.11	1.91	1.59	1.13	0.88	0.47

Moment	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
Statistics	1.49	0.36	0.71	-1.56	9.89

ALABAMA DIVC-10.GPJ FL DEP ROSS.GDT 3/14/11

Granularmetric Report

Depths and elevations based on measured values

Project Name: Dauphin Island Shore Protection

Sample Name: DIVC-10-36 #4

Analysis Date: 10-06-10

Analyzed By: JR

Coastal Planning & Engineering
2481 NW Boca Raton Blvd, Boca Raton
FL 33431
ph (561) 391-8102
fax (561) 391-9116

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
1,791,262	64,470	Alabama State Plane West	-24.5 NAVD 88

USCS:	Munsell:	Comments:
SP	Wet - 5Y-6/1 Dry - 2.5Y-7/1 Washed - 2.5Y-8/1	

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
100.71	99.35	0.00	0.04	#200 - 1.42 #230 - 1.37			0

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
5/8"	-4.00	16.00	0.00	0.00	0.00	0.00
7/16"	-3.50	11.31	0.00	0.00	0.00	0.00
5/16"	-3.00	8.00	0.00	0.00	0.00	0.00
3.5	-2.50	5.66	0.00	0.00	0.00	0.00
5	-2.00	4.00	0.10	0.10	0.10	0.10
7	-1.50	2.83	0.22	0.22	0.32	0.32
10	-1.00	2.00	0.38	0.38	0.70	0.70
14	-0.50	1.41	0.35	0.35	1.05	1.05
18	0.00	1.00	0.56	0.56	1.61	1.61
25	0.50	0.71	0.72	0.71	2.33	2.32
35	1.00	0.50	1.95	1.94	4.28	4.26
40	1.25	0.42	2.13	2.11	6.41	6.37
45	1.50	0.35	3.52	3.50	9.93	9.87
50	1.75	0.30	10.04	9.97	19.97	19.84
60	2.00	0.25	16.10	15.99	36.07	35.83
70	2.25	0.21	23.12	22.96	59.19	58.79
80	2.50	0.18	25.16	24.98	84.35	83.77
120	3.00	0.13	13.35	13.26	97.70	97.03
170	3.50	0.09	1.44	1.43	99.14	98.46
200	3.75	0.07	0.12	0.12	99.26	98.58
230	4.00	0.06	0.05	0.05	99.31	98.63

Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.92	2.51	2.41	2.15	1.83	1.65	1.09

Moment	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
Statistics	2.06	0.24	0.62	-2.25	12.9

ALABAMA DIVC-10.GPJ FL DEP ROSS.GDT 3/14/11

Granularmetric Report

Depths and elevations based on measured values

Project Name: Dauphin Island Shore Protection

Sample Name: DIVC-10-36 #5

Analysis Date: 10-06-10

Analyzed By: JR

Coastal Planning & Engineering
2481 NW Boca Raton Blvd, Boca Raton
FL 33431
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fax (561) 391-9116

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
1,791,262	64,470	Alabama State Plane West	-26.3 NAVD 88

USCS:	Munsell:	Comments:
SP	Wet - 5Y-6/1 Dry - 5Y-7/1 Washed - 5Y-7/1	

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
94.10	92.97	0.00	0.01	#200 - 1.26 #230 - 1.22			0

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
5/8"	-4.00	16.00	0.00	0.00	0.00	0.00
7/16"	-3.50	11.31	0.00	0.00	0.00	0.00
5/16"	-3.00	8.00	0.00	0.00	0.00	0.00
3.5	-2.50	5.66	0.23	0.24	0.23	0.24
5	-2.00	4.00	0.05	0.05	0.28	0.29
7	-1.50	2.83	0.13	0.14	0.41	0.43
10	-1.00	2.00	0.22	0.23	0.63	0.66
14	-0.50	1.41	0.30	0.32	0.93	0.98
18	0.00	1.00	0.18	0.19	1.11	1.17
25	0.50	0.71	0.15	0.16	1.26	1.33
35	1.00	0.50	0.17	0.18	1.43	1.51
40	1.25	0.42	0.09	0.10	1.52	1.61
45	1.50	0.35	0.01	0.01	1.53	1.62
50	1.75	0.30	0.91	0.97	2.44	2.59
60	2.00	0.25	4.08	4.34	6.52	6.93
70	2.25	0.21	13.43	14.27	19.95	21.20
80	2.50	0.18	29.40	31.24	49.35	52.44
120	3.00	0.13	39.90	42.40	89.25	94.84
170	3.50	0.09	3.56	3.78	92.81	98.62
200	3.75	0.07	0.11	0.12	92.92	98.74
230	4.00	0.06	0.04	0.04	92.96	98.78

Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
3.02	2.87	2.77	2.48	2.28	2.16	1.89

Moment	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
Statistics	2.45	0.18	0.55	-4.75	38.36

ALABAMA DIVC-10.GPJ FL DEP ROSS.GDT 3/14/11

Granularmetric Report

Depths and elevations based on measured values

Project Name: Dauphin Island Shore Protection

Sample Name: DIVC-10-36 #6

Analysis Date: 10-06-10

Analyzed By: JR

Coastal Planning & Engineering
2481 NW Boca Raton Blvd, Boca Raton
FL 33431
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fax (561) 391-9116

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
1,791,262	64,470	Alabama State Plane West	-27.7 NAVD 88

USCS:	Munsell:	Comments:
SP	Wet - 5Y-4/2 Dry - 5Y-6/1 Washed - 2.5Y-7/2	

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
97.02	95.22	0.01	0.02	#200 - 2.00 #230 - 1.90			0

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
5/8"	-4.00	16.00	0.00	0.00	0.00	0.00
7/16"	-3.50	11.31	0.00	0.00	0.00	0.00
5/16"	-3.00	8.00	0.00	0.00	0.00	0.00
3.5	-2.50	5.66	0.00	0.00	0.00	0.00
5	-2.00	4.00	0.00	0.00	0.00	0.00
7	-1.50	2.83	0.02	0.02	0.02	0.02
10	-1.00	2.00	0.01	0.01	0.03	0.03
14	-0.50	1.41	0.07	0.07	0.10	0.10
18	0.00	1.00	0.05	0.05	0.15	0.15
25	0.50	0.71	0.05	0.05	0.20	0.20
35	1.00	0.50	0.14	0.14	0.34	0.34
40	1.25	0.42	0.21	0.22	0.55	0.56
45	1.50	0.35	0.66	0.68	1.21	1.24
50	1.75	0.30	2.98	3.07	4.19	4.31
60	2.00	0.25	9.61	9.91	13.80	14.22
70	2.25	0.21	20.53	21.16	34.33	35.38
80	2.50	0.18	31.49	32.46	65.82	67.84
120	3.00	0.13	24.21	24.95	90.03	92.79
170	3.50	0.09	4.71	4.85	94.74	97.64
200	3.75	0.07	0.35	0.36	95.09	98.00
230	4.00	0.06	0.10	0.10	95.19	98.10

Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
3.23	2.82	2.64	2.36	2.13	2.02	1.77

Moment	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
Statistics	2.37	0.19	0.41	-0.65	9.38

ALABAMA DIVC-10.GPJ FL DEP ROSS.GDT 3/14/11

Granularmetric Report

Depths and elevations based on measured values

Project Name: Dauphin Island Shore Protection

Sample Name: DIVC-10-36 #7

Analysis Date: 10-06-10

Analyzed By: JR

Coastal Planning & Engineering
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FL 33431
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Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
1,791,262	64,470	Alabama State Plane West	-28.7 NAVD 88

USCS:	Munsell:	Comments:
SW	Wet - 5Y-4/1 Dry - 5Y-7/1 Washed - 5Y-7/1	

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
94.37	92.53	0.04	0.07	#200 - 2.26 #230 - 2.05			1

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
5/8"	-4.00	16.00	0.00	0.00	0.00	0.00
7/16"	-3.50	11.31	0.00	0.00	0.00	0.00
5/16"	-3.00	8.00	0.27	0.29	0.27	0.29
3.5	-2.50	5.66	0.00	0.00	0.27	0.29
5	-2.00	4.00	0.54	0.57	0.81	0.86
7	-1.50	2.83	0.63	0.67	1.44	1.53
10	-1.00	2.00	0.67	0.71	2.11	2.24
14	-0.50	1.41	0.78	0.83	2.89	3.07
18	0.00	1.00	0.67	0.71	3.56	3.78
25	0.50	0.71	0.70	0.74	4.26	4.52
35	1.00	0.50	1.16	1.23	5.42	5.75
40	1.25	0.42	0.91	0.96	6.33	6.71
45	1.50	0.35	0.09	0.10	6.42	6.81
50	1.75	0.30	8.23	8.72	14.65	15.53
60	2.00	0.25	11.67	12.37	26.32	27.90
70	2.25	0.21	14.81	15.69	41.13	43.59
80	2.50	0.18	18.78	19.90	59.91	63.49
120	3.00	0.13	26.58	28.17	86.49	91.66
170	3.50	0.09	5.31	5.63	91.80	97.29
200	3.75	0.07	0.42	0.45	92.22	97.74
230	4.00	0.06	0.20	0.21	92.42	97.95

Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
3.30	2.86	2.70	2.33	1.94	1.76	0.70

Moment Statistics	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
	2.18	0.22	0.89	-2.78	13.64

ALABAMA DIVC-10.GPJ FL DEP ROSS.GDT 3/14/11

Granularmetric Report

Depths and elevations based on measured values

Project Name: Dauphin Island Shore Protection

Sample Name: DIVC-10-37 #1

Analysis Date: 10-06-10

Analyzed By: JR

Coastal Planning & Engineering
2481 NW Boca Raton Blvd, Boca Raton
FL 33431
ph (561) 391-8102
fax (561) 391-9116

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
1,790,318	64,684	Alabama State Plane West	-20.9 NAVD 88

USCS:	Munsell:	Comments:
SP	Wet - 5Y-6/1 Dry - 2.5Y-7/2 Washed - 2.5Y-8/2	

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
103.61	102.24	0.00	0.07	#200 - 1.40 #230 - 1.38			1

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
5/8"	-4.00	16.00	0.00	0.00	0.00	0.00
7/16"	-3.50	11.31	0.00	0.00	0.00	0.00
5/16"	-3.00	8.00	0.73	0.70	0.73	0.70
3.5	-2.50	5.66	0.30	0.29	1.03	0.99
5	-2.00	4.00	0.39	0.38	1.42	1.37
7	-1.50	2.83	0.37	0.36	1.79	1.73
10	-1.00	2.00	0.56	0.54	2.35	2.27
14	-0.50	1.41	0.60	0.58	2.95	2.85
18	0.00	1.00	0.96	0.93	3.91	3.78
25	0.50	0.71	2.46	2.37	6.37	6.15
35	1.00	0.50	11.49	11.09	17.86	17.24
40	1.25	0.42	10.30	9.94	28.16	27.18
45	1.50	0.35	15.45	14.91	43.61	42.09
50	1.75	0.30	20.83	20.10	64.44	62.19
60	2.00	0.25	16.49	15.92	80.93	78.11
70	2.25	0.21	11.19	10.80	92.12	88.91
80	2.50	0.18	7.48	7.22	99.60	96.13
120	3.00	0.13	2.43	2.35	102.03	98.48
170	3.50	0.09	0.11	0.11	102.14	98.59
200	3.75	0.07	0.01	0.01	102.15	98.60
230	4.00	0.06	0.02	0.02	102.17	98.62

Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.46	2.14	1.95	1.60	1.20	0.94	0.26

Moment Statistics	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
	1.46	0.36	0.83	-2.5	13.32

ALABAMA DIVC-10.GPJ FL DEP ROSS.GDT 3/14/11

Granularmetric Report

Depths and elevations based on measured values

Project Name: Dauphin Island Shore Protection

Sample Name: DIVC-10-37 #2

Analysis Date: 10-06-10

Analyzed By: JR

Coastal Planning & Engineering
2481 NW Boca Raton Blvd, Boca Raton
FL 33431
ph (561) 391-8102
fax (561) 391-9116

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
1,790,318	64,684	Alabama State Plane West	-23.9 NAVD 88

USCS:	Munsell:	Comments:
SP	Wet - 5Y-6/1 Dry - 5Y-8/1 Washed - 5Y-8/1	

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
102.58	101.61	0.01	0.12	#200 - 1.07 #230 - 1.07			0

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
5/8"	-4.00	16.00	0.00	0.00	0.00	0.00
7/16"	-3.50	11.31	0.55	0.54	0.55	0.54
5/16"	-3.00	8.00	0.00	0.00	0.55	0.54
3.5	-2.50	5.66	0.29	0.28	0.84	0.82
5	-2.00	4.00	0.11	0.11	0.95	0.93
7	-1.50	2.83	0.19	0.19	1.14	1.12
10	-1.00	2.00	0.28	0.27	1.42	1.39
14	-0.50	1.41	0.42	0.41	1.84	1.80
18	0.00	1.00	0.70	0.68	2.54	2.48
25	0.50	0.71	2.38	2.32	4.92	4.80
35	1.00	0.50	10.96	10.68	15.88	15.48
40	1.25	0.42	8.85	8.63	24.73	24.11
45	1.50	0.35	0.97	0.95	25.70	25.06
50	1.75	0.30	38.22	37.26	63.92	62.32
60	2.00	0.25	19.06	18.58	82.98	80.90
70	2.25	0.21	9.84	9.59	92.82	90.49
80	2.50	0.18	5.38	5.24	98.20	95.73
120	3.00	0.13	3.10	3.02	101.30	98.75
170	3.50	0.09	0.12	0.12	101.42	98.87
200	3.75	0.07	0.06	0.06	101.48	98.93
230	4.00	0.06	0.00	0.00	101.48	98.93

Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.47	2.08	1.92	1.67	1.48	1.02	0.51

Moment	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
Statistics	1.54	0.34	0.76	-2.99	19.13

ALABAMA DIVC-10.GPJ FL DEP ROSS.GDT 3/14/11

Granularmetric Report

Depths and elevations based on measured values

Project Name: Dauphin Island Shore Protection

Sample Name: DIVC-10-37 #3

Analysis Date: 10-06-10

Analyzed By: JR

Coastal Planning & Engineering
2481 NW Boca Raton Blvd, Boca Raton
FL 33431
ph (561) 391-8102
fax (561) 391-9116

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
1,790,318	64,684	Alabama State Plane West	-30.9 NAVD 88

USCS:	Munsell:	Comments:
SP	Wet - 5Y-5/1 Dry - 2.5Y-7/1 Washed - 2.5Y-7/1	

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
97.69	96.81	0.01	0.00	#200 - 0.95 #230 - 0.92			0

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
5/8"	-4.00	16.00	0.00	0.00	0.00	0.00
7/16"	-3.50	11.31	0.00	0.00	0.00	0.00
5/16"	-3.00	8.00	0.00	0.00	0.00	0.00
3.5	-2.50	5.66	0.04	0.04	0.04	0.04
5	-2.00	4.00	0.07	0.07	0.11	0.11
7	-1.50	2.83	0.39	0.40	0.50	0.51
10	-1.00	2.00	0.57	0.58	1.07	1.09
14	-0.50	1.41	0.63	0.64	1.70	1.73
18	0.00	1.00	0.68	0.70	2.38	2.43
25	0.50	0.71	0.66	0.68	3.04	3.11
35	1.00	0.50	1.31	1.34	4.35	4.45
40	1.25	0.42	1.11	1.14	5.46	5.59
45	1.50	0.35	1.80	1.84	7.26	7.43
50	1.75	0.30	5.27	5.39	12.53	12.82
60	2.00	0.25	11.23	11.50	23.76	24.32
70	2.25	0.21	18.94	19.39	42.70	43.71
80	2.50	0.18	29.89	30.60	72.59	74.31
120	3.00	0.13	20.87	21.36	93.46	95.67
170	3.50	0.09	3.12	3.19	96.58	98.86
200	3.75	0.07	0.19	0.19	96.77	99.05
230	4.00	0.06	0.03	0.03	96.80	99.08

Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.98	2.73	2.52	2.30	2.01	1.82	1.12

Moment	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
Statistics	2.19	0.22	0.69	-2.7	14.19

ALABAMA DIVC-10.GPJ FL DEP ROSS.GDT 3/14/11

Granularmetric Report

Depths and elevations based on measured values

Project Name: Dauphin Island Shore Protection

Sample Name: DIVC-10-37 #4

Analysis Date: 10-06-10

Analyzed By: JR

Coastal Planning & Engineering
2481 NW Boca Raton Blvd, Boca Raton
FL 33431
ph (561) 391-8102
fax (561) 391-9116

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
1,790,318	64,684	Alabama State Plane West	-34.9 NAVD 88

USCS:	Munsell:	Comments:
SP	Wet - 5Y-5/1 Dry - 5Y-7/1 Washed - 5Y-7/1	

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
98.85	97.47	0.00	0.00	#200 - 1.47 #230 - 1.40			0

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
5/8"	-4.00	16.00	0.00	0.00	0.00	0.00
7/16"	-3.50	11.31	0.00	0.00	0.00	0.00
5/16"	-3.00	8.00	0.00	0.00	0.00	0.00
3.5	-2.50	5.66	0.00	0.00	0.00	0.00
5	-2.00	4.00	0.00	0.00	0.00	0.00
7	-1.50	2.83	0.00	0.00	0.00	0.00
10	-1.00	2.00	0.02	0.02	0.02	0.02
14	-0.50	1.41	0.03	0.03	0.05	0.05
18	0.00	1.00	0.07	0.07	0.12	0.12
25	0.50	0.71	0.11	0.11	0.23	0.23
35	1.00	0.50	0.26	0.26	0.49	0.49
40	1.25	0.42	0.30	0.30	0.79	0.79
45	1.50	0.35	0.05	0.05	0.84	0.84
50	1.75	0.30	6.05	6.12	6.89	6.96
60	2.00	0.25	14.65	14.82	21.54	21.78
70	2.25	0.21	20.21	20.45	41.75	42.23
80	2.50	0.18	23.71	23.99	65.46	66.22
120	3.00	0.13	29.00	29.34	94.46	95.56
170	3.50	0.09	2.76	2.79	97.22	98.35
200	3.75	0.07	0.18	0.18	97.40	98.53
230	4.00	0.06	0.07	0.07	97.47	98.60

Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.99	2.80	2.65	2.33	2.04	1.90	1.67

Moment Statistics	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
	2.33	0.20	0.42	-0.56	6.17

ALABAMA DIVC-10.GPJ FL DEP ROSS.GDT 3/14/11

Granularmetric Report

Depths and elevations based on measured values

Project Name: Dauphin Island Shore Protection

Sample Name: DIVC-11-01 #1

Analysis Date: 01-18-11

Analyzed By: JR

Coastal Planning & Engineering
2481 NW Boca Raton Blvd, Boca Raton
FL 33431
ph (561) 391-8102
fax (561) 391-9116

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
1,725,121	73,380	Alabama State Plane West	-44.1 NAVD 88

USCS:	Munsell:	Comments:
SP-SM	Wet - 5Y-5/1 Dry - 5Y-6/1 Washed - 2.5Y-8/1	

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
73.39	66.95	0.03	0.12	#200 - 9.22 #230 - 8.95			0

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
5/8"	-4.00	16.00	0.00	0.00	0.00	0.00
7/16"	-3.50	11.31	0.00	0.00	0.00	0.00
5/16"	-3.00	8.00	0.00	0.00	0.00	0.00
3.5	-2.50	5.66	0.12	0.16	0.12	0.16
5	-2.00	4.00	0.00	0.00	0.12	0.16
7	-1.50	2.83	0.00	0.00	0.12	0.16
10	-1.00	2.00	0.08	0.11	0.20	0.27
14	-0.50	1.41	0.19	0.26	0.39	0.53
18	0.00	1.00	0.28	0.38	0.67	0.91
25	0.50	0.71	0.85	1.16	1.52	2.07
35	1.00	0.50	2.42	3.30	3.94	5.37
40	1.25	0.42	1.56	2.13	5.50	7.50
45	1.50	0.35	3.79	5.16	9.29	12.66
50	1.75	0.30	5.60	7.63	14.89	20.29
60	2.00	0.25	10.19	13.88	25.08	34.17
70	2.25	0.21	11.81	16.09	36.89	50.26
80	2.50	0.18	12.61	17.18	49.50	67.44
120	3.00	0.13	13.65	18.60	63.15	86.04
170	3.50	0.09	3.12	4.25	66.27	90.29
200	3.75	0.07	0.36	0.49	66.63	90.78
230	4.00	0.06	0.20	0.27	66.83	91.05

Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
	2.95	2.70	2.25	1.83	1.61	0.94

Moment	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
Statistics	2.12	0.23	0.69	-1.37	8.78

ALABAMA DIVC-11.GPJ FL DEP ROSS.GDT 5/12/11

Granularmetric Report

Depths and elevations based on measured values

Project Name: Dauphin Island Shore Protection

Sample Name: DIVC-11-01 #2

Analysis Date: 01-18-11

Analyzed By: JR

Coastal Planning & Engineering
2481 NW Boca Raton Blvd, Boca Raton
FL 33431
ph (561) 391-8102
fax (561) 391-9116

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
1,725,121	73,380	Alabama State Plane West	-46.5 NAVD 88

USCS:	Munsell:	Comments:
SP-SM	Wet - 5Y-5/1 Dry - 5Y-6/1 Washed - 2.5Y-8/1	

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
87.96	78.11	0.05	0.17	#200 - 11.54 #230 - 11.41			0

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
5/8"	-4.00	16.00	0.00	0.00	0.00	0.00
7/16"	-3.50	11.31	0.00	0.00	0.00	0.00
5/16"	-3.00	8.00	0.00	0.00	0.00	0.00
3.5	-2.50	5.66	0.00	0.00	0.00	0.00
5	-2.00	4.00	0.00	0.00	0.00	0.00
7	-1.50	2.83	0.11	0.13	0.11	0.13
10	-1.00	2.00	0.12	0.14	0.23	0.27
14	-0.50	1.41	0.14	0.16	0.37	0.43
18	0.00	1.00	0.22	0.25	0.59	0.68
25	0.50	0.71	0.95	1.08	1.54	1.76
35	1.00	0.50	4.87	5.54	6.41	7.30
40	1.25	0.42	4.89	5.56	11.30	12.86
45	1.50	0.35	5.90	6.71	17.20	19.57
50	1.75	0.30	9.56	10.87	26.76	30.44
60	2.00	0.25	10.32	11.73	37.08	42.17
70	2.25	0.21	14.57	16.56	51.65	58.73
80	2.50	0.18	14.37	16.34	66.02	75.07
120	3.00	0.13	9.95	11.31	75.97	86.38
170	3.50	0.09	1.61	1.83	77.58	88.21
200	3.75	0.07	0.22	0.25	77.80	88.46
230	4.00	0.06	0.11	0.13	77.91	88.59

Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
	2.89	2.50	2.12	1.62	1.37	0.79

Moment	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
Statistics	1.94	0.26	0.66	-0.83	5.24

ALABAMA DIVC-11.GPJ FL DEP ROSS.GDT 5/12/11

Granularmetric Report

Depths and elevations based on measured values

Project Name: Dauphin Island Shore Protection

Sample Name: DIVC-11-01 #3

Analysis Date: 01-18-11

Analyzed By: JR

Coastal Planning & Engineering
2481 NW Boca Raton Blvd, Boca Raton
FL 33431
ph (561) 391-8102
fax (561) 391-9116

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
1,725,121	73,380	Alabama State Plane West	-49.4 NAVD 88

USCS:	Munsell:	Comments:
SP-SM	Wet - 5Y-6/1 Dry - 5Y-6/1 Washed - 2.5Y-8/1	

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
86.82	79.18	0.06	0.06	#200 - 9.26 #230 - 8.95			0

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
5/8"	-4.00	16.00	0.00	0.00	0.00	0.00
7/16"	-3.50	11.31	0.00	0.00	0.00	0.00
5/16"	-3.00	8.00	0.00	0.00	0.00	0.00
3.5	-2.50	5.66	0.00	0.00	0.00	0.00
5	-2.00	4.00	0.00	0.00	0.00	0.00
7	-1.50	2.83	0.00	0.00	0.00	0.00
10	-1.00	2.00	0.00	0.00	0.00	0.00
14	-0.50	1.41	0.01	0.01	0.01	0.01
18	0.00	1.00	0.03	0.03	0.04	0.04
25	0.50	0.71	0.29	0.33	0.33	0.37
35	1.00	0.50	1.59	1.83	1.92	2.20
40	1.25	0.42	1.47	1.69	3.39	3.89
45	1.50	0.35	4.08	4.70	7.47	8.59
50	1.75	0.30	6.68	7.69	14.15	16.28
60	2.00	0.25	13.73	15.81	27.88	32.09
70	2.25	0.21	16.32	18.80	44.20	50.89
80	2.50	0.18	17.14	19.74	61.34	70.63
120	3.00	0.13	13.96	16.08	75.30	86.71
170	3.50	0.09	3.11	3.58	78.41	90.29
200	3.75	0.07	0.39	0.45	78.80	90.74
230	4.00	0.06	0.27	0.31	79.07	91.05

Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
	2.92	2.64	2.24	1.89	1.74	1.31

Moment	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
Statistics	2.17	0.22	0.53	-0.25	4.04

ALABAMA DIVC-11.GPJ FL DEP ROSS.GDT 5/12/11

Granularmetric Report

Depths and elevations based on measured values

Project Name: Dauphin Island Shore Protection

Sample Name: DIVC-11-01 #4

Analysis Date: 01-20-11

Analyzed By: JR

Coastal Planning & Engineering
2481 NW Boca Raton Blvd, Boca Raton
FL 33431
ph (561) 391-8102
fax (561) 391-9116

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
1,725,121	73,380	Alabama State Plane West	-51.2 NAVD 88

USCS:	Munsell:	Comments:
SC	Wet - 5Y-4/1 Dry - 5Y-5/1 Washed - 2.5Y-7/1	2 (0.5") shell fragments removed prior to sieving

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
98.70	84.21	0.03	0.04	#200 - 15.21 #230 - 14.75			1

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
5/8"	-4.00	16.00	0.00	0.00	0.00	0.00
7/16"	-3.50	11.31	0.00	0.00	0.00	0.00
5/16"	-3.00	8.00	0.00	0.00	0.00	0.00
3.5	-2.50	5.66	0.09	0.09	0.09	0.09
5	-2.00	4.00	0.37	0.37	0.46	0.46
7	-1.50	2.83	0.12	0.12	0.58	0.58
10	-1.00	2.00	0.31	0.31	0.89	0.89
14	-0.50	1.41	0.36	0.36	1.25	1.25
18	0.00	1.00	0.40	0.41	1.65	1.66
25	0.50	0.71	0.52	0.53	2.17	2.19
35	1.00	0.50	0.91	0.92	3.08	3.11
40	1.25	0.42	0.62	0.63	3.70	3.74
45	1.50	0.35	1.63	1.65	5.33	5.39
50	1.75	0.30	3.30	3.34	8.63	8.73
60	2.00	0.25	9.74	9.87	18.37	18.60
70	2.25	0.21	16.78	17.00	35.15	35.60
80	2.50	0.18	20.91	21.19	56.06	56.79
120	3.00	0.13	21.73	22.02	77.79	78.81
170	3.50	0.09	5.17	5.24	82.96	84.05
200	3.75	0.07	0.73	0.74	83.69	84.79
230	4.00	0.06	0.45	0.46	84.14	85.25

Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
	3.50	2.91	2.42	2.09	1.93	1.44

Moment Statistics	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
	2.28	0.21	0.72	-2.67	16.15

ALABAMA DIVC-11.GPJ FL DEP ROSS.GDT 5/12/11

Granularmetric Report

Depths and elevations based on measured values

Project Name: Dauphin Island Shore Protection

Sample Name: DIVC-11-02 #1

Analysis Date: 01-18-11

Analyzed By: JR

Coastal Planning & Engineering
2481 NW Boca Raton Blvd, Boca Raton
FL 33431
ph (561) 391-8102
fax (561) 391-9116

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
1,741,192	79,039	Alabama State Plane West	-42.0 NAVD 88

USCS:	Munsell:	Comments:
SP-SM	Wet - 5Y-6/1 Dry - 5Y-7/2 Washed - 2.5Y-8/1	

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
109.21	102.96	0.02	0.07	#200 - 5.92 #230 - 5.80			0

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
5/8"	-4.00	16.00	0.00	0.00	0.00	0.00
7/16"	-3.50	11.31	0.00	0.00	0.00	0.00
5/16"	-3.00	8.00	0.00	0.00	0.00	0.00
3.5	-2.50	5.66	0.00	0.00	0.00	0.00
5	-2.00	4.00	0.00	0.00	0.00	0.00
7	-1.50	2.83	0.02	0.02	0.02	0.02
10	-1.00	2.00	0.07	0.06	0.09	0.08
14	-0.50	1.41	0.09	0.08	0.18	0.16
18	0.00	1.00	0.09	0.08	0.27	0.24
25	0.50	0.71	0.24	0.22	0.51	0.46
35	1.00	0.50	1.60	1.47	2.11	1.93
40	1.25	0.42	2.52	2.31	4.63	4.24
45	1.50	0.35	8.48	7.76	13.11	12.00
50	1.75	0.30	11.89	10.89	25.00	22.89
60	2.00	0.25	19.82	18.15	44.82	41.04
70	2.25	0.21	21.63	19.81	66.45	60.85
80	2.50	0.18	20.16	18.46	86.61	79.31
120	3.00	0.13	13.57	12.43	100.18	91.74
170	3.50	0.09	2.39	2.19	102.57	93.93
200	3.75	0.07	0.16	0.15	102.73	94.08
230	4.00	0.06	0.13	0.12	102.86	94.20

Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
	2.69	2.44	2.11	1.78	1.59	1.27

Moment	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
Statistics	2.06	0.24	0.52	-0.51	5.76

ALABAMA DIVC-11.GPJ FL DEP ROSS.GDT 5/12/11

Granularmetric Report

Depths and elevations based on measured values

Project Name: Dauphin Island Shore Protection

Sample Name: DIVC-11-02 #2

Analysis Date: 01-18-11

Analyzed By: JR

Coastal Planning & Engineering
2481 NW Boca Raton Blvd, Boca Raton
FL 33431
ph (561) 391-8102
fax (561) 391-9116

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
1,741,192	79,039	Alabama State Plane West	-43.4 NAVD 88

USCS:	Munsell:	Comments:
SM-SC	Wet - 5Y-4/1 Dry - 5Y-5/1 Washed - 2.5Y-8/1	

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
93.32	80.28	0.05	0.12	#200 - 14.37 #230 - 14.16			0

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
5/8"	-4.00	16.00	0.00	0.00	0.00	0.00
7/16"	-3.50	11.31	0.00	0.00	0.00	0.00
5/16"	-3.00	8.00	0.00	0.00	0.00	0.00
3.5	-2.50	5.66	0.41	0.44	0.41	0.44
5	-2.00	4.00	0.06	0.06	0.47	0.50
7	-1.50	2.83	0.17	0.18	0.64	0.68
10	-1.00	2.00	0.26	0.28	0.90	0.96
14	-0.50	1.41	0.19	0.20	1.09	1.16
18	0.00	1.00	0.15	0.16	1.24	1.32
25	0.50	0.71	0.24	0.26	1.48	1.58
35	1.00	0.50	0.85	0.91	2.33	2.49
40	1.25	0.42	0.88	0.94	3.21	3.43
45	1.50	0.35	1.52	1.63	4.73	5.06
50	1.75	0.30	3.49	3.74	8.22	8.80
60	2.00	0.25	5.81	6.23	14.03	15.03
70	2.25	0.21	10.25	10.98	24.28	26.01
80	2.50	0.18	16.83	18.03	41.11	44.04
120	3.00	0.13	29.16	31.25	70.27	75.29
170	3.50	0.09	8.95	9.59	79.22	84.88
200	3.75	0.07	0.70	0.75	79.92	85.63
230	4.00	0.06	0.20	0.21	80.12	85.84

Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
	3.45	3.00	2.60	2.23	2.02	1.49

Moment Statistics	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
	2.4	0.19	0.74	-3.06	19.31

ALABAMA DIVC-11.GPJ FL DEP ROSS.GDT 5/12/11

Granularmetric Report

Depths and elevations based on measured values

Project Name: Dauphin Island Shore Protection

Sample Name: DIVC-11-03 #1

Analysis Date: 01-18-11

Analyzed By: JR

Coastal Planning & Engineering
2481 NW Boca Raton Blvd, Boca Raton
FL 33431
ph (561) 391-8102
fax (561) 391-9116

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
1,749,629	80,529	Alabama State Plane West	-40.8 NAVD 88

USCS:	Munsell:	Comments:
SP-SM	Wet - 5Y-6/1 Dry - 5Y-6/1 Washed - 5Y-7/1	

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
107.03	101.30	0.01	0.07	#200 - 5.50 #230 - 5.43			1

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
5/8"	-4.00	16.00	0.00	0.00	0.00	0.00
7/16"	-3.50	11.31	0.00	0.00	0.00	0.00
5/16"	-3.00	8.00	0.00	0.00	0.00	0.00
3.5	-2.50	5.66	0.00	0.00	0.00	0.00
5	-2.00	4.00	0.19	0.18	0.19	0.18
7	-1.50	2.83	0.73	0.68	0.92	0.86
10	-1.00	2.00	1.07	1.00	1.99	1.86
14	-0.50	1.41	1.13	1.06	3.12	2.92
18	0.00	1.00	1.17	1.09	4.29	4.01
25	0.50	0.71	1.83	1.71	6.12	5.72
35	1.00	0.50	6.86	6.41	12.98	12.13
40	1.25	0.42	6.57	6.14	19.55	18.27
45	1.50	0.35	14.71	13.74	34.26	32.01
50	1.75	0.30	16.29	15.22	50.55	47.23
60	2.00	0.25	20.23	18.90	70.78	66.13
70	2.25	0.21	14.34	13.40	85.12	79.53
80	2.50	0.18	9.52	8.89	94.64	88.42
120	3.00	0.13	5.48	5.12	100.12	93.54
170	3.50	0.09	0.94	0.88	101.06	94.42
200	3.75	0.07	0.09	0.08	101.15	94.50
230	4.00	0.06	0.07	0.07	101.22	94.57

Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
	2.38	2.17	1.79	1.37	1.16	0.29

Moment Statistics	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
	1.63	0.32	0.78	-1.64	7.8

ALABAMA DIVC-11.GPJ FL DEP ROSS.GDT 5/12/11

Granularmetric Report

Depths and elevations based on measured values

Project Name: Dauphin Island Shore Protection

Sample Name: DIVC-11-03 #2

Analysis Date: 01-18-11

Analyzed By: JR

Coastal Planning & Engineering
2481 NW Boca Raton Blvd, Boca Raton
FL 33431
ph (561) 391-8102
fax (561) 391-9116

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
1,749,629	80,529	Alabama State Plane West	-43.5 NAVD 88

USCS:	Munsell:	Comments:
SW-SM	Wet - 5Y-5/1 Dry - 5Y-6/1 Washed - 5Y-7/1	

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
88.15	81.39	0.07	0.08	#200 - 8.08 #230 - 7.82			1

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
5/8"	-4.00	16.00	0.00	0.00	0.00	0.00
7/16"	-3.50	11.31	0.00	0.00	0.00	0.00
5/16"	-3.00	8.00	0.00	0.00	0.00	0.00
3.5	-2.50	5.66	0.06	0.07	0.06	0.07
5	-2.00	4.00	0.45	0.51	0.51	0.58
7	-1.50	2.83	0.74	0.84	1.25	1.42
10	-1.00	2.00	0.71	0.81	1.96	2.23
14	-0.50	1.41	1.03	1.17	2.99	3.40
18	0.00	1.00	0.89	1.01	3.88	4.41
25	0.50	0.71	0.94	1.07	4.82	5.48
35	1.00	0.50	1.12	1.27	5.94	6.75
40	1.25	0.42	0.50	0.57	6.44	7.32
45	1.50	0.35	0.66	0.75	7.10	8.07
50	1.75	0.30	1.18	1.34	8.28	9.41
60	2.00	0.25	2.75	3.12	11.03	12.53
70	2.25	0.21	5.91	6.70	16.94	19.23
80	2.50	0.18	14.24	16.15	31.18	35.38
120	3.00	0.13	36.92	41.88	68.10	77.26
170	3.50	0.09	12.12	13.75	80.22	91.01
200	3.75	0.07	0.80	0.91	81.02	91.92
230	4.00	0.06	0.23	0.26	81.25	92.18

Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
	3.25	2.97	2.67	2.34	2.13	0.28

Moment Statistics	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
	2.42	0.19	0.97	-2.72	11.28

ALABAMA DIVC-11.GPJ FL DEP ROSS.GDT 5/12/11

Granularmetric Report

Depths and elevations based on measured values

Project Name: Dauphin Island Shore Protection

Sample Name: DIVC-11-03 #3

Analysis Date: 01-19-11

Analyzed By: JR

Coastal Planning & Engineering
2481 NW Boca Raton Blvd, Boca Raton
FL 33431
ph (561) 391-8102
fax (561) 391-9116

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
1,749,629	80,529	Alabama State Plane West	-45.1 NAVD 88

USCS:	Munsell:	Comments:
SM-SC	Wet - 5Y-3/1 Dry - 5Y-5/1 Washed - 5Y-7/1	

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
90.44	78.05	0.38	0.00	#200 - 15.15 #230 - 14.11			2

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
5/8"	-4.00	16.00	0.00	0.00	0.00	0.00
7/16"	-3.50	11.31	0.00	0.00	0.00	0.00
5/16"	-3.00	8.00	0.64	0.71	0.64	0.71
3.5	-2.50	5.66	0.53	0.59	1.17	1.30
5	-2.00	4.00	0.85	0.94	2.02	2.24
7	-1.50	2.83	1.02	1.13	3.04	3.37
10	-1.00	2.00	1.26	1.39	4.30	4.76
14	-0.50	1.41	1.13	1.25	5.43	6.01
18	0.00	1.00	0.76	0.84	6.19	6.85
25	0.50	0.71	0.69	0.76	6.88	7.61
35	1.00	0.50	0.76	0.84	7.64	8.45
40	1.25	0.42	0.37	0.41	8.01	8.86
45	1.50	0.35	0.74	0.82	8.75	9.68
50	1.75	0.30	0.78	0.86	9.53	10.54
60	2.00	0.25	1.21	1.34	10.74	11.88
70	2.25	0.21	1.86	2.06	12.60	13.94
80	2.50	0.18	5.58	6.17	18.18	20.11
120	3.00	0.13	31.14	34.43	49.32	54.54
170	3.50	0.09	24.96	27.60	74.28	82.14
200	3.75	0.07	2.45	2.71	76.73	84.85
230	4.00	0.06	0.94	1.04	77.67	85.89

Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
	3.67	3.37	2.93	2.57	2.33	-0.90

Moment Statistics	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
	2.48	0.18	1.34	-2.58	9.25

ALABAMA DIVC-11.GPJ FL DEP ROSS.GDT 5/12/11

Granularmetric Report

Depths and elevations based on measured values

Project Name: Dauphin Island Shore Protection

Sample Name: DIVC-11-06 #1

Analysis Date: 01-20-11

Analyzed By: JR

Coastal Planning & Engineering
2481 NW Boca Raton Blvd, Boca Raton
FL 33431
ph (561) 391-8102
fax (561) 391-9116

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
1,724,087	78,872	Alabama State Plane West	-33.5 NAVD 88

USCS:	Munsell:	Comments:
SP	Wet - 5Y-5/2 Dry - 5Y-6/2 Washed - 5Y-7/2	

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
216.25	213.63	0.01	0.05	#200 - 1.31 #230 - 1.26			0

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
5/8"	-4.00	16.00	0.00	0.00	0.00	0.00
7/16"	-3.50	11.31	0.00	0.00	0.00	0.00
5/16"	-3.00	8.00	0.00	0.00	0.00	0.00
3.5	-2.50	5.66	0.13	0.06	0.13	0.06
5	-2.00	4.00	0.06	0.03	0.19	0.09
7	-1.50	2.83	0.19	0.09	0.38	0.18
10	-1.00	2.00	0.11	0.05	0.49	0.23
14	-0.50	1.41	0.28	0.13	0.77	0.36
18	0.00	1.00	0.78	0.36	1.55	0.72
25	0.50	0.71	3.75	1.73	5.30	2.45
35	1.00	0.50	24.32	11.25	29.62	13.70
40	1.25	0.42	20.94	9.68	50.56	23.38
45	1.50	0.35	42.33	19.57	92.89	42.95
50	1.75	0.30	42.22	19.52	135.11	62.47
60	2.00	0.25	38.05	17.60	173.16	80.07
70	2.25	0.21	18.87	8.73	192.03	88.80
80	2.50	0.18	12.23	5.66	204.26	94.46
120	3.00	0.13	7.82	3.62	212.08	98.08
170	3.50	0.09	1.22	0.56	213.30	98.64
200	3.75	0.07	0.10	0.05	213.40	98.69
230	4.00	0.06	0.11	0.05	213.51	98.74

Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.57	2.11	1.93	1.59	1.27	1.06	0.61

Moment Statistics	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
	1.57	0.34	0.58	-0.57	6.84

ALABAMA DIVC-11.GPJ FL DEP ROSS.GDT 5/12/11

Granularmetric Report

Depths and elevations based on measured values

Project Name: Dauphin Island Shore Protection

Sample Name: DIVC-11-06 #2

Analysis Date: 01-20-11

Analyzed By: JR

Coastal Planning & Engineering
2481 NW Boca Raton Blvd, Boca Raton
FL 33431
ph (561) 391-8102
fax (561) 391-9116

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
1,724,087	78,872	Alabama State Plane West	-37.2 NAVD 88

USCS:	Munsell:	Comments:
SP	Wet - 5Y-5/1 Dry - 5Y-7/2 Washed - 5Y-8/1	

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
208.01	200.43	0.05	0.06	#200 - 3.78 #230 - 3.72			0

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
5/8"	-4.00	16.00	0.00	0.00	0.00	0.00
7/16"	-3.50	11.31	0.00	0.00	0.00	0.00
5/16"	-3.00	8.00	0.00	0.00	0.00	0.00
3.5	-2.50	5.66	0.00	0.00	0.00	0.00
5	-2.00	4.00	0.00	0.00	0.00	0.00
7	-1.50	2.83	0.00	0.00	0.00	0.00
10	-1.00	2.00	0.00	0.00	0.00	0.00
14	-0.50	1.41	0.02	0.01	0.02	0.01
18	0.00	1.00	0.11	0.05	0.13	0.06
25	0.50	0.71	1.09	0.52	1.22	0.58
35	1.00	0.50	15.49	7.45	16.71	8.03
40	1.25	0.42	25.72	12.36	42.43	20.39
45	1.50	0.35	49.04	23.58	91.47	43.97
50	1.75	0.30	40.60	19.52	132.07	63.49
60	2.00	0.25	32.44	15.60	164.51	79.09
70	2.25	0.21	18.13	8.72	182.64	87.81
80	2.50	0.18	11.59	5.57	194.23	93.38
120	3.00	0.13	5.15	2.48	199.38	95.86
170	3.50	0.09	0.65	0.31	200.03	96.17
200	3.75	0.07	0.10	0.05	200.13	96.22
230	4.00	0.06	0.13	0.06	200.26	96.28

Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.83	2.14	1.93	1.58	1.30	1.16	0.80

Moment Statistics	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
	1.59	0.33	0.48	0.31	3.79

ALABAMA DIVC-11.GPJ FL DEP ROSS.GDT 5/12/11

Granularmetric Report

Depths and elevations based on measured values

Project Name: Dauphin Island Shore Protection

Sample Name: DIVC-11-06 #3

Analysis Date: 01-19-11

Analyzed By: JR

Coastal Planning & Engineering
2481 NW Boca Raton Blvd, Boca Raton
FL 33431
ph (561) 391-8102
fax (561) 391-9116

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
1,724,087	78,872	Alabama State Plane West	-39.9 NAVD 88

USCS:	Munsell:	Comments:
SP	Wet - 2.5Y-7/1 Dry - 2.5Y-7/1 Washed - 2.5Y-8/1	

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
238.58	231.38	0.01	0.05	#200 - 3.09 #230 - 3.08			0

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
5/8"	-4.00	16.00	0.00	0.00	0.00	0.00
7/16"	-3.50	11.31	0.00	0.00	0.00	0.00
5/16"	-3.00	8.00	0.00	0.00	0.00	0.00
3.5	-2.50	5.66	0.00	0.00	0.00	0.00
5	-2.00	4.00	0.00	0.00	0.00	0.00
7	-1.50	2.83	0.00	0.00	0.00	0.00
10	-1.00	2.00	0.01	0.00	0.01	0.00
14	-0.50	1.41	0.02	0.01	0.03	0.01
18	0.00	1.00	0.12	0.05	0.15	0.06
25	0.50	0.71	1.37	0.57	1.52	0.63
35	1.00	0.50	15.23	6.38	16.75	7.01
40	1.25	0.42	17.73	7.43	34.48	14.44
45	1.50	0.35	30.10	12.62	64.58	27.06
50	1.75	0.30	53.40	22.38	117.98	49.44
60	2.00	0.25	45.42	19.04	163.40	68.48
70	2.25	0.21	33.31	13.96	196.71	82.44
80	2.50	0.18	21.57	9.04	218.28	91.48
120	3.00	0.13	12.02	5.04	230.30	96.52
170	3.50	0.09	0.86	0.36	231.16	96.88
200	3.75	0.07	0.07	0.03	231.23	96.91
230	4.00	0.06	0.03	0.01	231.26	96.92

Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.85	2.29	2.12	1.76	1.46	1.28	0.84

Moment Statistics	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
	1.74	0.30	0.51	-0.12	3.35

ALABAMA DIVC-11.GPJ FL DEP ROSS.GDT 5/12/11

Granularmetric Report

Depths and elevations based on measured values

Project Name: Dauphin Island Shore Protection

Sample Name: DIVC-11-06 #4

Analysis Date: 01-19-11

Analyzed By: JR

Coastal Planning & Engineering
2481 NW Boca Raton Blvd, Boca Raton
FL 33431
ph (561) 391-8102
fax (561) 391-9116

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
1,724,087	78,872	Alabama State Plane West	-43.3 NAVD 88

USCS:	Munsell:	Comments:
SP-SM	Wet - 5Y-6/1 Dry - 5Y-7/1 Washed - 2.5Y-8/1	

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
225.02	210.78	0.02	0.11	#200 - 6.48 #230 - 6.44			0

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
5/8"	-4.00	16.00	0.00	0.00	0.00	0.00
7/16"	-3.50	11.31	0.00	0.00	0.00	0.00
5/16"	-3.00	8.00	0.00	0.00	0.00	0.00
3.5	-2.50	5.66	0.00	0.00	0.00	0.00
5	-2.00	4.00	0.00	0.00	0.00	0.00
7	-1.50	2.83	0.00	0.00	0.00	0.00
10	-1.00	2.00	0.00	0.00	0.00	0.00
14	-0.50	1.41	0.04	0.02	0.04	0.02
18	0.00	1.00	0.14	0.06	0.18	0.08
25	0.50	0.71	0.72	0.32	0.90	0.40
35	1.00	0.50	6.88	3.06	7.78	3.46
40	1.25	0.42	8.15	3.62	15.93	7.08
45	1.50	0.35	26.69	11.86	42.62	18.94
50	1.75	0.30	35.15	15.62	77.77	34.56
60	2.00	0.25	44.45	19.75	122.22	54.31
70	2.25	0.21	36.96	16.43	159.18	70.74
80	2.50	0.18	30.91	13.74	190.09	84.48
120	3.00	0.13	18.54	8.24	208.63	92.72
170	3.50	0.09	1.70	0.76	210.33	93.48
200	3.75	0.07	0.10	0.04	210.43	93.52
230	4.00	0.06	0.09	0.04	210.52	93.56

Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
	2.49	2.33	1.95	1.60	1.44	1.11

Moment Statistics	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
	1.9	0.27	0.5	-0.16	3.52

ALABAMA DIVC-11.GPJ FL DEP ROSS.GDT 5/12/11

Granularmetric Report

Depths and elevations based on measured values

Project Name: Dauphin Island Shore Protection

Sample Name: DIVC-11-06 #5

Analysis Date: 01-21-11

Analyzed By: JR

Coastal Planning & Engineering
2481 NW Boca Raton Blvd, Boca Raton
FL 33431
ph (561) 391-8102
fax (561) 391-9116

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
1,724,087	78,872	Alabama State Plane West	-46.2 NAVD 88

USCS:	Munsell:	Comments:
SC	Wet - 2.5Y-4/1 Dry - 2.5Y-5/1 Washed - 2.5Y-7/1	

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
119.00	75.95	0.13	0.05	#200 - 36.59 #230 - 36.34			0

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
5/8"	-4.00	16.00	0.00	0.00	0.00	0.00
7/16"	-3.50	11.31	0.00	0.00	0.00	0.00
5/16"	-3.00	8.00	0.00	0.00	0.00	0.00
3.5	-2.50	5.66	0.00	0.00	0.00	0.00
5	-2.00	4.00	0.00	0.00	0.00	0.00
7	-1.50	2.83	0.00	0.00	0.00	0.00
10	-1.00	2.00	0.02	0.02	0.02	0.02
14	-0.50	1.41	0.01	0.01	0.03	0.03
18	0.00	1.00	0.05	0.04	0.08	0.07
25	0.50	0.71	0.30	0.25	0.38	0.32
35	1.00	0.50	1.25	1.05	1.63	1.37
40	1.25	0.42	1.28	1.08	2.91	2.45
45	1.50	0.35	1.61	1.35	4.52	3.80
50	1.75	0.30	4.58	3.85	9.10	7.65
60	2.00	0.25	5.99	5.03	15.09	12.68
70	2.25	0.21	11.50	9.66	26.59	22.34
80	2.50	0.18	13.86	11.65	40.45	33.99
120	3.00	0.13	26.81	22.53	67.26	56.52
170	3.50	0.09	7.36	6.18	74.62	62.70
200	3.75	0.07	0.84	0.71	75.46	63.41
230	4.00	0.06	0.30	0.25	75.76	63.66

Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
			2.86	2.31	2.09	1.58

Moment	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
Statistics	2.41	0.19	0.58	-0.76	4.57

ALABAMA DIVC-11.GPJ FL DEP ROSS.GDT 5/12/11

Granularmetric Report

Depths and elevations based on measured values

Project Name: Dauphin Island Shore Protection

Sample Name: DIVC-11-07 #1

Analysis Date: 01-20-11

Analyzed By: JR

Coastal Planning & Engineering
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FL 33431
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fax (561) 391-9116

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
1,729,270	76,948	Alabama State Plane West	-39.2 NAVD 88

USCS:	Munsell:	Comments:
SP	Wet - 2.5Y-4/2 Dry - 2.5Y-5/2 Washed - 5Y-7/2	

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
98.56	94.62	0.14	0.06	#200 - 4.64 #230 - 4.20			0

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
5/8"	-4.00	16.00	0.00	0.00	0.00	0.00
7/16"	-3.50	11.31	0.00	0.00	0.00	0.00
5/16"	-3.00	8.00	0.00	0.00	0.00	0.00
3.5	-2.50	5.66	0.00	0.00	0.00	0.00
5	-2.00	4.00	0.00	0.00	0.00	0.00
7	-1.50	2.83	0.04	0.04	0.04	0.04
10	-1.00	2.00	0.02	0.02	0.06	0.06
14	-0.50	1.41	0.08	0.08	0.14	0.14
18	0.00	1.00	0.20	0.20	0.34	0.34
25	0.50	0.71	0.71	0.72	1.05	1.06
35	1.00	0.50	4.31	4.37	5.36	5.43
40	1.25	0.42	5.02	5.09	10.38	10.52
45	1.50	0.35	7.75	7.86	18.13	18.38
50	1.75	0.30	17.24	17.49	35.37	35.87
60	2.00	0.25	16.85	17.10	52.22	52.97
70	2.25	0.21	14.11	14.32	66.33	67.29
80	2.50	0.18	9.96	10.11	76.29	77.40
120	3.00	0.13	15.15	15.37	91.44	92.77
170	3.50	0.09	2.11	2.14	93.55	94.91
200	3.75	0.07	0.44	0.45	93.99	95.36
230	4.00	0.06	0.43	0.44	94.42	95.80

Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
3.55	2.71	2.44	1.96	1.59	1.42	0.95

Moment Statistics	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
	1.95	0.26	0.62	-0.19	4.1

ALABAMA DIVC-11.GPJ FL DEP ROSS.GDT 5/12/11

Granularmetric Report

Depths and elevations based on measured values

Project Name: Dauphin Island Shore Protection

Sample Name: DIVC-11-07 #2

Analysis Date: 01-20-11

Analyzed By: JR

Coastal Planning & Engineering
2481 NW Boca Raton Blvd, Boca Raton
FL 33431
ph (561) 391-8102
fax (561) 391-9116

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
1,729,270	76,948	Alabama State Plane West	-39.9 NAVD 88

USCS:	Munsell:	Comments:
SP	Wet - 5Y-5/1 Dry - 5Y-6/1 Washed - 5Y-7/1	

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
99.88	98.50	0.04	0.08	#200 - 1.60 #230 - 1.51			1

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
5/8"	-4.00	16.00	0.00	0.00	0.00	0.00
7/16"	-3.50	11.31	0.00	0.00	0.00	0.00
5/16"	-3.00	8.00	0.00	0.00	0.00	0.00
3.5	-2.50	5.66	0.07	0.07	0.07	0.07
5	-2.00	4.00	0.32	0.32	0.39	0.39
7	-1.50	2.83	0.37	0.37	0.76	0.76
10	-1.00	2.00	0.42	0.42	1.18	1.18
14	-0.50	1.41	0.56	0.56	1.74	1.74
18	0.00	1.00	0.91	0.91	2.65	2.65
25	0.50	0.71	2.55	2.55	5.20	5.20
35	1.00	0.50	10.09	10.10	15.29	15.30
40	1.25	0.42	7.46	7.47	22.75	22.77
45	1.50	0.35	15.45	15.47	38.20	38.24
50	1.75	0.30	15.31	15.33	53.51	53.57
60	2.00	0.25	16.70	16.72	70.21	70.29
70	2.25	0.21	11.21	11.22	81.42	81.51
80	2.50	0.18	8.94	8.95	90.36	90.46
120	3.00	0.13	7.05	7.06	97.41	97.52
170	3.50	0.09	0.82	0.82	98.23	98.34
200	3.75	0.07	0.06	0.06	98.29	98.40
230	4.00	0.06	0.09	0.09	98.38	98.49

Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.82	2.32	2.10	1.69	1.29	1.02	0.46

Moment Statistics	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
	1.62	0.33	0.76	-1.29	7.5

ALABAMA DIVC-11.GPJ FL DEP ROSS.GDT 5/12/11

Granularmetric Report

Depths and elevations based on measured values

Project Name: Dauphin Island Shore Protection

Sample Name: DIVC-11-07 #3

Analysis Date: 01-20-11

Analyzed By: JR

Coastal Planning & Engineering
2481 NW Boca Raton Blvd, Boca Raton
FL 33431
ph (561) 391-8102
fax (561) 391-9116

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
1,729,270	76,948	Alabama State Plane West	-40.8 NAVD 88

USCS:	Munsell:	Comments:
SP	Wet - 5Y-6/1 Dry - 5Y-7/1 Washed - 5Y-8/1	

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
212.30	203.49	0.03	0.05	#200 - 4.25 #230 - 4.23			0

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
5/8"	-4.00	16.00	0.00	0.00	0.00	0.00
7/16"	-3.50	11.31	0.00	0.00	0.00	0.00
5/16"	-3.00	8.00	0.00	0.00	0.00	0.00
3.5	-2.50	5.66	0.00	0.00	0.00	0.00
5	-2.00	4.00	0.10	0.05	0.10	0.05
7	-1.50	2.83	0.00	0.00	0.10	0.05
10	-1.00	2.00	0.04	0.02	0.14	0.07
14	-0.50	1.41	0.10	0.05	0.24	0.12
18	0.00	1.00	0.39	0.18	0.63	0.30
25	0.50	0.71	1.79	0.84	2.42	1.14
35	1.00	0.50	14.29	6.73	16.71	7.87
40	1.25	0.42	16.40	7.72	33.11	15.59
45	1.50	0.35	27.26	12.84	60.37	28.43
50	1.75	0.30	51.49	24.25	111.86	52.68
60	2.00	0.25	42.83	20.17	154.69	72.85
70	2.25	0.21	27.09	12.76	181.78	85.61
80	2.50	0.18	8.82	4.15	190.60	89.76
120	3.00	0.13	12.05	5.68	202.65	95.44
170	3.50	0.09	0.60	0.28	203.25	95.72
200	3.75	0.07	0.06	0.03	203.31	95.75
230	4.00	0.06	0.04	0.02	203.35	95.77

Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.96	2.22	2.04	1.72	1.43	1.26	0.79

Moment	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
Statistics	1.69	0.31	0.52	-0.37	5.5

ALABAMA DIVC-11.GPJ FL DEP ROSS.GDT 5/12/11

Granularmetric Report

Depths and elevations based on measured values

Project Name: Dauphin Island Shore Protection

Sample Name: DIVC-11-07 #4

Analysis Date: 01-20-11

Analyzed By: JR

Coastal Planning & Engineering
2481 NW Boca Raton Blvd, Boca Raton
FL 33431
ph (561) 391-8102
fax (561) 391-9116

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
1,729,270	76,948	Alabama State Plane West	-41.9 NAVD 88

USCS:	Munsell:	Comments:
SP-SC	Wet - 5Y-4/1 Dry - 5Y-5/1 Washed - 5Y-8/1	

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
216.74	202.11	0.04	0.11	#200 - 6.92 #230 - 6.87			0

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
5/8"	-4.00	16.00	0.00	0.00	0.00	0.00
7/16"	-3.50	11.31	0.00	0.00	0.00	0.00
5/16"	-3.00	8.00	0.00	0.00	0.00	0.00
3.5	-2.50	5.66	0.00	0.00	0.00	0.00
5	-2.00	4.00	0.19	0.09	0.19	0.09
7	-1.50	2.83	0.17	0.08	0.36	0.17
10	-1.00	2.00	0.13	0.06	0.49	0.23
14	-0.50	1.41	0.13	0.06	0.62	0.29
18	0.00	1.00	0.31	0.14	0.93	0.43
25	0.50	0.71	2.07	0.96	3.00	1.39
35	1.00	0.50	14.79	6.82	17.79	8.21
40	1.25	0.42	16.50	7.61	34.29	15.82
45	1.50	0.35	24.85	11.47	59.14	27.29
50	1.75	0.30	47.22	21.79	106.36	49.08
60	2.00	0.25	43.02	19.85	149.38	68.93
70	2.25	0.21	28.01	12.92	177.39	81.85
80	2.50	0.18	13.24	6.11	190.63	87.96
120	3.00	0.13	10.02	4.62	200.65	92.58
170	3.50	0.09	0.93	0.43	201.58	93.01
200	3.75	0.07	0.15	0.07	201.73	93.08
230	4.00	0.06	0.10	0.05	201.83	93.13

Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
	2.34	2.12	1.76	1.45	1.25	0.76

Moment	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
Statistics	1.7	0.31	0.55	-0.77	7.53

ALABAMA DIVC-11.GPJ FL DEP ROSS.GDT 5/12/11

Granularmetric Report

Depths and elevations based on measured values

Project Name: Dauphin Island Shore Protection

Sample Name: DIVC-11-07 #5

Analysis Date: 01-20-11

Analyzed By: JR

Coastal Planning & Engineering
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FL 33431
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fax (561) 391-9116

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
1,729,270	76,948	Alabama State Plane West	-44.7 NAVD 88

USCS:	Munsell:	Comments:
SP	Wet - 5Y-6/1 Dry - 5Y-7/1 Washed - 2.5Y-8/1	

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
203.26	200.42	0.02	0.04	#200 - 1.50 #230 - 1.48			0

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
5/8"	-4.00	16.00	0.00	0.00	0.00	0.00
7/16"	-3.50	11.31	0.00	0.00	0.00	0.00
5/16"	-3.00	8.00	0.00	0.00	0.00	0.00
3.5	-2.50	5.66	0.00	0.00	0.00	0.00
5	-2.00	4.00	0.00	0.00	0.00	0.00
7	-1.50	2.83	0.01	0.00	0.01	0.00
10	-1.00	2.00	0.01	0.00	0.02	0.00
14	-0.50	1.41	0.02	0.01	0.04	0.01
18	0.00	1.00	0.13	0.06	0.17	0.07
25	0.50	0.71	1.04	0.51	1.21	0.58
35	1.00	0.50	9.35	4.60	10.56	5.18
40	1.25	0.42	12.57	6.18	23.13	11.36
45	1.50	0.35	22.05	10.85	45.18	22.21
50	1.75	0.30	47.59	23.41	92.77	45.62
60	2.00	0.25	46.10	22.68	138.87	68.30
70	2.25	0.21	32.63	16.05	171.50	84.35
80	2.50	0.18	16.06	7.90	187.56	92.25
120	3.00	0.13	10.97	5.40	198.53	97.65
170	3.50	0.09	1.61	0.79	200.14	98.44
200	3.75	0.07	0.13	0.06	200.27	98.50
230	4.00	0.06	0.04	0.02	200.31	98.52

Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.75	2.24	2.10	1.80	1.53	1.36	0.98

Moment	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
Statistics	1.79	0.29	0.49	-0.08	4.09

Granularmetric Report

Depths and elevations based on measured values

Project Name: Dauphin Island Shore Protection

Sample Name: DIVC-11-09 #1

Analysis Date: 01-19-11

Analyzed By: JR

Coastal Planning & Engineering
2481 NW Boca Raton Blvd, Boca Raton
FL 33431
ph (561) 391-8102
fax (561) 391-9116

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
1,734,727	80,751	Alabama State Plane West	-35.8 NAVD 88

USCS:	Munsell:	Comments:
SP-SM	Wet - 2.5Y-5/2 Dry - 2.5Y-6/2 Washed - 2.5Y-7/2	

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
129.68	122.96	0.40	0.14	#200 - 6.60 #230 - 5.63			0

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
5/8"	-4.00	16.00	0.00	0.00	0.00	0.00
7/16"	-3.50	11.31	0.00	0.00	0.00	0.00
5/16"	-3.00	8.00	0.00	0.00	0.00	0.00
3.5	-2.50	5.66	0.00	0.00	0.00	0.00
5	-2.00	4.00	0.05	0.04	0.05	0.04
7	-1.50	2.83	0.09	0.07	0.14	0.11
10	-1.00	2.00	0.04	0.03	0.18	0.14
14	-0.50	1.41	0.13	0.10	0.31	0.24
18	0.00	1.00	0.29	0.22	0.60	0.46
25	0.50	0.71	1.62	1.25	2.22	1.71
35	1.00	0.50	10.97	8.46	13.19	10.17
40	1.25	0.42	11.15	8.60	24.34	18.77
45	1.50	0.35	14.21	10.96	38.55	29.73
50	1.75	0.30	23.84	18.38	62.39	48.11
60	2.00	0.25	18.67	14.40	81.06	62.51
70	2.25	0.21	13.82	10.66	94.88	73.17
80	2.50	0.18	9.96	7.68	104.84	80.85
120	3.00	0.13	11.13	8.58	115.97	89.43
170	3.50	0.09	3.77	2.91	119.74	92.34
200	3.75	0.07	1.38	1.06	121.12	93.40
230	4.00	0.06	1.26	0.97	122.38	94.37

Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
	2.68	2.31	1.78	1.39	1.17	0.69

Moment	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
Statistics	1.8	0.29	0.71	0.17	4.29

ALABAMA DIVC-11.GPJ FL DEP ROSS.GDT 5/12/11

Granularmetric Report

Depths and elevations based on measured values

Project Name: Dauphin Island Shore Protection

Sample Name: DIVC-11-09 #2

Analysis Date: 01-19-11

Analyzed By: JR

Coastal Planning & Engineering
2481 NW Boca Raton Blvd, Boca Raton
FL 33431
ph (561) 391-8102
fax (561) 391-9116

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
1,734,727	80,751	Alabama State Plane West	-40.2 NAVD 88

USCS:	Munsell:	Comments:
SP-SM	Wet - 10Y-5/1 Dry - 5Y-6/1 Washed - 2.5Y-8/1	

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
229.70	204.50	0.04	0.11	#200 - 11.17 #230 - 11.11			0

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
5/8"	-4.00	16.00	0.00	0.00	0.00	0.00
7/16"	-3.50	11.31	0.00	0.00	0.00	0.00
5/16"	-3.00	8.00	0.00	0.00	0.00	0.00
3.5	-2.50	5.66	0.00	0.00	0.00	0.00
5	-2.00	4.00	0.00	0.00	0.00	0.00
7	-1.50	2.83	0.00	0.00	0.00	0.00
10	-1.00	2.00	0.01	0.00	0.01	0.00
14	-0.50	1.41	0.05	0.02	0.06	0.02
18	0.00	1.00	0.31	0.13	0.37	0.15
25	0.50	0.71	4.13	1.80	4.50	1.95
35	1.00	0.50	32.69	14.23	37.19	16.18
40	1.25	0.42	22.80	9.93	59.99	26.11
45	1.50	0.35	43.07	18.75	103.06	44.86
50	1.75	0.30	37.95	16.52	141.01	61.38
60	2.00	0.25	32.84	14.30	173.85	75.68
70	2.25	0.21	17.21	7.49	191.06	83.17
80	2.50	0.18	9.10	3.96	200.16	87.13
120	3.00	0.13	3.36	1.46	203.52	88.59
170	3.50	0.09	0.49	0.21	204.01	88.80
200	3.75	0.07	0.06	0.03	204.07	88.83
230	4.00	0.06	0.14	0.06	204.21	88.89

Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
	2.30	1.99	1.58	1.22	0.99	0.61

Moment Statistics	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
	1.49	0.36	0.53	0.02	3.35

ALABAMA DIVC-11.GPJ FL DEP ROSS.GDT 5/12/11

Granularmetric Report

Depths and elevations based on measured values

Project Name: Dauphin Island Shore Protection

Sample Name: DIVC-11-09 #3

Analysis Date: 01-20-11

Analyzed By: JR

Coastal Planning & Engineering
2481 NW Boca Raton Blvd, Boca Raton
FL 33431
ph (561) 391-8102
fax (561) 391-9116

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
1,734,727	80,751	Alabama State Plane West	-42.2 NAVD 88

USCS:	Munsell:	Comments:
SP	Wet - 2.5Y-7/1 Dry - 2.5Y-7/1 Washed - 2.5Y-8/1	

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
109.49	105.34	0.03	0.05	#200 - 3.92 #230 - 3.87			0

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
5/8"	-4.00	16.00	0.00	0.00	0.00	0.00
7/16"	-3.50	11.31	0.00	0.00	0.00	0.00
5/16"	-3.00	8.00	0.00	0.00	0.00	0.00
3.5	-2.50	5.66	0.00	0.00	0.00	0.00
5	-2.00	4.00	0.00	0.00	0.00	0.00
7	-1.50	2.83	0.00	0.00	0.00	0.00
10	-1.00	2.00	0.01	0.01	0.01	0.01
14	-0.50	1.41	0.03	0.03	0.04	0.04
18	0.00	1.00	0.10	0.09	0.14	0.13
25	0.50	0.71	1.35	1.23	1.49	1.36
35	1.00	0.50	11.82	10.80	13.31	12.16
40	1.25	0.42	11.63	10.62	24.94	22.78
45	1.50	0.35	14.41	13.16	39.35	35.94
50	1.75	0.30	23.75	21.69	63.10	57.63
60	2.00	0.25	17.79	16.25	80.89	73.88
70	2.25	0.21	12.24	11.18	93.13	85.06
80	2.50	0.18	4.85	4.43	97.98	89.49
120	3.00	0.13	6.58	6.01	104.56	95.50
170	3.50	0.09	0.55	0.50	105.11	96.00
200	3.75	0.07	0.09	0.08	105.20	96.08
230	4.00	0.06	0.05	0.05	105.25	96.13

Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.96	2.23	2.03	1.66	1.29	1.09	0.67

Moment	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
Statistics	1.63	0.32	0.56	0.09	3.3

ALABAMA DIVC-11.GPJ FL DEP ROSS.GDT 5/12/11

Granularmetric Report

Depths and elevations based on measured values

Project Name: Dauphin Island Shore Protection

Sample Name: DIVC-11-09 #4

Analysis Date: 01-19-11

Analyzed By: JR

Coastal Planning & Engineering
2481 NW Boca Raton Blvd, Boca Raton
FL 33431
ph (561) 391-8102
fax (561) 391-9116

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
1,734,727	80,751	Alabama State Plane West	-43.3 NAVD 88

USCS:	Munsell:	Comments:
SC	Wet - 10Y-5/1 Dry - 10Y-7/1 Washed - 2.5Y-8/1	

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
181.90	152.83	0.02	0.06	#200 - 16.08 #230 - 16.04			0

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
5/8"	-4.00	16.00	0.00	0.00	0.00	0.00
7/16"	-3.50	11.31	0.00	0.00	0.00	0.00
5/16"	-3.00	8.00	0.00	0.00	0.00	0.00
3.5	-2.50	5.66	0.00	0.00	0.00	0.00
5	-2.00	4.00	0.00	0.00	0.00	0.00
7	-1.50	2.83	0.00	0.00	0.00	0.00
10	-1.00	2.00	0.03	0.02	0.03	0.02
14	-0.50	1.41	0.01	0.01	0.04	0.03
18	0.00	1.00	0.04	0.02	0.08	0.05
25	0.50	0.71	0.56	0.31	0.64	0.36
35	1.00	0.50	9.70	5.33	10.34	5.69
40	1.25	0.42	9.45	5.20	19.79	10.89
45	1.50	0.35	22.24	12.23	42.03	23.12
50	1.75	0.30	26.56	14.60	68.59	37.72
60	2.00	0.25	30.67	16.86	99.26	54.58
70	2.25	0.21	24.50	13.47	123.76	68.05
80	2.50	0.18	17.41	9.57	141.17	77.62
120	3.00	0.13	10.03	5.51	151.20	83.13
170	3.50	0.09	1.34	0.74	152.54	83.87
200	3.75	0.07	0.09	0.05	152.63	83.92
230	4.00	0.06	0.07	0.04	152.70	83.96

Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
		2.43	1.93	1.53	1.35	0.94

Moment Statistics	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
	1.8	0.29	0.53	-0.07	3.36

ALABAMA DIVC-11.GPJ FL DEP ROSS.GDT 5/12/11

Granularmetric Report

Depths and elevations based on measured values

Project Name: Dauphin Island Shore Protection

Sample Name: DIVC-11-11 #1

Analysis Date: 01-19-11

Analyzed By: JR

Coastal Planning & Engineering
2481 NW Boca Raton Blvd, Boca Raton
FL 33431
ph (561) 391-8102
fax (561) 391-9116

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
1,755,321	84,381	Alabama State Plane West	-33.0 NAVD 88

USCS:	Munsell:	Comments:
SW-SC	Wet - 5Y-4/1 Dry - 5Y-5/1 Washed - 5Y-7/1	

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
179.10	164.93	0.07	0.14	#200 - 8.32 #230 - 8.10			2

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
5/8"	-4.00	16.00	0.00	0.00	0.00	0.00
7/16"	-3.50	11.31	0.00	0.00	0.00	0.00
5/16"	-3.00	8.00	0.79	0.44	0.79	0.44
3.5	-2.50	5.66	1.56	0.87	2.35	1.31
5	-2.00	4.00	1.01	0.56	3.36	1.87
7	-1.50	2.83	1.82	1.02	5.18	2.89
10	-1.00	2.00	2.30	1.28	7.48	4.17
14	-0.50	1.41	2.80	1.56	10.28	5.73
18	0.00	1.00	2.68	1.50	12.96	7.23
25	0.50	0.71	4.52	2.52	17.48	9.75
35	1.00	0.50	16.91	9.44	34.39	19.19
40	1.25	0.42	18.18	10.15	52.57	29.34
45	1.50	0.35	22.39	12.50	74.96	41.84
50	1.75	0.30	30.55	17.06	105.51	58.90
60	2.00	0.25	18.74	10.46	124.25	69.36
70	2.25	0.21	10.73	5.99	134.98	75.35
80	2.50	0.18	8.41	4.70	143.39	80.05
120	3.00	0.13	11.89	6.64	155.28	86.69
170	3.50	0.09	7.85	4.38	163.13	91.07
200	3.75	0.07	1.09	0.61	164.22	91.68
230	4.00	0.06	0.39	0.22	164.61	91.90

Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
	2.80	2.24	1.62	1.14	0.83	-0.73

Moment	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
Statistics	1.45	0.37	1.11	-1.39	6.62

ALABAMA DIVC-11.GPJ FL DEP ROSS.GDT 5/12/11

Granularmetric Report

Depths and elevations based on measured values

Project Name: Dauphin Island Shore Protection

Sample Name: DIVC-11-11 #2

Analysis Date: 01-19-11

Analyzed By: JR

Coastal Planning & Engineering
2481 NW Boca Raton Blvd, Boca Raton
FL 33431
ph (561) 391-8102
fax (561) 391-9116

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
1,755,321	84,381	Alabama State Plane West	-36.0 NAVD 88

USCS:	Munsell:	Comments:
SM-SC	Wet - 5Y-4/1 Dry - 5Y-6/1 Washed - 2.5Y-7/1	

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
232.00	203.61	0.03	0.09	#200 - 12.39 #230 - 12.36			1

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
5/8"	-4.00	16.00	0.00	0.00	0.00	0.00
7/16"	-3.50	11.31	0.00	0.00	0.00	0.00
5/16"	-3.00	8.00	1.19	0.51	1.19	0.51
3.5	-2.50	5.66	0.25	0.11	1.44	0.62
5	-2.00	4.00	0.47	0.20	1.91	0.82
7	-1.50	2.83	2.44	1.05	4.35	1.87
10	-1.00	2.00	2.75	1.19	7.10	3.06
14	-0.50	1.41	2.51	1.08	9.61	4.14
18	0.00	1.00	2.44	1.05	12.05	5.19
25	0.50	0.71	3.36	1.45	15.41	6.64
35	1.00	0.50	14.28	6.16	29.69	12.80
40	1.25	0.42	15.50	6.68	45.19	19.48
45	1.50	0.35	24.44	10.53	69.63	30.01
50	1.75	0.30	39.76	17.14	109.39	47.15
60	2.00	0.25	32.35	13.94	141.74	61.09
70	2.25	0.21	24.65	10.63	166.39	71.71
80	2.50	0.18	19.20	8.28	185.59	79.99
120	3.00	0.13	15.64	6.74	201.23	86.73
170	3.50	0.09	1.91	0.82	203.14	87.55
200	3.75	0.07	0.15	0.06	203.29	87.61
230	4.00	0.06	0.08	0.03	203.37	87.64

Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
	2.80	2.35	1.80	1.38	1.12	-0.09

Moment Statistics	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
	1.57	0.34	0.94	-2.02	9.27

ALABAMA DIVC-11.GPJ FL DEP ROSS.GDT 5/12/11

Granularmetric Report

Depths and elevations based on measured values

Project Name: Dauphin Island Shore Protection

Sample Name: DIVC-11-11 #3

Analysis Date: 01-21-11

Analyzed By: JR

Coastal Planning & Engineering
2481 NW Boca Raton Blvd, Boca Raton
FL 33431
ph (561) 391-8102
fax (561) 391-9116

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
1,755,321	84,381	Alabama State Plane West	-39.2 NAVD 88

USCS:	Munsell:	Comments:
SP	Wet - 5Y-4/1 Dry - 5Y-5/1 Washed - 2.5Y-7/1	1.0" whole shell and 0.75" shell fragment removed prior to sieving

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
100.81	96.66	0.01	0.02	#200 - 4.18 #230 - 4.15			1

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
5/8"	-4.00	16.00	0.00	0.00	0.00	0.00
7/16"	-3.50	11.31	0.00	0.00	0.00	0.00
5/16"	-3.00	8.00	0.00	0.00	0.00	0.00
3.5	-2.50	5.66	0.00	0.00	0.00	0.00
5	-2.00	4.00	0.19	0.19	0.19	0.19
7	-1.50	2.83	1.17	1.16	1.36	1.35
10	-1.00	2.00	0.16	0.16	1.52	1.51
14	-0.50	1.41	2.23	2.21	3.75	3.72
18	0.00	1.00	1.24	1.23	4.99	4.95
25	0.50	0.71	1.61	1.60	6.60	6.55
35	1.00	0.50	6.30	6.25	12.90	12.80
40	1.25	0.42	7.88	7.82	20.78	20.62
45	1.50	0.35	16.02	15.89	36.80	36.51
50	1.75	0.30	17.48	17.34	54.28	53.85
60	2.00	0.25	15.02	14.90	69.30	68.75
70	2.25	0.21	10.90	10.81	80.20	79.56
80	2.50	0.18	9.62	9.54	89.82	89.10
120	3.00	0.13	5.83	5.78	95.65	94.88
170	3.50	0.09	0.89	0.88	96.54	95.76
200	3.75	0.07	0.06	0.06	96.60	95.82
230	4.00	0.06	0.03	0.03	96.63	95.85

Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
3.07	2.37	2.14	1.69	1.32	1.10	0.02

Moment Statistics	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
	1.59	0.33	0.82	-1.55	7.23

ALABAMA DIVC-11.GPJ FL DEP ROSS.GDT 5/12/11

Granularmetric Report

Depths and elevations based on measured values

Project Name: Dauphin Island Shore Protection

Sample Name: DIVC-11-11 #4

Analysis Date: 01-19-11

Analyzed By: JR

Coastal Planning & Engineering
2481 NW Boca Raton Blvd, Boca Raton
FL 33431
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fax (561) 391-9116

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
1,755,321	84,381	Alabama State Plane West	-42.0 NAVD 88

USCS:	Munsell:	Comments:
SW-SC	Wet - 5Y-5/1 Dry - 5Y-5/1 Washed - 5Y-7/1	

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
200.14	181.12	0.10	0.12	#200 - 9.80 #230 - 9.70			1

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
5/8"	-4.00	16.00	0.00	0.00	0.00	0.00
7/16"	-3.50	11.31	0.00	0.00	0.00	0.00
5/16"	-3.00	8.00	1.63	0.81	1.63	0.81
3.5	-2.50	5.66	0.62	0.31	2.25	1.12
5	-2.00	4.00	0.24	0.12	2.49	1.24
7	-1.50	2.83	1.37	0.68	3.86	1.92
10	-1.00	2.00	1.67	0.83	5.53	2.75
14	-0.50	1.41	2.34	1.17	7.87	3.92
18	0.00	1.00	2.55	1.27	10.42	5.19
25	0.50	0.71	2.86	1.43	13.28	6.62
35	1.00	0.50	4.13	2.06	17.41	8.68
40	1.25	0.42	2.22	1.11	19.63	9.79
45	1.50	0.35	4.74	2.37	24.37	12.16
50	1.75	0.30	8.14	4.07	32.51	16.23
60	2.00	0.25	21.32	10.65	53.83	26.88
70	2.25	0.21	36.41	18.19	90.24	45.07
80	2.50	0.18	45.30	22.63	135.54	67.70
120	3.00	0.13	38.75	19.36	174.29	87.06
170	3.50	0.09	5.86	2.93	180.15	89.99
200	3.75	0.07	0.42	0.21	180.57	90.20
230	4.00	0.06	0.21	0.10	180.78	90.30

Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
	2.92	2.69	2.30	1.96	1.74	-0.07

Moment	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
Statistics	2.02	0.25	1.03	-2.71	11.91

ALABAMA DIVC-11.GPJ FL DEP ROSS.GDT 5/12/11

Granularmetric Report

Depths and elevations based on measured values

Project Name: Dauphin Island Shore Protection

Sample Name: DIVC-11-11 #5

Analysis Date: 01-20-11

Analyzed By: JR

Coastal Planning & Engineering
2481 NW Boca Raton Blvd, Boca Raton
FL 33431
ph (561) 391-8102
fax (561) 391-9116

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
1,755,321	84,381	Alabama State Plane West	-43.9 NAVD 88

USCS:	Munsell:	Comments:
SC	Wet - 5Y-3/1 Dry - 5Y-5/1 Washed - 5Y-6/1	

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
203.66	179.26	0.30	0.03	#200 - 12.69 #230 - 12.17			3

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
1"	-4.75	26.91	0.00	0.00	0.00	0.00
5/8"	-4.00	16.00	1.87	0.92	1.87	0.92
7/16"	-3.50	11.31	4.64	2.28	6.51	3.20
5/16"	-3.00	8.00	2.41	1.18	8.92	4.38
3.5	-2.50	5.66	3.80	1.87	12.72	6.25
5	-2.00	4.00	3.02	1.48	15.74	7.73
7	-1.50	2.83	4.08	2.00	19.82	9.73
10	-1.00	2.00	3.62	1.78	23.44	11.51
14	-0.50	1.41	3.89	1.91	27.33	13.42
18	0.00	1.00	3.22	1.58	30.55	15.00
25	0.50	0.71	3.20	1.57	33.75	16.57
35	1.00	0.50	3.09	1.52	36.84	18.09
40	1.25	0.42	1.29	0.63	38.13	18.72
45	1.50	0.35	1.33	0.65	39.46	19.37
50	1.75	0.30	2.33	1.14	41.79	20.51
60	2.00	0.25	4.25	2.09	46.04	22.60
70	2.25	0.21	10.40	5.11	56.44	27.71
80	2.50	0.18	21.81	10.71	78.25	38.42
120	3.00	0.13	71.98	35.34	150.23	73.76
170	3.50	0.09	24.83	12.19	175.06	85.95
200	3.75	0.07	2.77	1.36	177.83	87.31
230	4.00	0.06	1.06	0.52	178.89	87.83

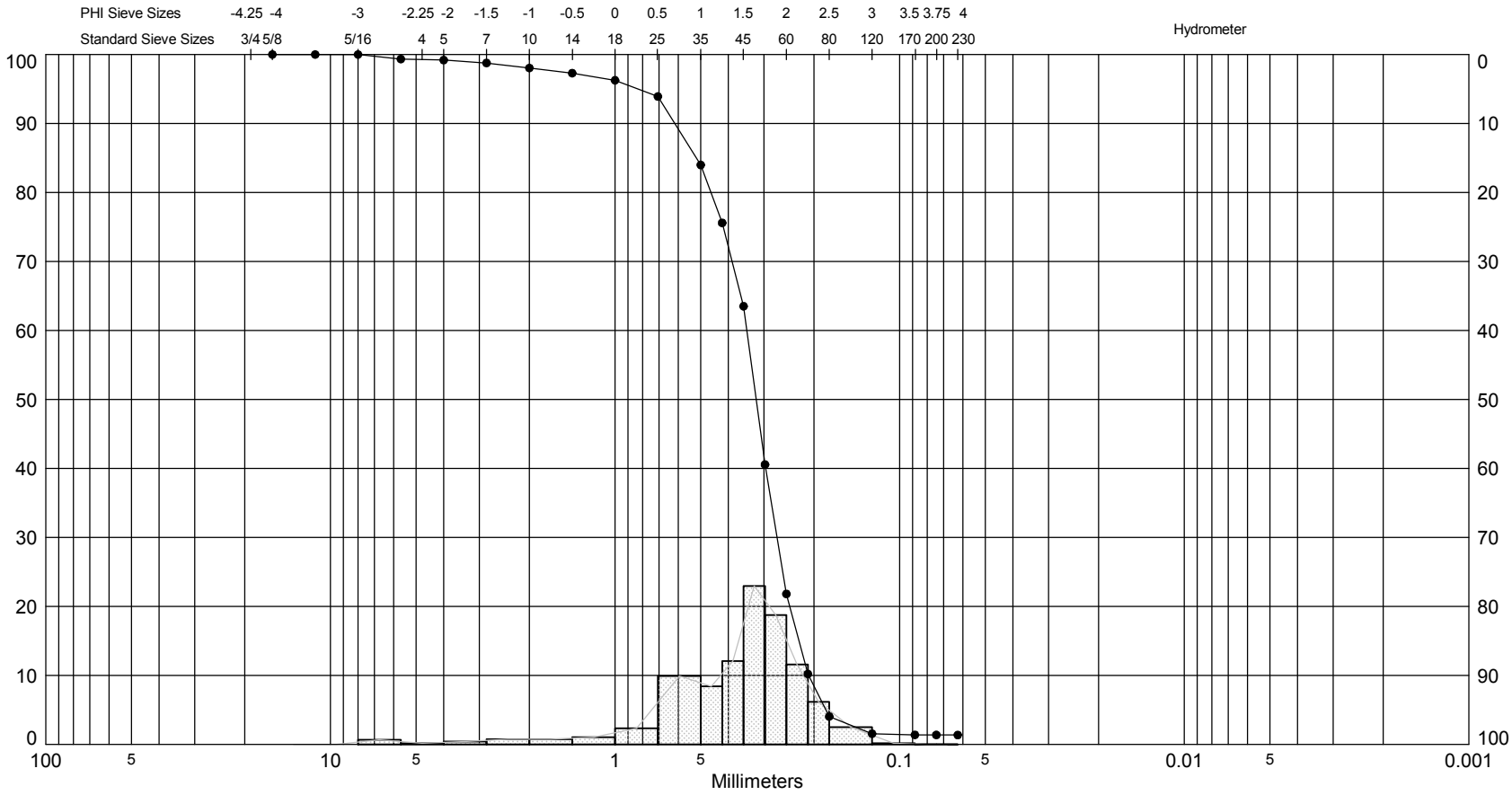
Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
	3.42	3.05	2.66	2.12	0.32	-2.83

Moment Statistics	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
	1.78	0.29	1.95	-1.73	4.81

ALABAMA DIVC-11.GPJ FL DEP ROSS.GDT 5/12/11

APPENDIX 11
2010/2011 CPE Individual Vibracore Grain Size Distribution Curves/Histograms



Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
DIVC-10-01 #1	—●—	-15.5	SP	#200 - 1.37 #230 - 1.36			1.65	1.51	-2.2	11.27	0.77

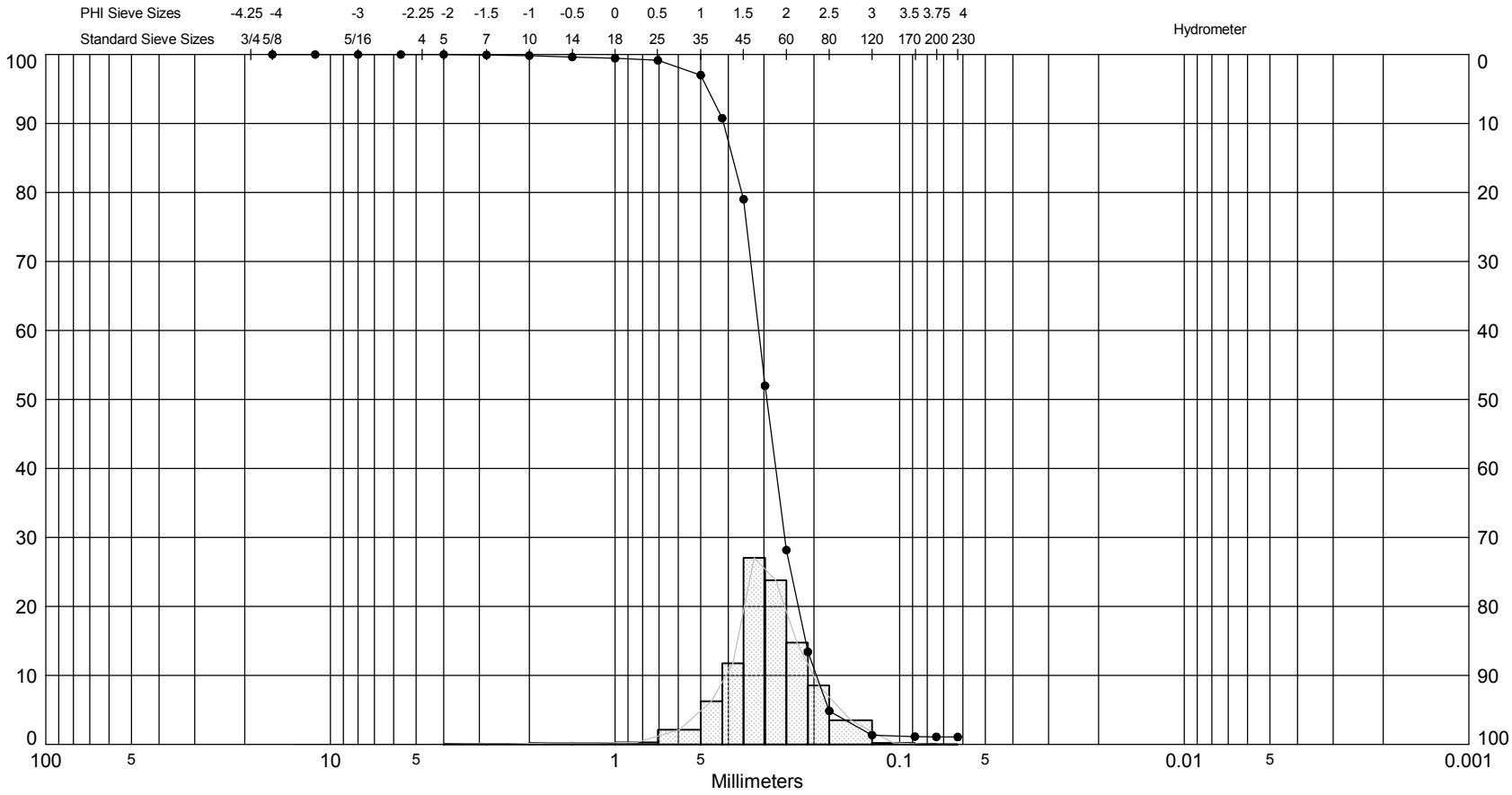
Comments:

Depths and elevations based on measured values

Coastal Planning & Engineering
2481 NW Boca Raton Blvd, Boca Raton
FL 33431
ph (561) 391-8102
fax (561) 391-9116

Sample Information	
Project Name:	Dauphin Island Shore Protection
Analysis Date:	02-22-10
Analyzed By:	GL
Easting (X, ft):	1,789,858
Northing (Y, ft):	67,263
Horizontal System:	NAD 1983
Vertical System:	NAVD 88

SIEVE ANALYSIS DIVC-10.GPJ JPBRAZIL.GDT 3/14/11



Gravel		Sand			Silt and Clay
Coarse	Fine	Coarse	Medium	Fine	

Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
DIVC-10-01 #2	—●—	-17.5	SP	#200 - 1.09 #230 - 1.07			1.77	1.77	-0.94	9.21	0.46

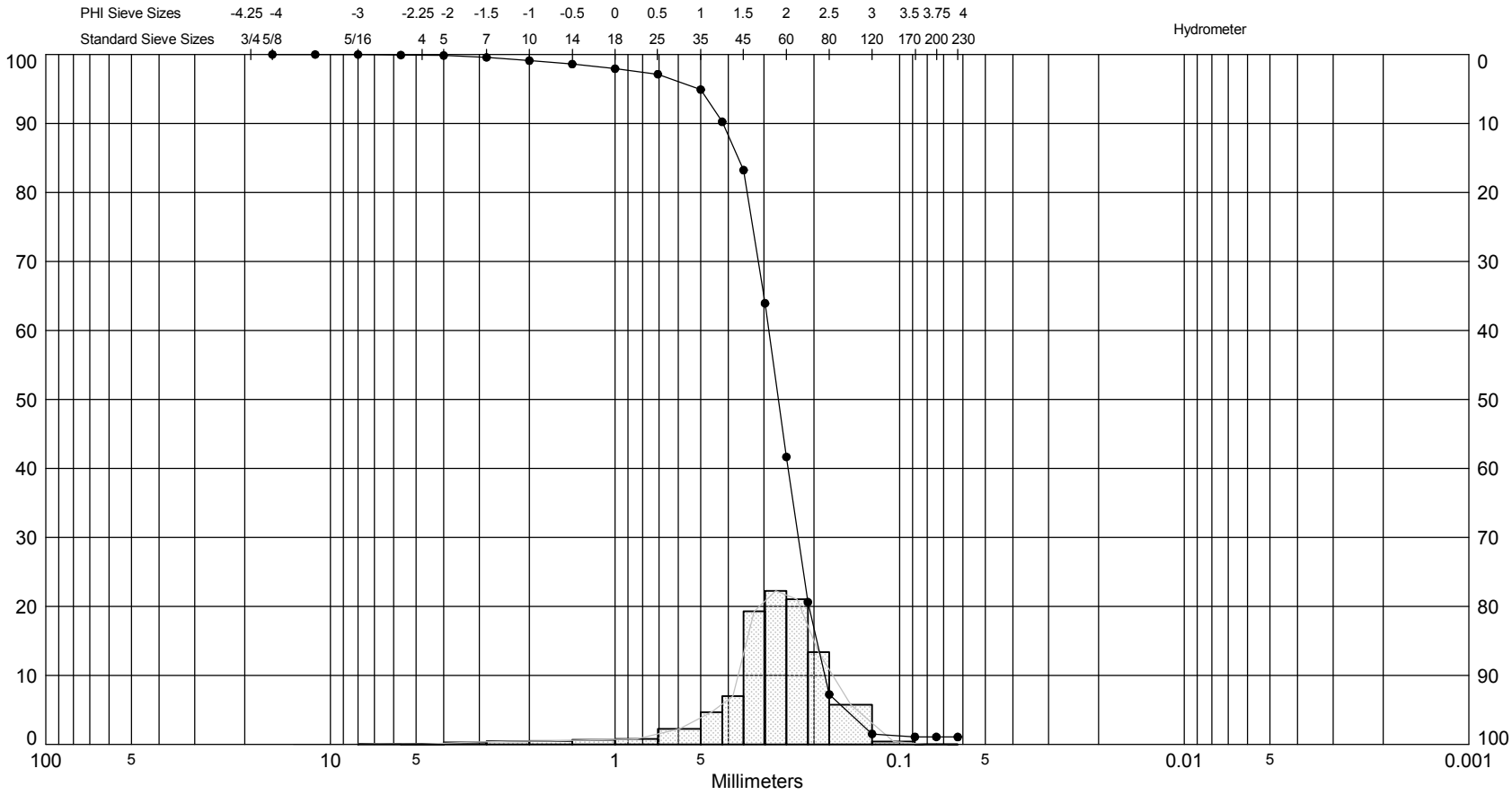
Comments:

Depths and elevations based on measured values

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Sample Information	
Project Name:	Dauphin Island Shore Protection
Analysis Date:	02-23-10
Analyzed By:	GL
Easting (X, ft):	1,789,858
Northing (Y, ft):	67,263
Horizontal System:	NAD 1983
Vertical System:	NAVD 88

SIEVE ANALYSIS DIVC-10.GPJ JPBRAZIL.GDT 3/14/11



Gravel		Sand			Silt and Clay
Coarse	Fine	Coarse	Medium	Fine	

Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
DIVC-10-01 #3	—●—	-18.8	SP	#200 - 1.08 #230 - 1.07			1.91	1.84	-2.28	13.33	0.62

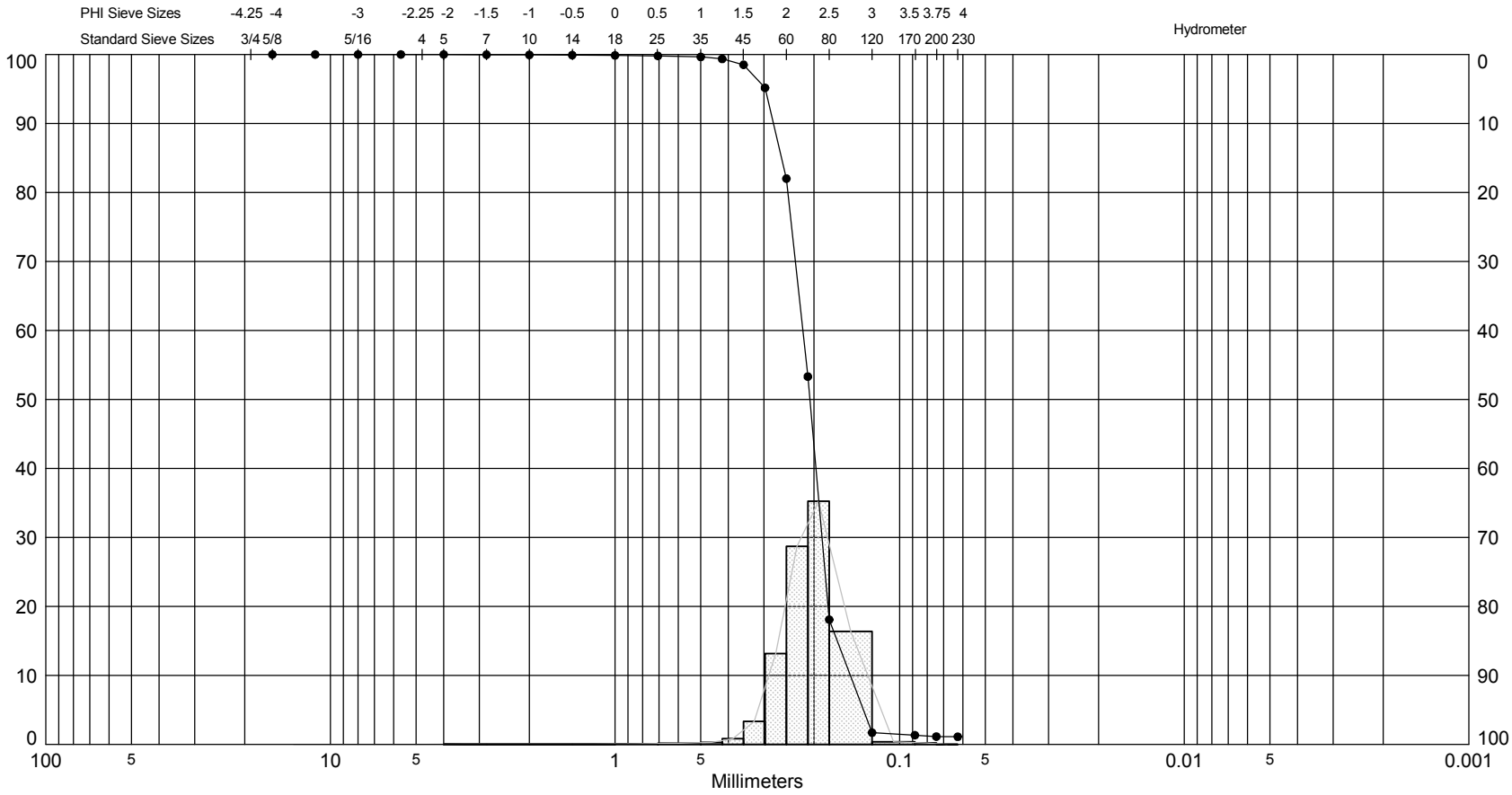
Comments:

Depths and elevations based on measured values

Coastal Planning & Engineering
2481 NW Boca Raton Blvd, Boca Raton
FL 33431
ph (561) 391-8102
fax (561) 391-9116

Sample Information	
Project Name:	Dauphin Island Shore Protection
Analysis Date:	02-23-10
Analyzed By:	GL
Easting (X, ft):	1,789,858
Northing (Y, ft):	67,263
Horizontal System:	NAD 1983
Vertical System:	NAVD 88

SIEVE ANALYSIS DIVC-10.GPJ JPBRAZIL.GDT 3/14/11



Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
DIVC-10-01 #4	—●—	-20.8	SP	#200 - 1.13 #230 - 1.11			2.27	2.26	-1.35	15.61	0.35

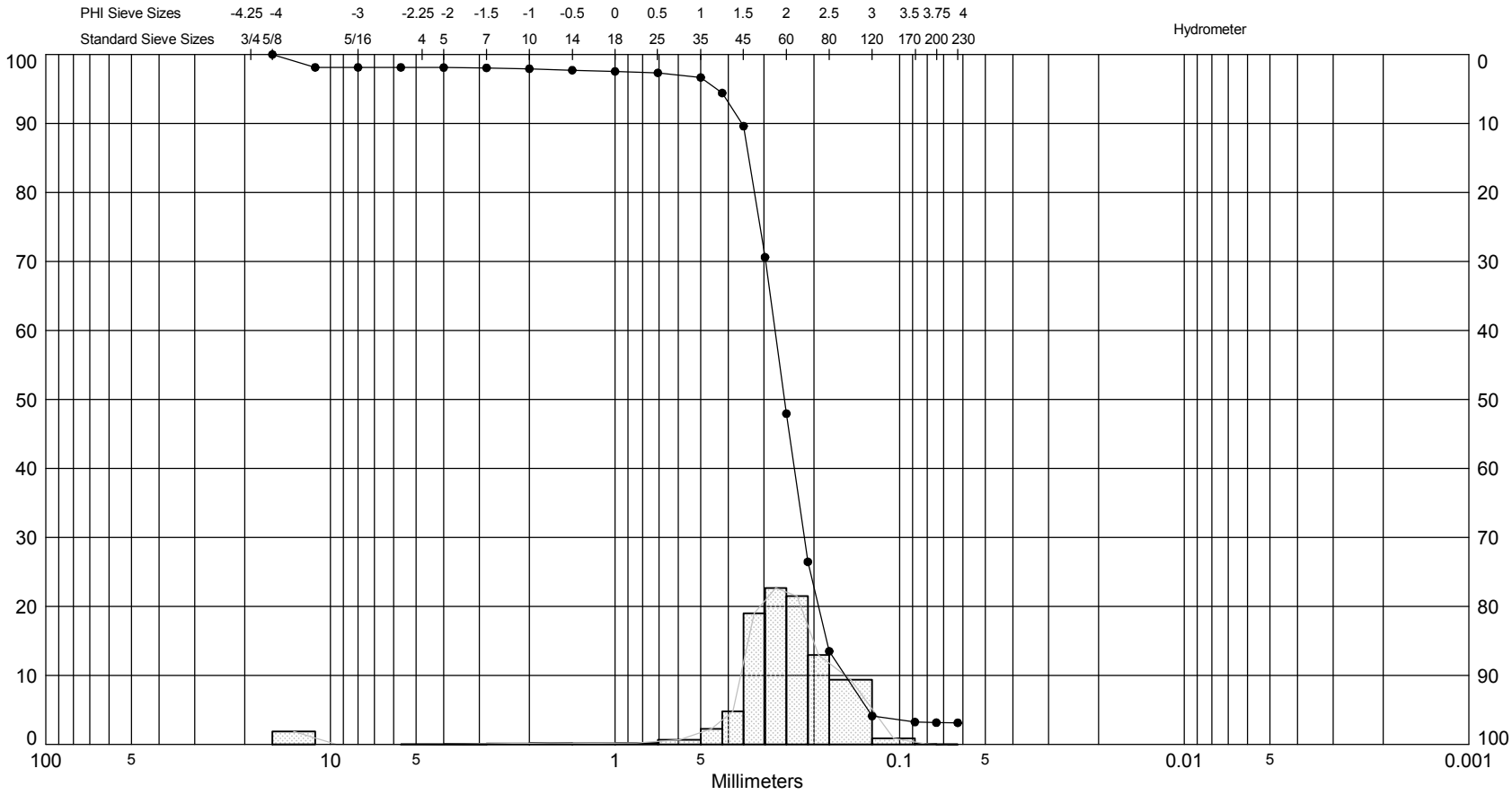
Comments:

Depths and elevations based on measured values

Sample Information	
Project Name:	Dauphin Island Shore Protection
Analysis Date:	02-23-10
Analyzed By:	GL
Easting (X, ft):	1,789,858
Northing (Y, ft):	67,263
Horizontal System:	NAD 1983
Vertical System:	NAVD 88

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SIEVE ANALYSIS DIVC-10.GPJ JPBRAZIL.GDT 3/14/11



Gravel		Sand			Silt and Clay
Coarse	Fine	Coarse	Medium	Fine	

Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
DIVC-10-01 #5	—●—	-24.3	SW	#200 - 3.15 #230 - 3.13			1.98	1.87	-4.43	27.29	0.92

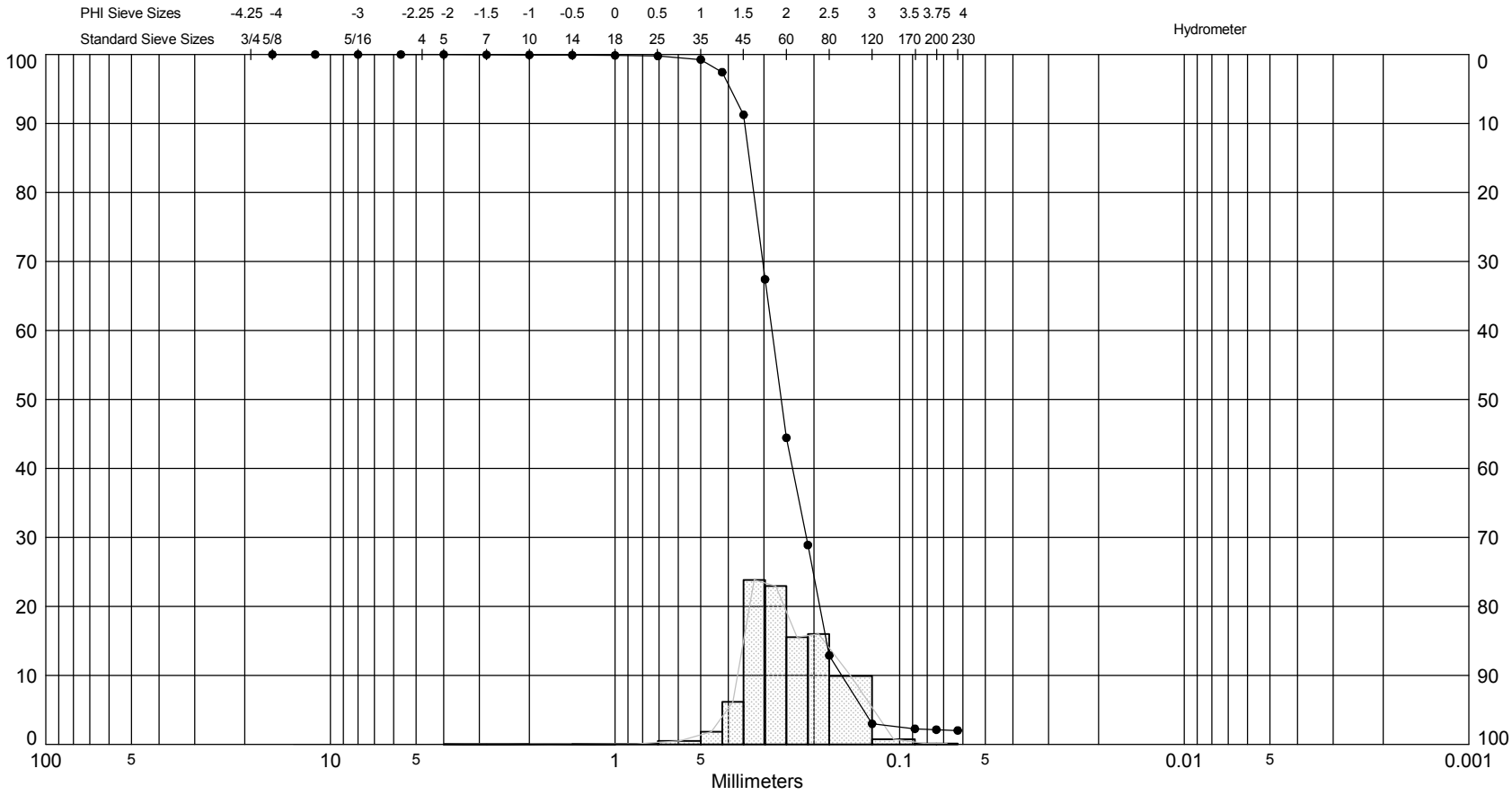
Comments:

Depths and elevations based on measured values

Sample Information	
Project Name:	Dauphin Island Shore Protection
Analysis Date:	02-23-10
Analyzed By:	GL
Easting (X, ft):	1,789,858
Northing (Y, ft):	67,263
Horizontal System:	NAD 1983
Vertical System:	NAVD 88

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SIEVE ANALYSIS DIVC-10.GPJ JPBRAZIL.GDT 3/14/11



Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
DIVC-10-01 #6	—●—	-27.3	SP	#200 - 2.13 #230 - 2.02			1.94	1.98	-0.05	6.18	0.45

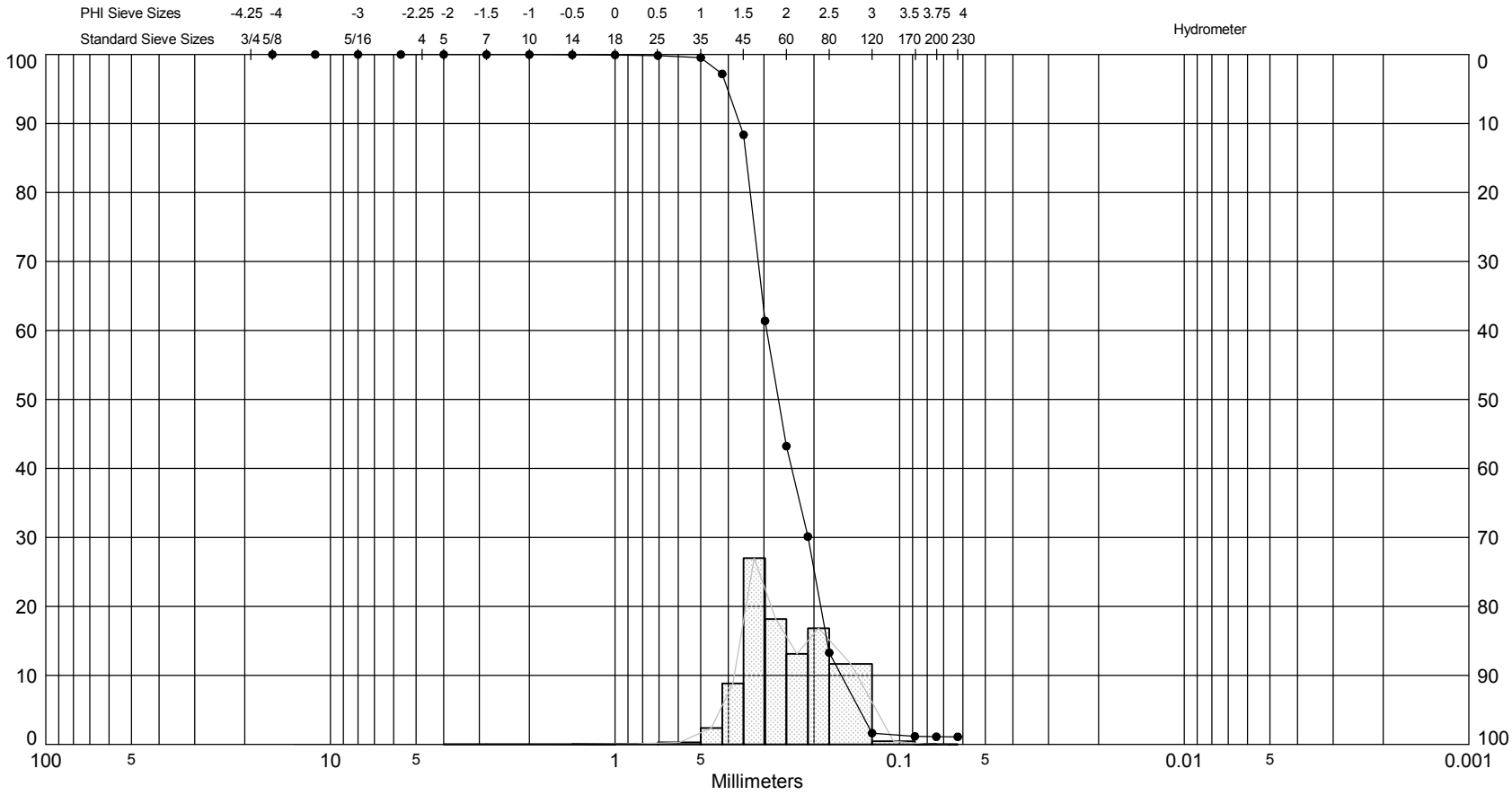
Comments:

Depths and elevations based on measured values

Sample Information	
Project Name:	Dauphin Island Shore Protection
Analysis Date:	02-23-10
Analyzed By:	GL
Easting (X, ft):	1,789,858
Northing (Y, ft):	67,263
Horizontal System:	NAD 1983
Vertical System:	NAVD 88

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SIEVE ANALYSIS DIVC-10.GPJ JPBRAZIL.GDT 3/14/11



Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
DIVC-10-01 #7	—●—	-29.8	SP	#200 - 1.11 #230 - 1.10			1.91	1.97	0.13	3.68	0.46

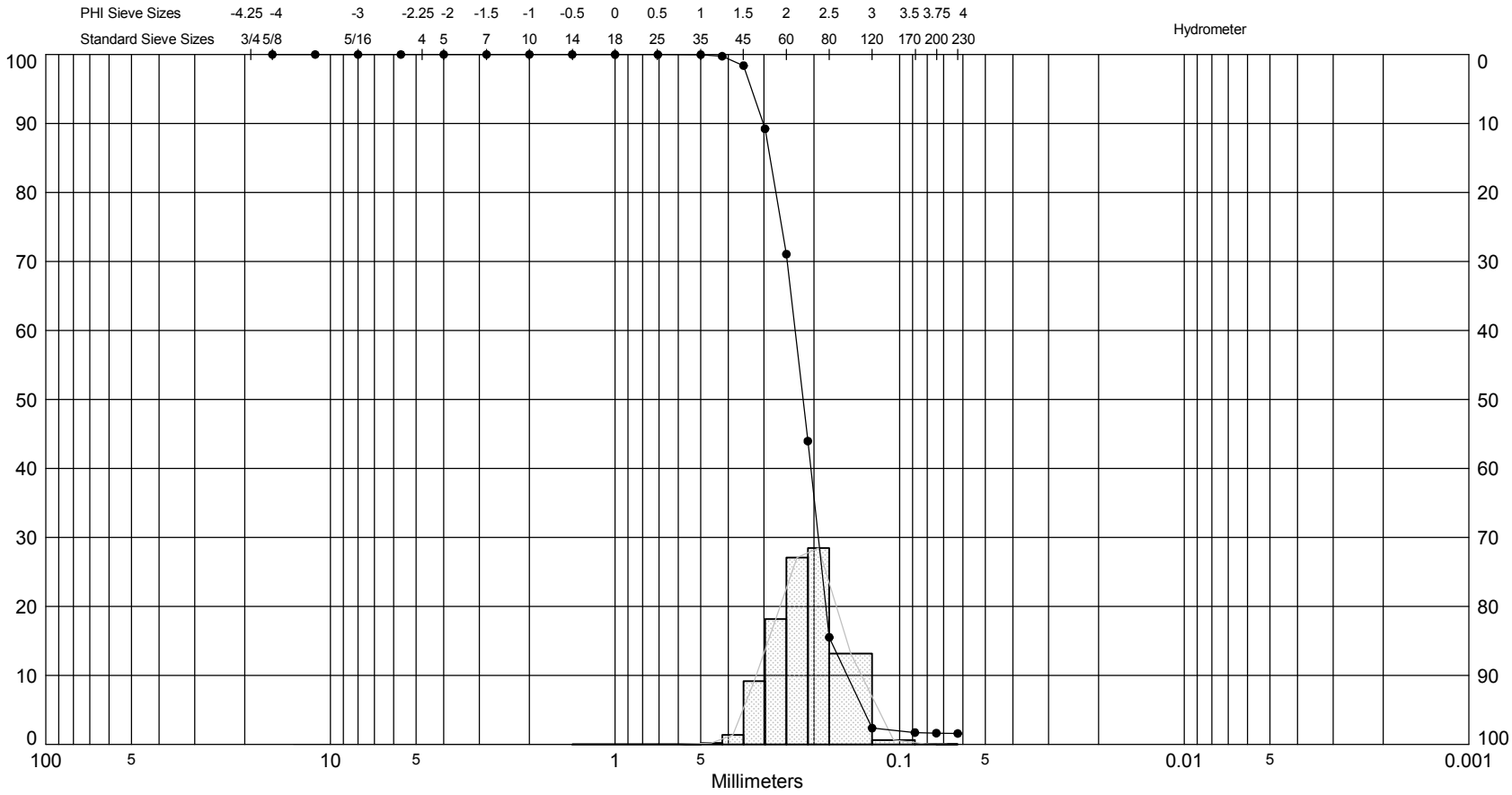
Comments:

Depths and elevations based on measured values

Coastal Planning & Engineering
2481 NW Boca Raton Blvd, Boca Raton
FL 33431
ph (561) 391-8102
fax (561) 391-9116

Sample Information	
Project Name:	Dauphin Island Shore Protection
Analysis Date:	02-23-10
Analyzed By:	GL
Easting (X, ft):	1,789,858
Northing (Y, ft):	67,263
Horizontal System:	NAD 1983
Vertical System:	NAVD 88

SIEVE ANALYSIS DIVC-10.GPJ JPBRAZIL.GDT 3/14/11



Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
DIVC-10-01 #8	—●—	-32.5	SP	#200 - 1.63 #230 - 1.58			2.19	2.18	0.11	3.6	0.35

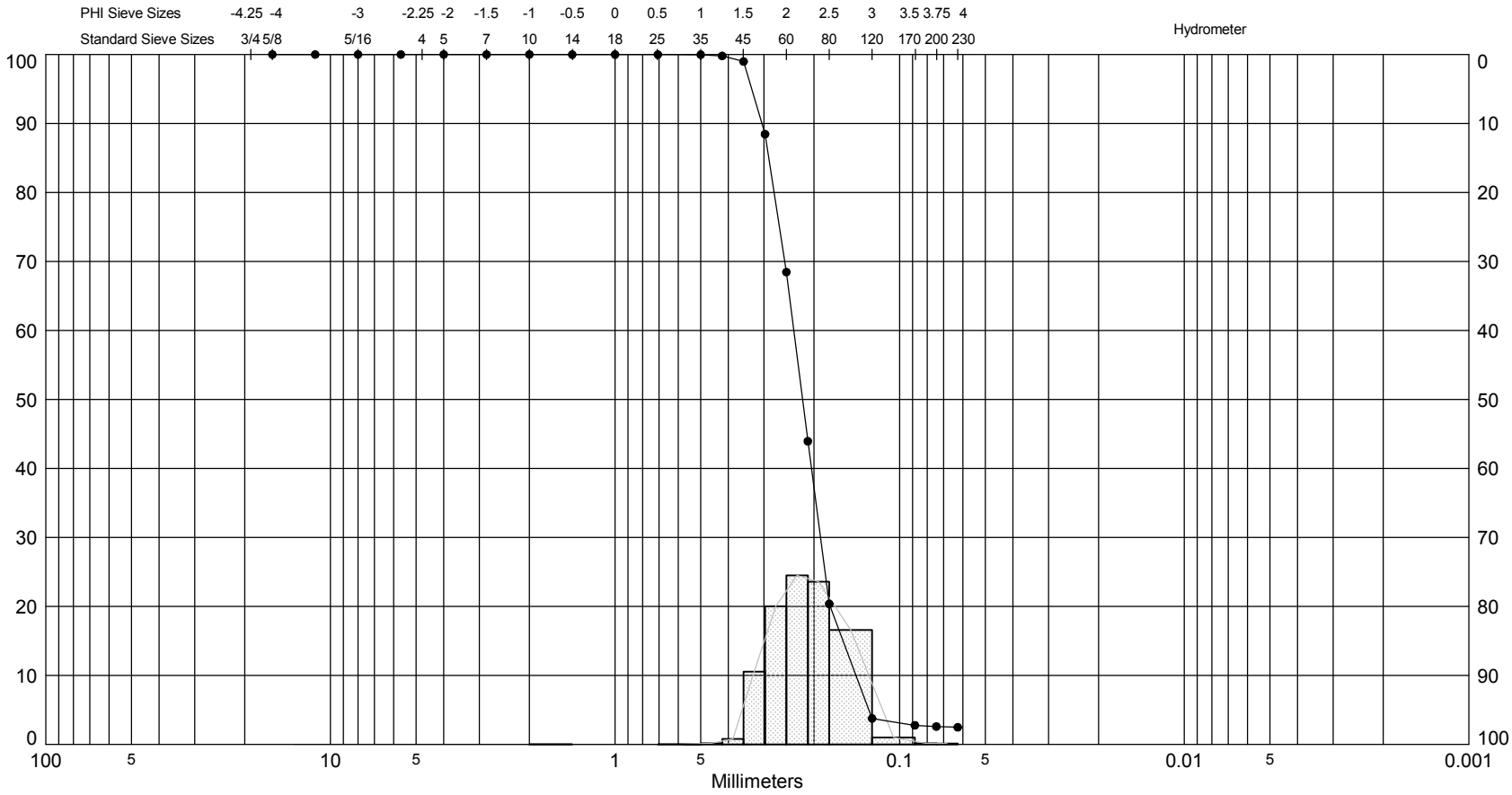
Comments:

Depths and elevations based on measured values

Coastal Planning & Engineering
2481 NW Boca Raton Blvd, Boca Raton
FL 33431
ph (561) 391-8102
fax (561) 391-9116

Sample Information	
Project Name:	Dauphin Island Shore Protection
Analysis Date:	02-23-10
Analyzed By:	GL
Easting (X, ft):	1,789,858
Northing (Y, ft):	67,263
Horizontal System:	NAD 1983
Vertical System:	NAVD 88

SIEVE ANALYSIS DIVC-10.GPJ JPBRAZIL.GDT 3/14/11



Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
DIVC-10-01 #9	—●—	-33.8	SP	#200 - 2.59 #230 - 2.48			2.19	2.19	0.3	3.56	0.38

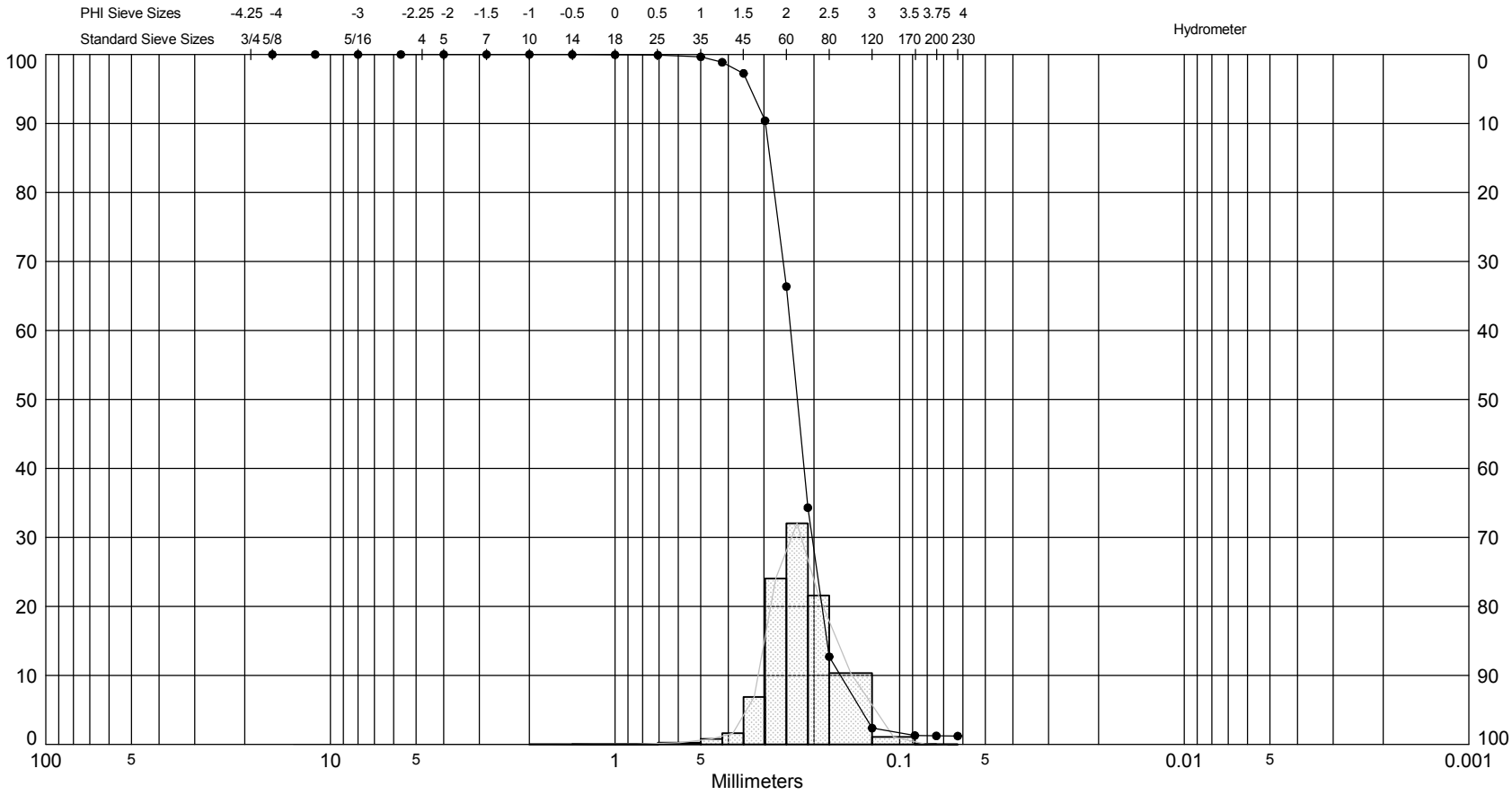
Comments:

Depths and elevations based on measured values

Coastal Planning & Engineering
2481 NW Boca Raton Blvd, Boca Raton
FL 33431
ph (561) 391-8102
fax (561) 391-9116

Sample Information	
Project Name:	Dauphin Island Shore Protection
Analysis Date:	02-23-10
Analyzed By:	GL
Easting (X, ft):	1,789,858
Northing (Y, ft):	67,263
Horizontal System:	NAD 1983
Vertical System:	NAVD 88

SIEVE ANALYSIS DIVC-10.GPJ JPBRAZIL.GDT 3/14/11



Gravel		Sand			Silt and Clay
Coarse	Fine	Coarse	Medium	Fine	

Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
DIVC-10-02 #1	—●—	-33.3	SP	#200 - 1.23 #230 - 1.21			2.13	2.14	-0.03	5.44	0.36

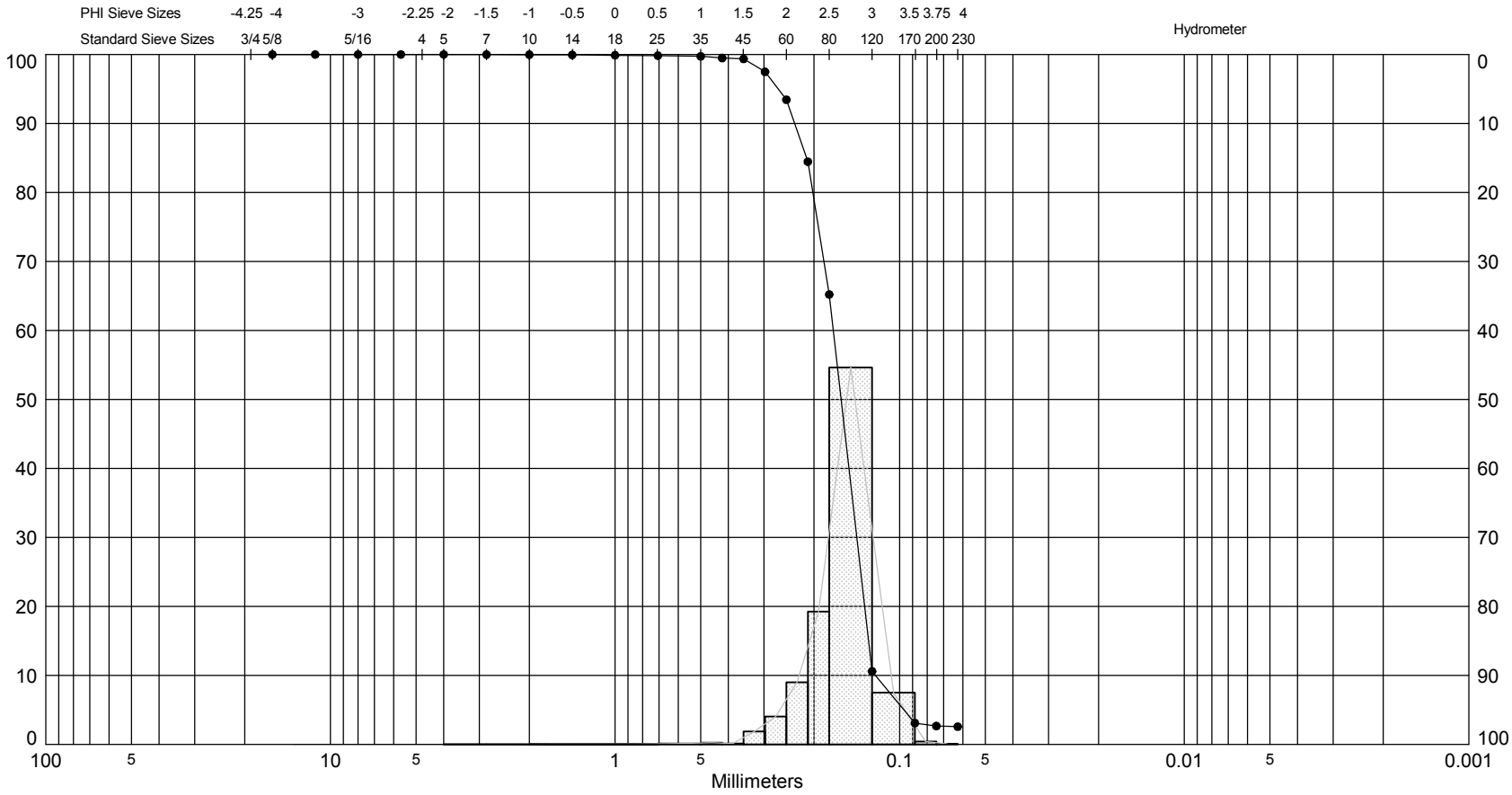
Comments:

Depths and elevations based on measured values

Coastal Planning & Engineering
2481 NW Boca Raton Blvd, Boca Raton
FL 33431
ph (561) 391-8102
fax (561) 391-9116

Sample Information	
Project Name:	Dauphin Island Shore Protection
Analysis Date:	02-23-10
Analyzed By:	GL
Easting (X, ft):	1,793,769
Northing (Y, ft):	62,457
Horizontal System:	NAD 1983
Vertical System:	NAVD 88

SIEVE ANALYSIS DIVC-10.GPJ JPBRAZIL.GDT 3/14/11



Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
DIVC-10-02 #2	—●—	-36.8	SP	#200 - 2.66 #230 - 2.57			2.64	2.59	-1.44	11.77	0.39

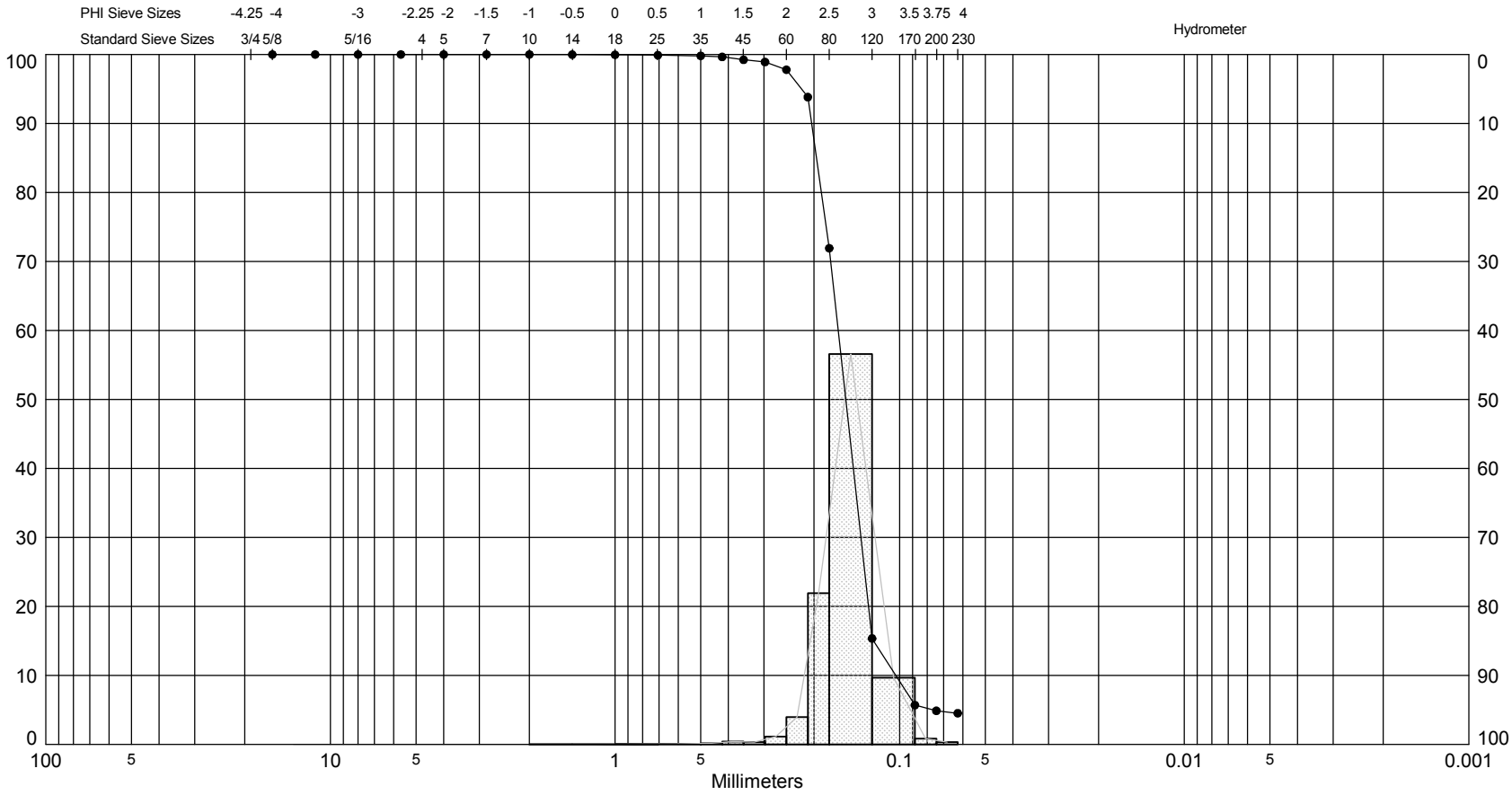
Comments:

Depths and elevations based on measured values

Sample Information	
Project Name:	Dauphin Island Shore Protection
Analysis Date:	02-23-10
Analyzed By:	GL
Easting (X, ft):	1,793,769
Northing (Y, ft):	62,457
Horizontal System:	NAD 1983
Vertical System:	NAVD 88

Coastal Planning & Engineering
2481 NW Boca Raton Blvd, Boca Raton
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SIEVE ANALYSIS DIVC-10.GPJ JPBRAZIL.GDT 3/14/11



Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
DIVC-10-02 #3	—●—	-40.3	SP	#200 - 4.87 #230 - 4.52			2.69	2.67	-0.83	10.15	0.34

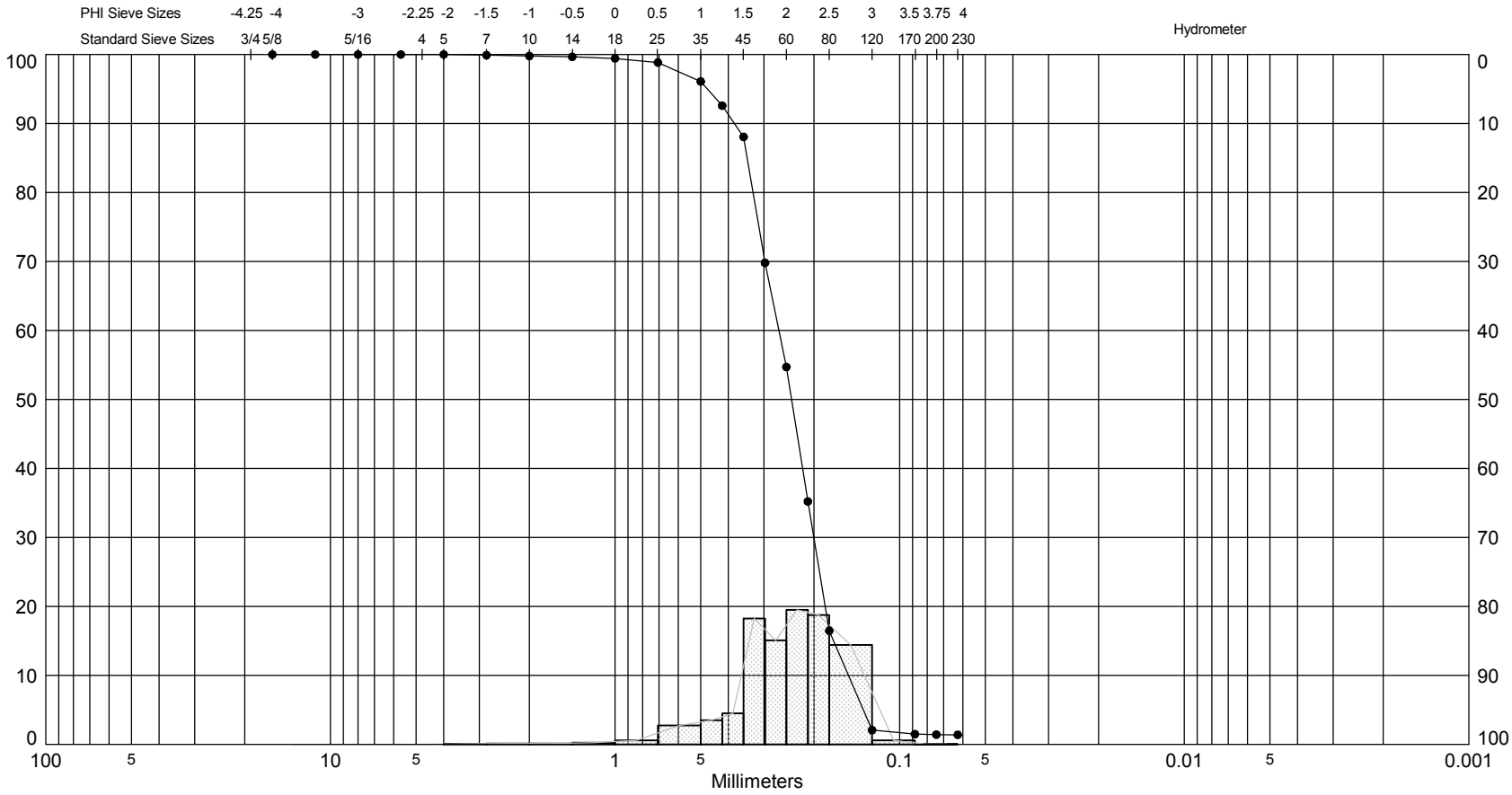
Comments:

Depths and elevations based on measured values

Sample Information	
Project Name:	Dauphin Island Shore Protection
Analysis Date:	02-23-10
Analyzed By:	GL
Easting (X, ft):	1,793,769
Northing (Y, ft):	62,457
Horizontal System:	NAD 1983
Vertical System:	NAVD 88

Coastal Planning & Engineering
2481 NW Boca Raton Blvd, Boca Raton
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SIEVE ANALYSIS DIVC-10.GPJ JPBRAZIL.GDT 3/14/11



Gravel		Sand			Silt and Clay
Coarse	Fine	Coarse	Medium	Fine	

Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
DIVC-10-03 #1	—●—	-19.3	SP	#200 - 1.42 #230 - 1.39			2.06	2	-1.16	7.46	0.56

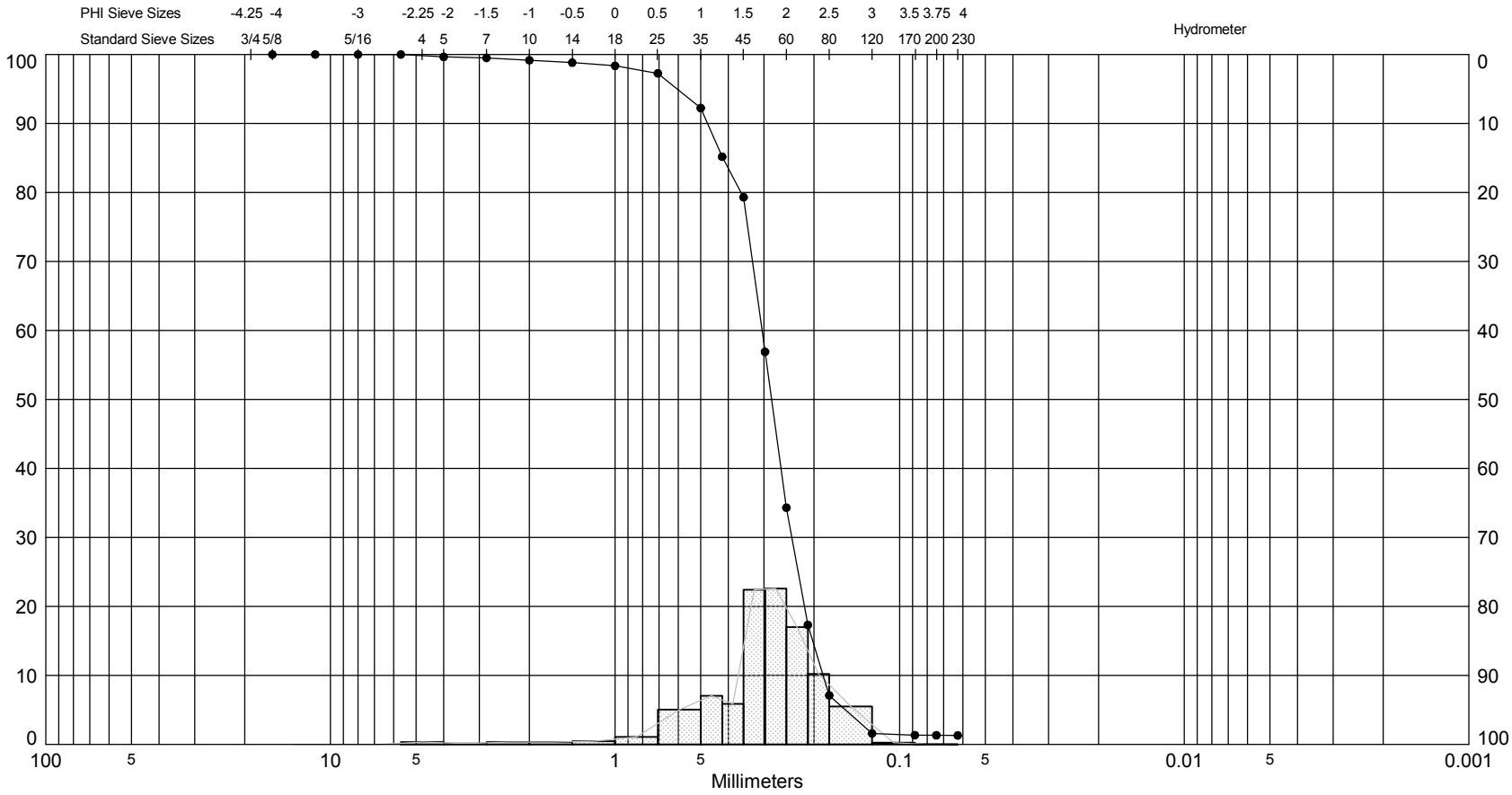
Comments:

Depths and elevations based on measured values

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2481 NW Boca Raton Blvd, Boca Raton
FL 33431
ph (561) 391-8102
fax (561) 391-9116

Sample Information	
Project Name:	Dauphin Island Shore Protection
Analysis Date:	02-23-10
Analyzed By:	GL
Easting (X, ft):	1,789,459
Northing (Y, ft):	64,265
Horizontal System:	NAD 1983
Vertical System:	NAVD 88

SIEVE ANALYSIS DIVC-10.GPJ JPBRAZIL.GDT 3/14/11



Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
DIVC-10-03 #2	—●—	-20.9	SP	#200 - 1.32 #230 - 1.30			1.83	1.76	-1.99	11.92	0.63

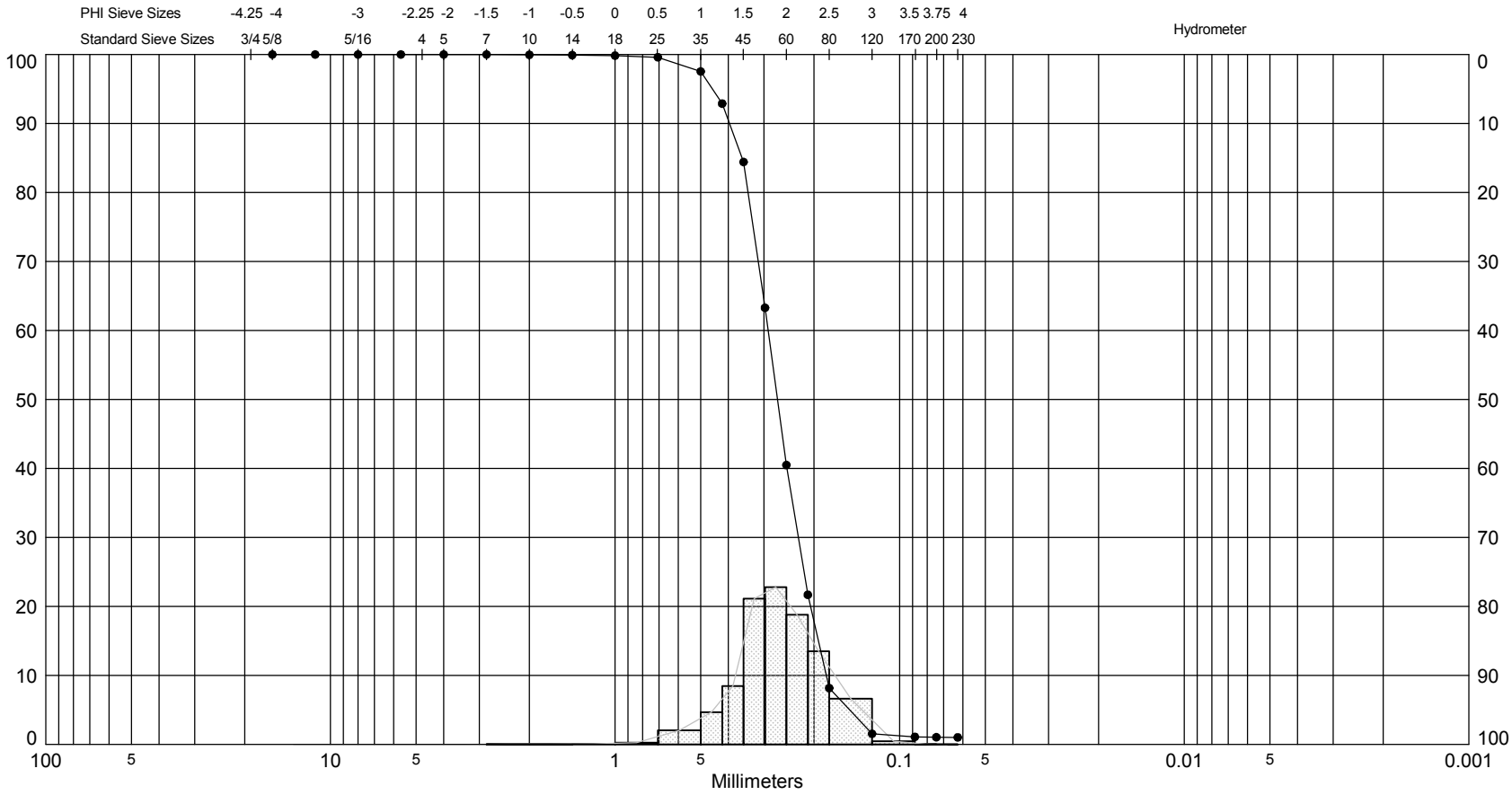
Comments:

Depths and elevations based on measured values

Sample Information	
Project Name:	Dauphin Island Shore Protection
Analysis Date:	02-16-10
Analyzed By:	PB
Easting (X, ft):	1,789,459
Northing (Y, ft):	64,265
Horizontal System:	NAD 1983
Vertical System:	NAVD 88

Coastal Planning & Engineering
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FL 33431
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SIEVE ANALYSIS DIVC-10.GPJ JPBRAZIL.GDT 3/14/11



Gravel		Sand			Silt and Clay
Coarse	Fine	Coarse	Medium	Fine	

Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
DIVC-10-03 #3	—●—	-23.8	SP	#200 - 1.04 #230 - 1.02			1.9	1.89	-0.36	5.07	0.46

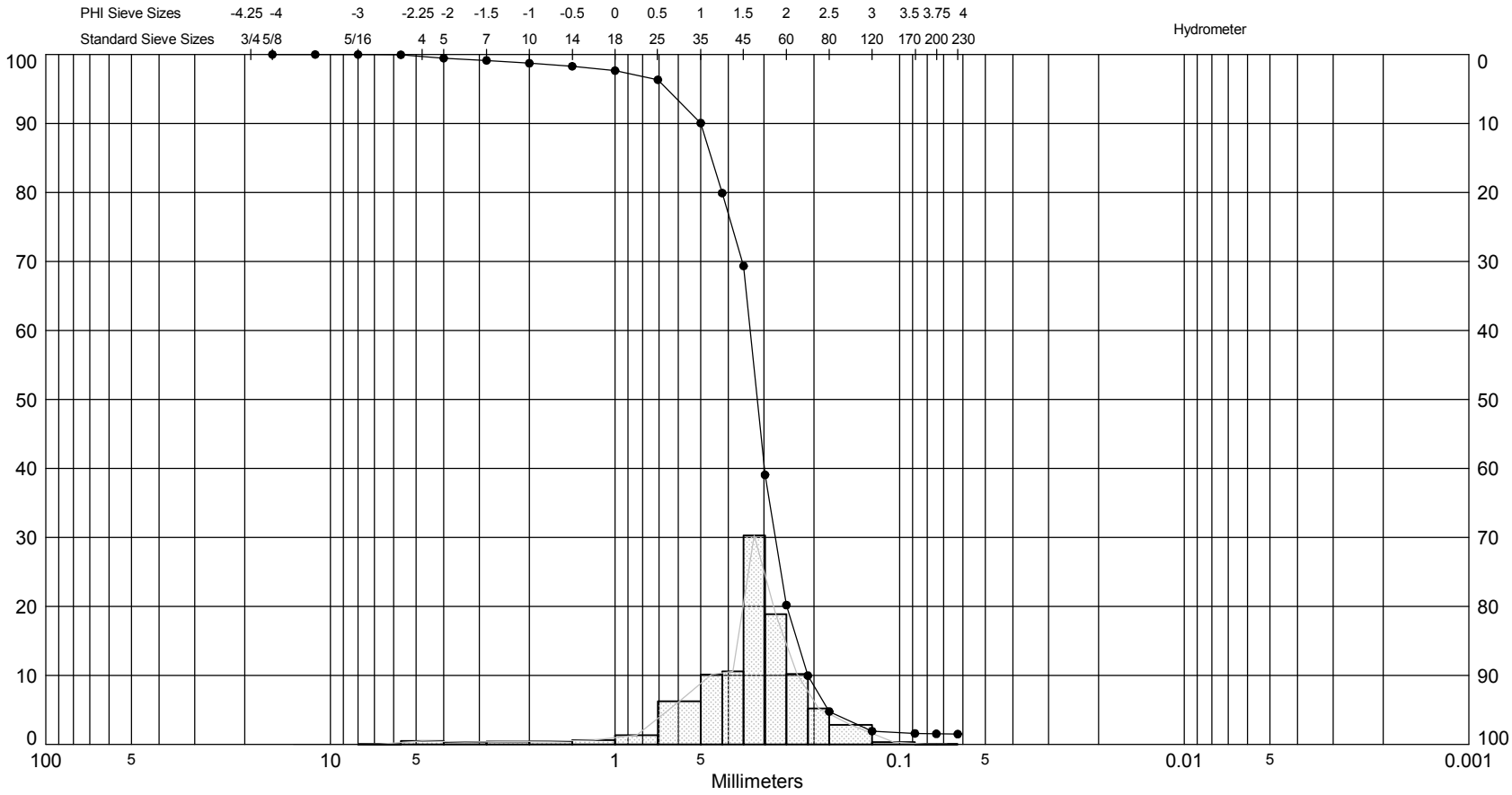
Comments:

Depths and elevations based on measured values

Coastal Planning & Engineering
2481 NW Boca Raton Blvd, Boca Raton
FL 33431
ph (561) 391-8102
fax (561) 391-9116

Sample Information	
Project Name:	Dauphin Island Shore Protection
Analysis Date:	02-23-10
Analyzed By:	GL
Easting (X, ft):	1,789,459
Northing (Y, ft):	64,265
Horizontal System:	NAD 1983
Vertical System:	NAVD 88

SIEVE ANALYSIS DIVC-10.GPJ JPBRAZIL.GDT 3/14/11



Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
DIVC-10-03 #4	—●—	-26.0	SP	#200 - 1.53 #230 - 1.49			1.66	1.58	-2.13	12.81	0.65

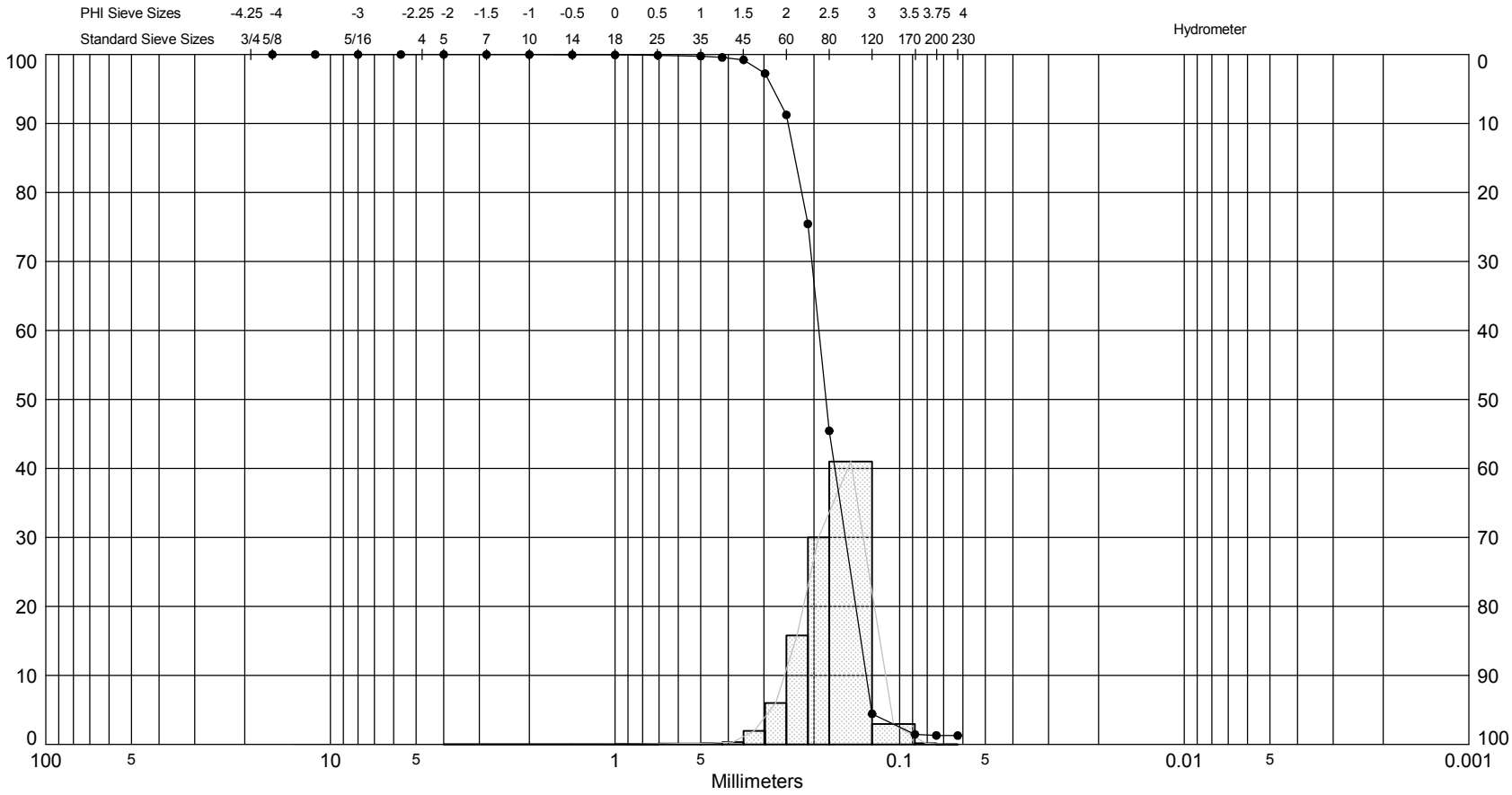
Comments:

Depths and elevations based on measured values

Sample Information	
Project Name:	Dauphin Island Shore Protection
Analysis Date:	02-16-10
Analyzed By:	PB
Easting (X, ft):	1,789,459
Northing (Y, ft):	64,265
Horizontal System:	NAD 1983
Vertical System:	NAVD 88

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SIEVE ANALYSIS DIVC-10.GPJ JPBRAZIL.GDT 3/14/11



Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
DIVC-10-03 #5	—●—	-30.8	SP	#200 - 1.30 #230 - 1.28			2.46	2.46	-0.99	8.9	0.36

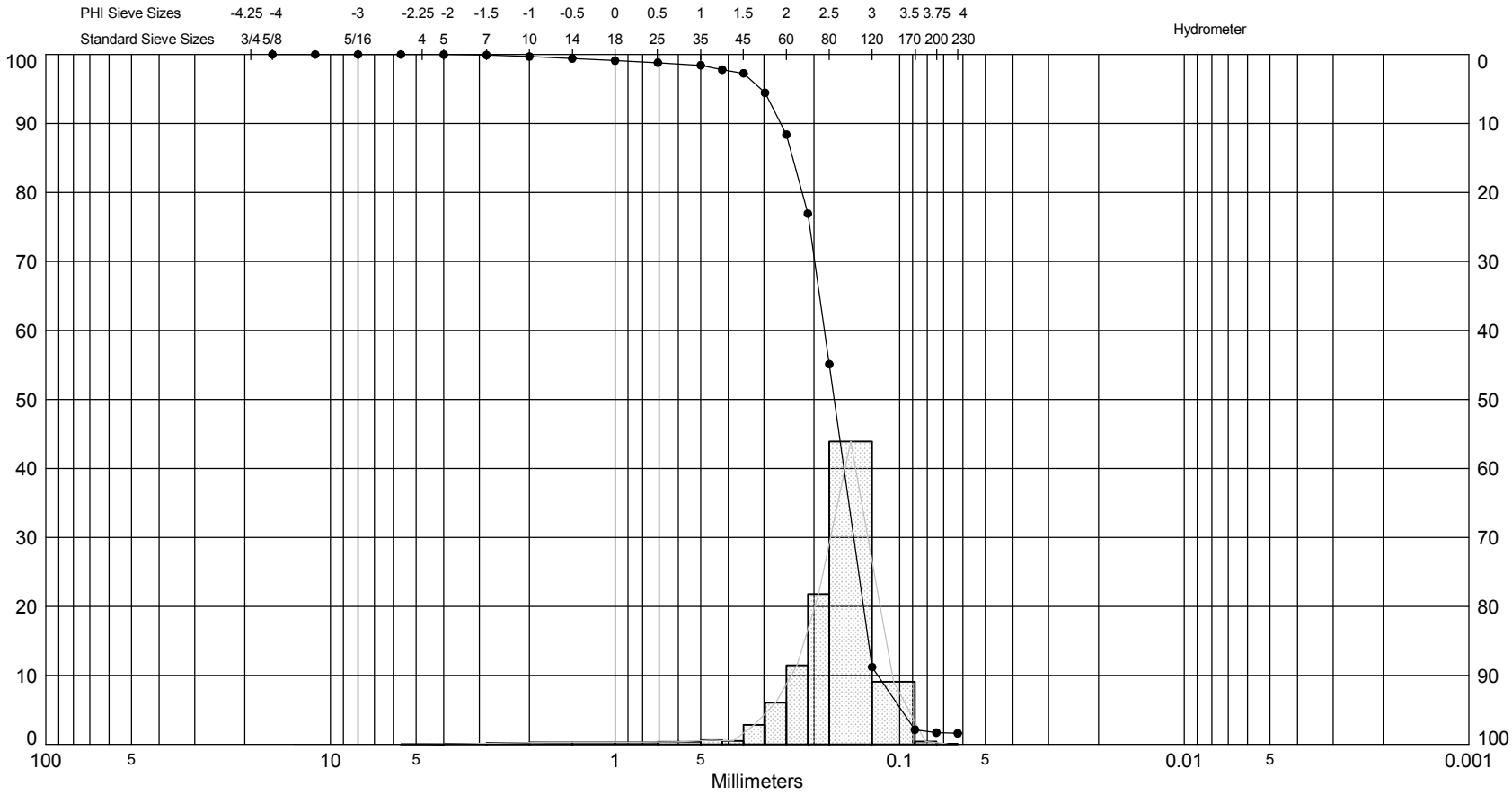
Comments:

Depths and elevations based on measured values

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Sample Information	
Project Name:	Dauphin Island Shore Protection
Analysis Date:	02-16-10
Analyzed By:	GL
Easting (X, ft):	1,789,459
Northing (Y, ft):	64,265
Horizontal System:	NAD 1983
Vertical System:	NAVD 88

SIEVE ANALYSIS DIVC-10.GPJ JPBRAZIL.GDT 3/14/11



Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
DIVC-10-03 #6	—●—	-33.8	SP	#200 - 1.71 #230 - 1.61			2.56	2.49	-2.51	16.19	0.55

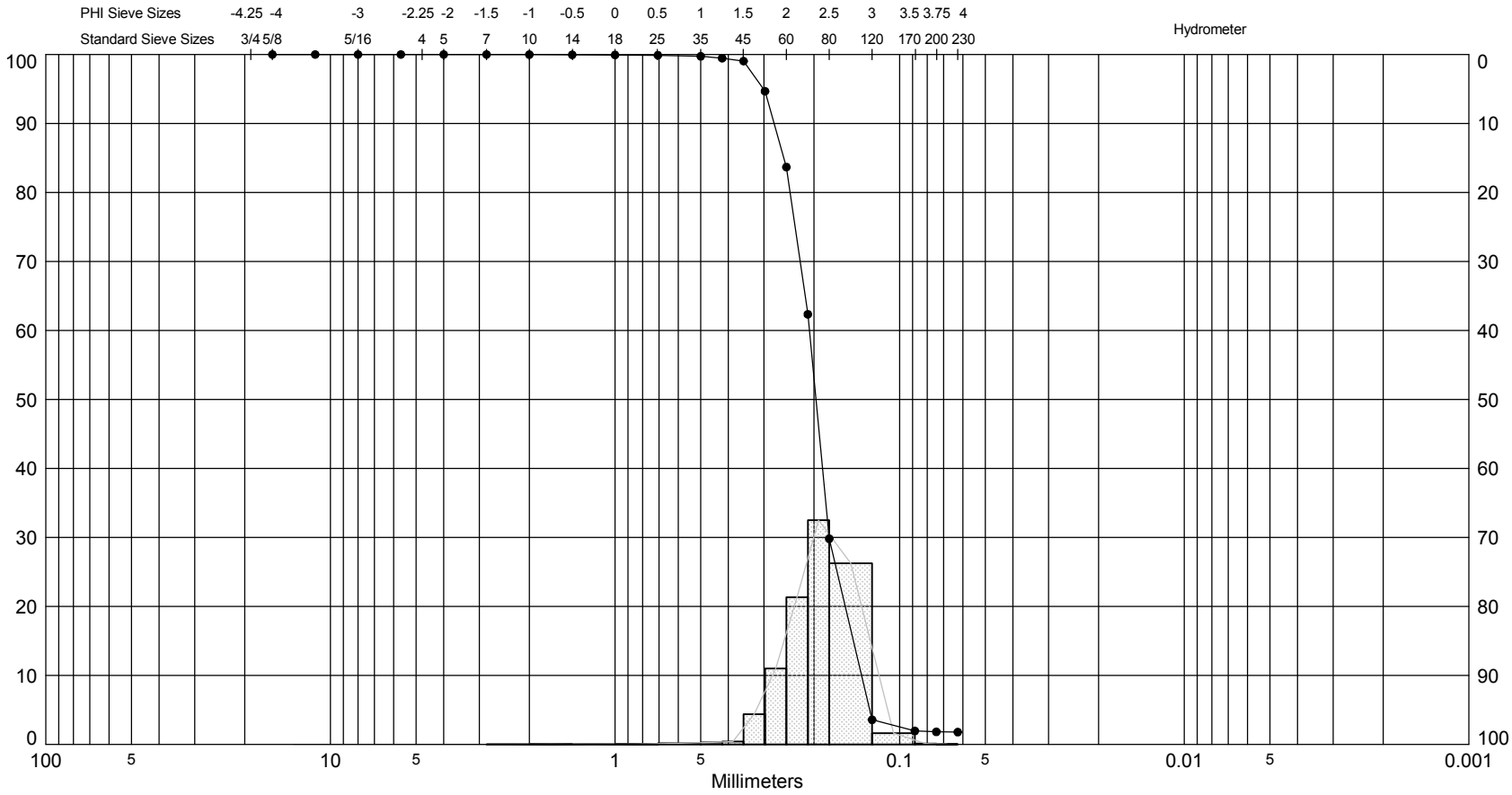
Comments:

Depths and elevations based on measured values

Sample Information	
Project Name:	Dauphin Island Shore Protection
Analysis Date:	02-24-10
Analyzed By:	GL
Easting (X, ft):	1,789,459
Northing (Y, ft):	64,265
Horizontal System:	NAD 1983
Vertical System:	NAVD 88

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SIEVE ANALYSIS DIVC-10.GPJ JPBRAZIL.GDT 3/14/11



Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
DIVC-10-03 #7	—●—	-36.6	SP	#200 - 1.82 #230 - 1.78			2.34	2.33	-0.65	7.28	0.37

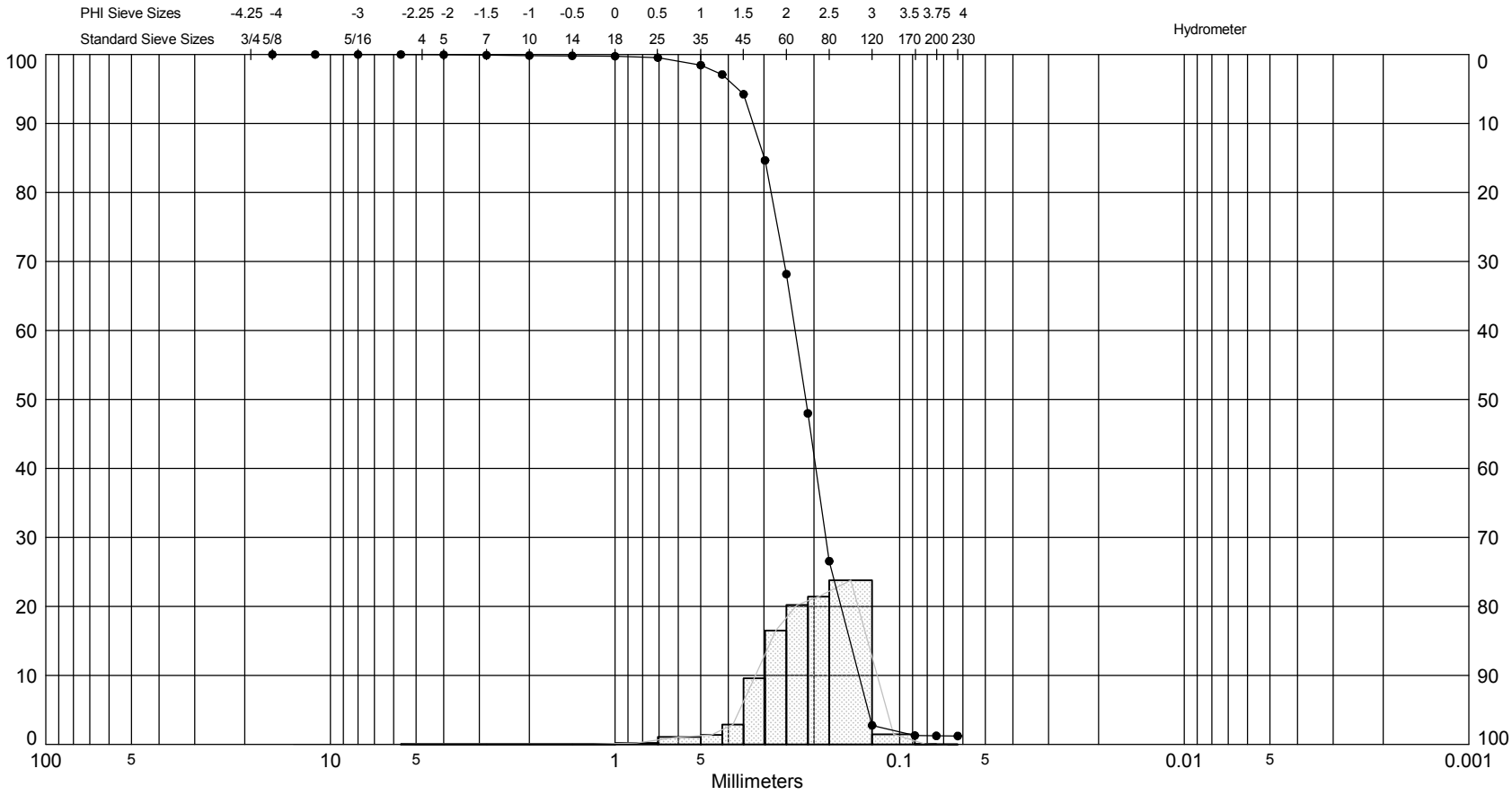
Comments:

Depths and elevations based on measured values

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Sample Information	
Project Name:	Dauphin Island Shore Protection
Analysis Date:	02-24-10
Analyzed By:	GL
Easting (X, ft):	1,789,459
Northing (Y, ft):	64,265
Horizontal System:	NAD 1983
Vertical System:	NAVD 88

SIEVE ANALYSIS DIVC-10.GPJ JPBRAZIL.GDT 3/14/11



Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
DIVC-10-04 #1	—●—	-23.2	SP	#200 - 1.24 #230 - 1.22			2.22	2.19	-1.3	10.05	0.5

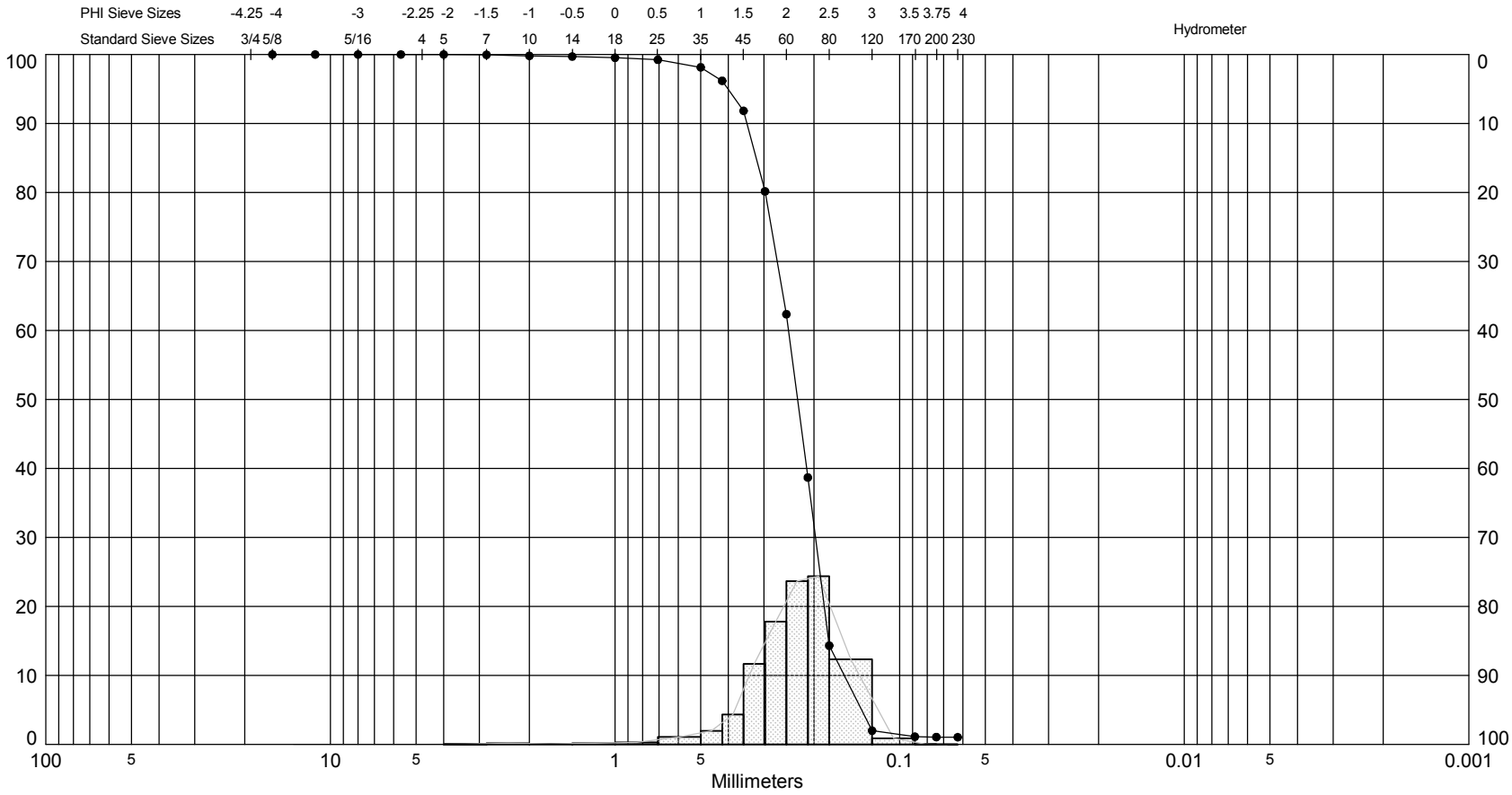
Comments:

Depths and elevations based on measured values

Coastal Planning & Engineering
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FL 33431
ph (561) 391-8102
fax (561) 391-9116

Sample Information	
Project Name:	Dauphin Island Shore Protection
Analysis Date:	02-23-10
Analyzed By:	GL
Easting (X, ft):	1,787,891
Northing (Y, ft):	59,735
Horizontal System:	NAD 1983
Vertical System:	NAVD 88

SIEVE ANALYSIS DIVC-10.GPJ JPBRAZIL.GDT 3/14/11



Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
DIVC-10-04 #2	—●—	-27.1	SP	#200 - 1.06 #230 - 1.04			2.13	2.08	-1.39	10.08	0.48

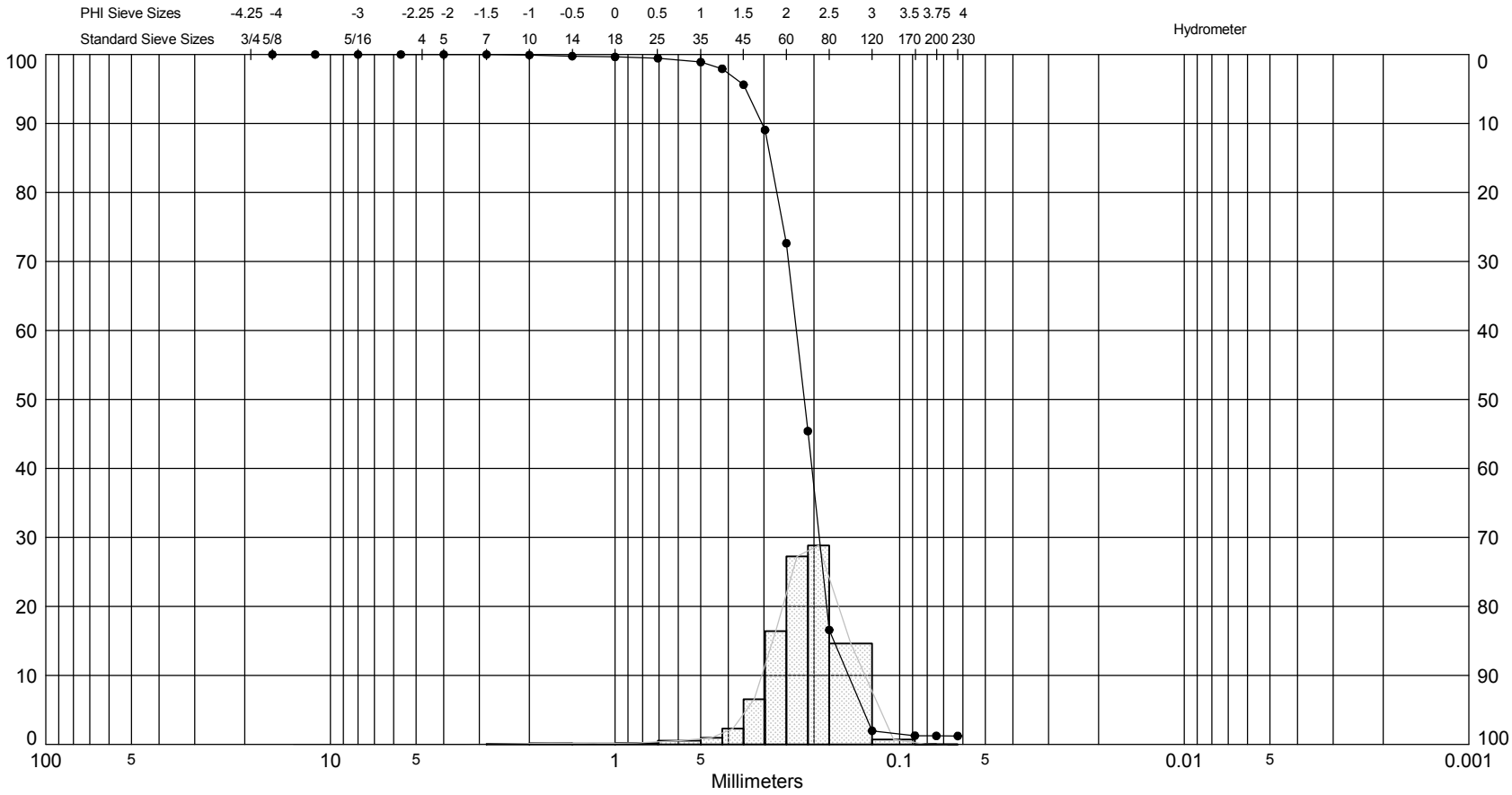
Comments:

Depths and elevations based on measured values

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ph (561) 391-8102
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Sample Information	
Project Name:	Dauphin Island Shore Protection
Analysis Date:	02-23-10
Analyzed By:	GL
Easting (X, ft):	1,787,891
Northing (Y, ft):	59,735
Horizontal System:	NAD 1983
Vertical System:	NAVD 88

SIEVE ANALYSIS DIVC-10.GPJ JPBRAZIL.GDT 3/14/11



Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
DIVC-10-04 #3	—●—	-30.1	SP	#200 - 1.23 #230 - 1.22			2.21	2.18	-1.53	11.57	0.42

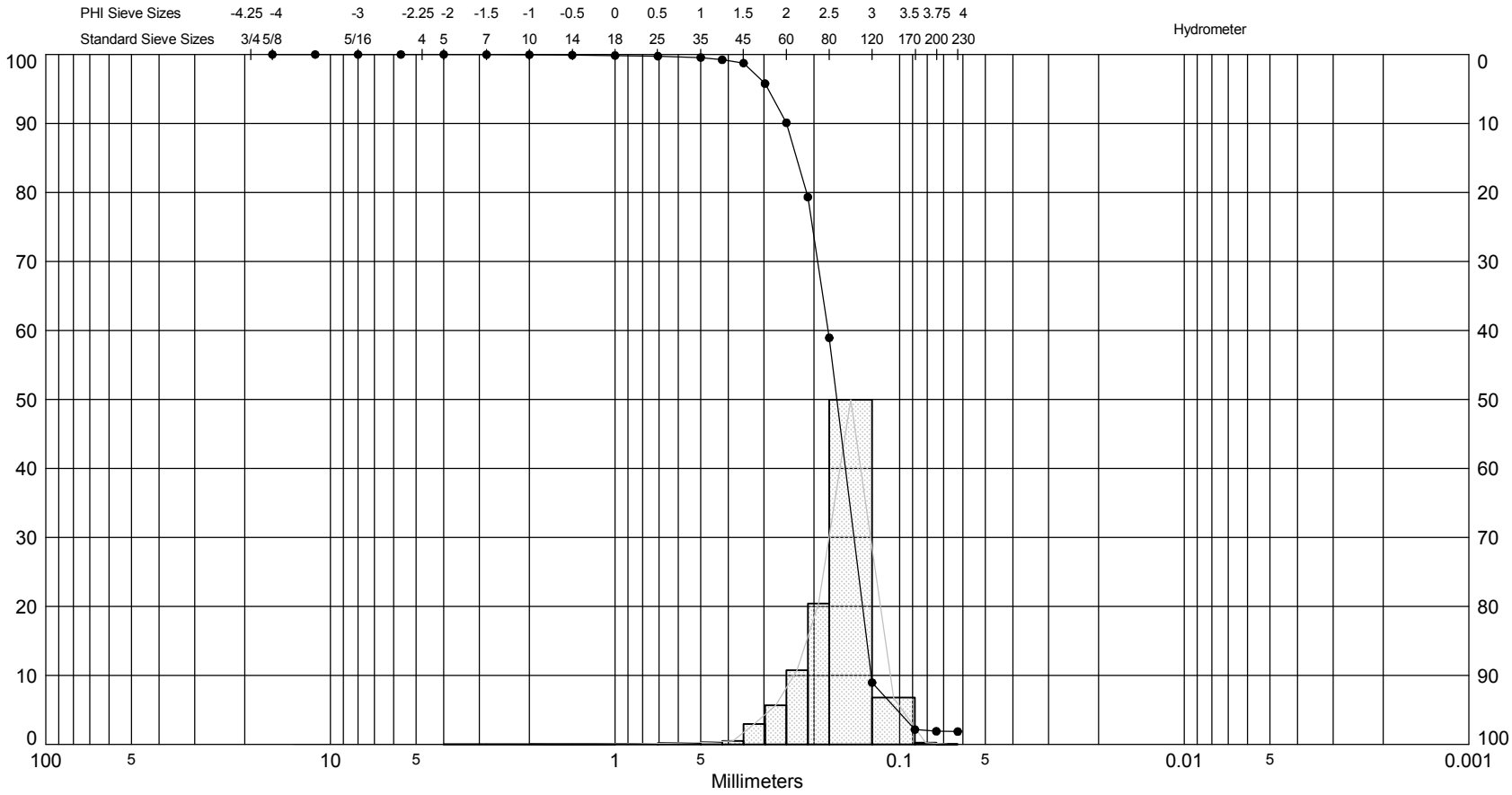
Comments:

Depths and elevations based on measured values

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FL 33431
ph (561) 391-8102
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Sample Information	
Project Name:	Dauphin Island Shore Protection
Analysis Date:	02-24-10
Analyzed By:	GL
Easting (X, ft):	1,787,891
Northing (Y, ft):	59,735
Horizontal System:	NAD 1983
Vertical System:	NAVD 88

SIEVE ANALYSIS DIVC-10.GPJ JPBRAZIL.GDT 3/14/11



Gravel		Sand			Silt and Clay
Coarse	Fine	Coarse	Medium	Fine	

Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
DIVC-10-04 #4	—●—	-34.2	SP	#200 - 1.90 #230 - 1.86			2.59	2.53	-1.49	10.7	0.42

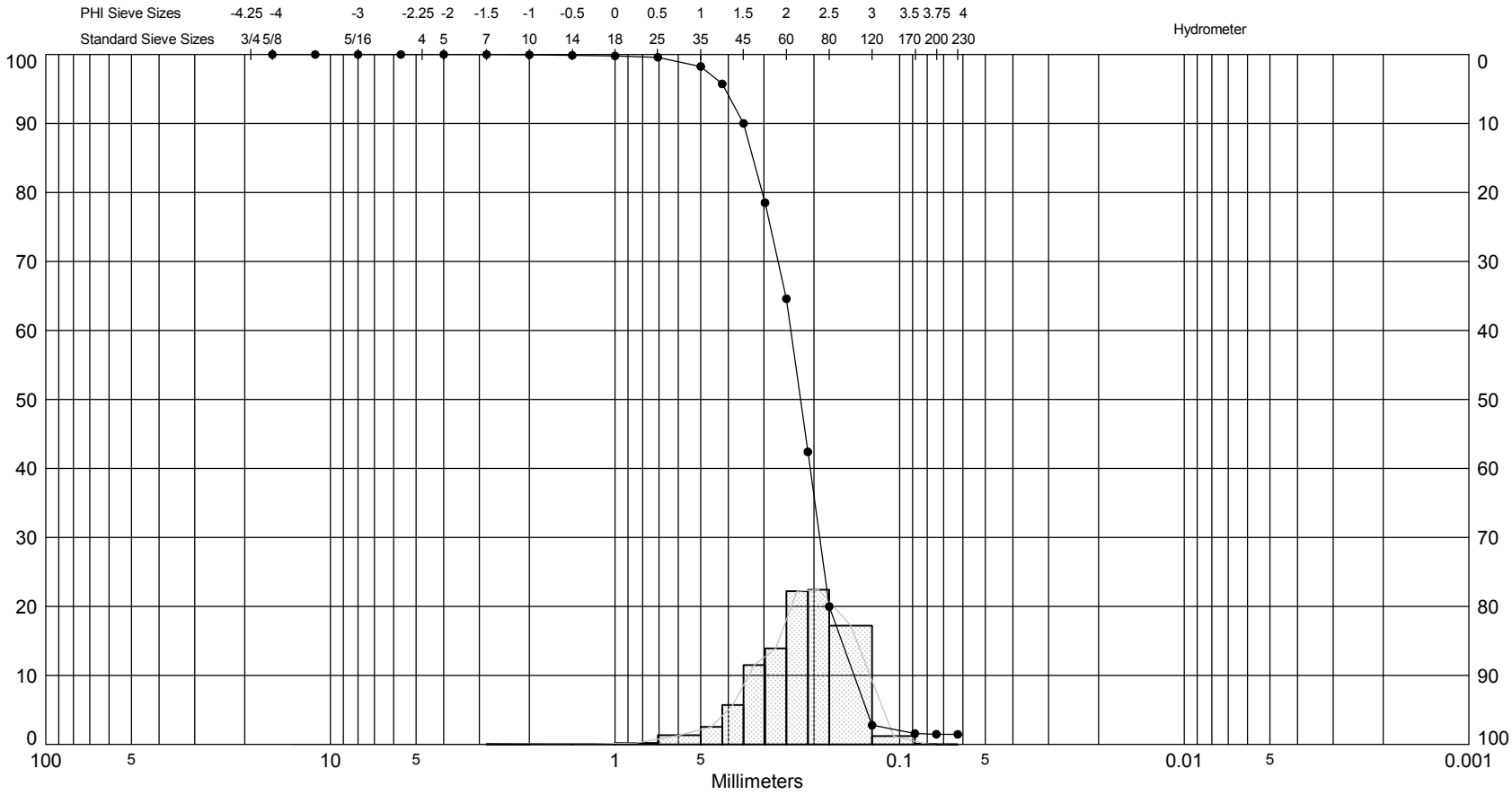
Comments:

Depths and elevations based on measured values

Sample Information	
Project Name:	Dauphin Island Shore Protection
Analysis Date:	02-23-10
Analyzed By:	GL
Easting (X, ft):	1,787,891
Northing (Y, ft):	59,735
Horizontal System:	NAD 1983
Vertical System:	NAVD 88

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SIEVE ANALYSIS DIVC-10.GPJ JPBRAZIL.GDT 3/14/11



Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
DIVC-10-04 #5	—●—	-37.1	SP	#200 - 1.47 #230 - 1.45			2.16	2.12	-0.72	5.2	0.5

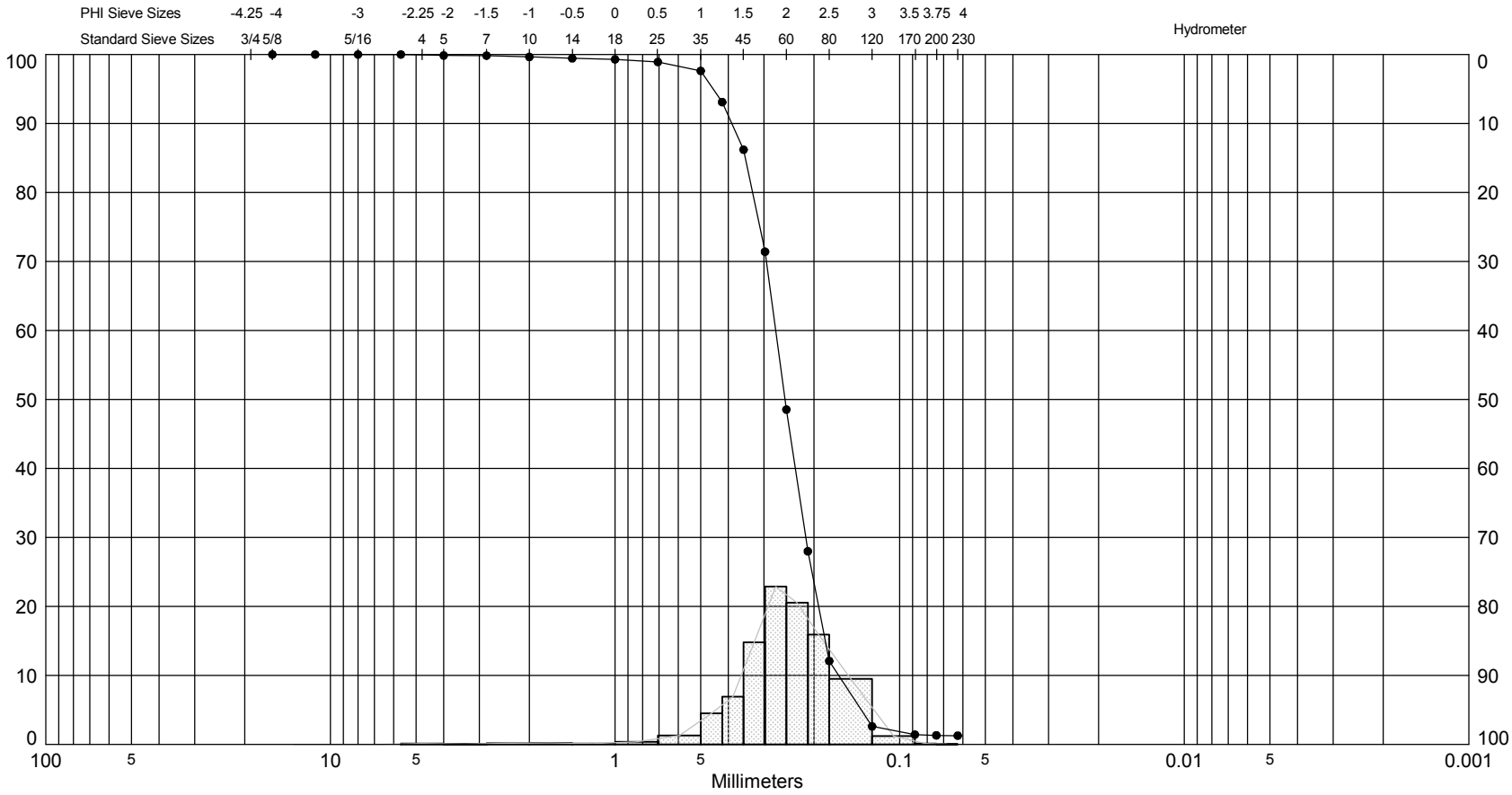
Comments:

Depths and elevations based on measured values

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Sample Information	
Project Name:	Dauphin Island Shore Protection
Analysis Date:	02-24-10
Analyzed By:	GL
Easting (X, ft):	1,787,891
Northing (Y, ft):	59,735
Horizontal System:	NAD 1983
Vertical System:	NAVD 88

SIEVE ANALYSIS DIVC-10.GPJ JPBRAZIL.GDT 3/14/11



Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
DIVC-10-05 #1	—●—	-34.6	SP	#200 - 1.31 #230 - 1.27			1.98	1.96	-1.5	12.06	0.54

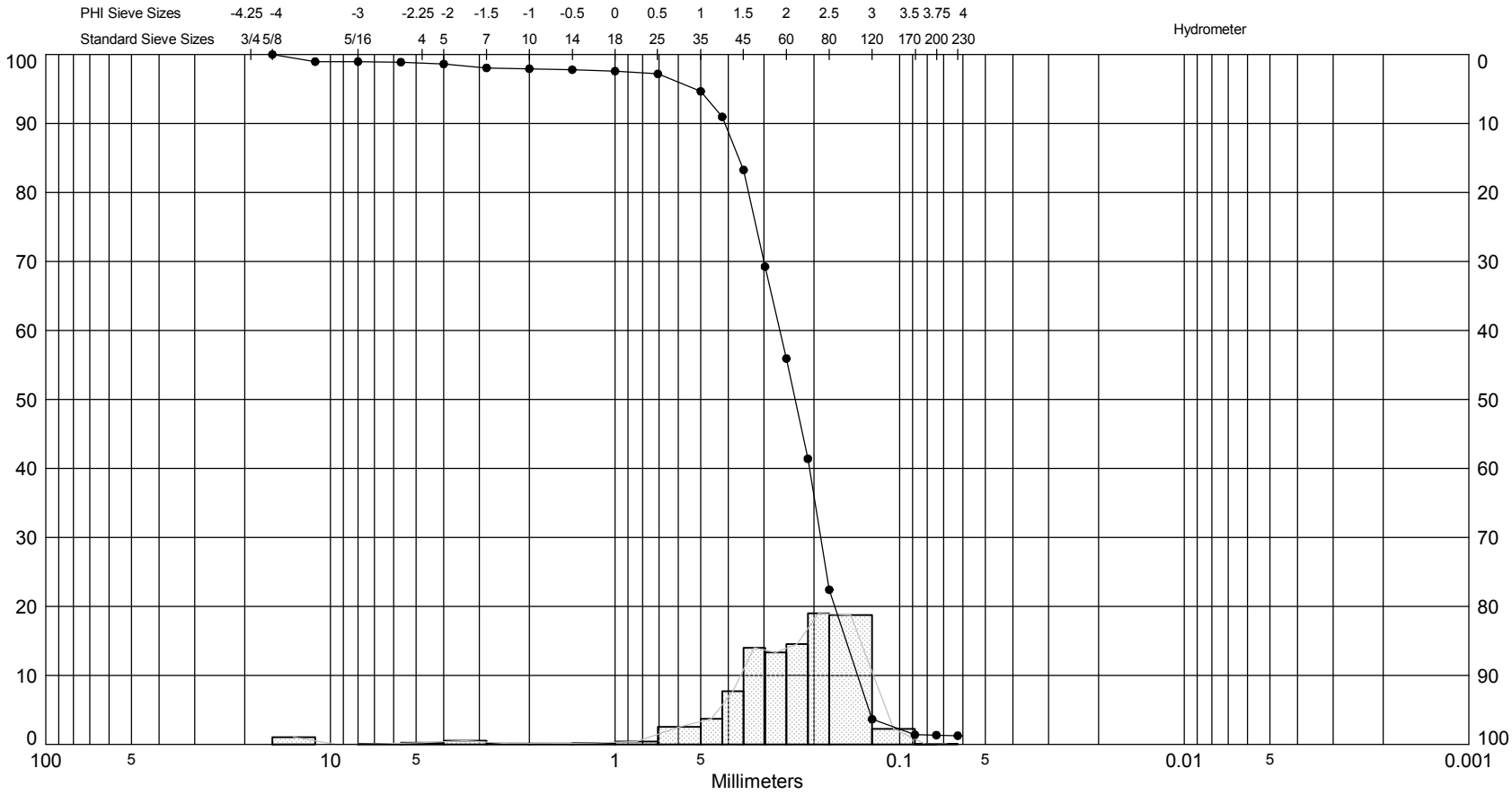
Comments:

Depths and elevations based on measured values

Coastal Planning & Engineering
2481 NW Boca Raton Blvd, Boca Raton
FL 33431
ph (561) 391-8102
fax (561) 391-9116

Sample Information	
Project Name:	Dauphin Island Shore Protection
Analysis Date:	02-23-10
Analyzed By:	GL
Easting (X, ft):	1,782,592
Northing (Y, ft):	57,111
Horizontal System:	NAD 1983
Vertical System:	NAVD 88

SIEVE ANALYSIS DIVC-10.GPJ JPBRAZIL.GDT 3/14/11



Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
DIVC-10-05 #2	—●—	-37.1	SW	#200 - 1.34 #230 - 1.26			2.1	1.96	-3.36	20.05	0.91

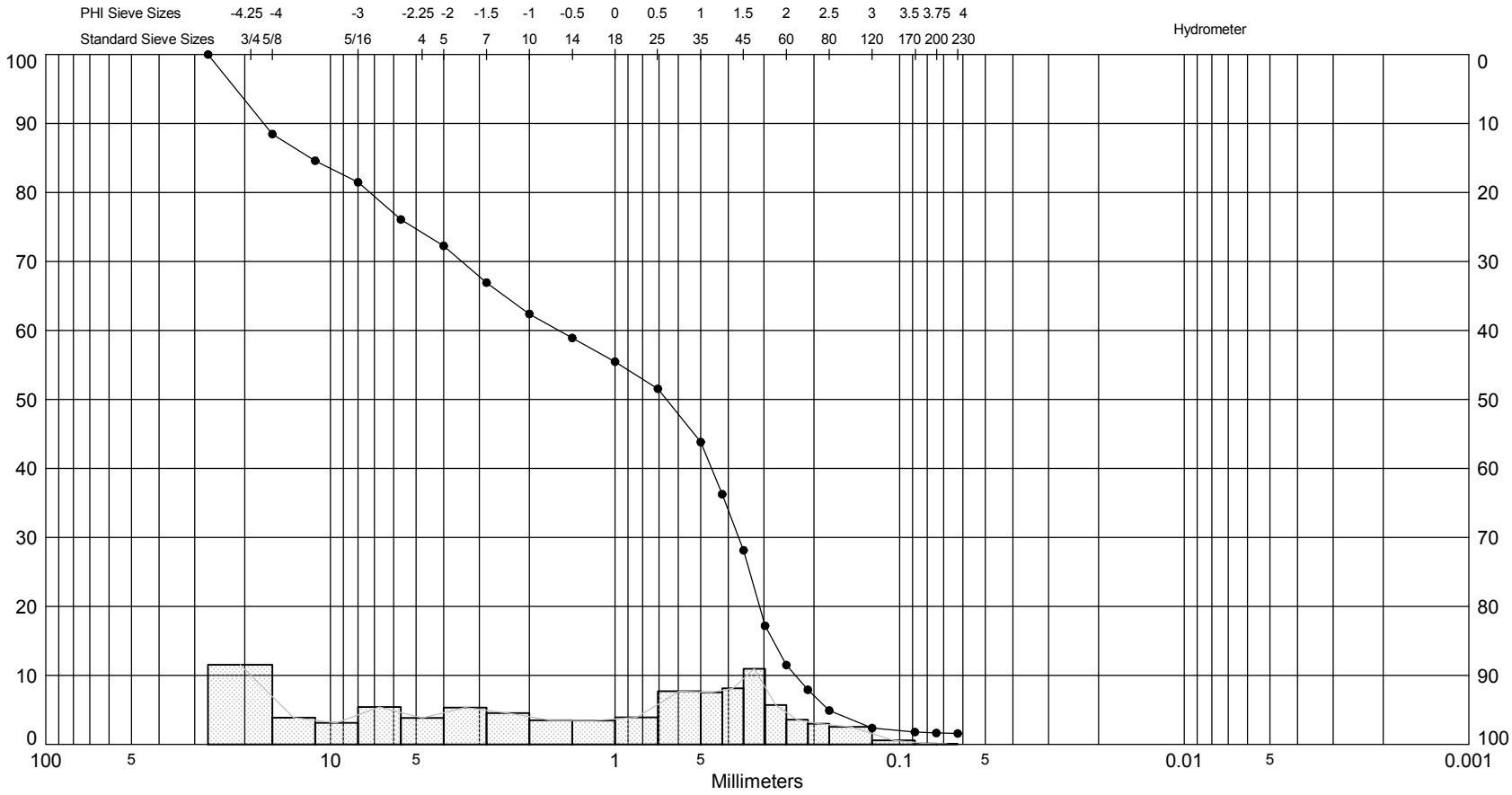
Comments:

Depths and elevations based on measured values

Sample Information	
Project Name:	Dauphin Island Shore Protection
Analysis Date:	02-16-10
Analyzed By:	GL
Easting (X, ft):	1,782,592
Northing (Y, ft):	57,111
Horizontal System:	NAD 1983
Vertical System:	NAVD 88

Coastal Planning & Engineering
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SIEVE ANALYSIS DIVC-10.GPJ JPBRAZIL.GDT 3/14/11



Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
DIVC-10-05 #3	—●—	-38.7	SW	#200 - 1.65 #230 - 1.58			0.6	-0.38	-0.5	1.84	2.3

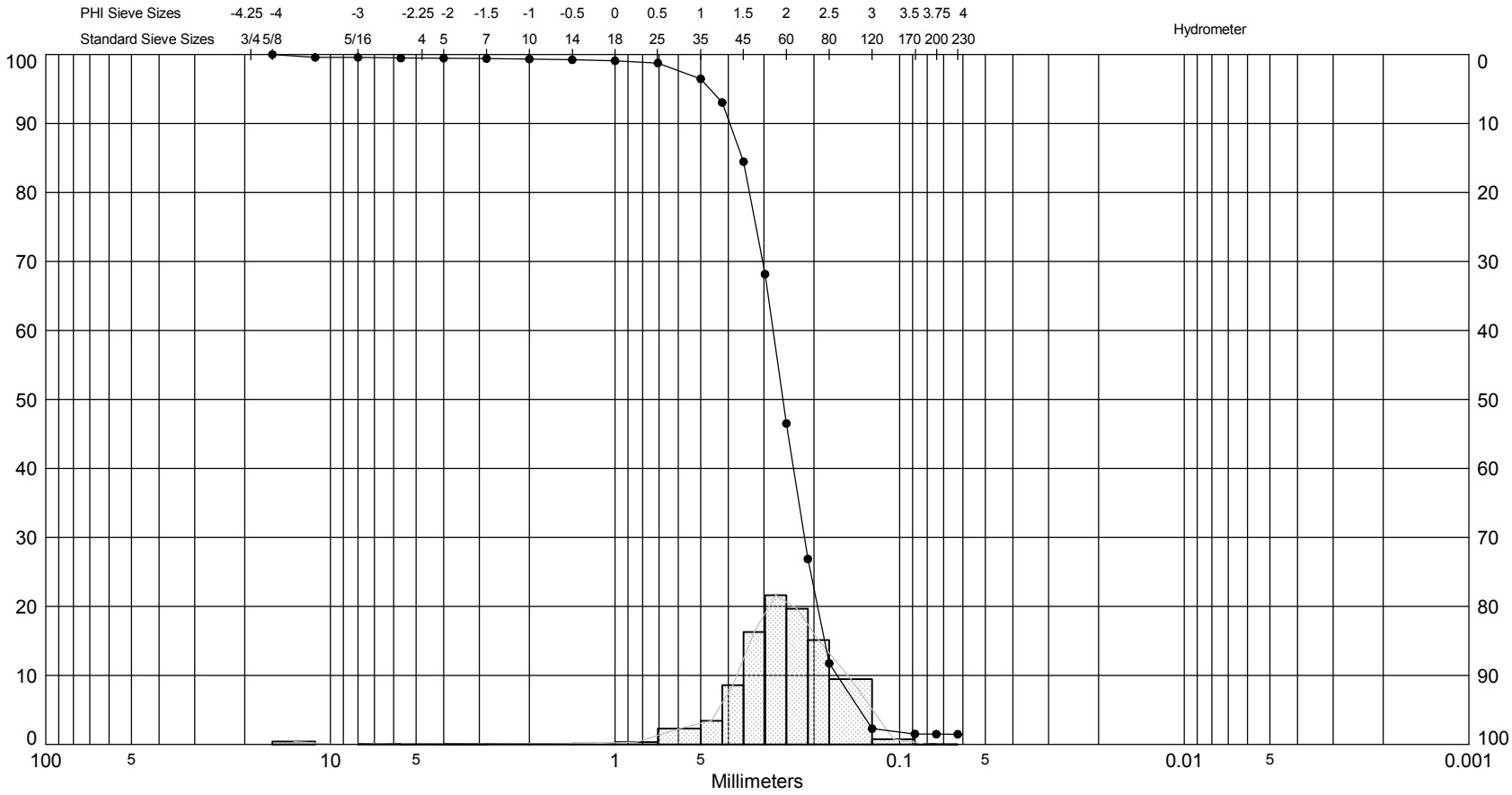
Comments:

Depths and elevations based on measured values

Coastal Planning & Engineering
2481 NW Boca Raton Blvd, Boca Raton
FL 33431
ph (561) 391-8102
fax (561) 391-9116

Sample Information	
Project Name:	Dauphin Island Shore Protection
Analysis Date:	02-23-10
Analyzed By:	GL
Easting (X, ft):	1,782,592
Northing (Y, ft):	57,111
Horizontal System:	NAD 1983
Vertical System:	NAVD 88

SIEVE ANALYSIS DIVC-10.GPJ JPBRAZIL.GDT 3/14/11



Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
DIVC-10-05 #4	—●—	-40.1	SP	#200 - 1.48 #230 - 1.47			1.96	1.91	-3.6	30.79	0.65

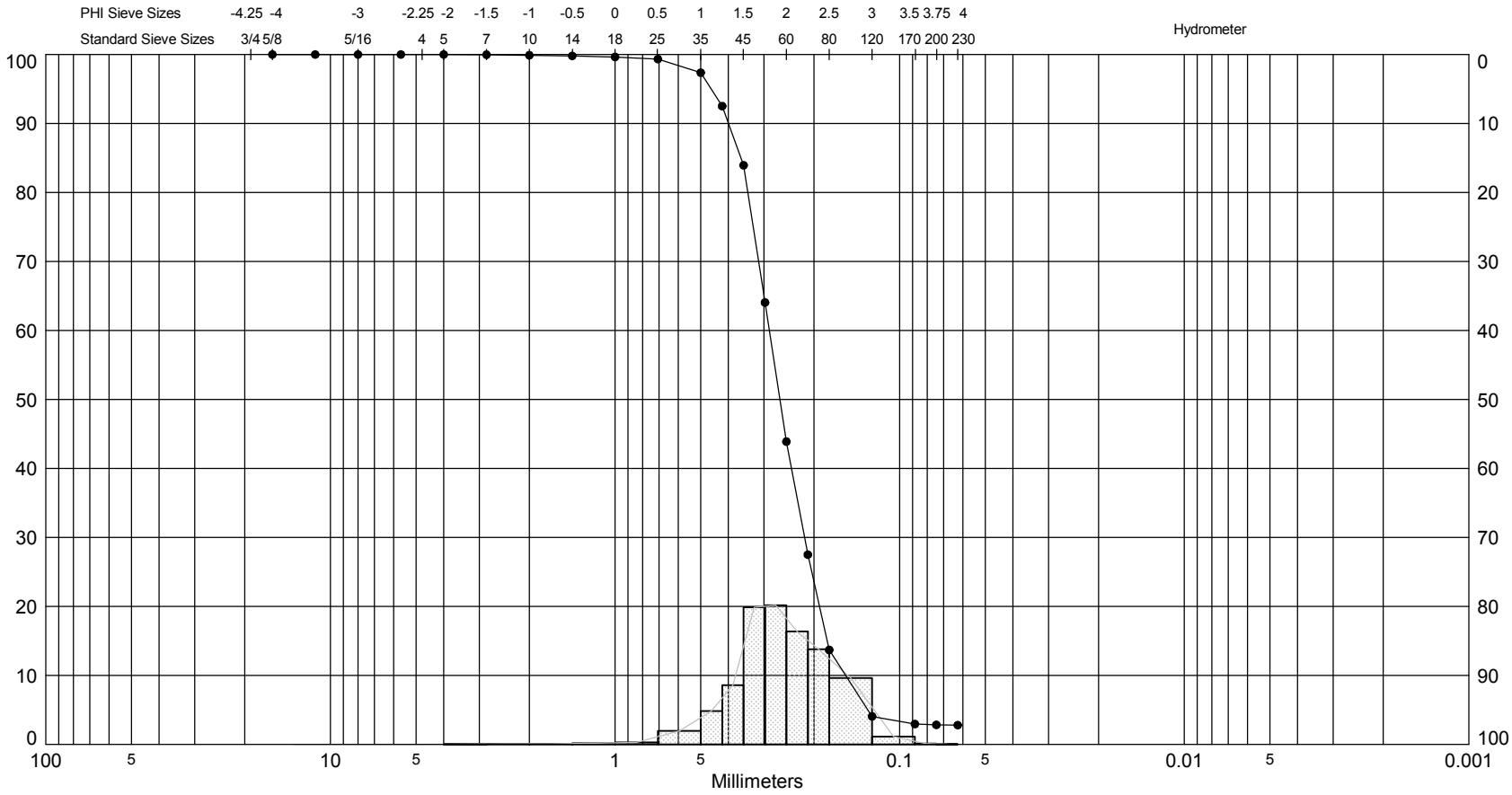
Comments:

Depths and elevations based on measured values

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FL 33431
ph (561) 391-8102
fax (561) 391-9116

Sample Information	
Project Name:	Dauphin Island Shore Protection
Analysis Date:	02-16-10
Analyzed By:	GL
Easting (X, ft):	1,782,592
Northing (Y, ft):	57,111
Horizontal System:	NAD 1983
Vertical System:	NAVD 88

SIEVE ANALYSIS DIVC-10.GPJ JPBRAZIL.GDT 3/14/11



Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
DIVC-10-05 #5	—●—	-42.0	SP	#200 - 2.83 #230 - 2.79			1.92	1.92	-0.45	5.85	0.52

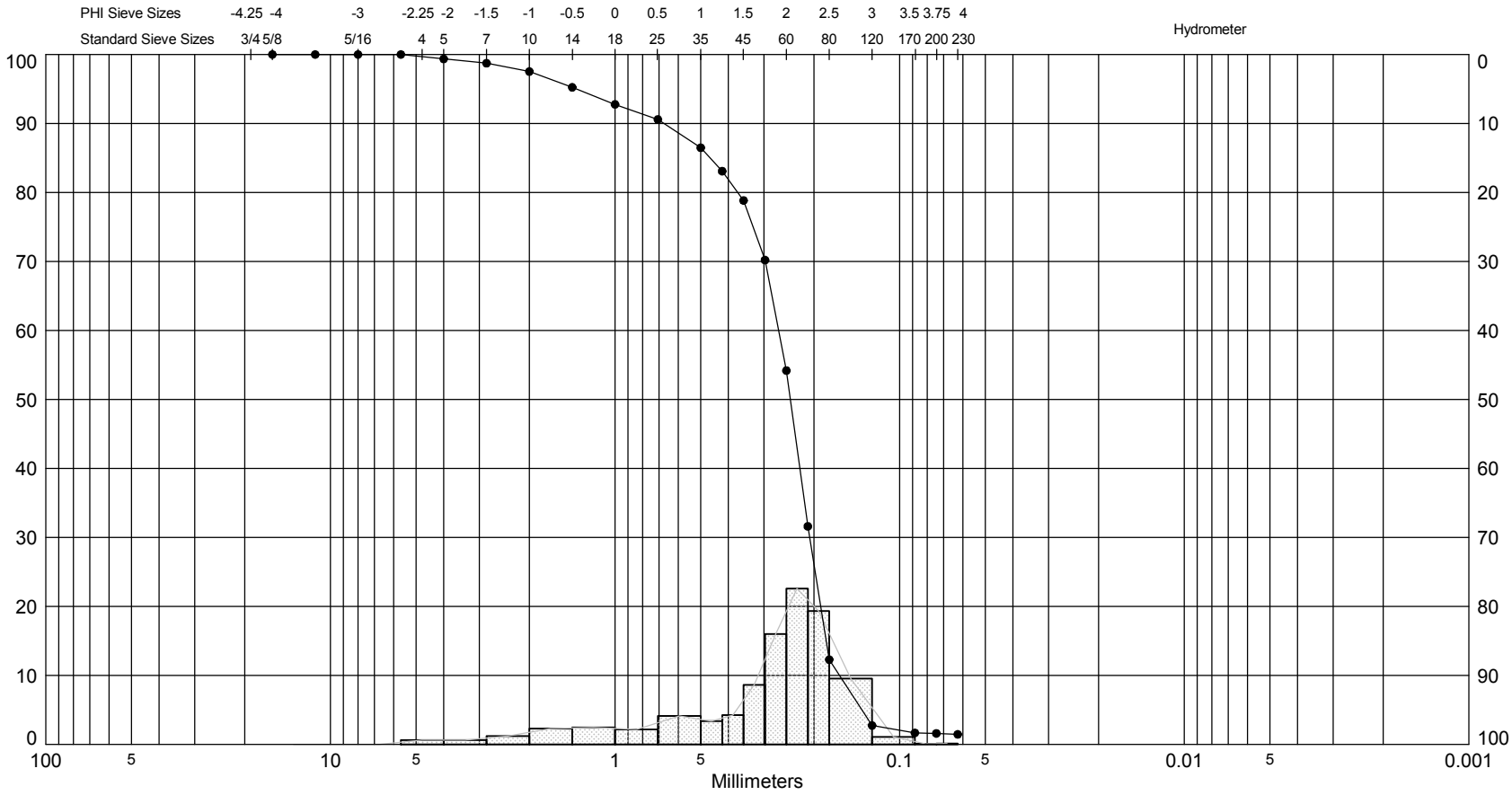
Comments:

Depths and elevations based on measured values

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FL 33431
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fax (561) 391-9116

Sample Information	
Project Name:	Dauphin Island Shore Protection
Analysis Date:	02-24-10
Analyzed By:	GL
Easting (X, ft):	1,782,592
Northing (Y, ft):	57,111
Horizontal System:	NAD 1983
Vertical System:	NAVD 88

SIEVE ANALYSIS DIVC-10.GPJ JPBRAZIL.GDT 3/14/11



Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
DIVC-10-05 #6	—●—	-44.2	SW	#200 - 1.59 #230 - 1.45			2.05	1.78	-1.87	6.91	0.94

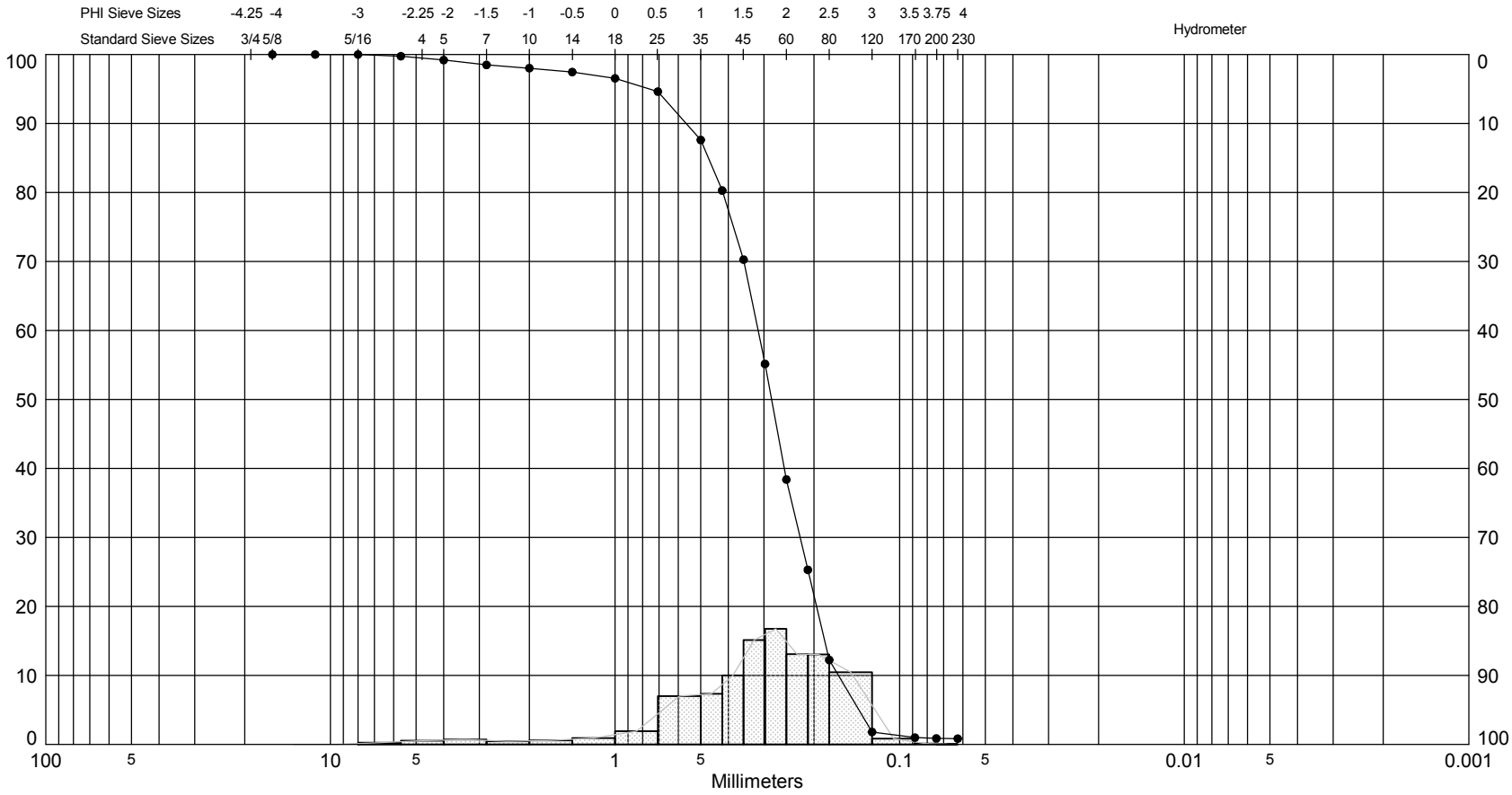
Comments:

Depths and elevations based on measured values

Sample Information	
Project Name:	Dauphin Island Shore Protection
Analysis Date:	02-24-10
Analyzed By:	GL
Easting (X, ft):	1,782,592
Northing (Y, ft):	57,111
Horizontal System:	NAD 1983
Vertical System:	NAVD 88

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SIEVE ANALYSIS DIVC-10.GPJ JPBRAZIL.GDT 3/14/11



Gravel		Sand			Silt and Clay
Coarse	Fine	Coarse	Medium	Fine	

Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
DIVC-10-06 #1	—●—	-27.3	SP	#200 - 0.86 #230 - 0.83			1.83	1.72	-1.84	9.1	0.84

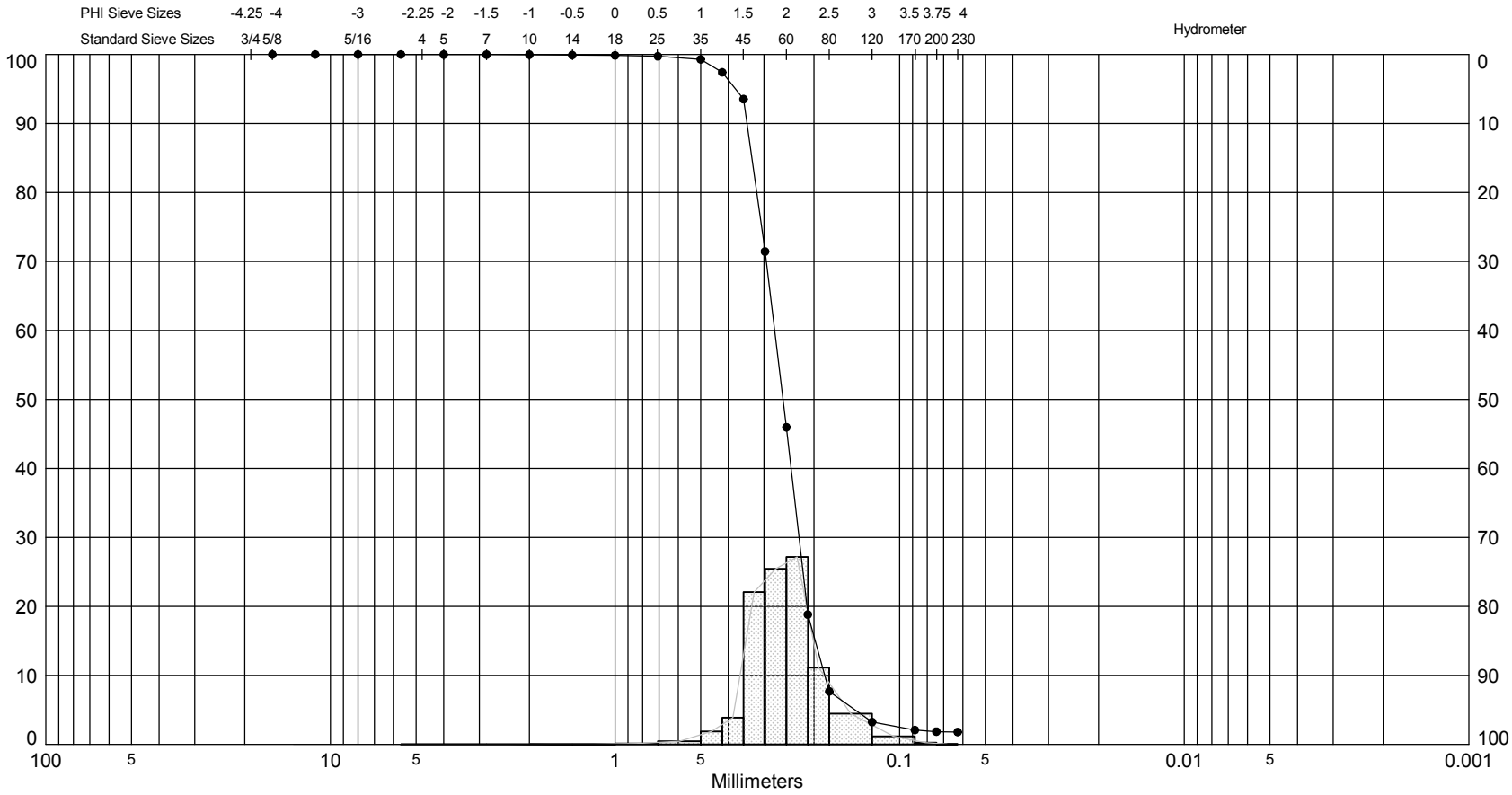
Comments:

Depths and elevations based on measured values

Coastal Planning & Engineering
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FL 33431
ph (561) 391-8102
fax (561) 391-9116

Sample Information	
Project Name:	Dauphin Island Shore Protection
Analysis Date:	02-23-10
Analyzed By:	GL
Easting (X, ft):	1,776,733
Northing (Y, ft):	59,425
Horizontal System:	NAD 1983
Vertical System:	NAVD 88

SIEVE ANALYSIS DIVC-10.GPJ JPBRAZIL.GDT 3/14/11



Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
DIVC-10-06 #2	—●—	-28.7	SP	#200 - 1.85 #230 - 1.80			1.96	1.96	-0.07	8.8	0.4

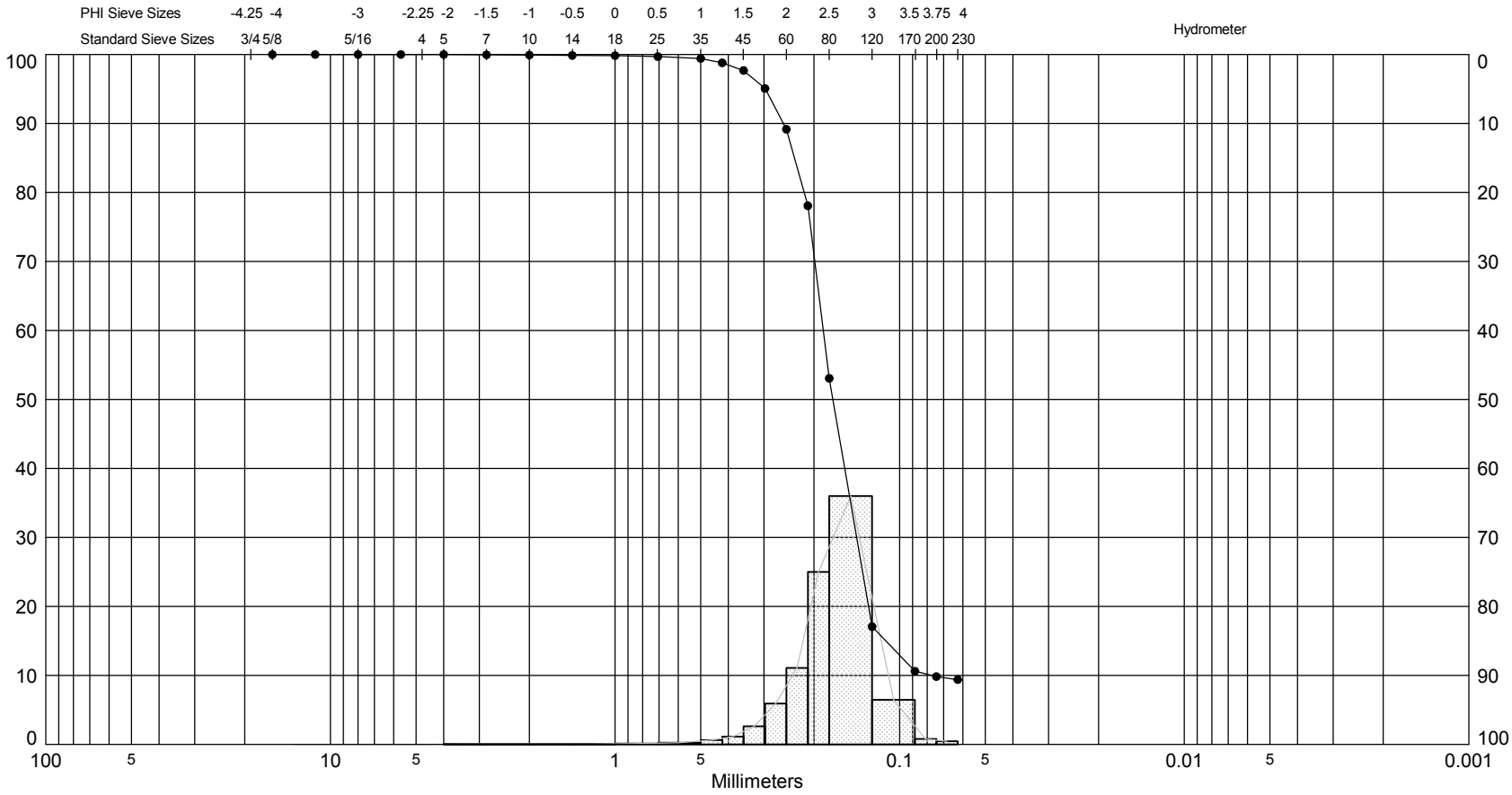
Comments:

Depths and elevations based on measured values

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2481 NW Boca Raton Blvd, Boca Raton
FL 33431
ph (561) 391-8102
fax (561) 391-9116

Sample Information	
Project Name:	Dauphin Island Shore Protection
Analysis Date:	02-23-10
Analyzed By:	GL
Easting (X, ft):	1,776,733
Northing (Y, ft):	59,425
Horizontal System:	NAD 1983
Vertical System:	NAVD 88

SIEVE ANALYSIS DIVC-10.GPJ JPBRAZIL.GDT 3/14/11



Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
DIVC-10-06 #3	—●—	-32.0	SP-SC	#200 - 9.83 #230 - 9.39			2.54	2.48	-1.24	10.59	0.47

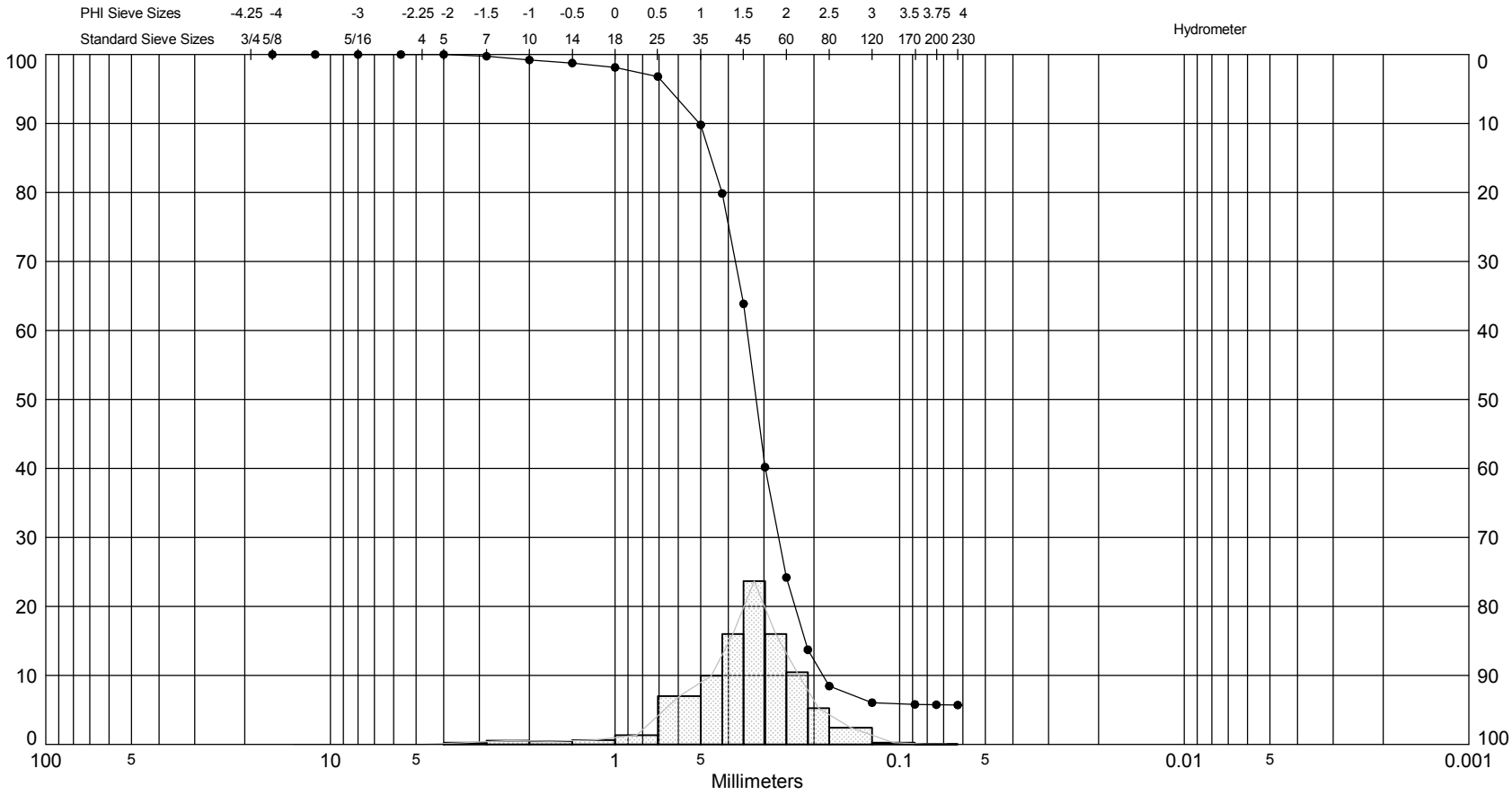
Comments:

Depths and elevations based on measured values

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FL 33431
ph (561) 391-8102
fax (561) 391-9116

Sample Information	
Project Name:	Dauphin Island Shore Protection
Analysis Date:	03-01-10
Analyzed By:	GL
Easting (X, ft):	1,776,733
Northing (Y, ft):	59,425
Horizontal System:	NAD 1983
Vertical System:	NAVD 88

SIEVE ANALYSIS DIVC-10.GPJ JPBRAZIL.GDT 3/14/11



Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
DIVC-10-07 #1	—●—	-28.6	SP-SC	#200 - 5.75 #230 - 5.71			1.65	1.57	-1.36	8.6	0.6

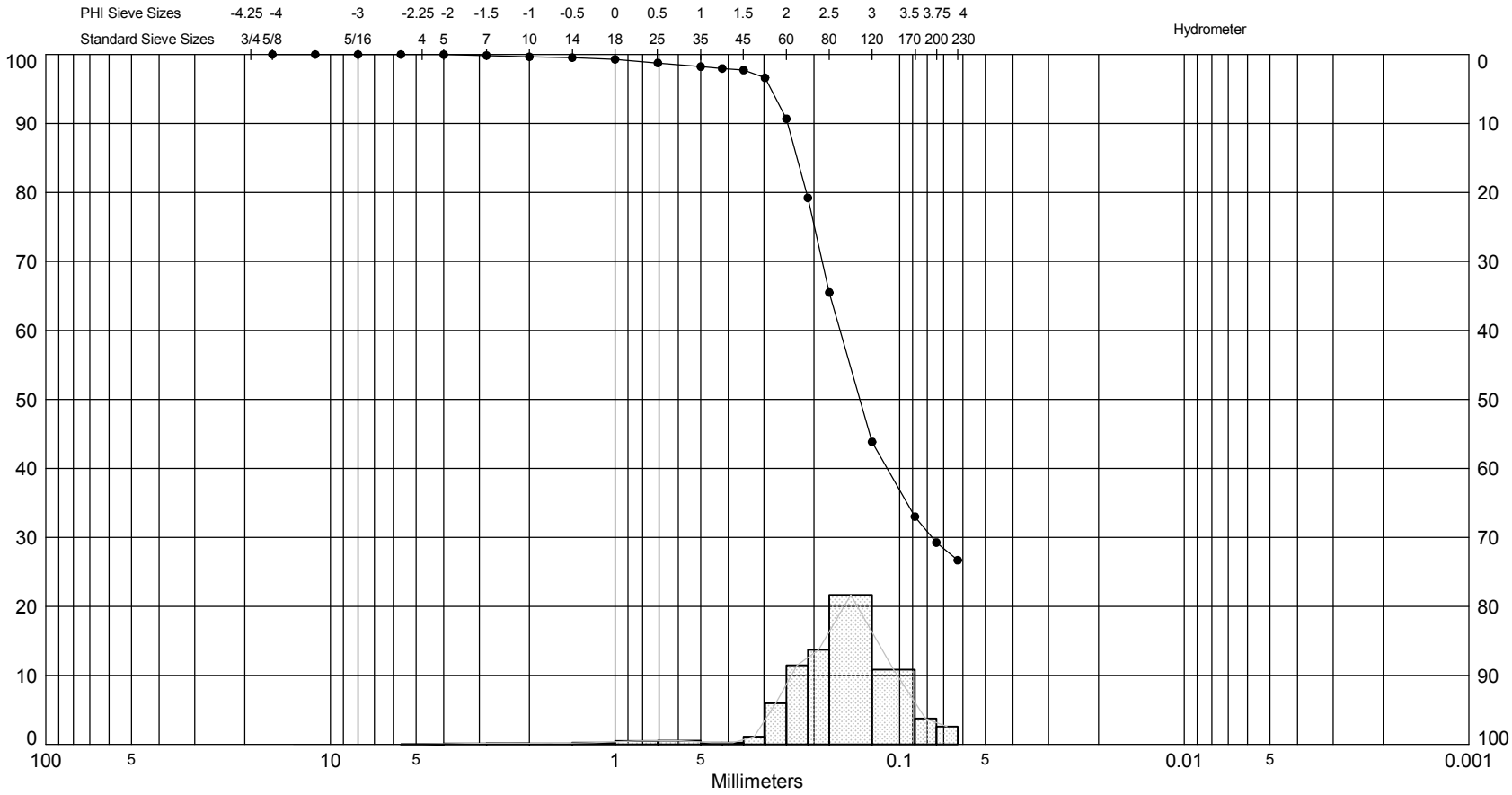
Comments:

Depths and elevations based on measured values

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fax (561) 391-9116

Sample Information	
Project Name:	Dauphin Island Shore Protection
Analysis Date:	02-17-10
Analyzed By:	GL
Easting (X, ft):	1,761,210
Northing (Y, ft):	86,107
Horizontal System:	NAD 1983
Vertical System:	NAVD 88

SIEVE ANALYSIS DIVC-10.GPJ JPBRAZIL.GDT 3/14/11



Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
DIVC-10-07 #2	—●—	-33.0	SC	#200 - 29.26 #230 - 26.69			2.86	2.57	-1.43	9.82	0.69

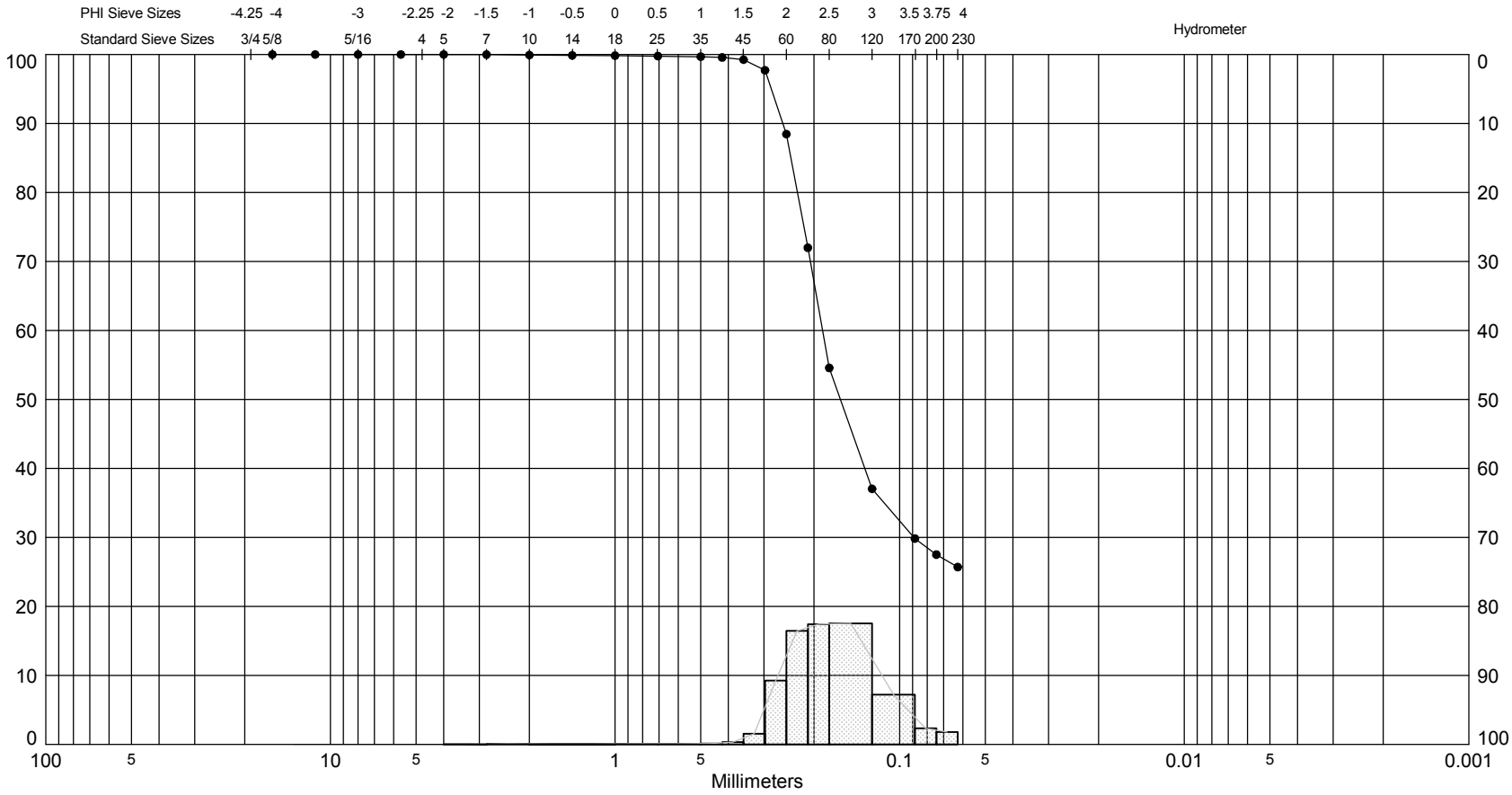
Comments:

Depths and elevations based on measured values

Sample Information	
Project Name:	Dauphin Island Shore Protection
Analysis Date:	03-01-10
Analyzed By:	GL
Easting (X, ft):	1,761,210
Northing (Y, ft):	86,107
Horizontal System:	NAD 1983
Vertical System:	NAVD 88

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SIEVE ANALYSIS DIVC-10.GPJ JPBRAZIL.GDT 3/14/11



Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
DIVC-10-07 #3	—●—	-37.1	SC	#200 - 27.51 #230 - 25.70			2.63	2.47	0.01	6.6	0.54

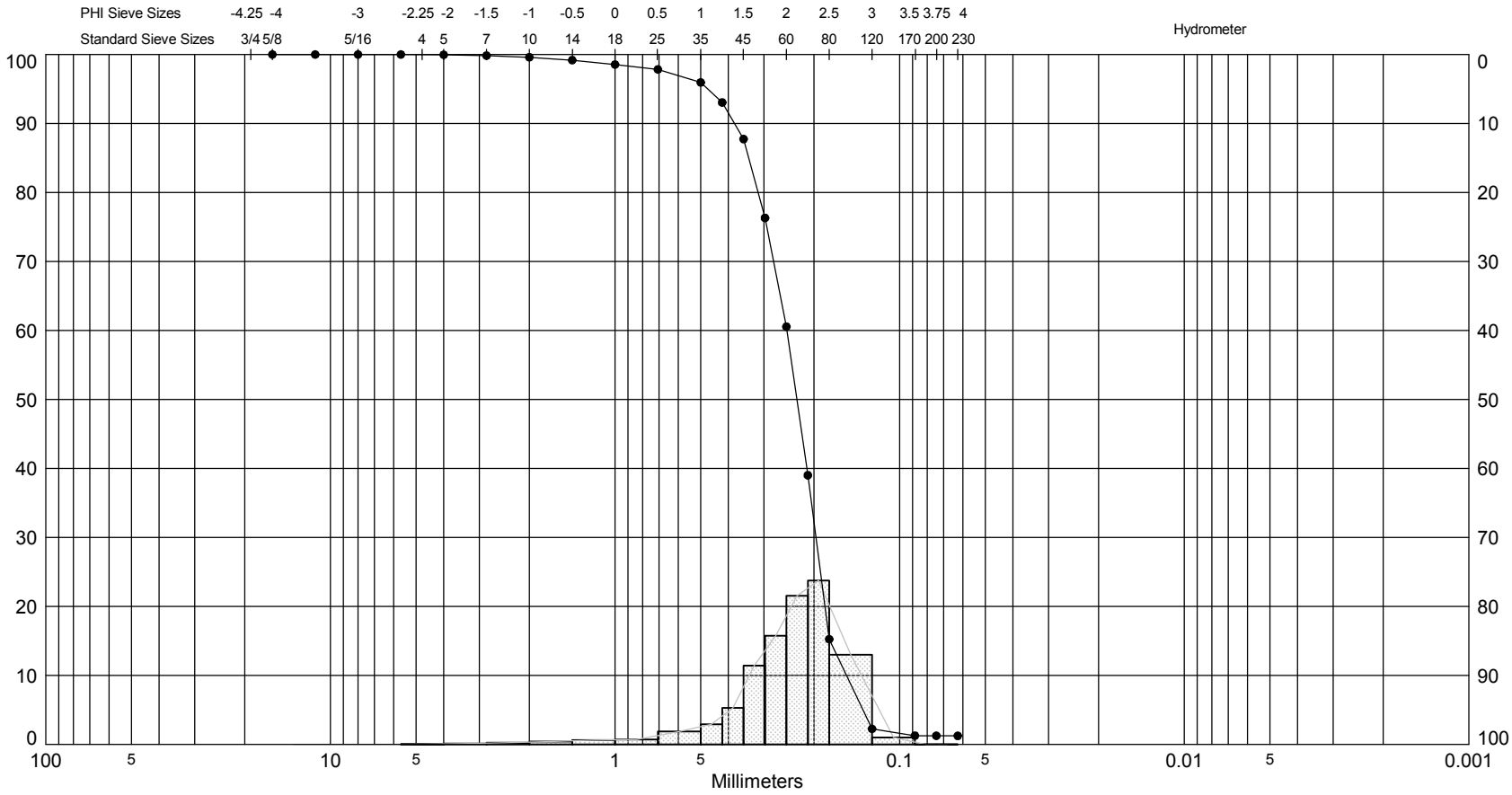
Comments:

Depths and elevations based on measured values

Sample Information	
Project Name:	Dauphin Island Shore Protection
Analysis Date:	03-01-10
Analyzed By:	GL
Easting (X, ft):	1,761,210
Northing (Y, ft):	86,107
Horizontal System:	NAD 1983
Vertical System:	NAVD 88

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SIEVE ANALYSIS DIVC-10.GPJ JPBRAZIL.GDT 3/14/11



Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
DIVC-10-08 #1	—●—	-20.8	SP	#200 - 1.25 #230 - 1.24			2.12	2.03	-1.88	10.36	0.6

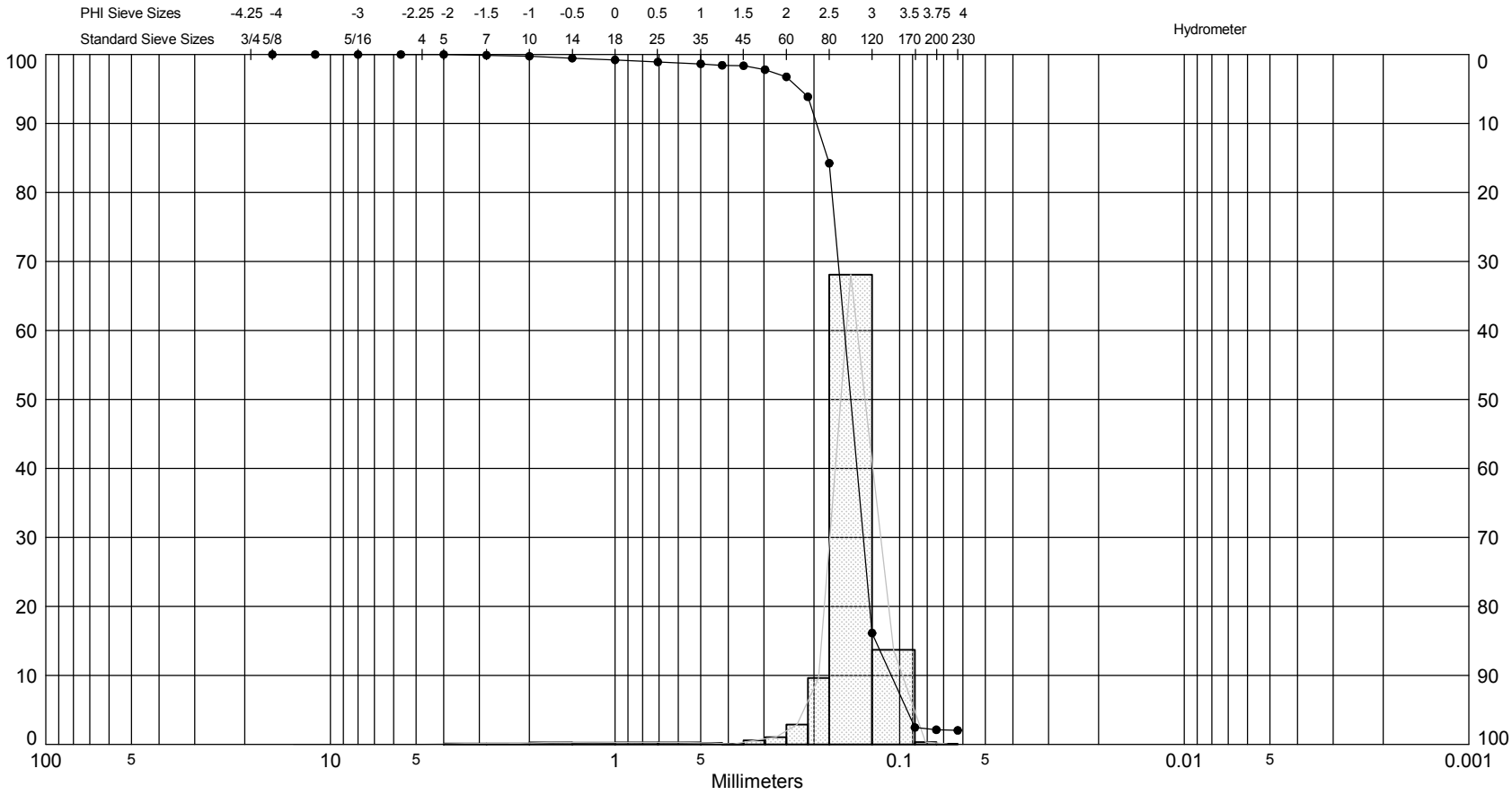
Comments:

Depths and elevations based on measured values

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Sample Information	
Project Name:	Dauphin Island Shore Protection
Analysis Date:	02-16-10
Analyzed By:	GL
Easting (X, ft):	1,775,889
Northing (Y, ft):	79,005
Horizontal System:	NAD 1983
Vertical System:	NAVD 88

SIEVE ANALYSIS DIVC-10.GPJ JPBRAZIL.GDT 3/14/11



Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
DIVC-10-08 #2	—●—	-23.6	SP	#200 - 2.12 #230 - 2.03			2.75	2.71	-4.36	33.4	0.47

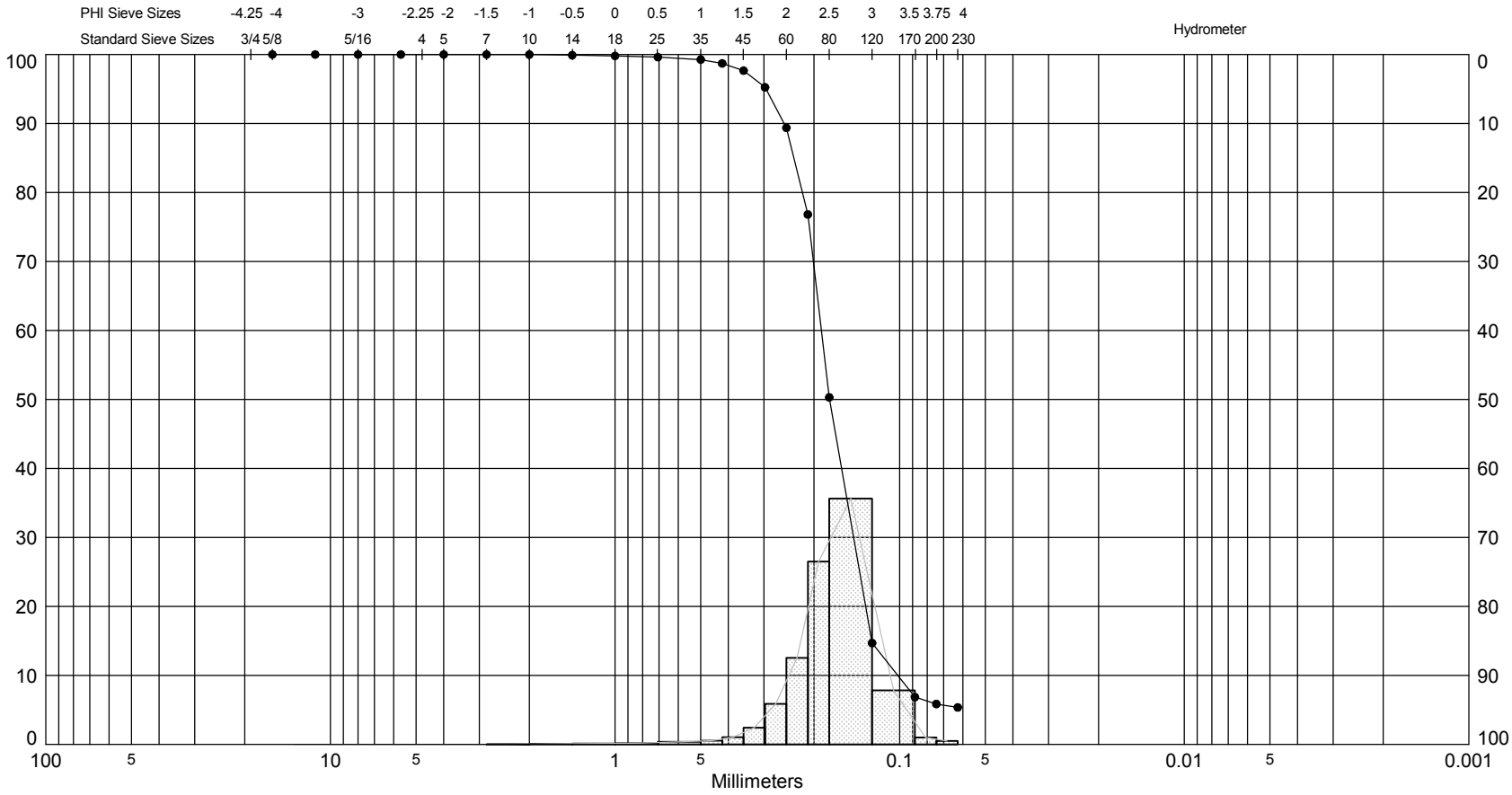
Comments:

Depths and elevations based on measured values

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Sample Information	
Project Name:	Dauphin Island Shore Protection
Analysis Date:	02-16-10
Analyzed By:	GL
Easting (X, ft):	1,775,889
Northing (Y, ft):	79,005
Horizontal System:	NAD 1983
Vertical System:	NAVD 88

SIEVE ANALYSIS DIVC-10.GPJ JPBRAZIL.GDT 3/14/11



Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
DIVC-10-08 #3	—●—	-29.1	SP-SC	#200 - 5.85 #230 - 5.36			2.5	2.49	-0.92	7.84	0.48

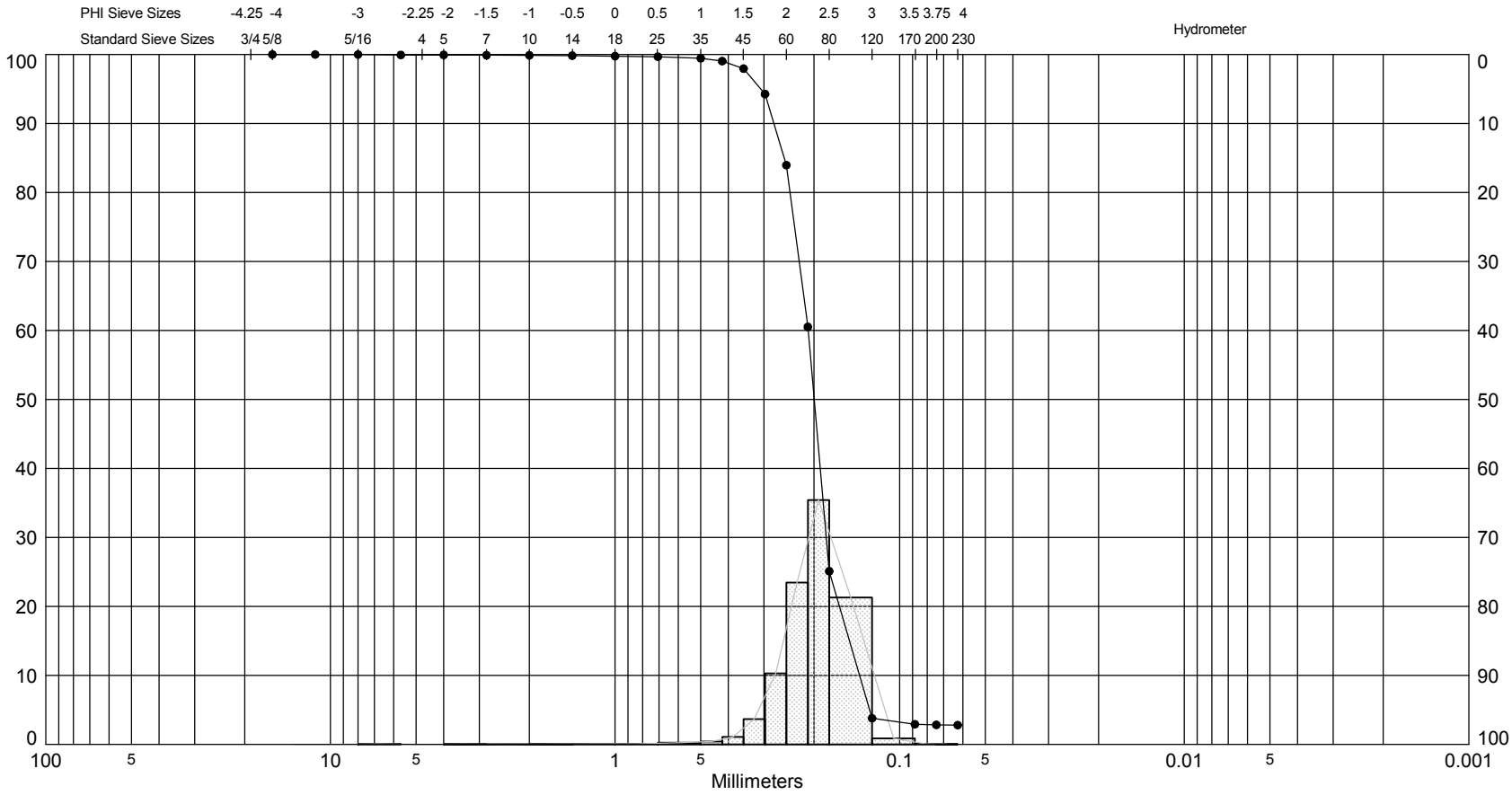
Comments:

Depths and elevations based on measured values

Sample Information	
Project Name:	Dauphin Island Shore Protection
Analysis Date:	02-17-10
Analyzed By:	PB
Easting (X, ft):	1,775,889
Northing (Y, ft):	79,005
Horizontal System:	NAD 1983
Vertical System:	NAVD 88

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SIEVE ANALYSIS DIVC-10.GPJ JPBRAZIL.GDT 3/14/11



Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
DIVC-10-08 #4	—●—	-30.6	SP	#200 - 2.83 #230 - 2.79			2.32	2.29	-2.61	28.51	0.4

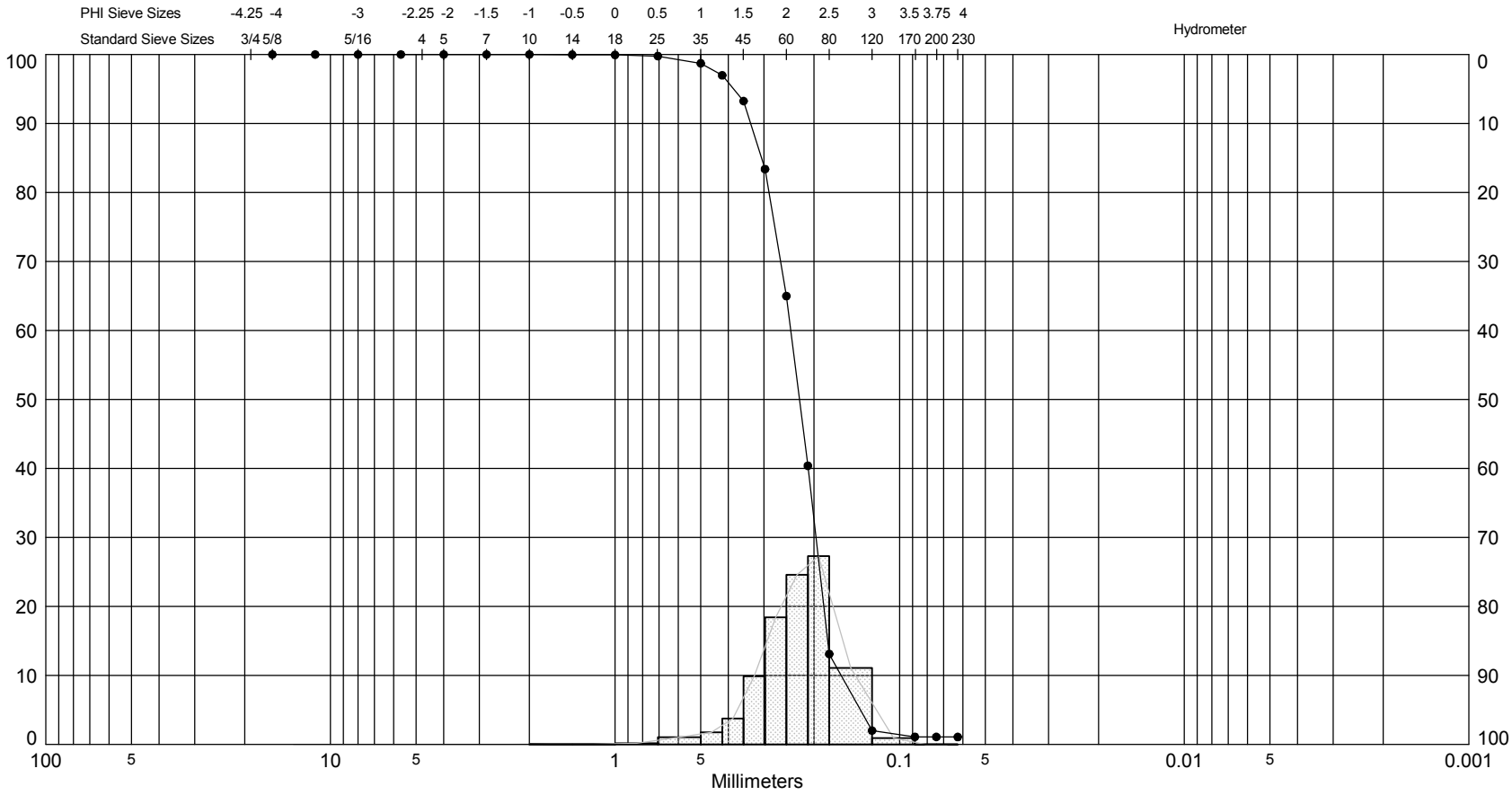
Comments:

Depths and elevations based on measured values

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Sample Information	
Project Name:	Dauphin Island Shore Protection
Analysis Date:	02-17-10
Analyzed By:	PB
Easting (X, ft):	1,775,889
Northing (Y, ft):	79,005
Horizontal System:	NAD 1983
Vertical System:	NAVD 88

SIEVE ANALYSIS DIVC-10.GPJ JPBRAZIL.GDT 3/14/11



Gravel		Sand			Silt and Clay
Coarse	Fine	Coarse	Medium	Fine	

Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
DIVC-10-09 #1	—●—	-23.6	SP	#200 - 1.08 #230 - 1.07			2.15	2.11	-0.62	4.95	0.42

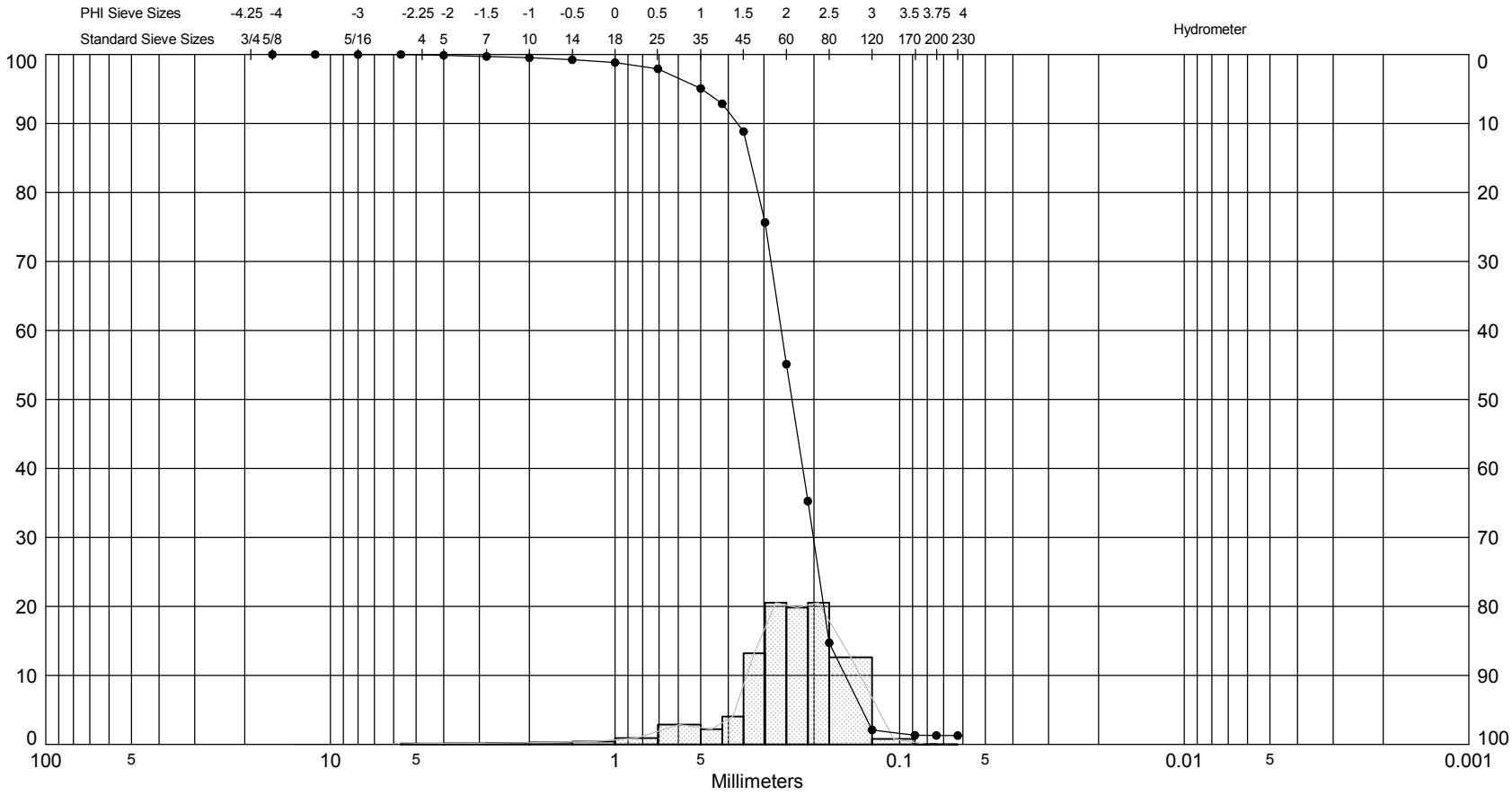
Comments:

Depths and elevations based on measured values

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Sample Information	
Project Name:	Dauphin Island Shore Protection
Analysis Date:	09-21-10
Analyzed By:	TH
Easting (X, ft):	1,787,827
Northing (Y, ft):	64,695
Horizontal System:	NAD 1983
Vertical System:	NAVD 88

SIEVE ANALYSIS DIVC-10.GPJ JPBRAZIL.GDT 3/14/11



Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
DIVC-10-09 #2	—●—	-28.6	SP	#200 - 1.29 #230 - 1.28			2.06	2	-1.94	11.55	0.6

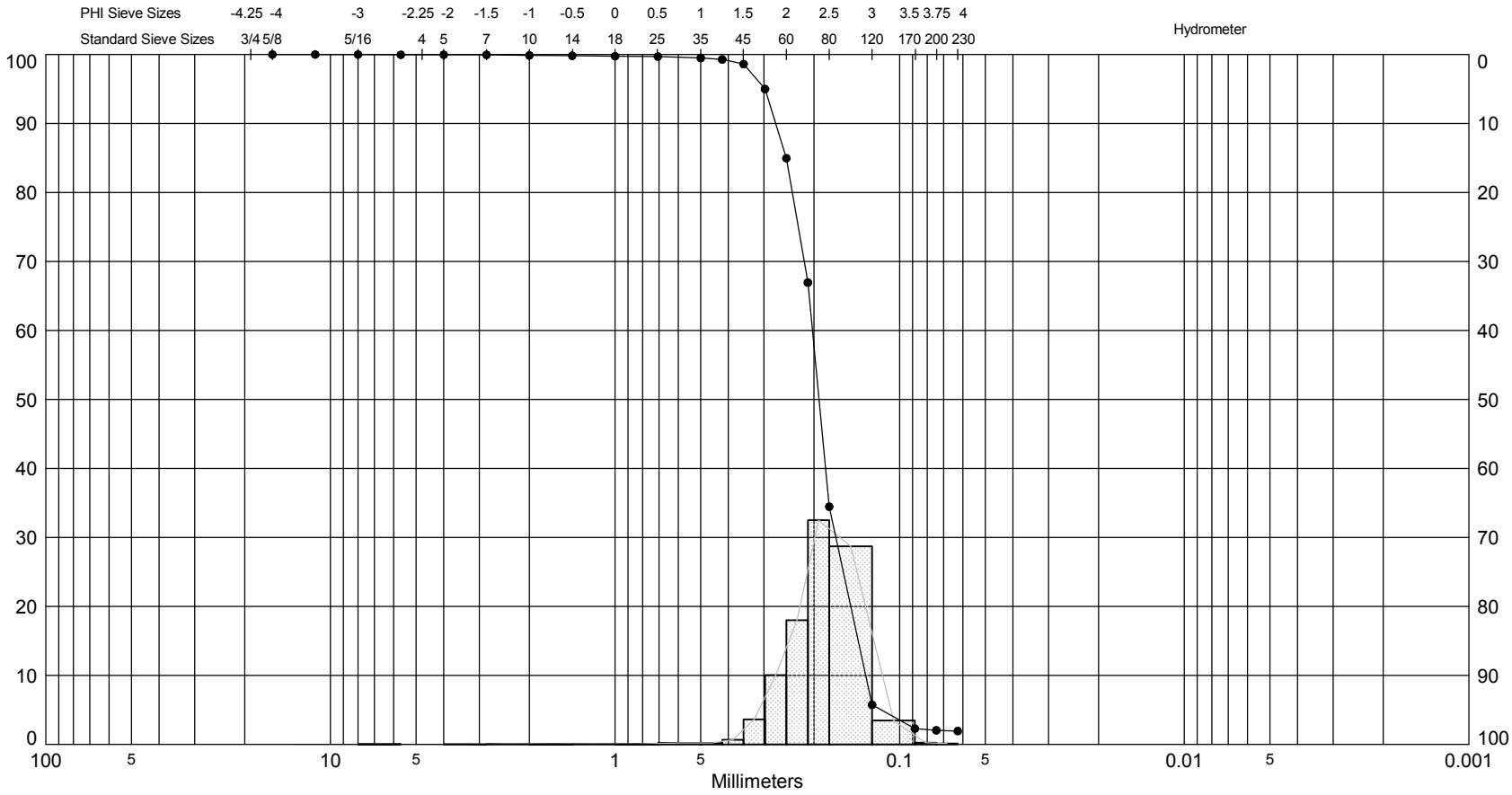
Comments:

Depths and elevations based on measured values

Sample Information	
Project Name:	Dauphin Island Shore Protection
Analysis Date:	09-21-10
Analyzed By:	TH
Easting (X, ft):	1,787,827
Northing (Y, ft):	64,695
Horizontal System:	NAD 1983
Vertical System:	NAVD 88

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SIEVE ANALYSIS DIVC-10.GPJ JPBRAZIL.GDT 3/14/11



Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
DIVC-10-09 #3	—●—	-34.1	SP	#200 - 2.05 #230 - 1.93			2.38	2.37	-1.79	19.18	0.43

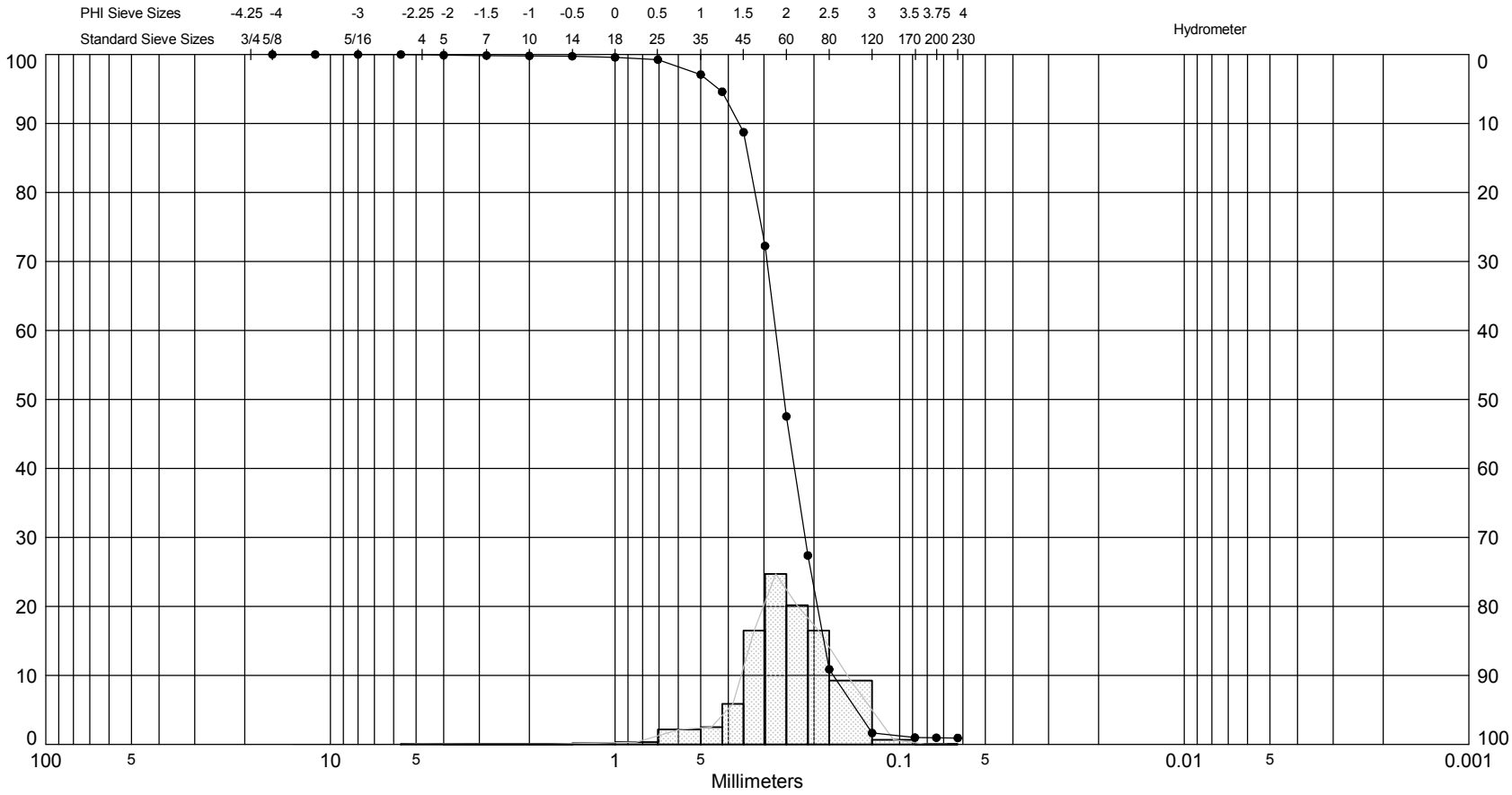
Comments:

Depths and elevations based on measured values

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Sample Information	
Project Name:	Dauphin Island Shore Protection
Analysis Date:	09-21-10
Analyzed By:	TH
Easting (X, ft):	1,787,827
Northing (Y, ft):	64,695
Horizontal System:	NAD 1983
Vertical System:	NAVD 88

SIEVE ANALYSIS DIVC-10.GPJ JPBRAZIL.GDT 3/14/11



Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
DIVC-10-10 #1	—●—	-18.2	SP	#200 - 0.96 #230 - 0.93			1.98	1.97	-1.34	11.52	0.5

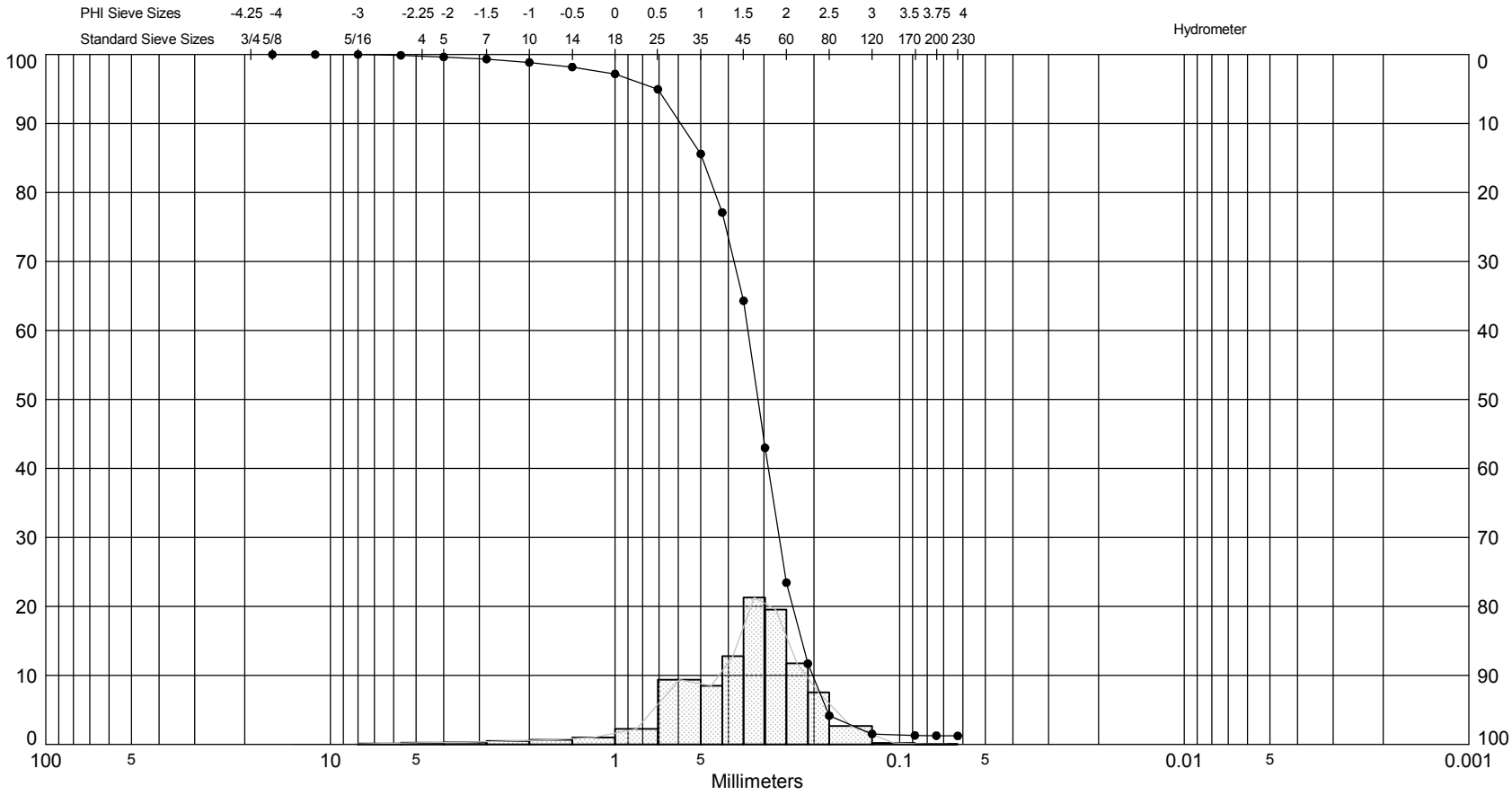
Comments:

Depths and elevations based on measured values

Sample Information	
Project Name:	Dauphin Island Shore Protection
Analysis Date:	09-21-10
Analyzed By:	TH
Easting (X, ft):	1,788,794
Northing (Y, ft):	64,755
Horizontal System:	NAD 1983
Vertical System:	NAVD 88

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SIEVE ANALYSIS DIVC-10.GPJ JPBRAZIL.GDT 3/14/11



Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
DIVC-10-10 #2	—●—	-20.0	SP	#200 - 1.26 #230 - 1.23			1.67	1.56	-1.75	9.46	0.69

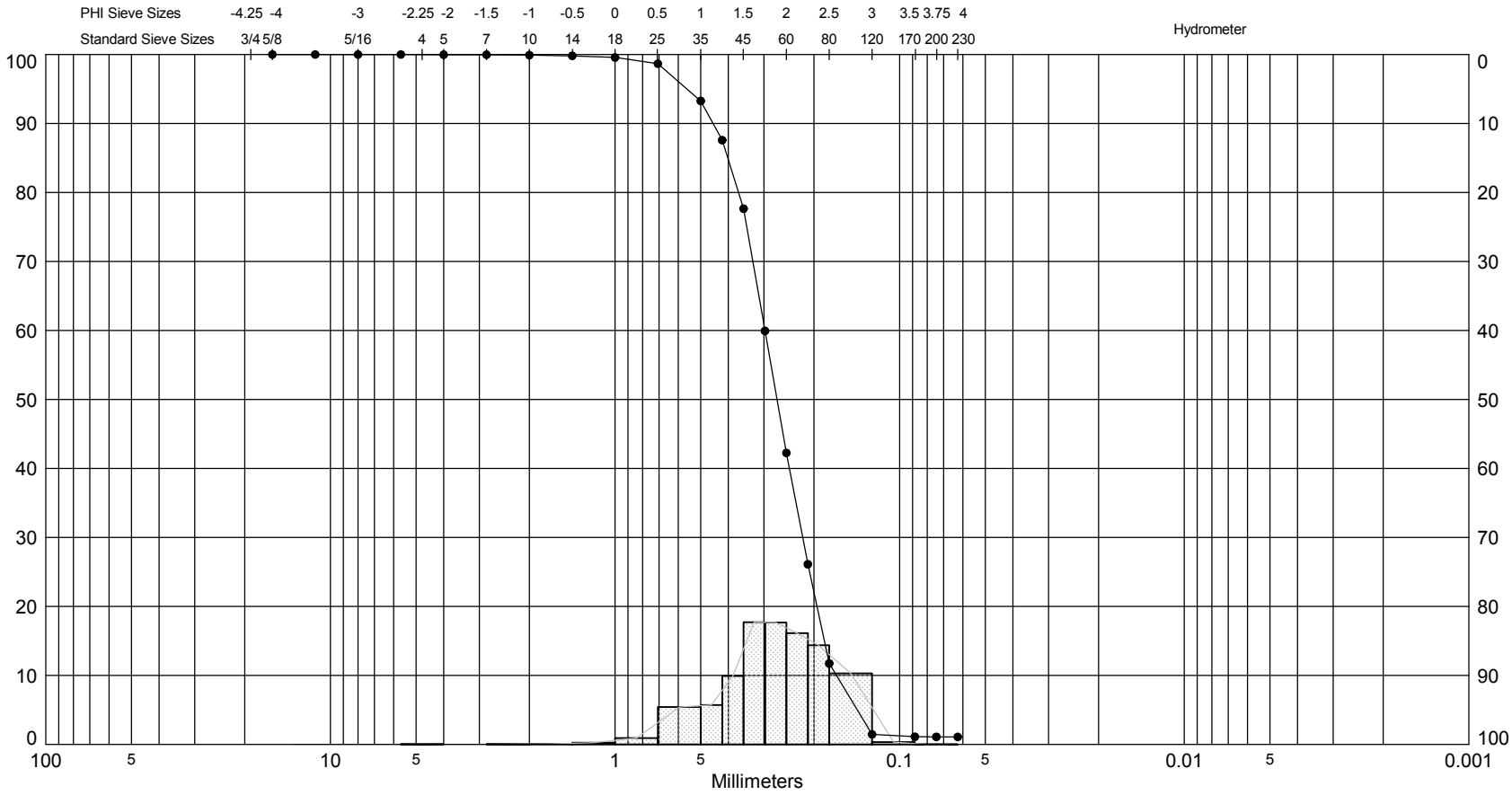
Comments:

Depths and elevations based on measured values

Sample Information	
Project Name:	Dauphin Island Shore Protection
Analysis Date:	09-21-10
Analyzed By:	TH
Easting (X, ft):	1,788,794
Northing (Y, ft):	64,755
Horizontal System:	NAD 1983
Vertical System:	NAVD 88

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SIEVE ANALYSIS DIVC-10.GPJ JPBRAZIL.GDT 3/14/11



Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
DIVC-10-10 #3	—●—	-25.2	SP	#200 - 1.09 #230 - 1.08			1.89	1.86	-0.65	4.65	0.57

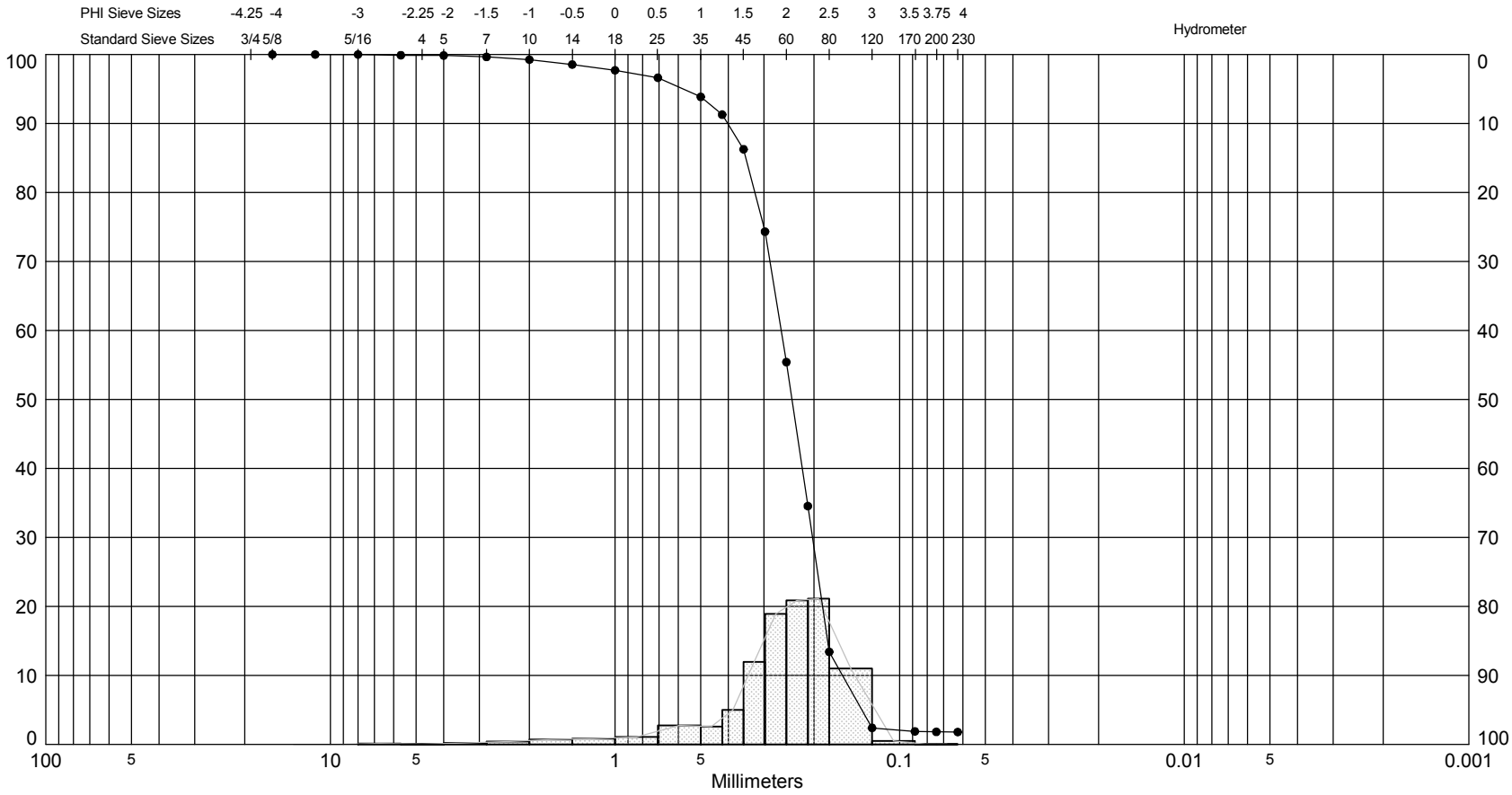
Comments:

Depths and elevations based on measured values

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Sample Information	
Project Name:	Dauphin Island Shore Protection
Analysis Date:	09-21-10
Analyzed By:	TH
Easting (X, ft):	1,788,794
Northing (Y, ft):	64,755
Horizontal System:	NAD 1983
Vertical System:	NAVD 88

SIEVE ANALYSIS DIVC-10.GPJ JPBRAZIL.GDT 3/14/11



Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
DIVC-10-10 #4	—●—	-27.7	SP	#200 - 1.82 #230 - 1.79			2.06	1.95	-2.22	11.67	0.67

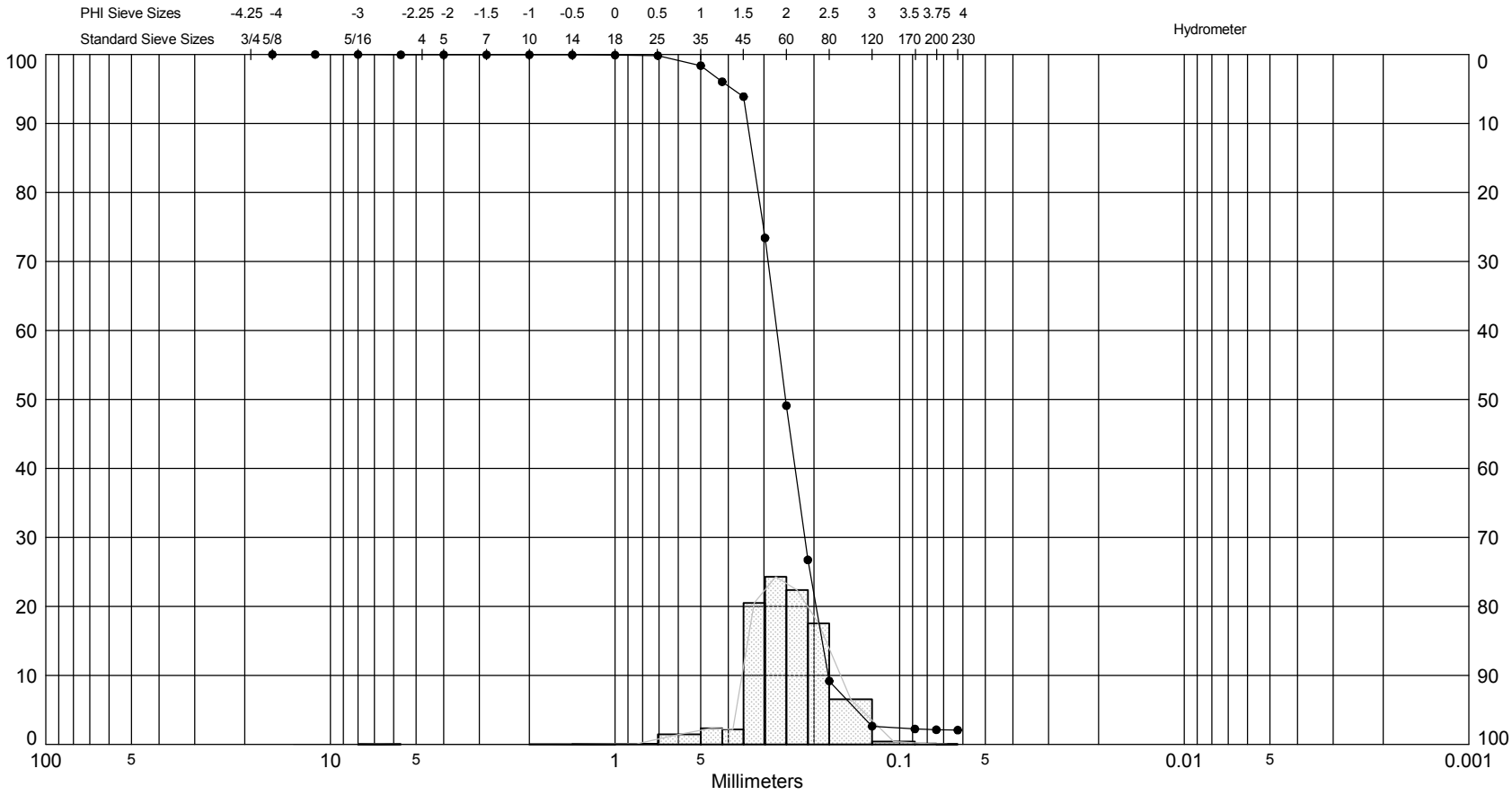
Comments:

Depths and elevations based on measured values

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Sample Information	
Project Name:	Dauphin Island Shore Protection
Analysis Date:	09-21-10
Analyzed By:	TH
Easting (X, ft):	1,788,794
Northing (Y, ft):	64,755
Horizontal System:	NAD 1983
Vertical System:	NAVD 88

SIEVE ANALYSIS DIVC-10.GPJ JPBRAZIL.GDT 3/14/11



Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
DIVC-10-10 #5	—●—	-34.2	SP	#200 - 2.12 #230 - 2.07			1.99	1.99	-0.83	11.74	0.42

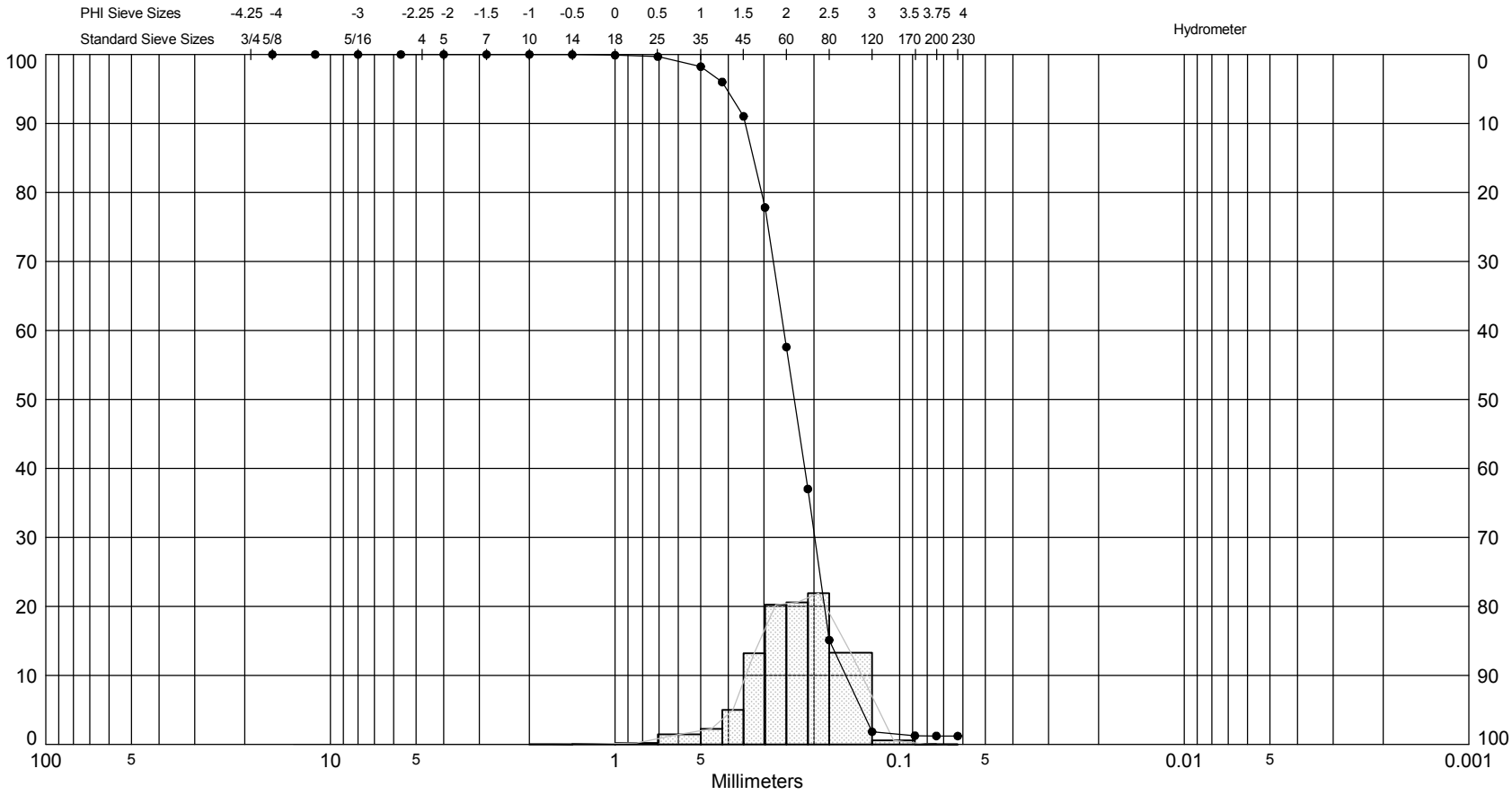
Comments:

Depths and elevations based on measured values

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Sample Information	
Project Name:	Dauphin Island Shore Protection
Analysis Date:	09-21-10
Analyzed By:	TH
Easting (X, ft):	1,788,794
Northing (Y, ft):	64,755
Horizontal System:	NAD 1983
Vertical System:	NAVD 88

SIEVE ANALYSIS DIVC-10.GPJ JPBRAZIL.GDT 3/14/11



Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
DIVC-10-11 #1	—●—	-20.2	SP	#200 - 1.22 #230 - 1.21			2.09	2.07	-0.49	4.14	0.46

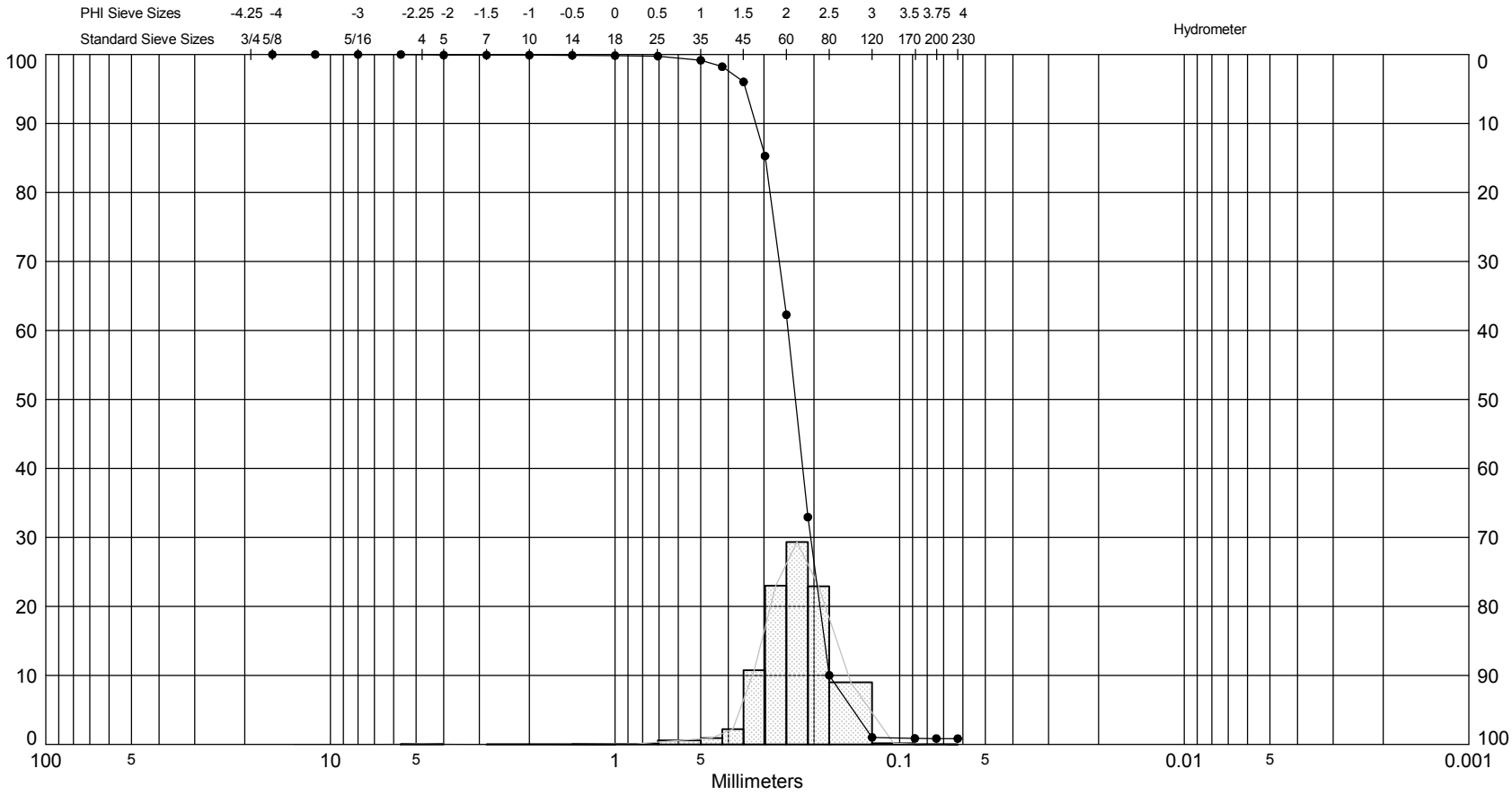
Comments:

Depths and elevations based on measured values

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fax (561) 391-9116

Sample Information	
Project Name:	Dauphin Island Shore Protection
Analysis Date:	09-21-10
Analyzed By:	TH
Easting (X, ft):	1,788,371
Northing (Y, ft):	63,930
Horizontal System:	NAD 1983
Vertical System:	NAVD 88

SIEVE ANALYSIS DIVC-10.GPJ JPBRAZIL.GDT 3/14/11



Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
DIVC-10-11 #2	—●—	-25.2	SP	#200 - 0.85 #230 - 0.84			2.1	2.09	-1.74	19	0.39

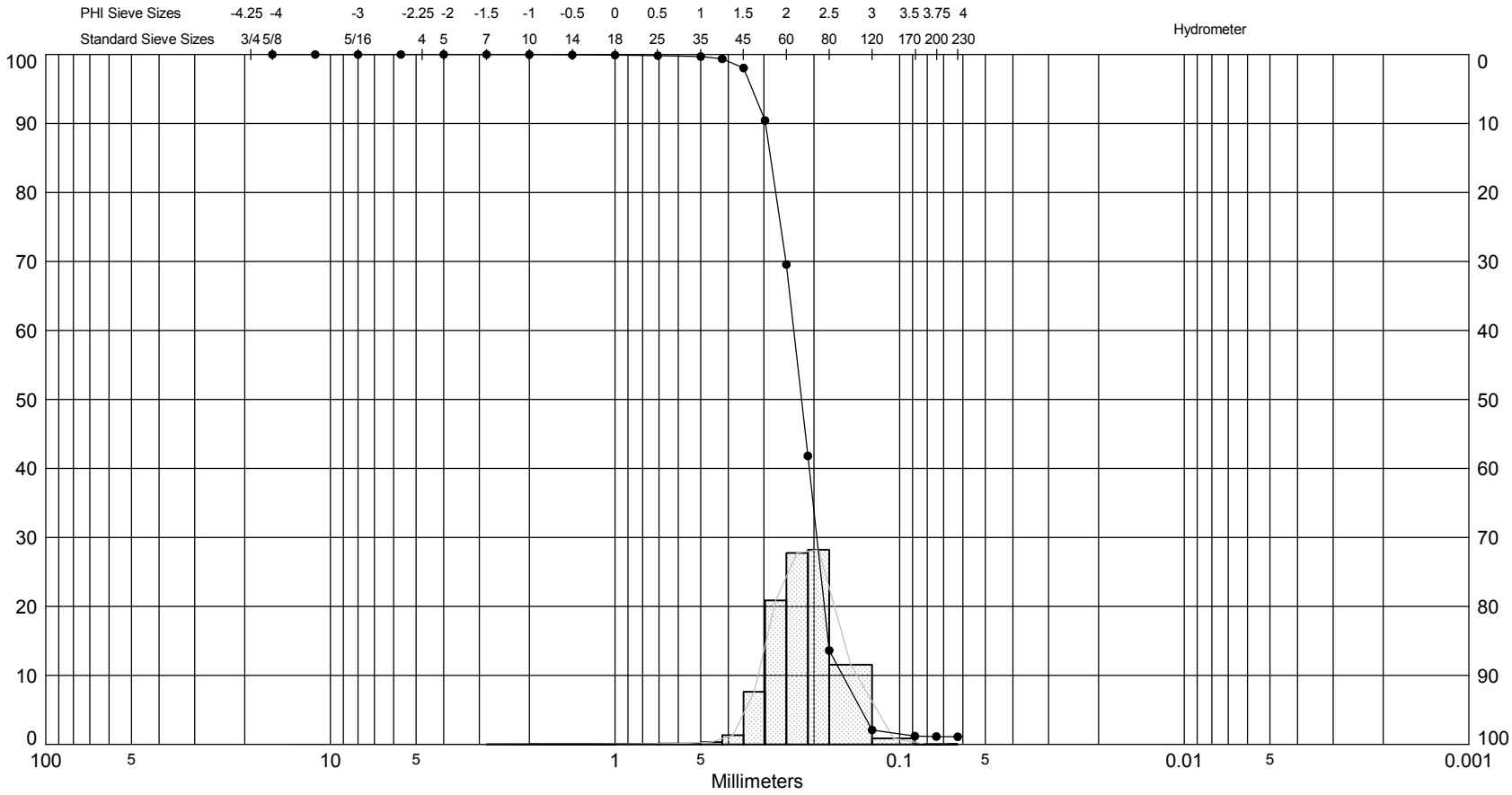
Comments:

Depths and elevations based on measured values

Sample Information	
Project Name:	Dauphin Island Shore Protection
Analysis Date:	09-21-10
Analyzed By:	TH
Easting (X, ft):	1,788,371
Northing (Y, ft):	63,930
Horizontal System:	NAD 1983
Vertical System:	NAVD 88

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SIEVE ANALYSIS DIVC-10.GPJ JPBRAZIL.GDT 3/14/11



Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
DIVC-10-11 #3	—●—	-29.2	SP	#200 - 1.14 #230 - 1.11			2.18	2.17	-0.4	7.32	0.36

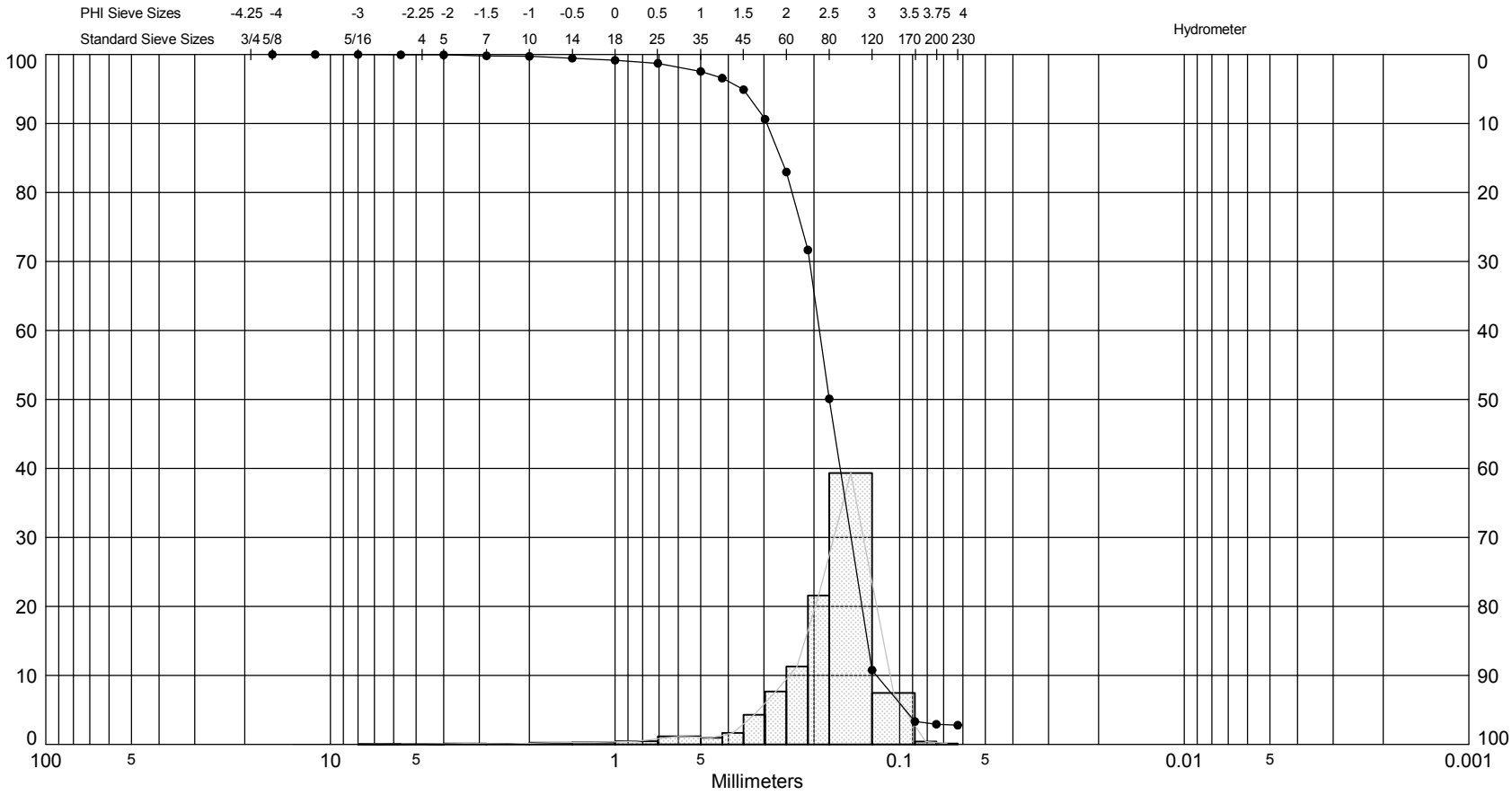
Comments:

Depths and elevations based on measured values

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Sample Information	
Project Name:	Dauphin Island Shore Protection
Analysis Date:	09-21-10
Analyzed By:	TH
Easting (X, ft):	1,788,371
Northing (Y, ft):	63,930
Horizontal System:	NAD 1983
Vertical System:	NAVD 88

SIEVE ANALYSIS DIVC-10.GPJ JPBRAZIL.GDT 3/14/11



Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
DIVC-10-11 #4	—●—	-32.6	SP	#200 - 2.92 #230 - 2.78			2.5	2.41	-2.17	13.16	0.6

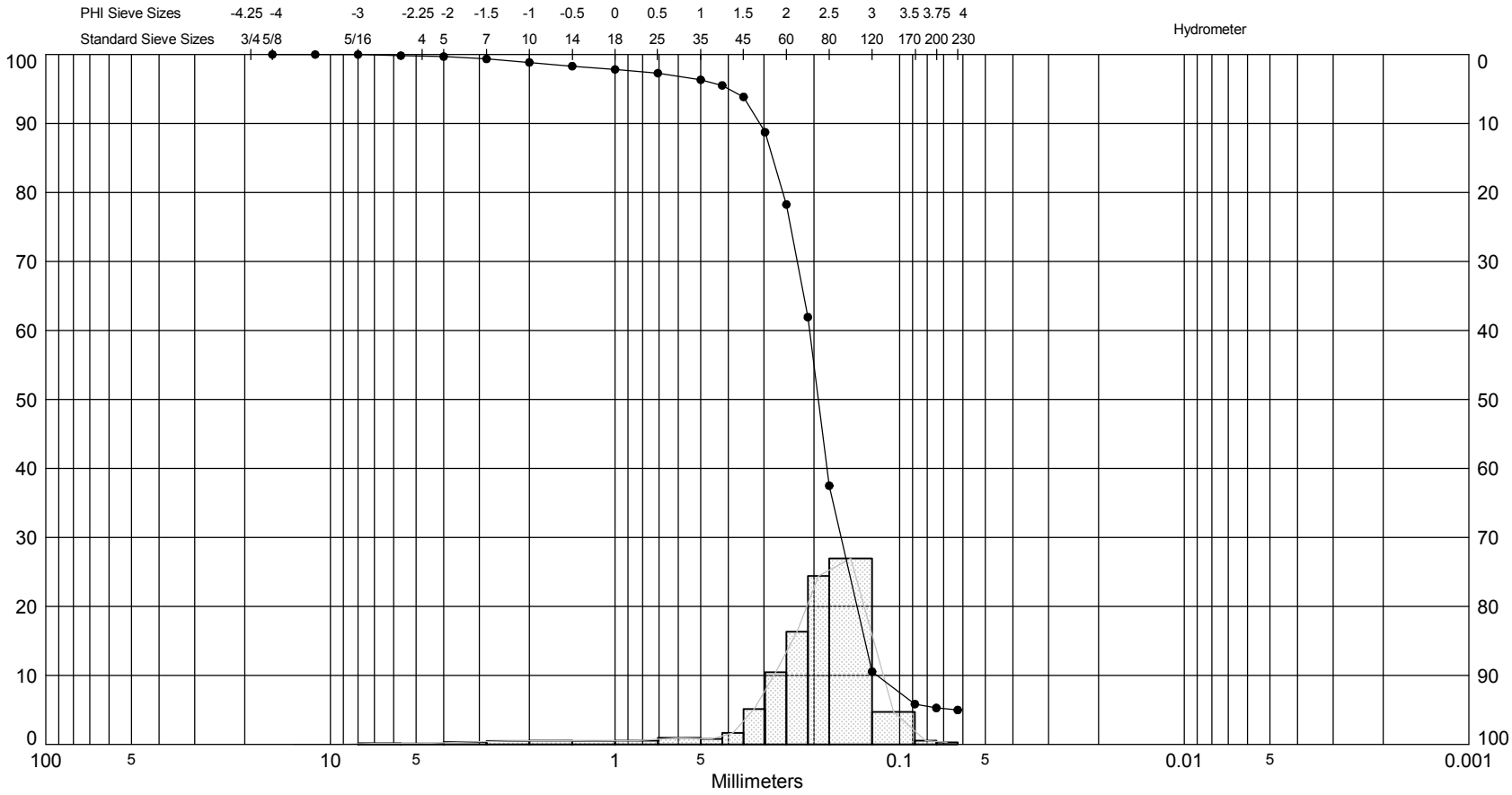
Comments:

Depths and elevations based on measured values

Sample Information	
Project Name:	Dauphin Island Shore Protection
Analysis Date:	09-21-10
Analyzed By:	TH
Easting (X, ft):	1,788,371
Northing (Y, ft):	63,930
Horizontal System:	NAD 1983
Vertical System:	NAVD 88

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SIEVE ANALYSIS DIVC-10.GPJ JPBRAZIL.GDT 3/14/11



Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
DIVC-10-11 #5	—●—	-34.7	SP-SC	#200 - 5.28 #230 - 4.98			2.37	2.26	-2.75	15.58	0.73

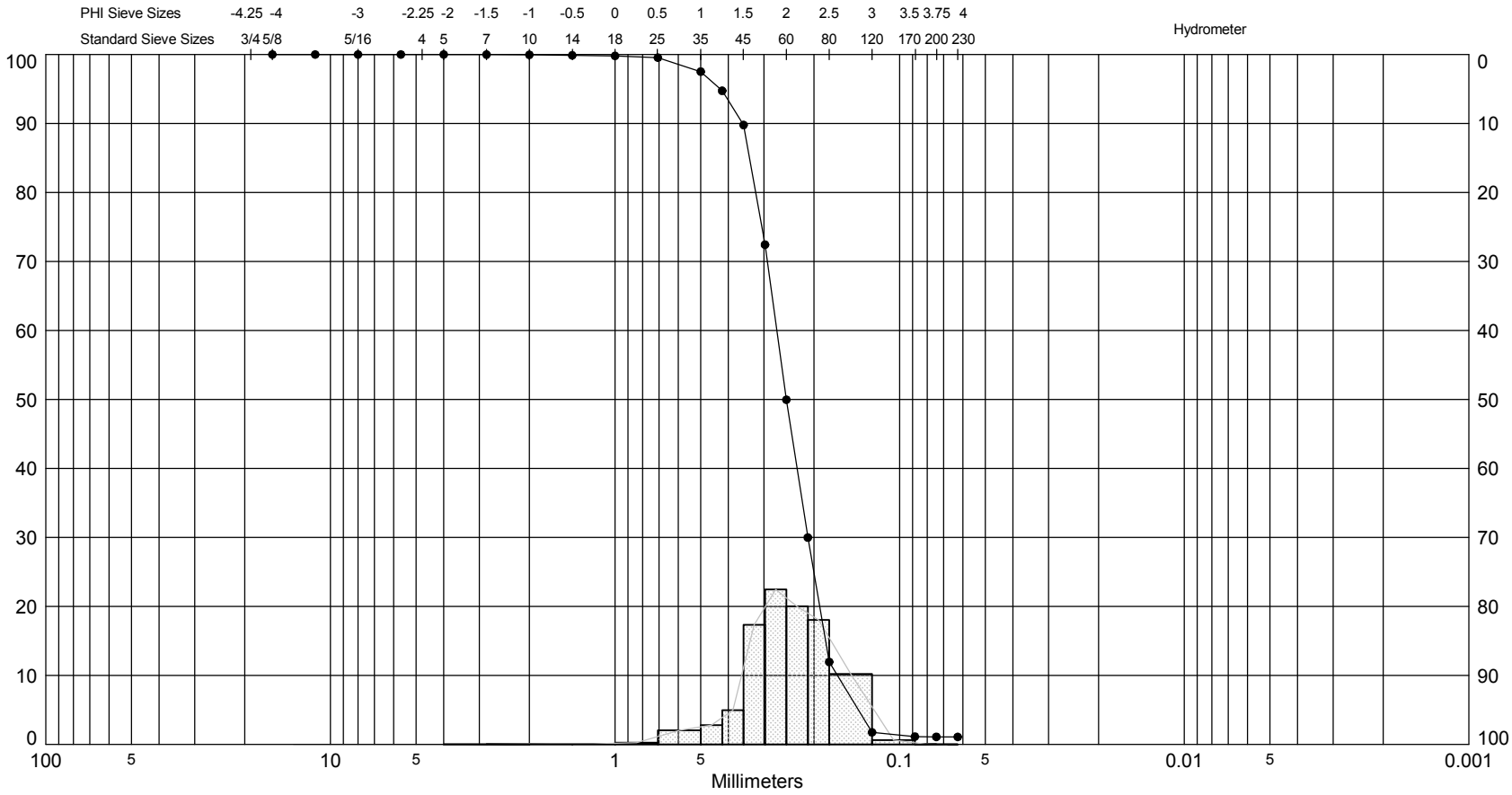
Comments:

Depths and elevations based on measured values

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FL 33431
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fax (561) 391-9116

Sample Information	
Project Name:	Dauphin Island Shore Protection
Analysis Date:	09-22-10
Analyzed By:	JR
Easting (X, ft):	1,788,371
Northing (Y, ft):	63,930
Horizontal System:	NAD 1983
Vertical System:	NAVD 88

SIEVE ANALYSIS DIVC-10.GPJ JPBRAZIL.GDT 3/14/11



Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
DIVC-10-12 #1	—●—	-23.3	SP	#200 - 1.09 #230 - 1.08			2	1.99	-0.63	5.72	0.47

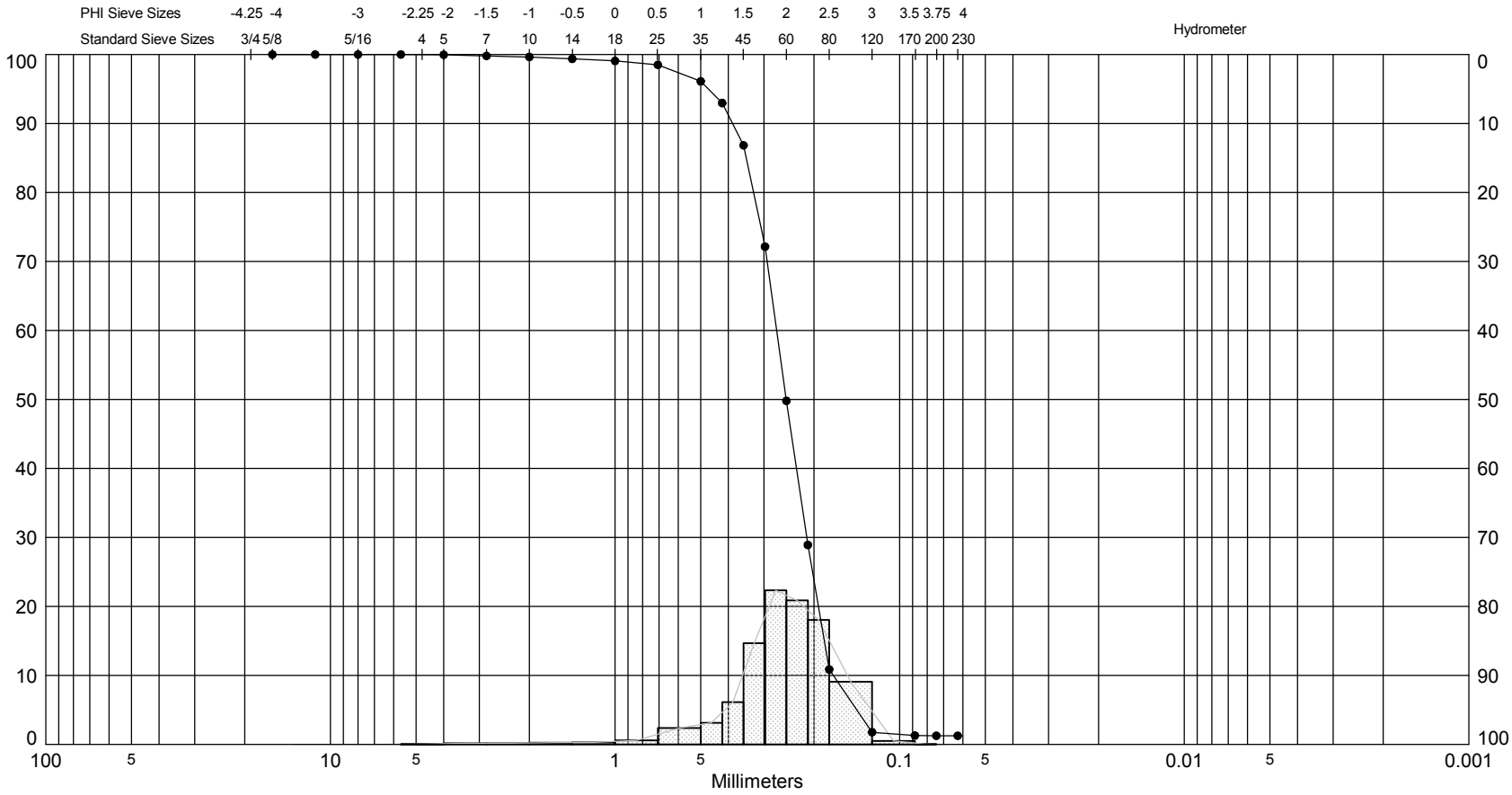
Comments:

Depths and elevations based on measured values

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Sample Information	
Project Name:	Dauphin Island Shore Protection
Analysis Date:	09-22-10
Analyzed By:	JR
Easting (X, ft):	1,788,442
Northing (Y, ft):	63,059
Horizontal System:	NAD 1983
Vertical System:	NAVD 88

SIEVE ANALYSIS DIVC-10.GPJ JPBRAZIL.GDT 3/14/11



Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
DIVC-10-12 #2	—●—	-26.3	SP	#200 - 1.25 #230 - 1.25			2	1.95	-1.75	11.33	0.55

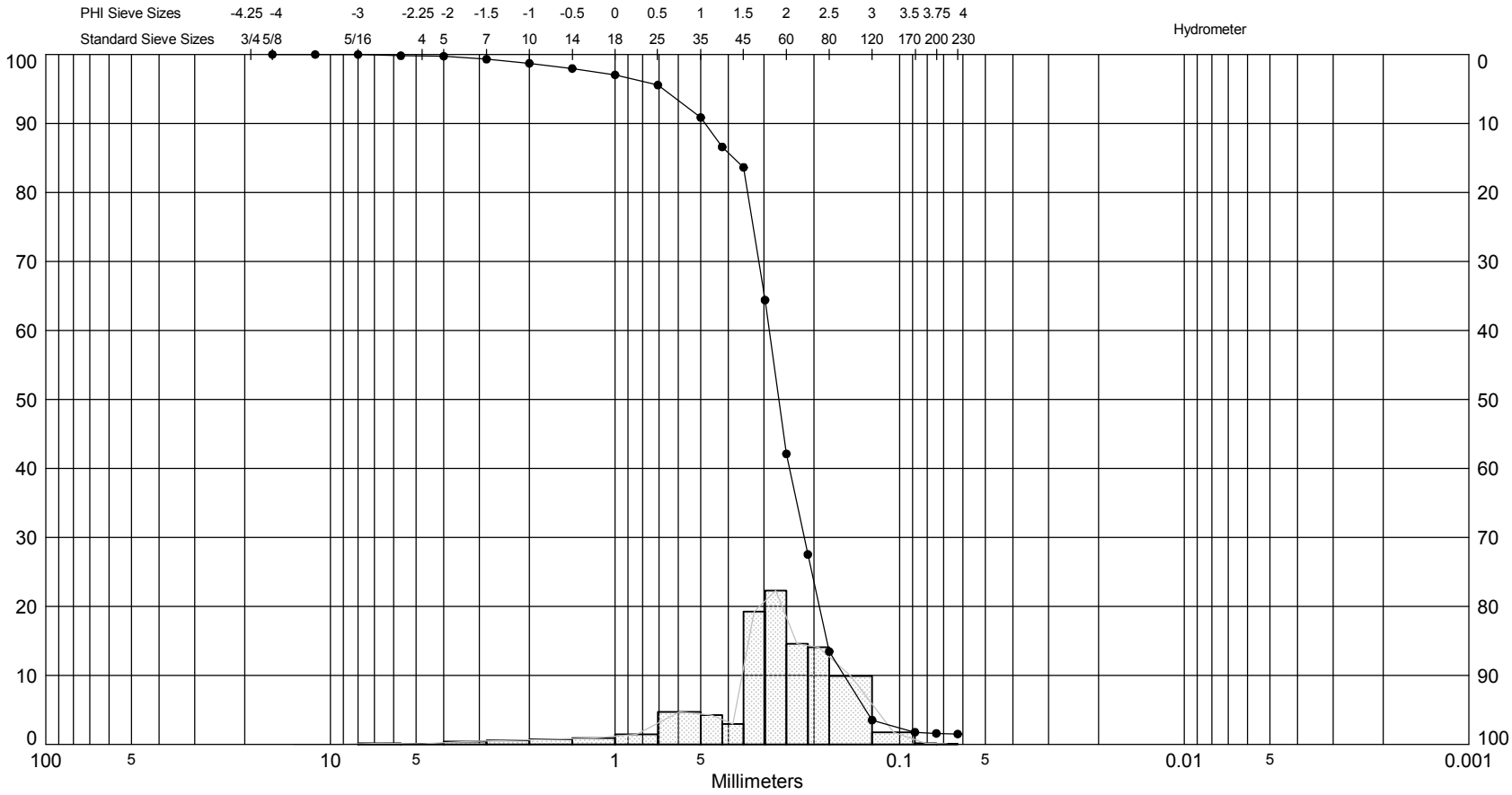
Comments:

Depths and elevations based on measured values

Coastal Planning & Engineering
2481 NW Boca Raton Blvd, Boca Raton
FL 33431
ph (561) 391-8102
fax (561) 391-9116

Sample Information	
Project Name:	Dauphin Island Shore Protection
Analysis Date:	09-22-10
Analyzed By:	JR
Easting (X, ft):	1,788,442
Northing (Y, ft):	63,059
Horizontal System:	NAD 1983
Vertical System:	NAVD 88

SIEVE ANALYSIS DIVC-10.GPJ JPBRAZIL.GDT 3/14/11



Gravel		Sand			Silt and Clay
Coarse	Fine	Coarse	Medium	Fine	

Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
DIVC-10-12 #3	—●—	-30.7	SP	#200 - 1.59 #230 - 1.50			1.91	1.84	-1.86	9.79	0.76

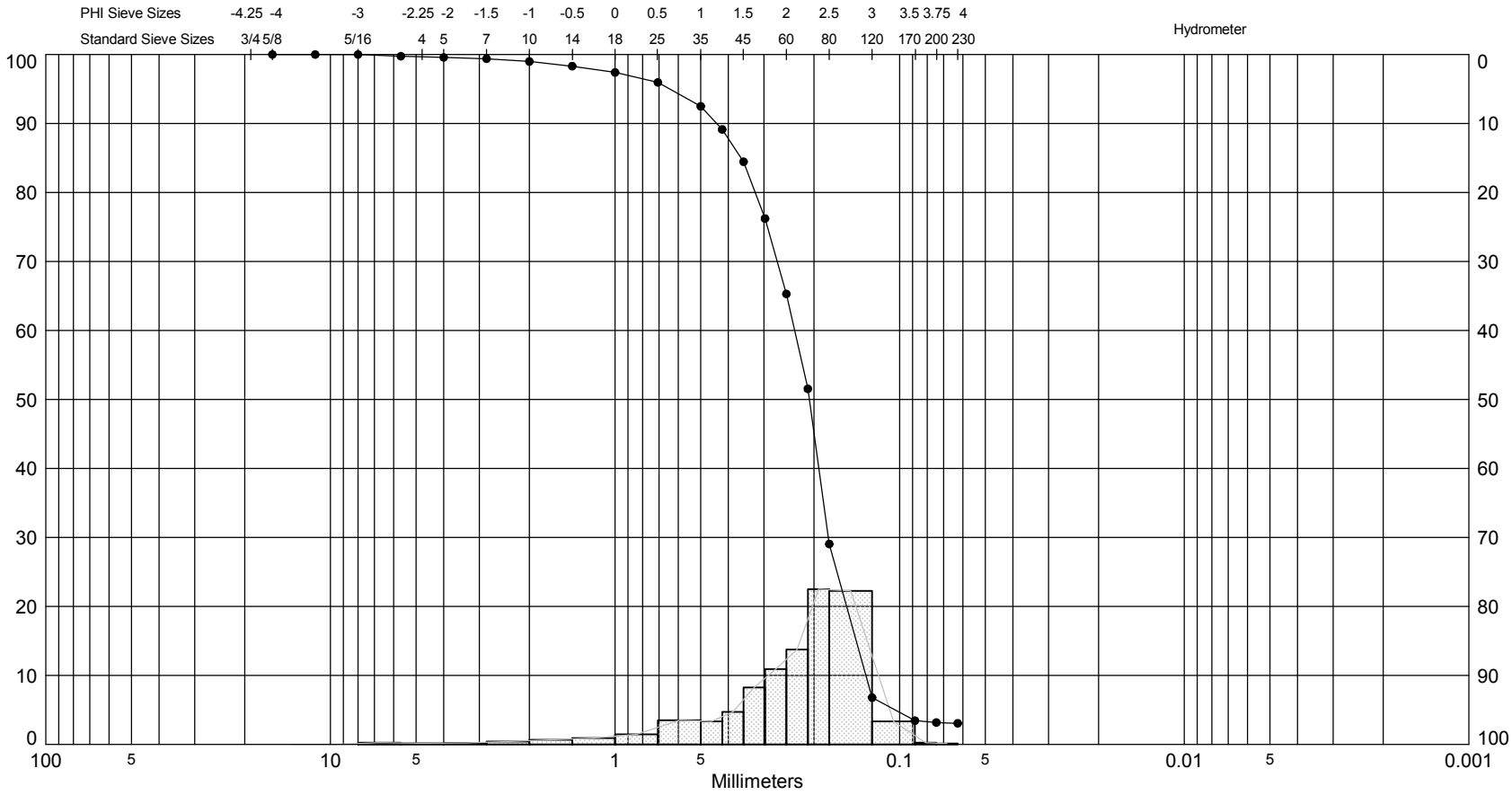
Comments:

Depths and elevations based on measured values

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Sample Information	
Project Name:	Dauphin Island Shore Protection
Analysis Date:	09-22-10
Analyzed By:	JR
Easting (X, ft):	1,788,442
Northing (Y, ft):	63,059
Horizontal System:	NAD 1983
Vertical System:	NAVD 88

SIEVE ANALYSIS DIVC-10.GPJ JPBRAZIL.GDT 3/14/11



Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
DIVC-10-12 #4	—●—	-35.6	SP	#200 - 3.17 #230 - 3.06			2.27	2.07	-1.99	9.76	0.8

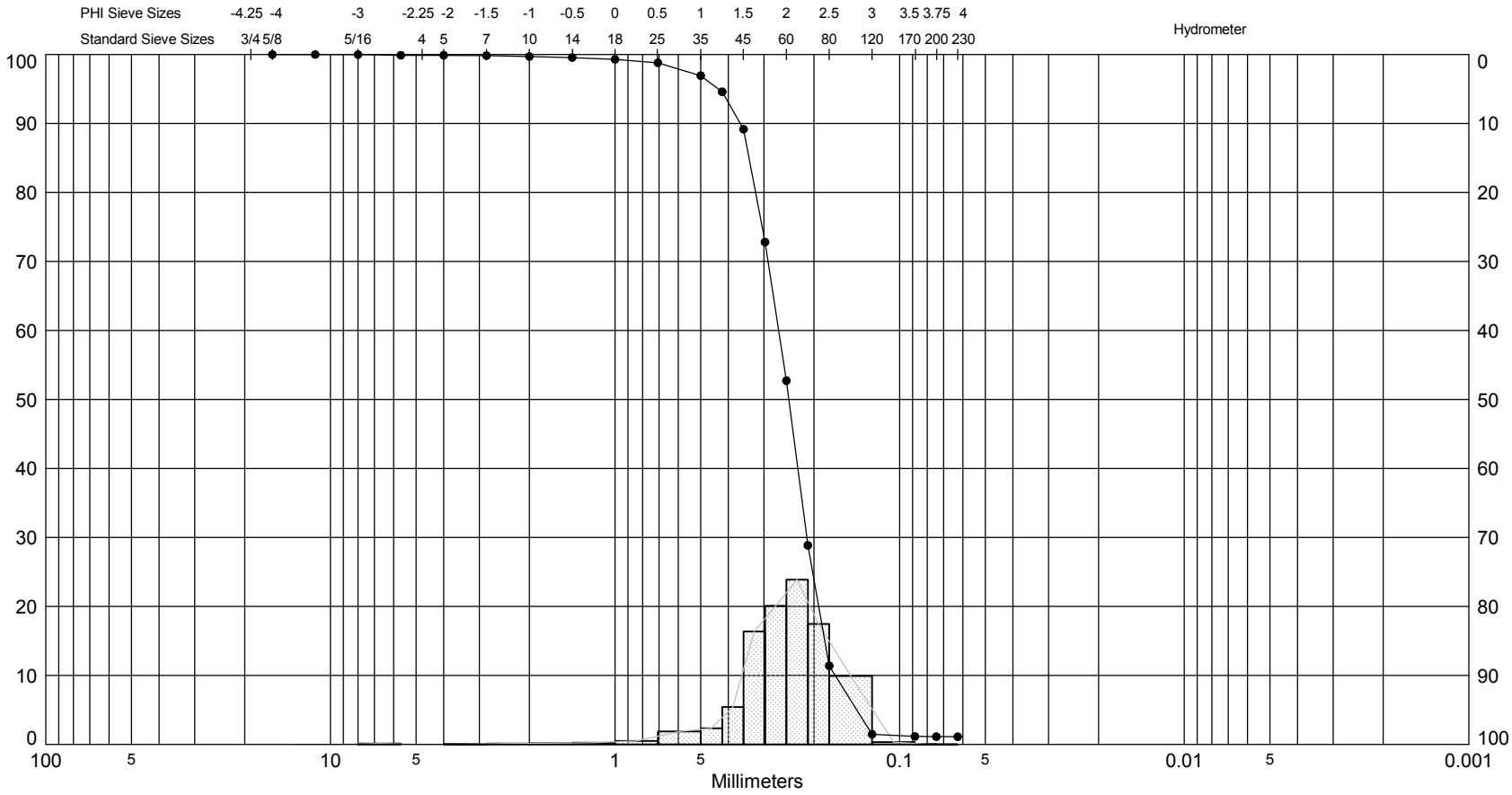
Comments:

Depths and elevations based on measured values

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Sample Information	
Project Name:	Dauphin Island Shore Protection
Analysis Date:	09-22-10
Analyzed By:	JR
Easting (X, ft):	1,788,442
Northing (Y, ft):	63,059
Horizontal System:	NAD 1983
Vertical System:	NAVD 88

SIEVE ANALYSIS DIVC-10.GPJ JPBRAZIL.GDT 3/14/11



Gravel		Sand			Silt and Clay
Coarse	Fine	Coarse	Medium	Fine	

Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
DIVC-10-13 #1	—●—	-20.4	SP	#200 - 1.12 #230 - 1.11			2.03	1.98	-1.98	15.11	0.52

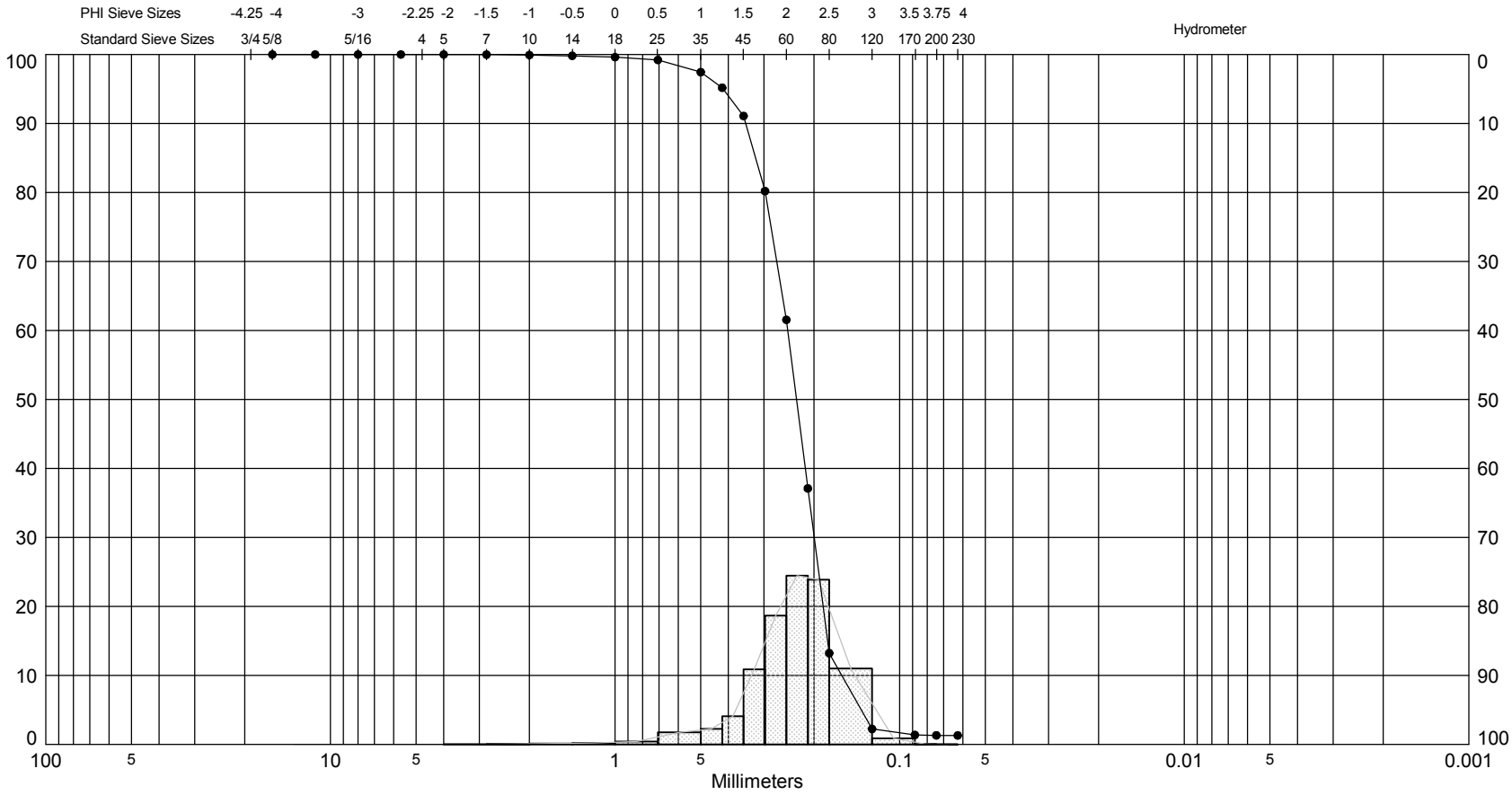
Comments:

Depths and elevations based on measured values

Sample Information	
Project Name:	Dauphin Island Shore Protection
Analysis Date:	09-22-10
Analyzed By:	JR
Easting (X, ft):	1,789,373
Northing (Y, ft):	63,248
Horizontal System:	NAD 1983
Vertical System:	NAVD 88

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SIEVE ANALYSIS DIVC-10.GPJ JPBRAZIL.GDT 3/14/11



Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
DIVC-10-13 #2	—●—	-28.9	SP	#200 - 1.31 #230 - 1.30			2.12	2.07	-1.16	7.67	0.48

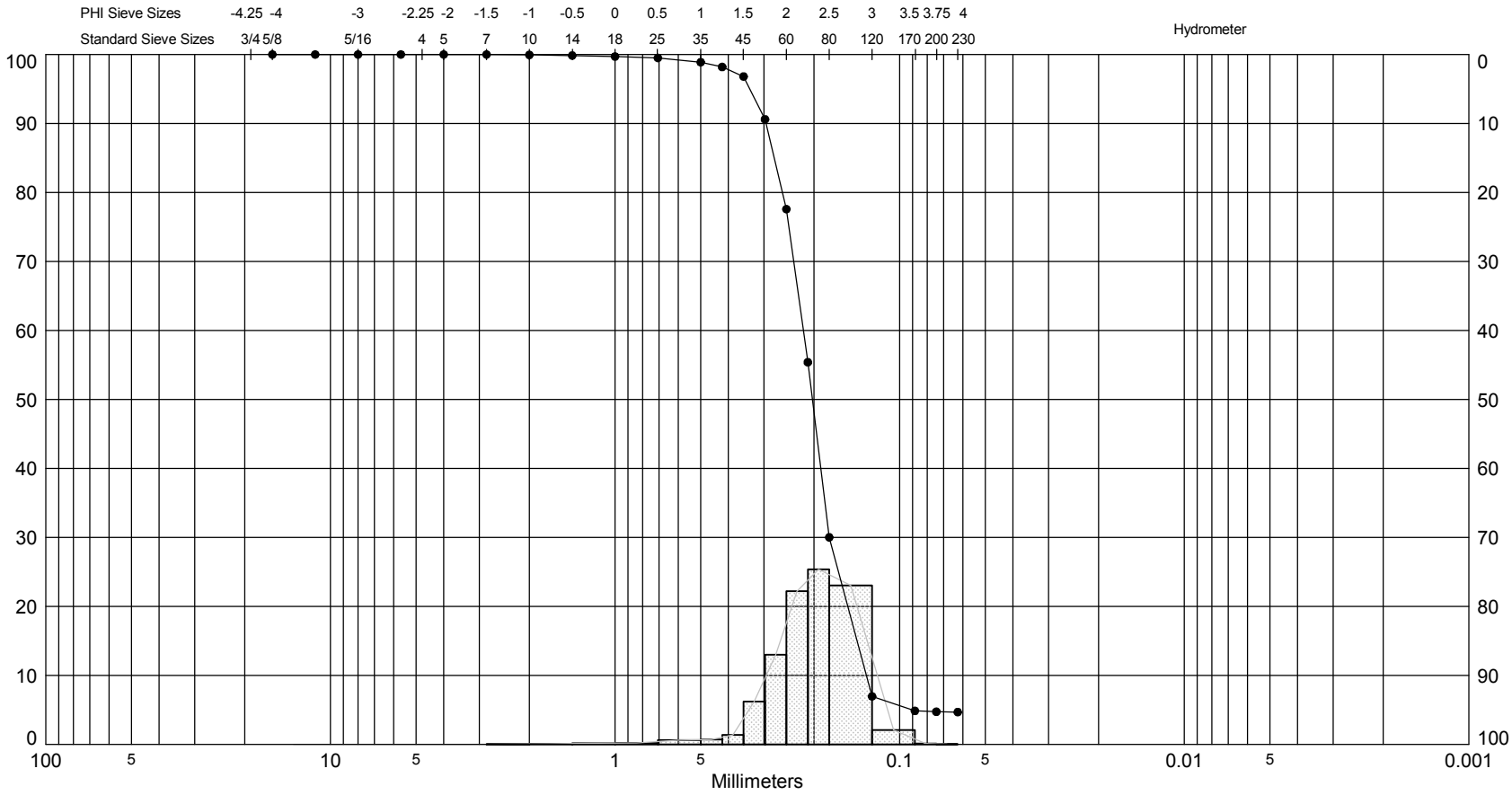
Comments:

Depths and elevations based on measured values

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Sample Information	
Project Name:	Dauphin Island Shore Protection
Analysis Date:	09-22-10
Analyzed By:	JR
Easting (X, ft):	1,789,373
Northing (Y, ft):	63,248
Horizontal System:	NAD 1983
Vertical System:	NAVD 88

SIEVE ANALYSIS DIVC-10.GPJ JPBRAZIL.GDT 3/14/11



Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
DIVC-10-13 #3	—●—	-33.5	SP	#200 - 4.73 #230 - 4.68			2.3	2.26	-1.15	8.81	0.46

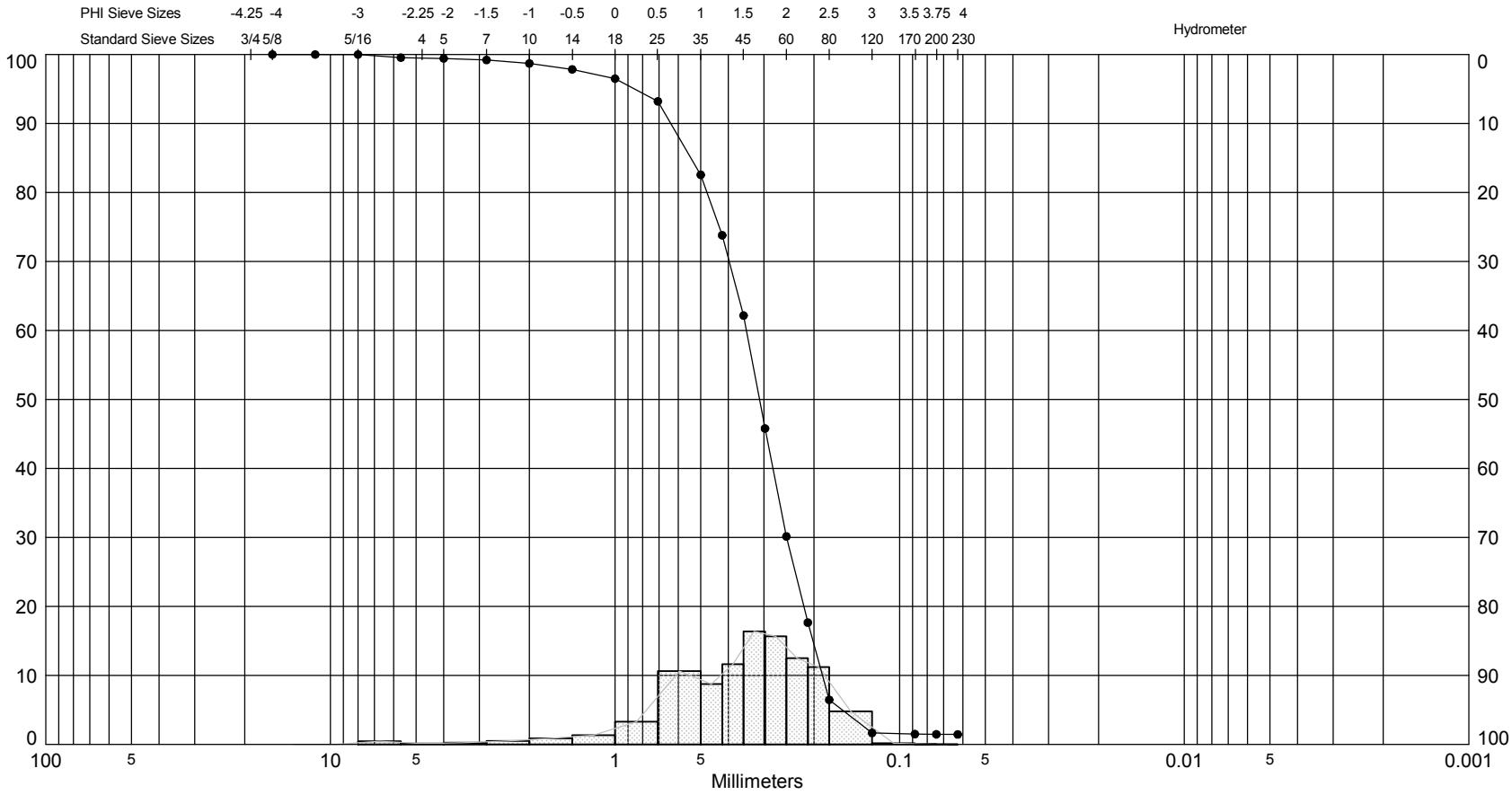
Comments:

Depths and elevations based on measured values

Sample Information	
Project Name:	Dauphin Island Shore Protection
Analysis Date:	09-22-10
Analyzed By:	JR
Easting (X, ft):	1,789,373
Northing (Y, ft):	63,248
Horizontal System:	NAD 1983
Vertical System:	NAVD 88

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SIEVE ANALYSIS DIVC-10.GPJ JPBRAZIL.GDT 3/14/11



Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
DIVC-10-14 #1	—●—	-15.9	SP	#200 - 1.46 #230 - 1.44			1.69	1.56	-1.62	8.34	0.79

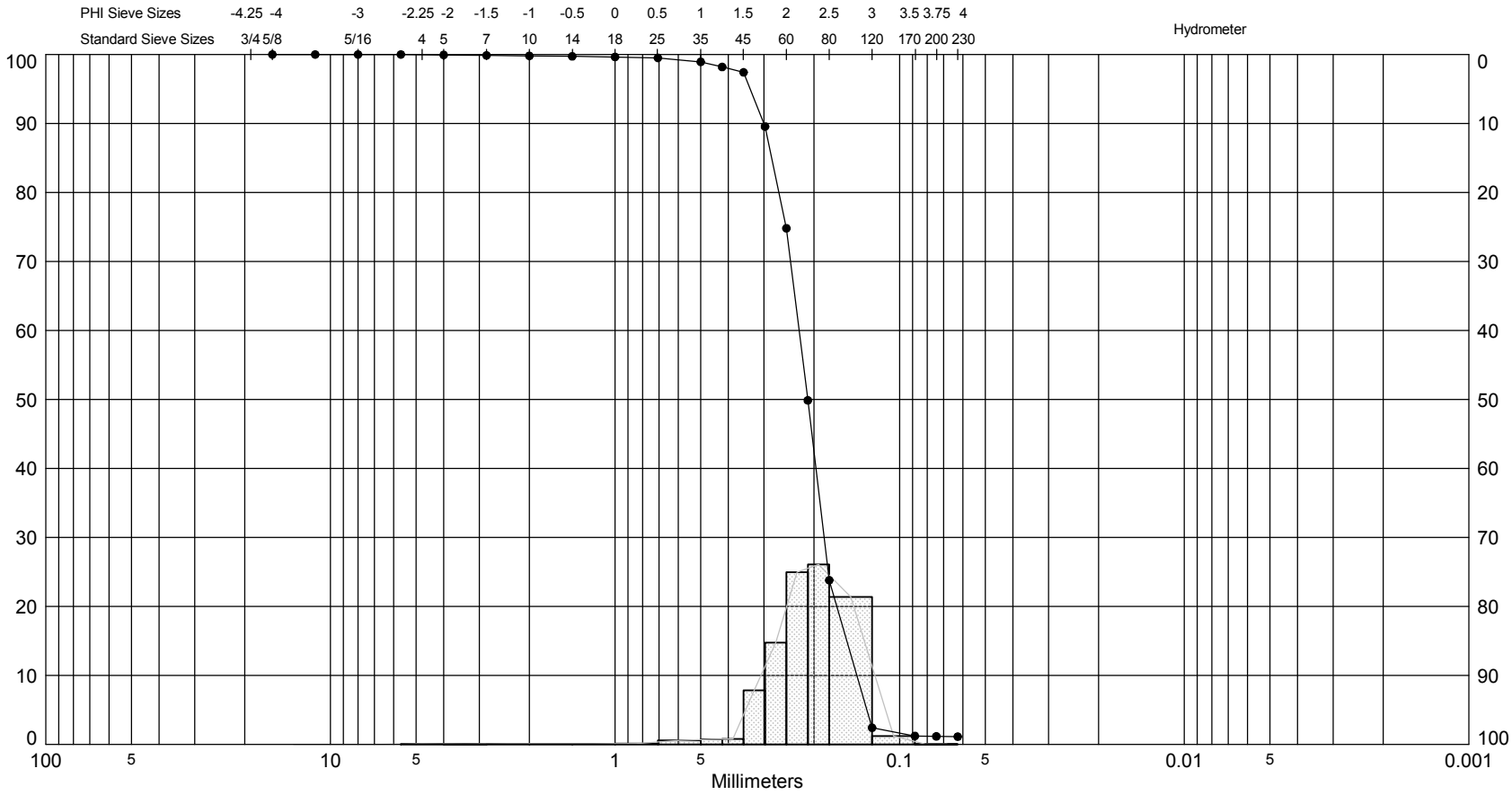
Comments:

Depths and elevations based on measured values

Sample Information	
Project Name:	Dauphin Island Shore Protection
Analysis Date:	09-22-10
Analyzed By:	JR
Easting (X, ft):	1,789,853
Northing (Y, ft):	68,589
Horizontal System:	NAD 1983
Vertical System:	NAVD 88

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SIEVE ANALYSIS DIVC-10.GPJ JPBRAZIL.GDT 3/14/11



Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
DIVC-10-14 #2	—●—	-18.9	SP	#200 - 1.16 #230 - 1.12			2.25	2.23	-1.98	17.45	0.46

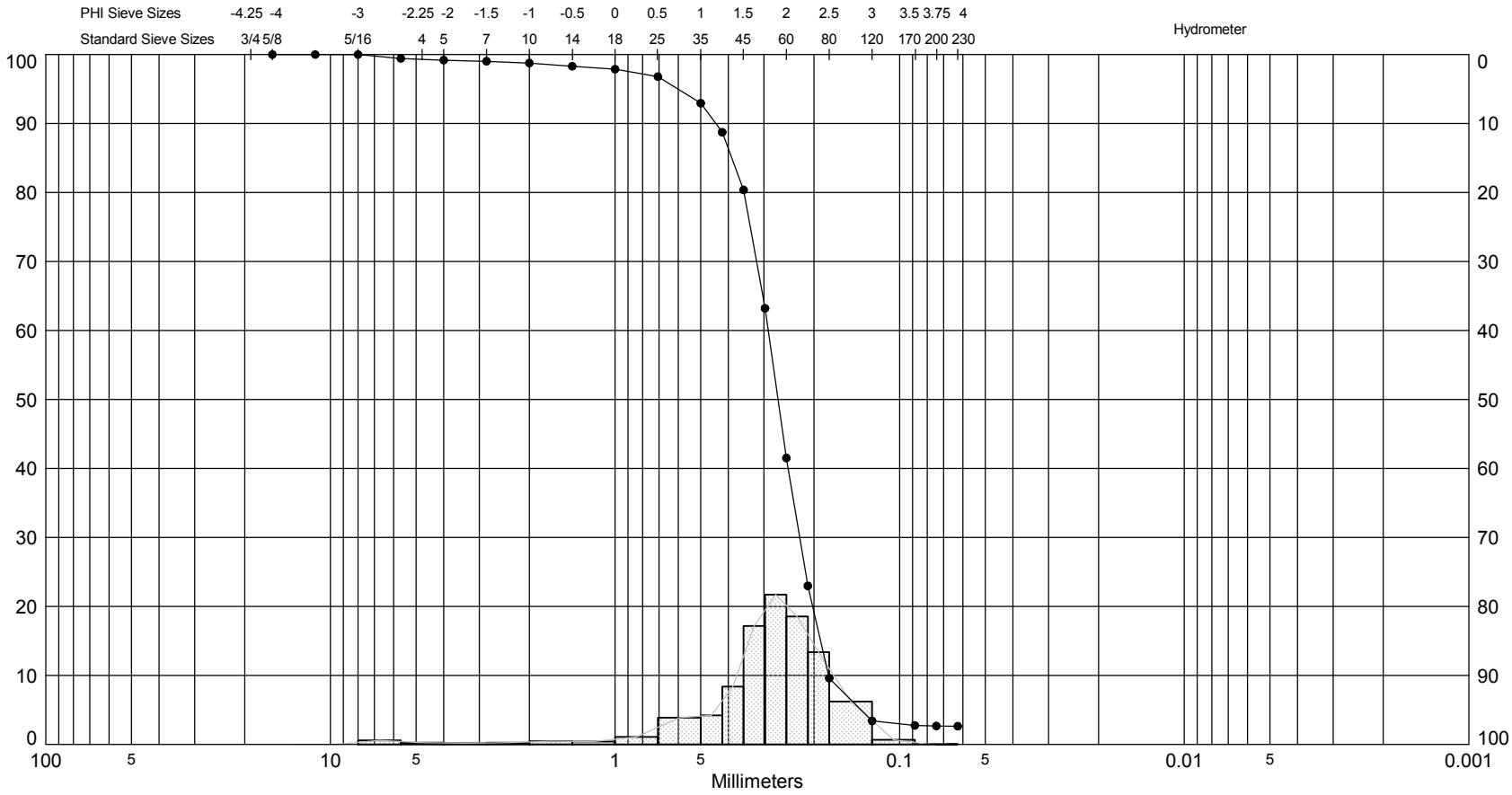
Comments:

Depths and elevations based on measured values

Sample Information	
Project Name:	Dauphin Island Shore Protection
Analysis Date:	09-22-10
Analyzed By:	JR
Easting (X, ft):	1,789,853
Northing (Y, ft):	68,589
Horizontal System:	NAD 1983
Vertical System:	NAVD 88

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SIEVE ANALYSIS DIVC-10.GPJ JPBRAZIL.GDT 3/14/11



Gravel		Sand			Silt and Clay
Coarse	Fine	Coarse	Medium	Fine	

Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
DIVC-10-14 #3	—●—	-20.8	SP	#200 - 2.67 #230 - 2.64			1.9	1.8	-2.69	16.14	0.71

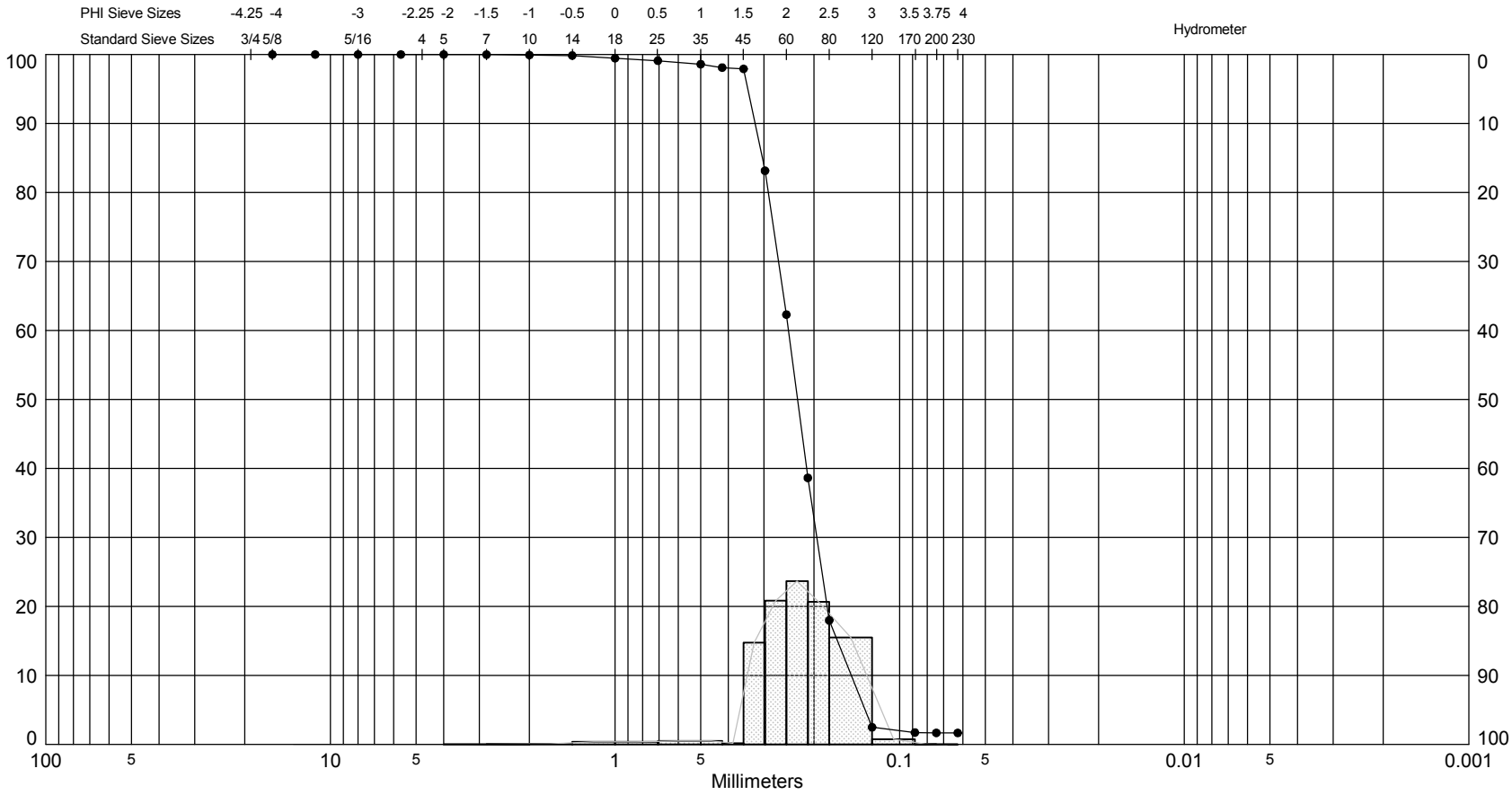
Comments:

Depths and elevations based on measured values

Sample Information	
Project Name:	Dauphin Island Shore Protection
Analysis Date:	09-22-10
Analyzed By:	JR
Easting (X, ft):	1,789,853
Northing (Y, ft):	68,589
Horizontal System:	NAD 1983
Vertical System:	NAVD 88

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SIEVE ANALYSIS DIVC-10.GPJ JPBRAZIL.GDT 3/14/11



Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
DIVC-10-14 #4	—●—	-24.9	SP	#200 - 1.67 #230 - 1.66			2.13	2.12	-1.25	10.11	0.45

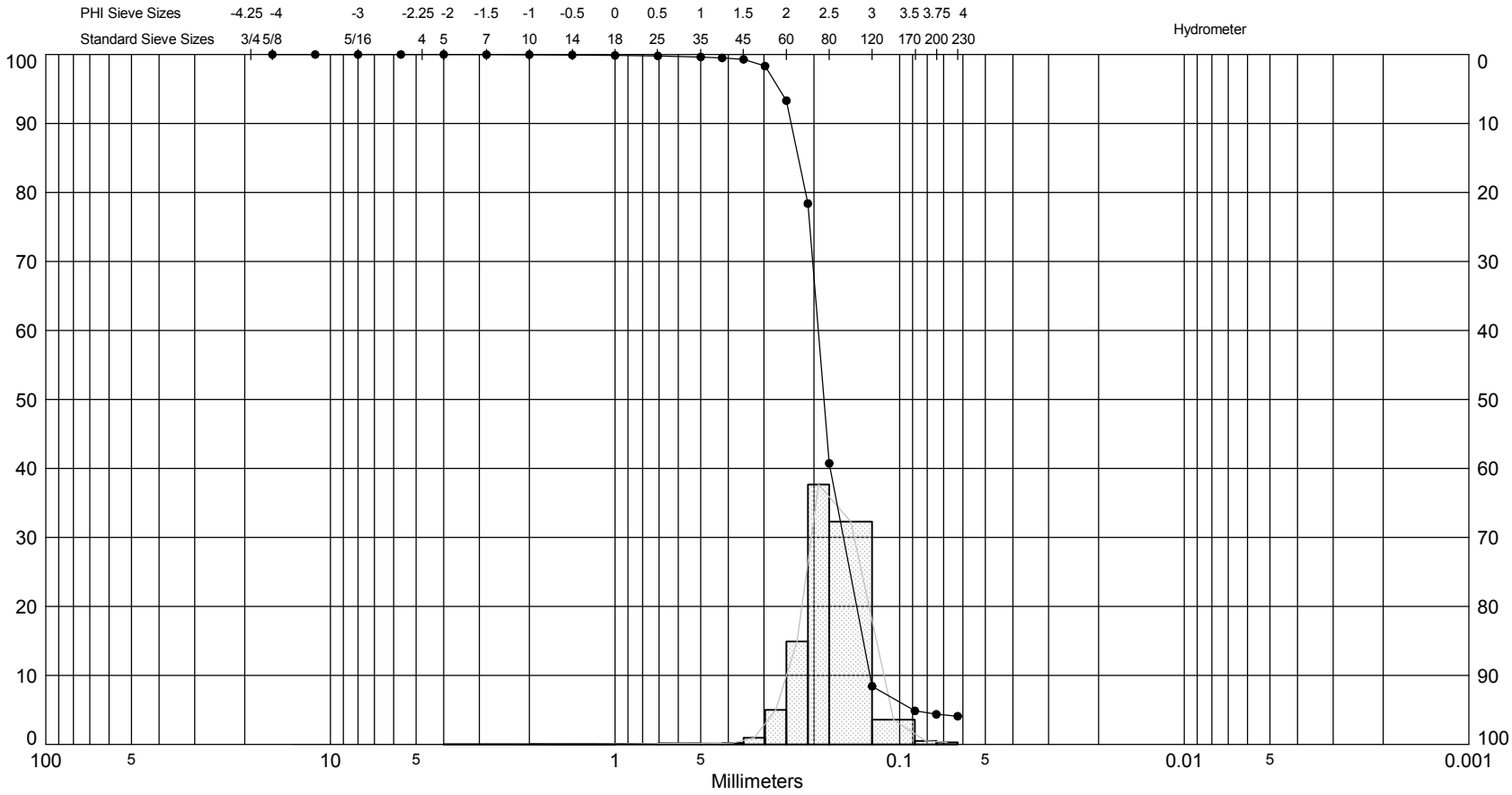
Comments:

Depths and elevations based on measured values

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Sample Information	
Project Name:	Dauphin Island Shore Protection
Analysis Date:	09-23-10
Analyzed By:	JR
Easting (X, ft):	1,789,853
Northing (Y, ft):	68,589
Horizontal System:	NAD 1983
Vertical System:	NAVD 88

SIEVE ANALYSIS DIVC-10.GPJ JPBRAZIL.GDT 3/14/11



Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
DIVC-10-14 #5	—●—	-30.9	SP	#200 - 4.36 #230 - 4.08			2.44	2.46	-0.91	13.09	0.37

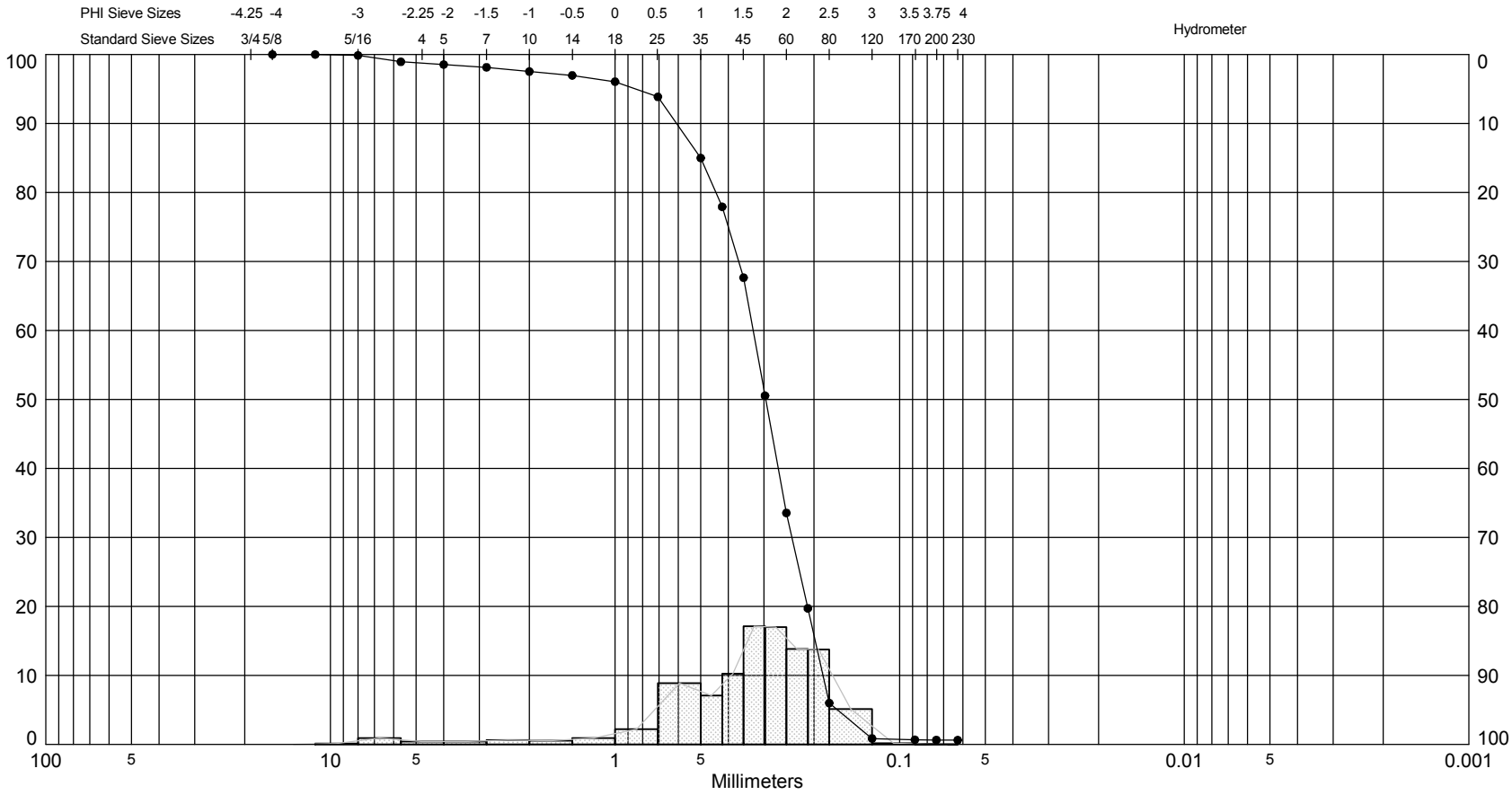
Comments:

Depths and elevations based on measured values

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FL 33431
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fax (561) 391-9116

Sample Information	
Project Name:	Dauphin Island Shore Protection
Analysis Date:	09-23-10
Analyzed By:	JR
Easting (X, ft):	1,789,853
Northing (Y, ft):	68,589
Horizontal System:	NAD 1983
Vertical System:	NAVD 88

SIEVE ANALYSIS DIVC-10.GPJ JPBRAZIL.GDT 3/14/11



Gravel		Sand			Silt and Clay
Coarse	Fine	Coarse	Medium	Fine	

Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
DIVC-10-15 #1	—●—	-16.0	SW	#200 - 0.63 #230 - 0.62			1.76	1.61	-2.31	11.23	0.87

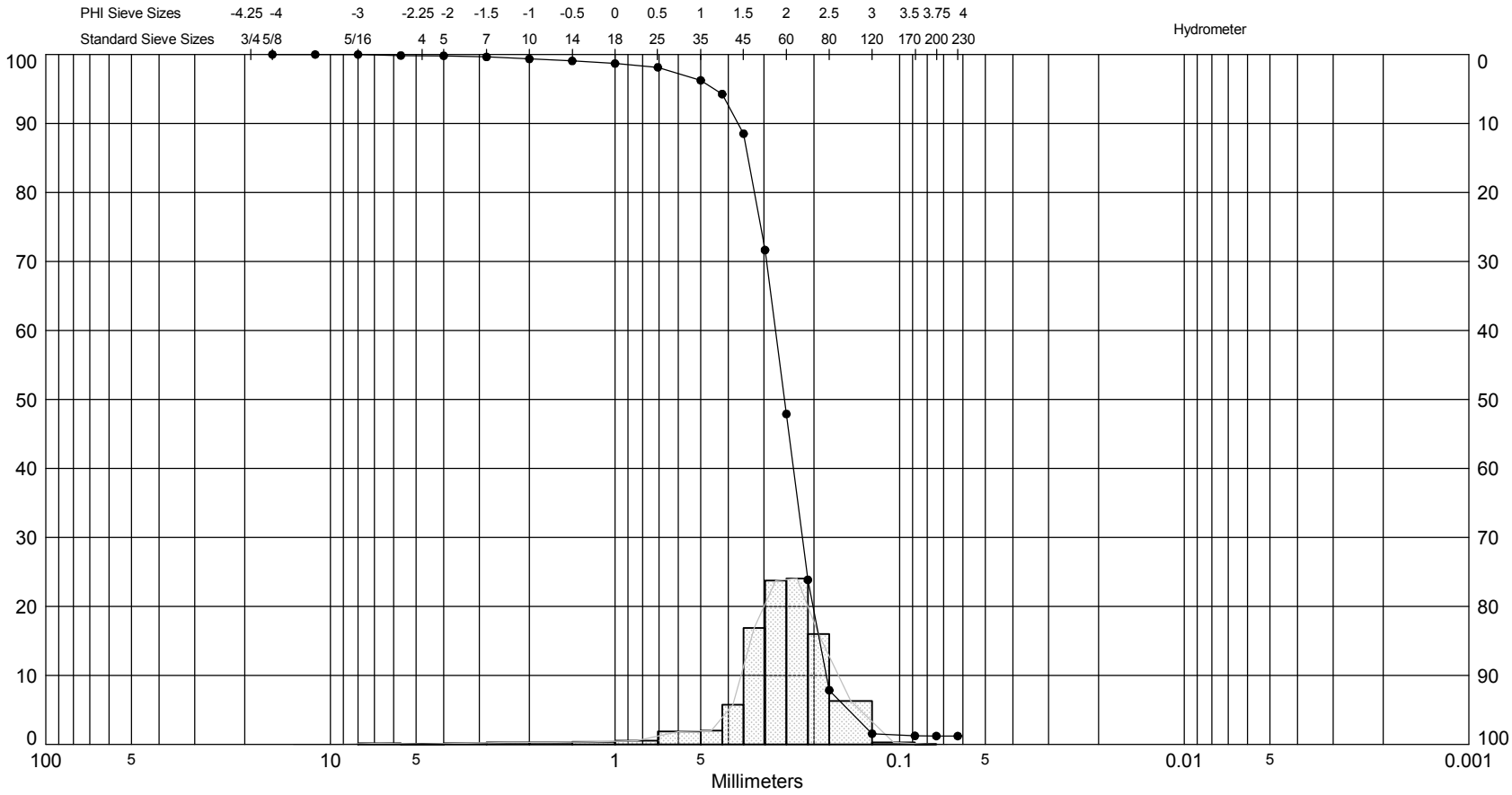
Comments:

Depths and elevations based on measured values

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2481 NW Boca Raton Blvd, Boca Raton
FL 33431
ph (561) 391-8102
fax (561) 391-9116

Sample Information	
Project Name:	Dauphin Island Shore Protection
Analysis Date:	09-23-10
Analyzed By:	JR
Easting (X, ft):	1,790,086
Northing (Y, ft):	67,775
Horizontal System:	NAD 1983
Vertical System:	NAVD 88

SIEVE ANALYSIS DIVC-10.GPJ JPBRAZIL.GDT 3/14/11



Gravel		Sand			Silt and Clay
Coarse	Fine	Coarse	Medium	Fine	

Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
DIVC-10-15 #2	—●—	-19.0	SP	#200 - 1.21 #230 - 1.21			1.98	1.92	-2.7	18.67	0.56

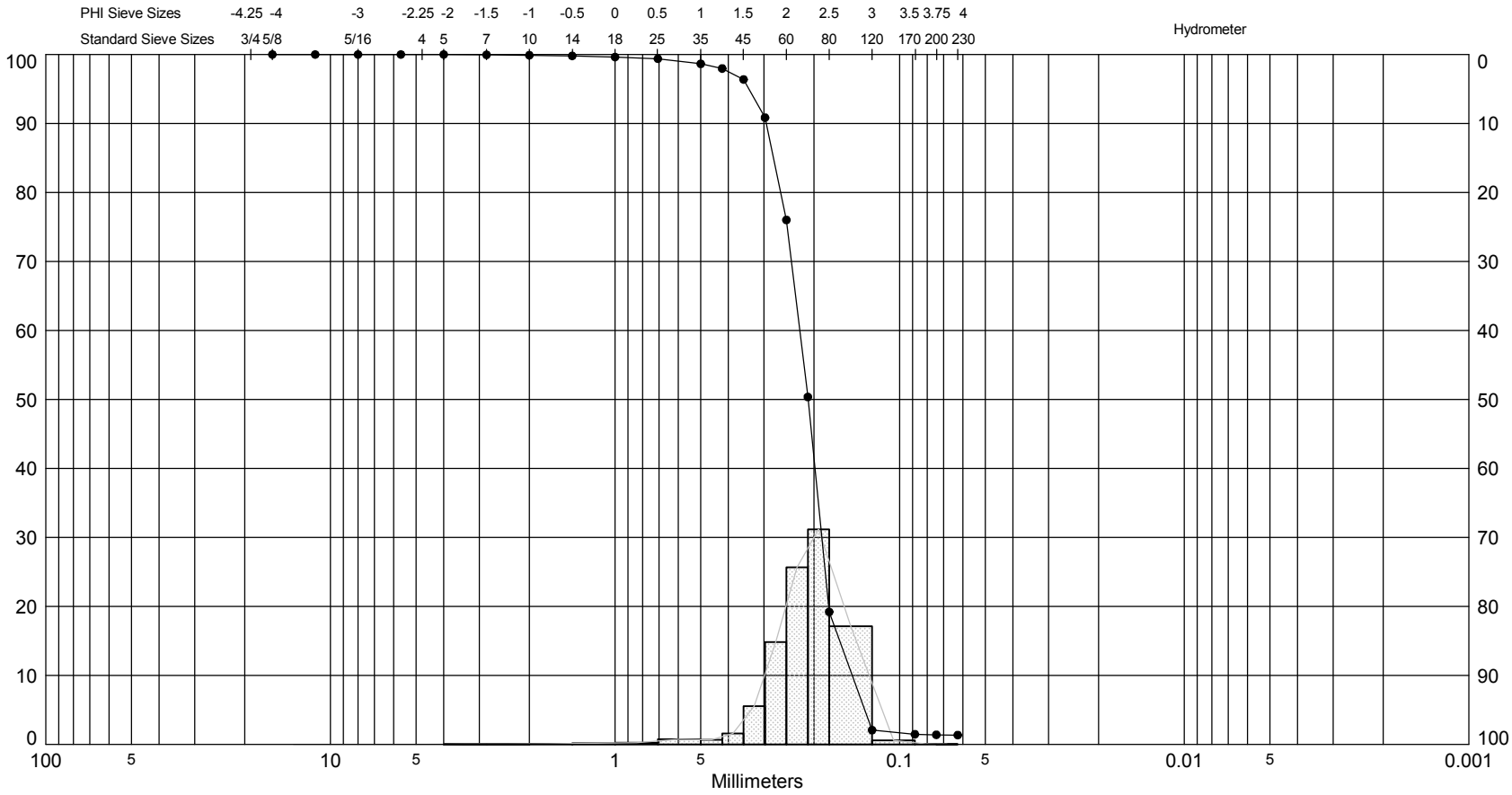
Comments:

Depths and elevations based on measured values

Sample Information	
Project Name:	Dauphin Island Shore Protection
Analysis Date:	09-23-10
Analyzed By:	JR
Easting (X, ft):	1,790,086
Northing (Y, ft):	67,775
Horizontal System:	NAD 1983
Vertical System:	NAVD 88

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SIEVE ANALYSIS DIVC-10.GPJ JPBRAZIL.GDT 3/14/11



Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
DIVC-10-15 #3	—●—	-21.1	SP	#200 - 1.39 #230 - 1.35			2.25	2.21	-1.8	13.69	0.43

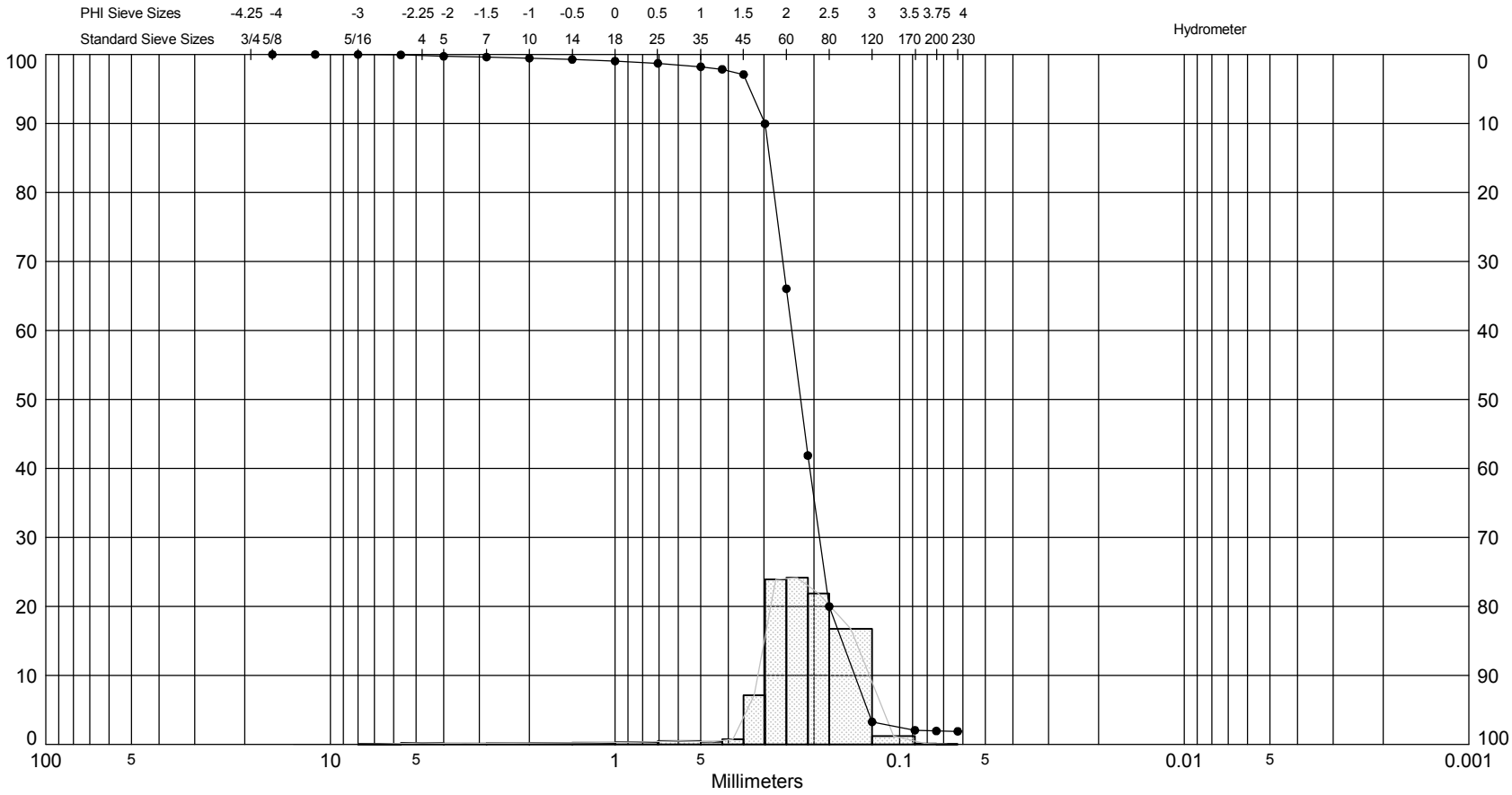
Comments:

Depths and elevations based on measured values

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Sample Information	
Project Name:	Dauphin Island Shore Protection
Analysis Date:	09-23-10
Analyzed By:	JR
Easting (X, ft):	1,790,086
Northing (Y, ft):	67,775
Horizontal System:	NAD 1983
Vertical System:	NAVD 88

SIEVE ANALYSIS DIVC-10.GPJ JPBRAZIL.GDT 3/14/11



Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
DIVC-10-15 #4	—●—	-27.0	SP	#200 - 1.94 #230 - 1.89			2.17	2.15	-3.05	24.46	0.53

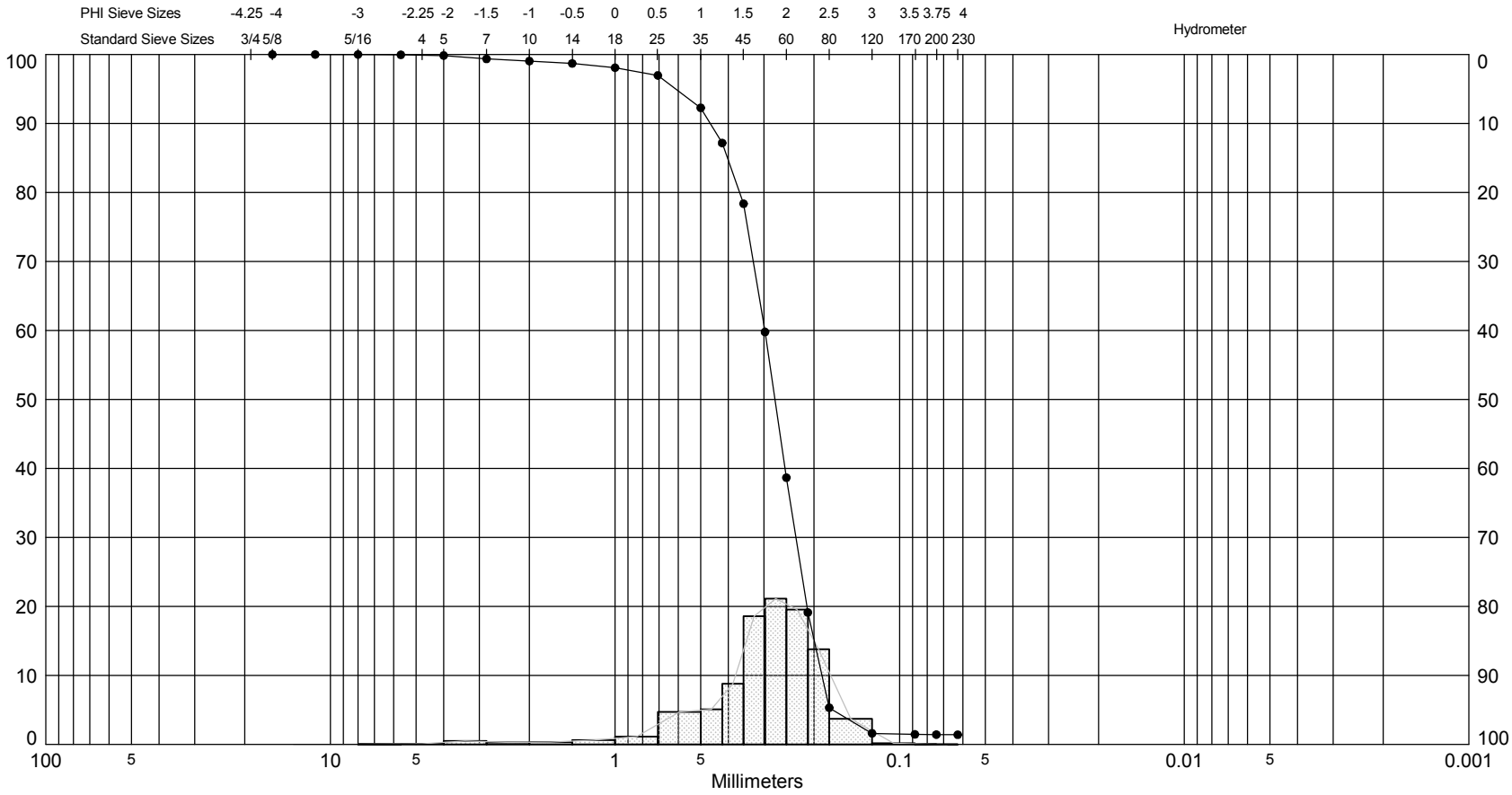
Comments:

Depths and elevations based on measured values

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Sample Information	
Project Name:	Dauphin Island Shore Protection
Analysis Date:	09-23-10
Analyzed By:	JR
Easting (X, ft):	1,790,086
Northing (Y, ft):	67,775
Horizontal System:	NAD 1983
Vertical System:	NAVD 88

SIEVE ANALYSIS DIVC-10.GPJ JPBRAZIL.GDT 3/14/11



Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
DIVC-10-16 #1	—●—	-14.0	SP	#200 - 1.42 #230 - 1.40			1.87	1.77	-2.18	12.19	0.63

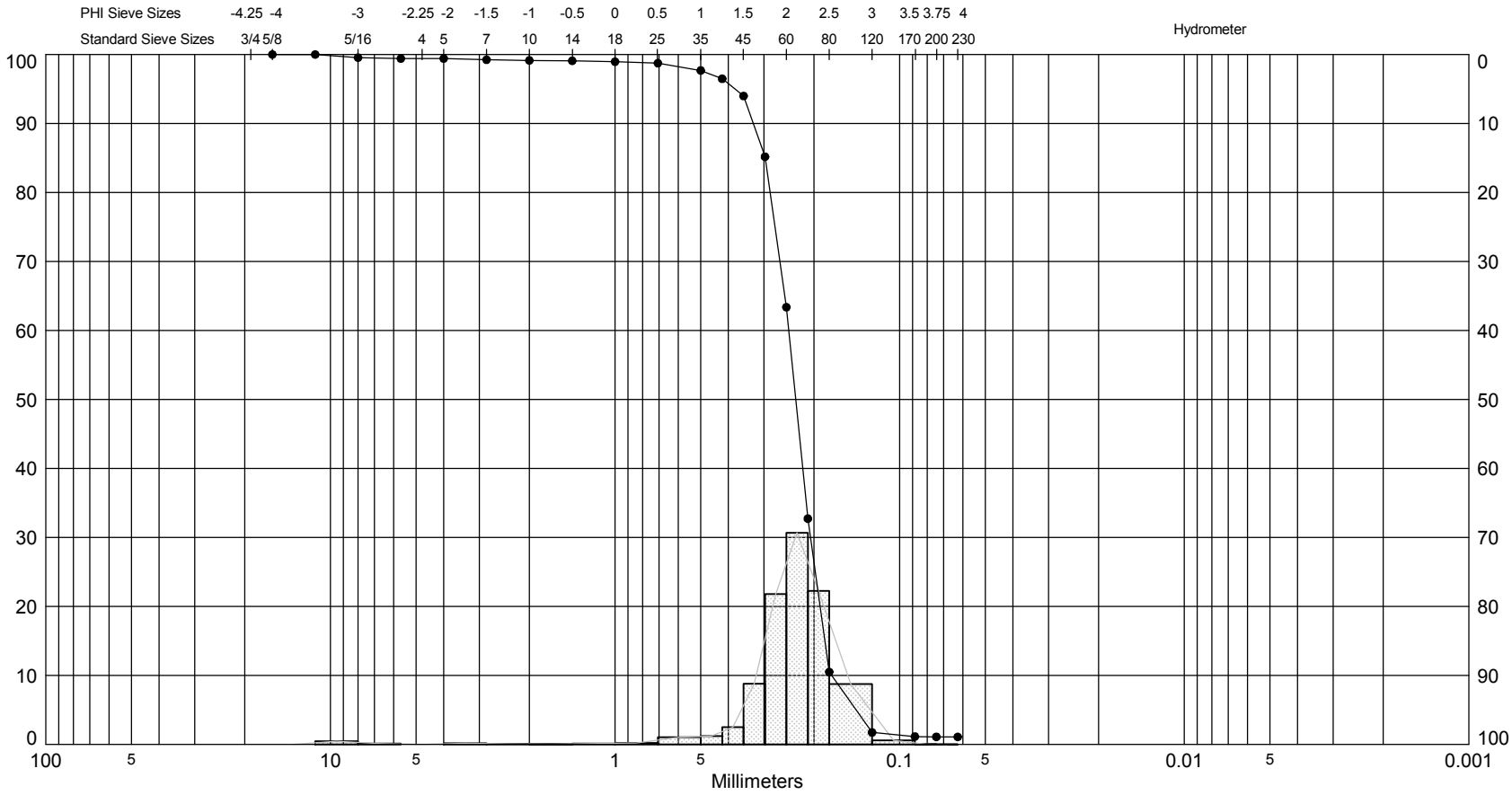
Comments:

Depths and elevations based on measured values

Sample Information	
Project Name:	Dauphin Island Shore Protection
Analysis Date:	09-23-10
Analyzed By:	JR
Easting (X, ft):	1,790,971
Northing (Y, ft):	68,178
Horizontal System:	NAD 1983
Vertical System:	NAVD 88

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SIEVE ANALYSIS DIVC-10.GPJ JPBRAZIL.GDT 3/14/11



Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
DIVC-10-16 #2	—●—	-15.9	SP	#200 - 1.09 #230 - 1.08			2.11	2.05	-4.71	39.4	0.6

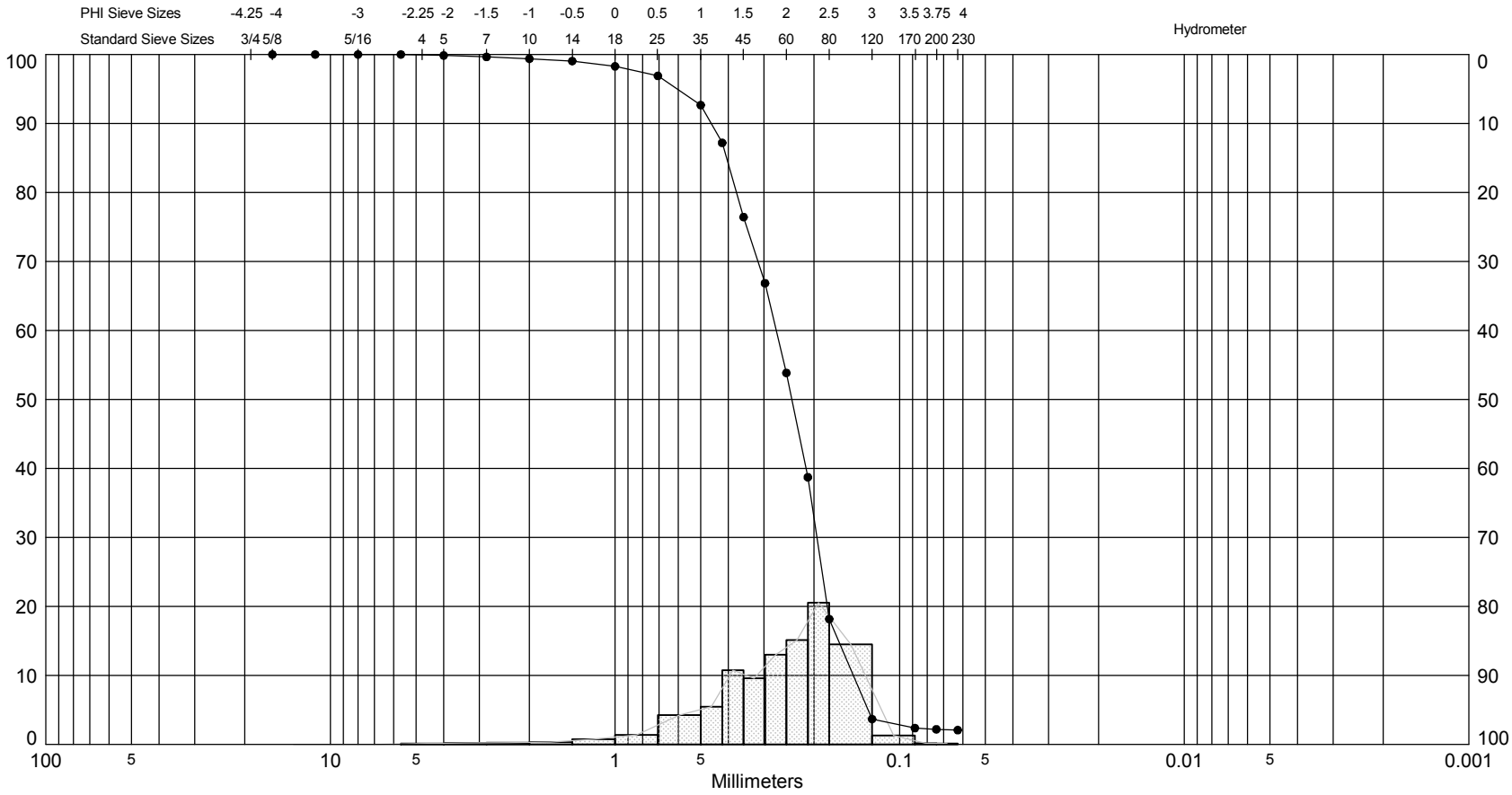
Comments:

Depths and elevations based on measured values

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fax (561) 391-9116

Sample Information	
Project Name:	Dauphin Island Shore Protection
Analysis Date:	09-23-10
Analyzed By:	JR
Easting (X, ft):	1,790,971
Northing (Y, ft):	68,178
Horizontal System:	NAD 1983
Vertical System:	NAVD 88

SIEVE ANALYSIS DIVC-10.GPJ JPBRAZIL.GDT 3/14/11



Gravel		Sand			Silt and Clay
Coarse	Fine	Coarse	Medium	Fine	

Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
DIVC-10-16 #3	—●—	-21.1	SP	#200 - 2.18 #230 - 2.07			2.06	1.93	-1.37	7.32	0.71

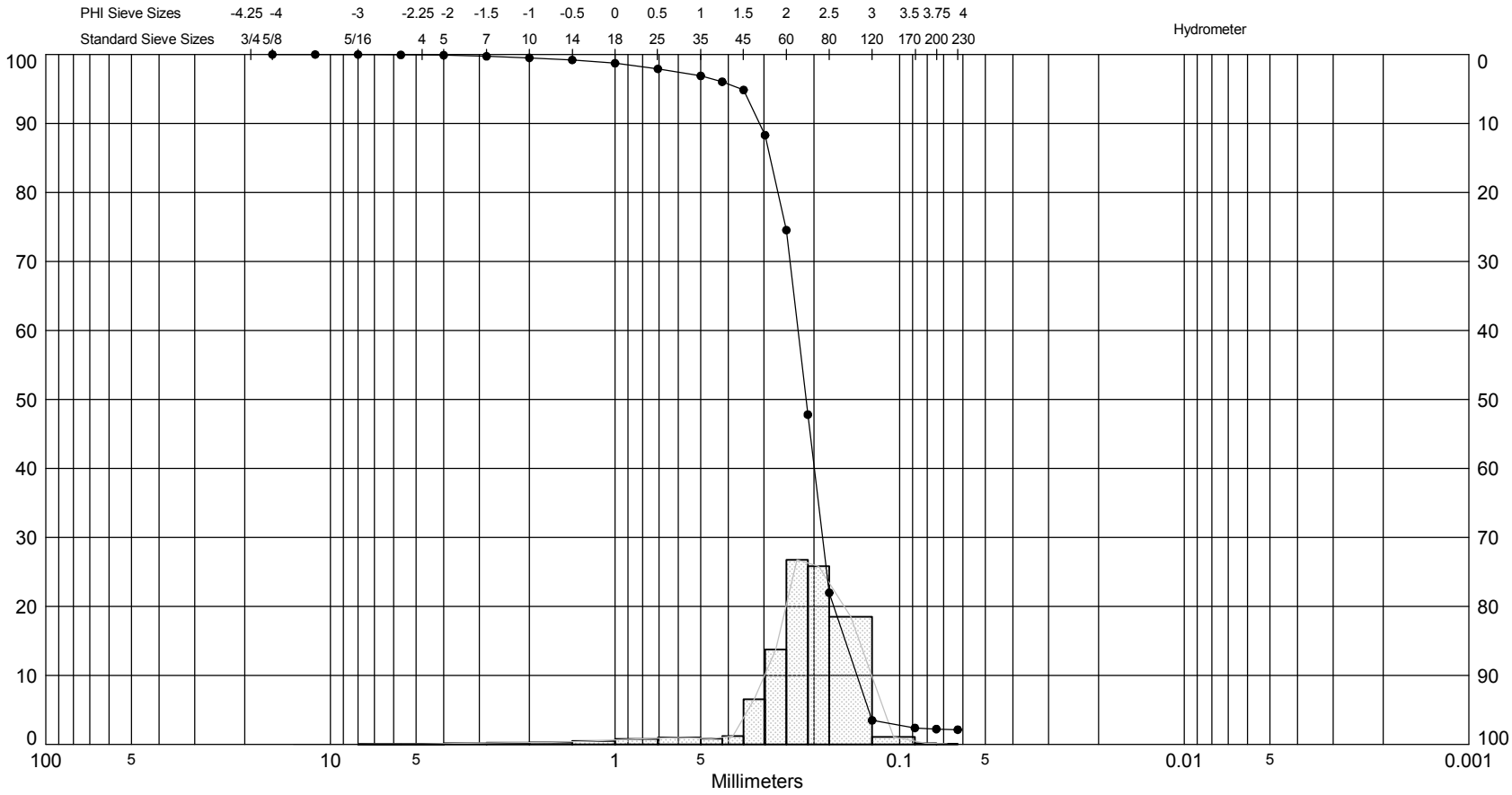
Comments:

Depths and elevations based on measured values

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Sample Information	
Project Name:	Dauphin Island Shore Protection
Analysis Date:	09-23-10
Analyzed By:	JR
Easting (X, ft):	1,790,971
Northing (Y, ft):	68,178
Horizontal System:	NAD 1983
Vertical System:	NAVD 88

SIEVE ANALYSIS DIVC-10.GPJ JPBRAZIL.GDT 3/14/11



Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
DIVC-10-16 #4	—●—	-26.1	SP	#200 - 2.22 #230 - 2.13			2.23	2.17	-2.73	17.57	0.57

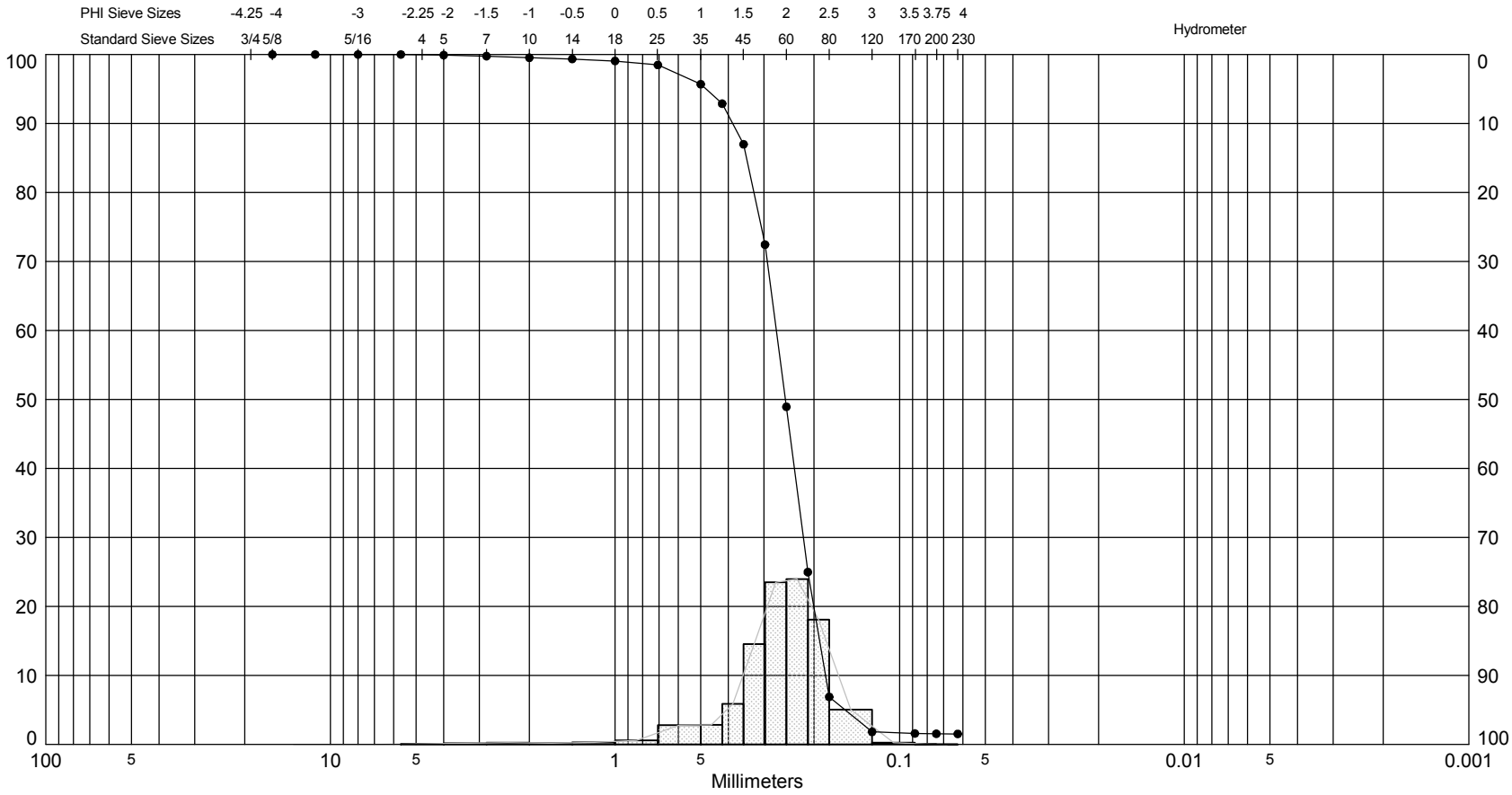
Comments:

Depths and elevations based on measured values

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Sample Information	
Project Name:	Dauphin Island Shore Protection
Analysis Date:	09-23-10
Analyzed By:	JR
Easting (X, ft):	1,790,971
Northing (Y, ft):	68,178
Horizontal System:	NAD 1983
Vertical System:	NAVD 88

SIEVE ANALYSIS DIVC-10.GPJ JPBRAZIL.GDT 3/14/11



Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
DIVC-10-17 #1	—●—	-15.9	SP	#200 - 1.54 #230 - 1.52			1.99	1.92	-2.18	14.11	0.53

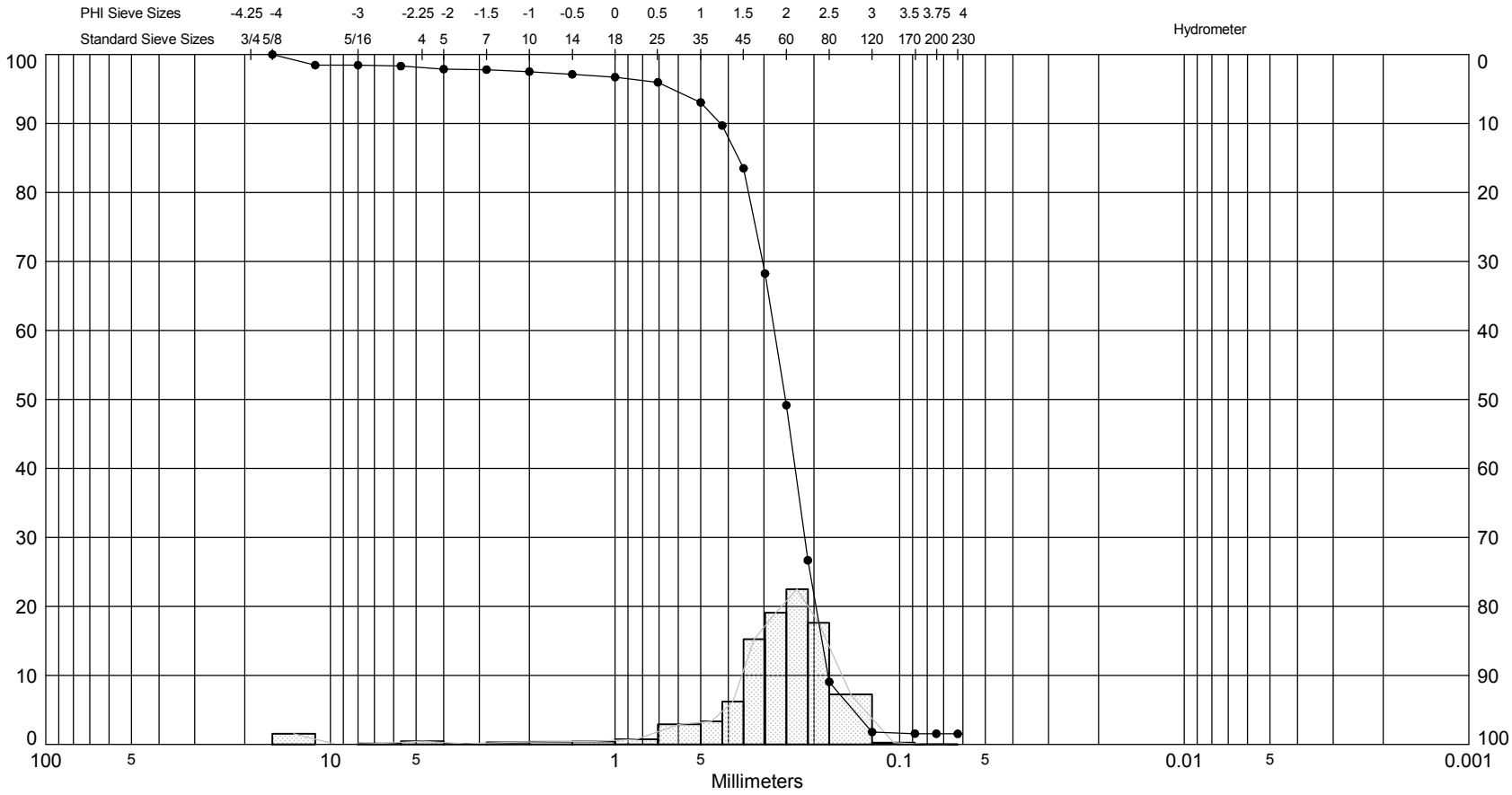
Comments:

Depths and elevations based on measured values

Coastal Planning & Engineering
2481 NW Boca Raton Blvd, Boca Raton
FL 33431
ph (561) 391-8102
fax (561) 391-9116

Sample Information	
Project Name:	Dauphin Island Shore Protection
Analysis Date:	09-24-10
Analyzed By:	JR
Easting (X, ft):	1,790,952
Northing (Y, ft):	67,304
Horizontal System:	NAD 1983
Vertical System:	NAVD 88

SIEVE ANALYSIS DIVC-10.GPJ JPBRAZIL.GDT 3/14/11



Gravel		Sand			Silt and Clay
Coarse	Fine	Coarse	Medium	Fine	

Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
DIVC-10-17 #2	—●—	-17.2	SW	#200 - 1.55 #230 - 1.53			1.99	1.8	-3.84	21.42	0.95

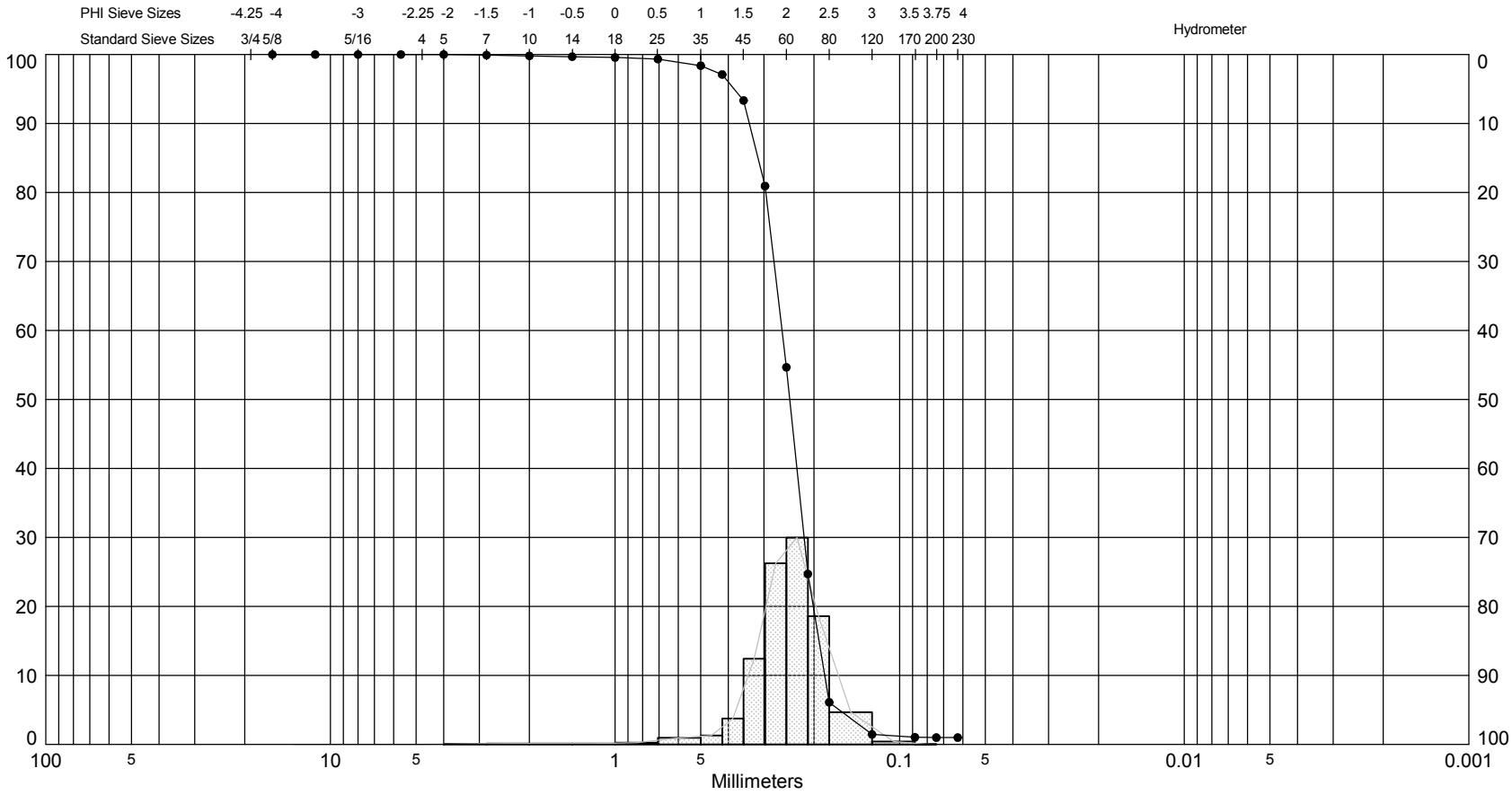
Comments:

Depths and elevations based on measured values

Sample Information	
Project Name:	Dauphin Island Shore Protection
Analysis Date:	09-24-10
Analyzed By:	JR
Easting (X, ft):	1,790,952
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SIEVE ANALYSIS DIVC-10.GPJ JPBRAZIL.GDT 3/14/11



Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
DIVC-10-17 #3	—●—	-18.5	SP	#200 - 0.99 #230 - 0.99			2.04	2.01	-1.95	16.38	0.42

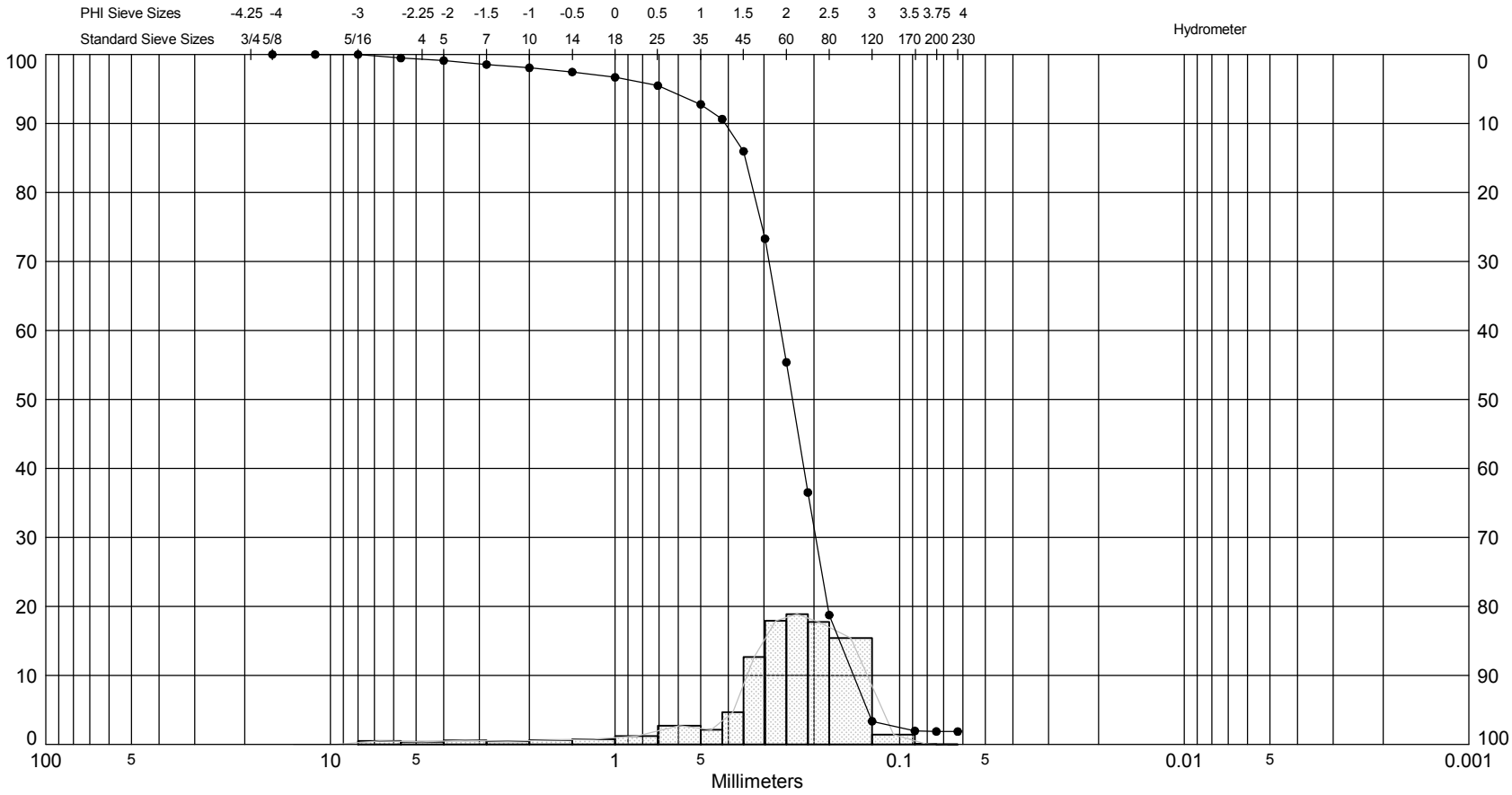
Comments:

Depths and elevations based on measured values

Sample Information	
Project Name:	Dauphin Island Shore Protection
Analysis Date:	09-24-10
Analyzed By:	JR
Easting (X, ft):	1,790,952
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SIEVE ANALYSIS DIVC-10.GPJ JPBRAZIL.GDT 3/14/11



Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
DIVC-10-17 #4	—●—	-22.2	SP	#200 - 1.87 #230 - 1.86			2.07	1.94	-2.61	13.12	0.83

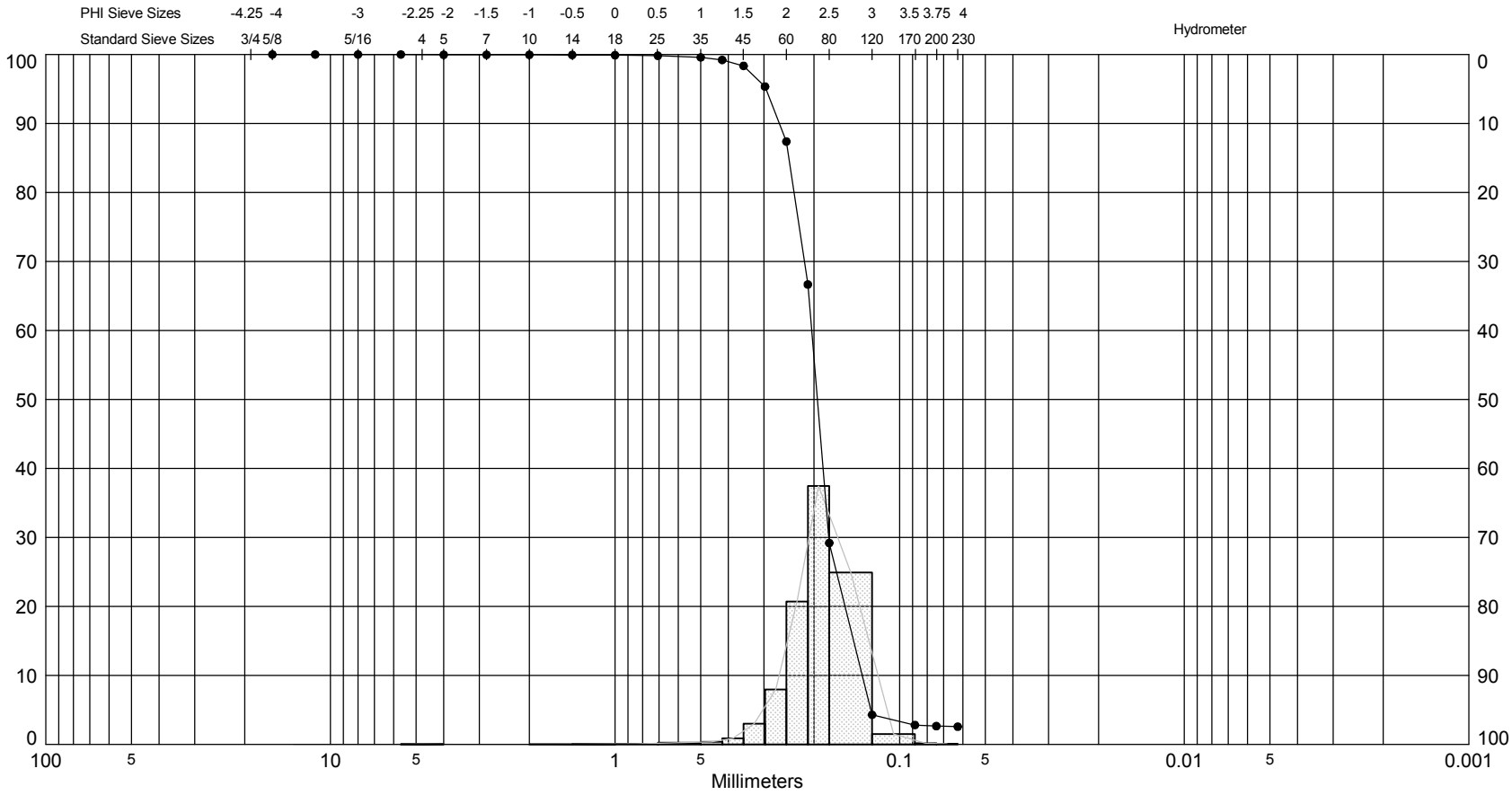
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Sample Information	
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Analysis Date:	09-24-10
Analyzed By:	JR
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Vertical System:	NAVD 88

SIEVE ANALYSIS DIVC-10.GPJ JPBRAZIL.GDT 3/14/11



Gravel		Sand			Silt and Clay
Coarse	Fine	Coarse	Medium	Fine	

Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
DIVC-10-17 #5	—●—	-29.2	SP	#200 - 2.65 #230 - 2.57			2.36	2.35	-1.58	17.72	0.38

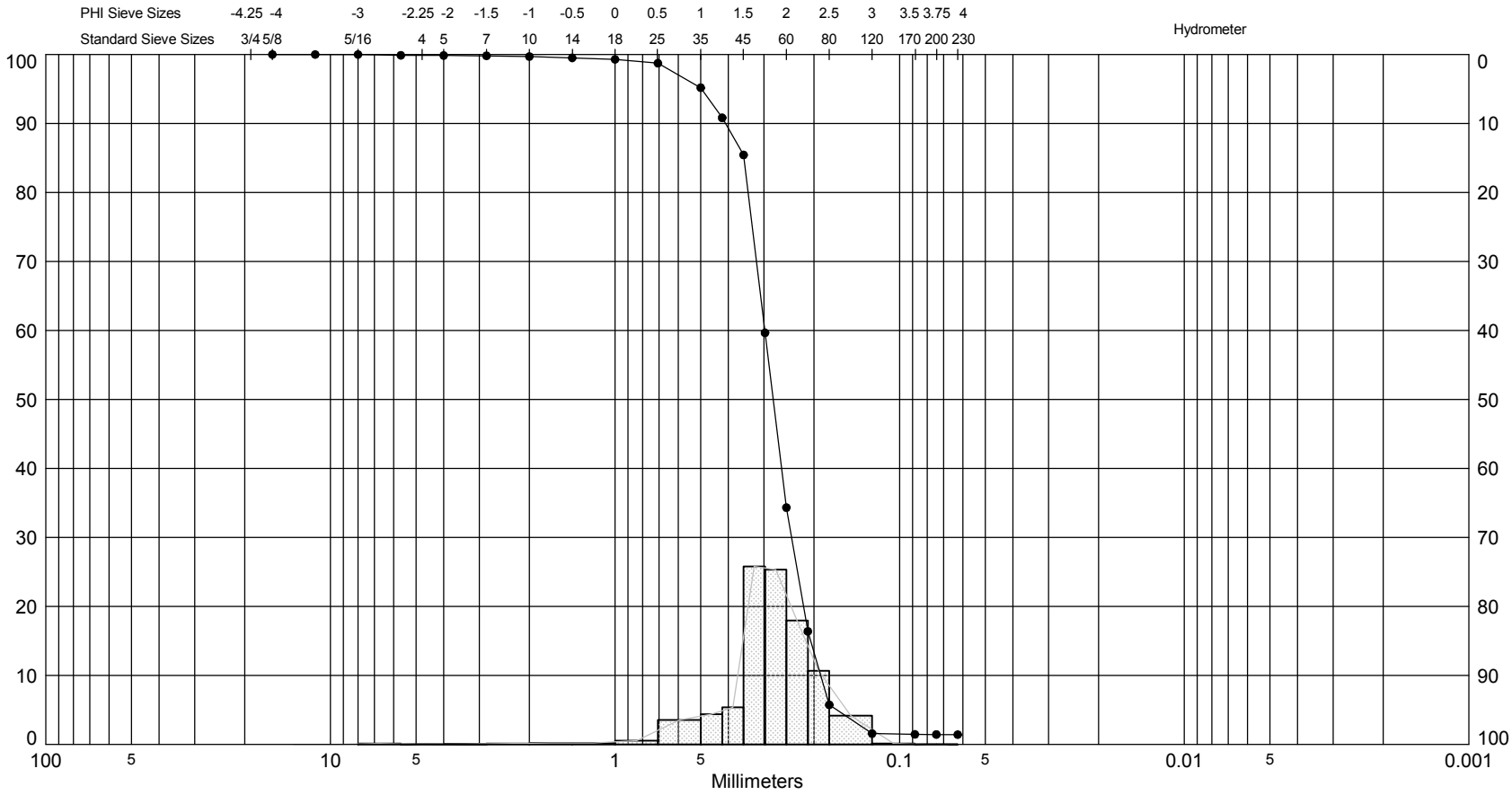
Comments:

Depths and elevations based on measured values

Sample Information	
Project Name:	Dauphin Island Shore Protection
Analysis Date:	09-24-10
Analyzed By:	JR
Easting (X, ft):	1,790,952
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SIEVE ANALYSIS DIVC-10.GPJ JPBRAZIL.GDT 3/14/11



Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
DIVC-10-18 #1	—●—	-17.5	SP	#200 - 1.43 #230 - 1.42			1.85	1.82	-2.02	15.97	0.51

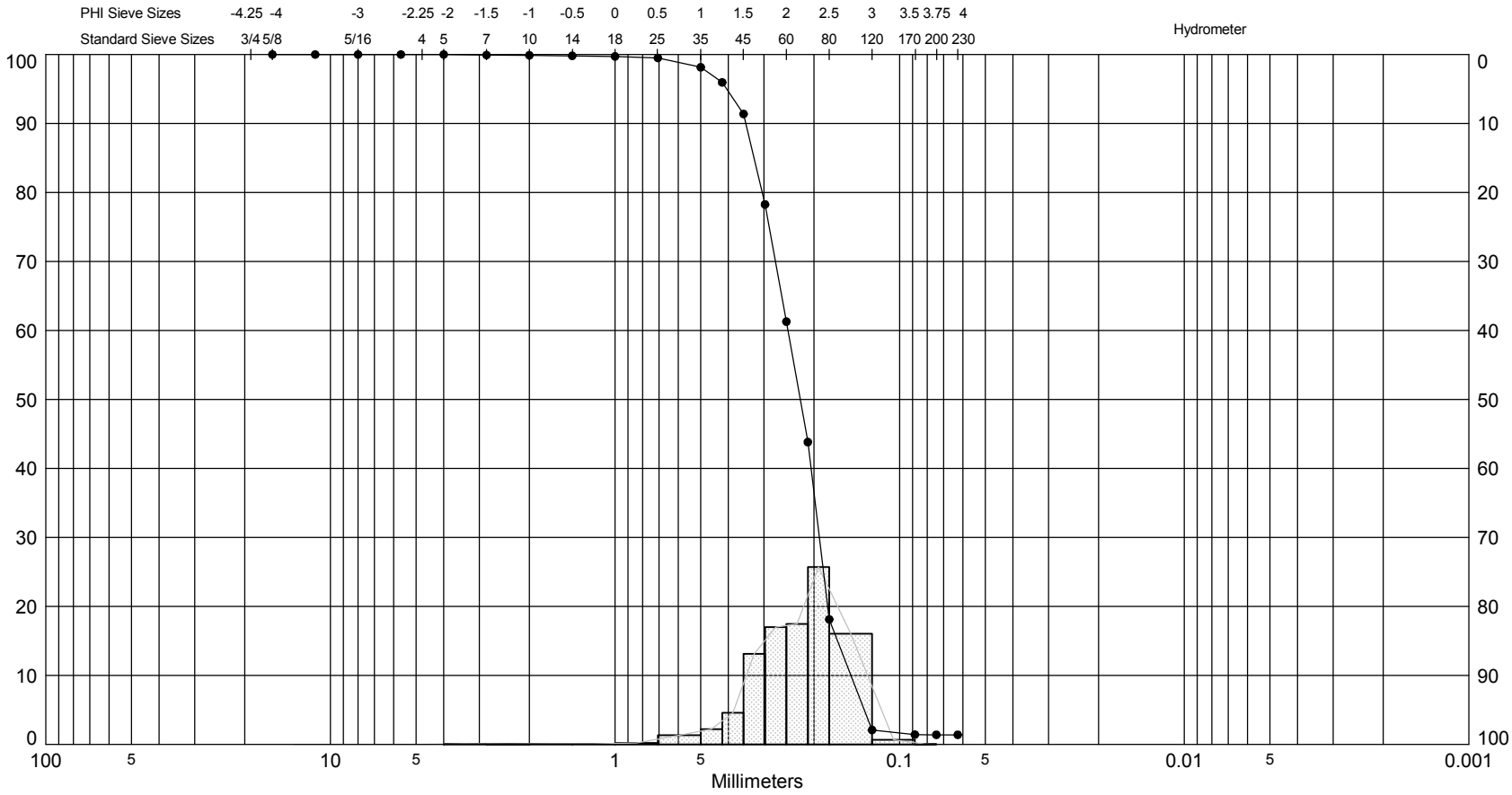
Comments:

Depths and elevations based on measured values

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Sample Information	
Project Name:	Dauphin Island Shore Protection
Analysis Date:	09-24-10
Analyzed By:	JR
Easting (X, ft):	1,790,332
Northing (Y, ft):	66,495
Horizontal System:	NAD 1983
Vertical System:	NAVD 88

SIEVE ANALYSIS DIVC-10.GPJ JPBRAZIL.GDT 3/14/11



Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
DIVC-10-18 #2	—●—	-19.9	SP	#200 - 1.39 #230 - 1.39			2.16	2.1	-1.11	7.85	0.49

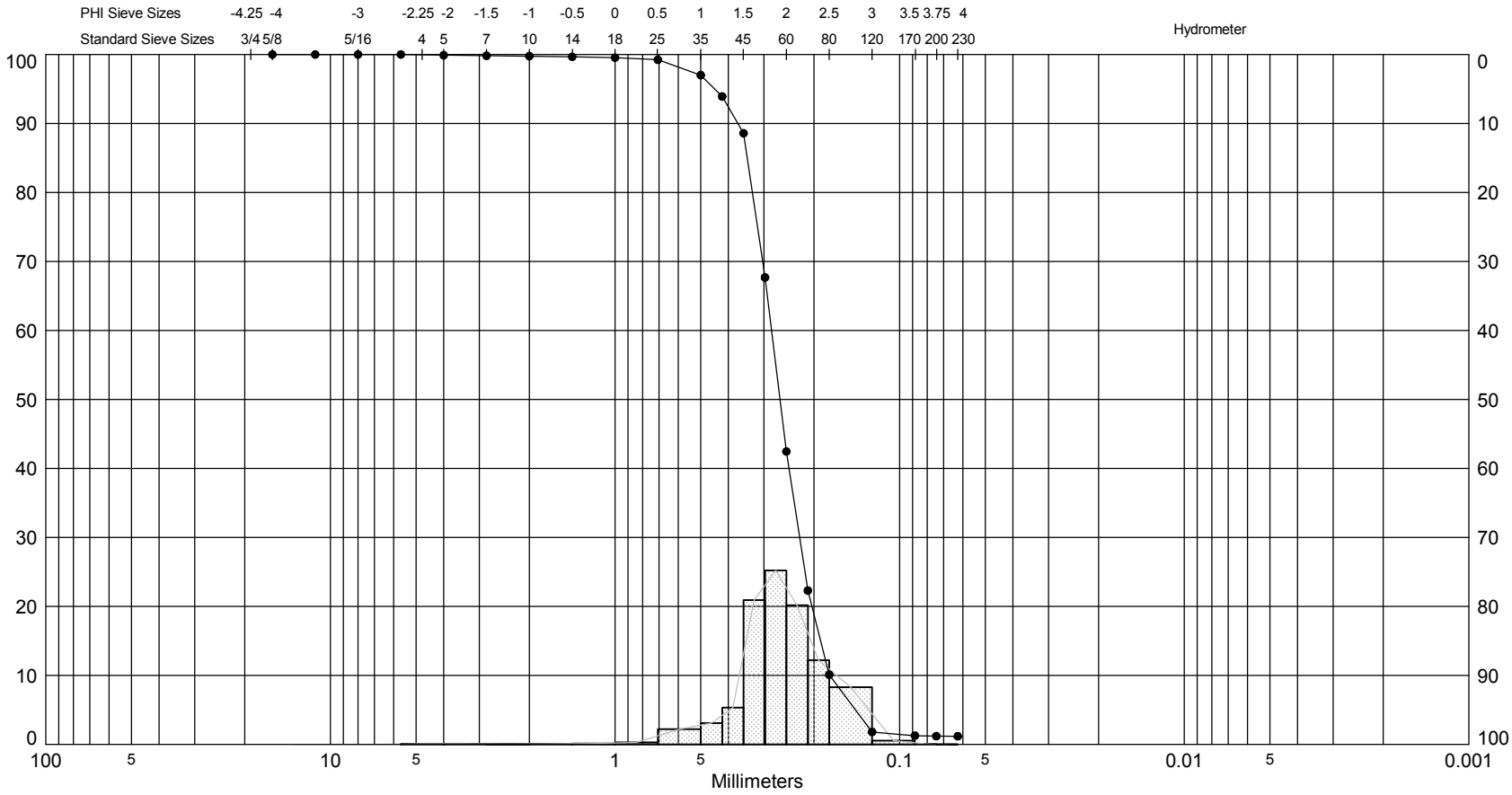
Comments:

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Sample Information	
Project Name:	Dauphin Island Shore Protection
Analysis Date:	09-24-10
Analyzed By:	JR
Easting (X, ft):	1,790,332
Northing (Y, ft):	66,495
Horizontal System:	NAD 1983
Vertical System:	NAVD 88

SIEVE ANALYSIS DIVC-10.GPJ JPBRAZIL.GDT 3/14/11



Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
DIVC-10-18 #3	—●—	-22.6	SP	#200 - 1.19 #230 - 1.18			1.93	1.92	-1.36	12.3	0.5

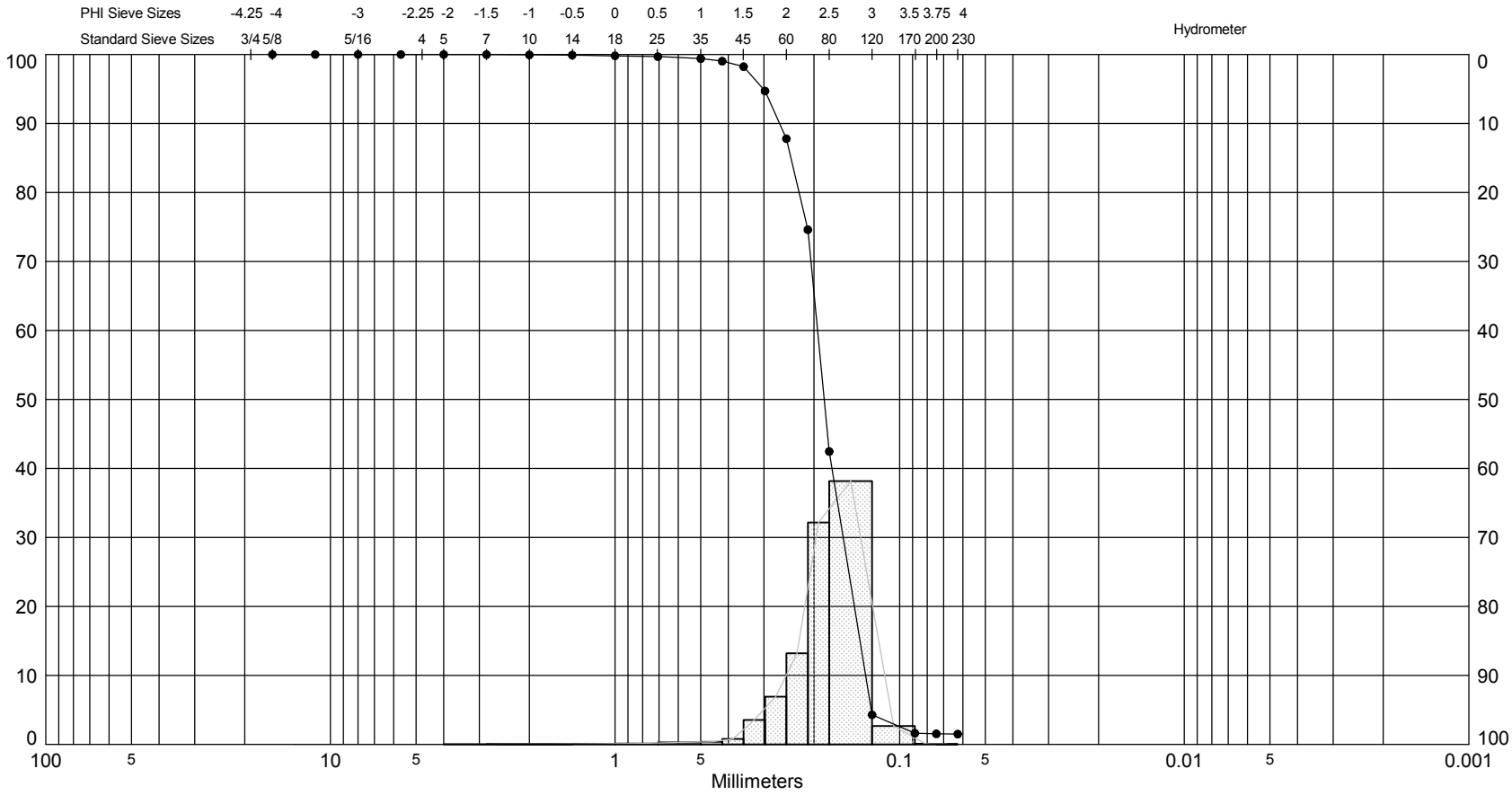
Comments:

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Sample Information	
Project Name:	Dauphin Island Shore Protection
Analysis Date:	09-24-10
Analyzed By:	JR
Easting (X, ft):	1,790,332
Northing (Y, ft):	66,495
Horizontal System:	NAD 1983
Vertical System:	NAVD 88

SIEVE ANALYSIS DIVC-10.GPJ JPBRAZIL.GDT 3/14/11



Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
DIVC-10-18 #4	—●—	-25.6	SP	#200 - 1.53 #230 - 1.49			2.44	2.42	-1.6	11.66	0.41

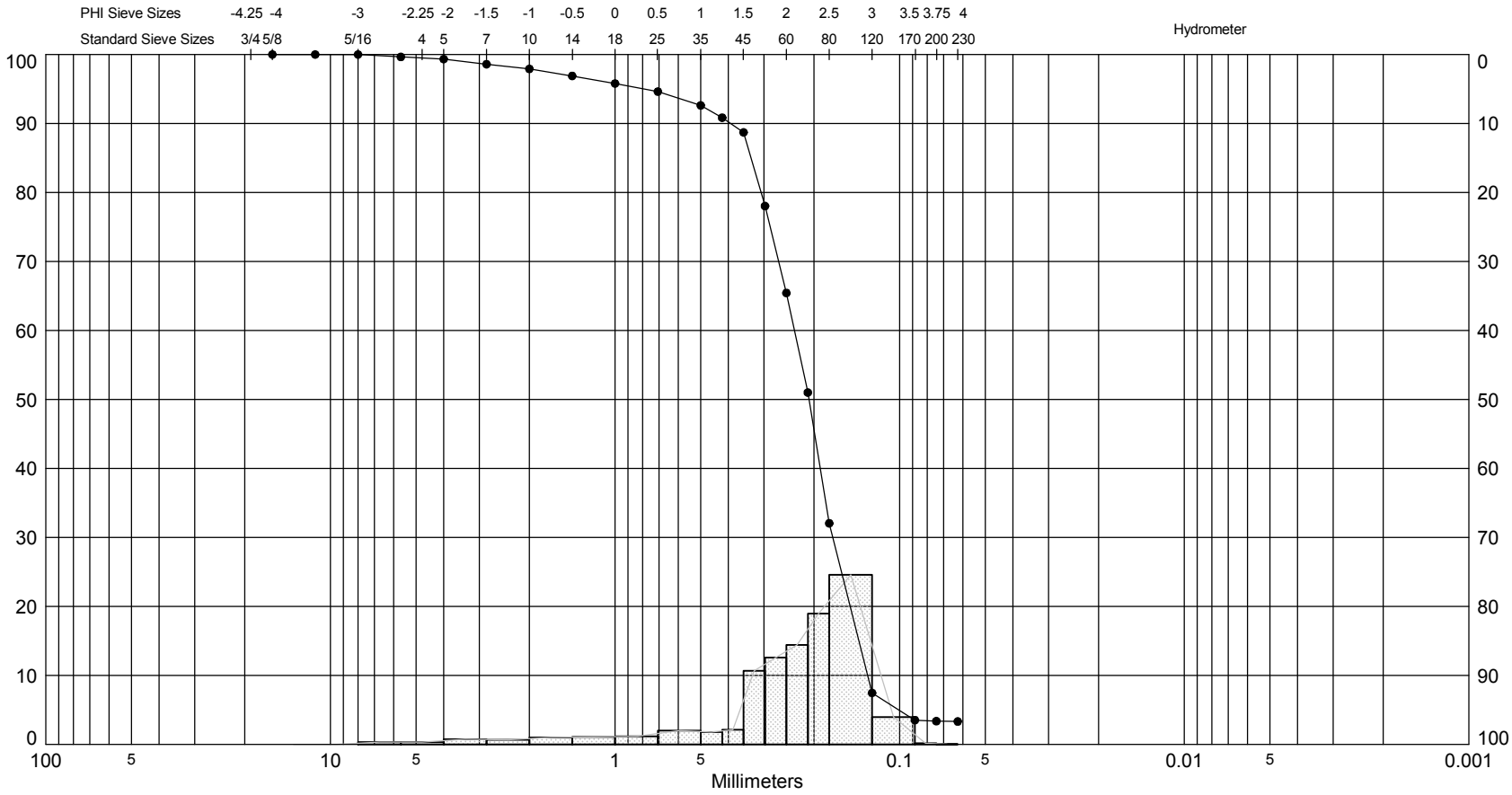
Comments:

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Sample Information	
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Analysis Date:	09-24-10
Analyzed By:	JR
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Northing (Y, ft):	66,495
Horizontal System:	NAD 1983
Vertical System:	NAVD 88

SIEVE ANALYSIS DIVC-10.GPJ JPBRAZIL.GDT 3/14/11



Gravel		Sand			Silt and Clay
Coarse	Fine	Coarse	Medium	Fine	

Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
DIVC-10-18 #5	—●—	-27.2	SW	#200 - 3.37 #230 - 3.32			2.26	2.07	-2.36	10.6	0.9

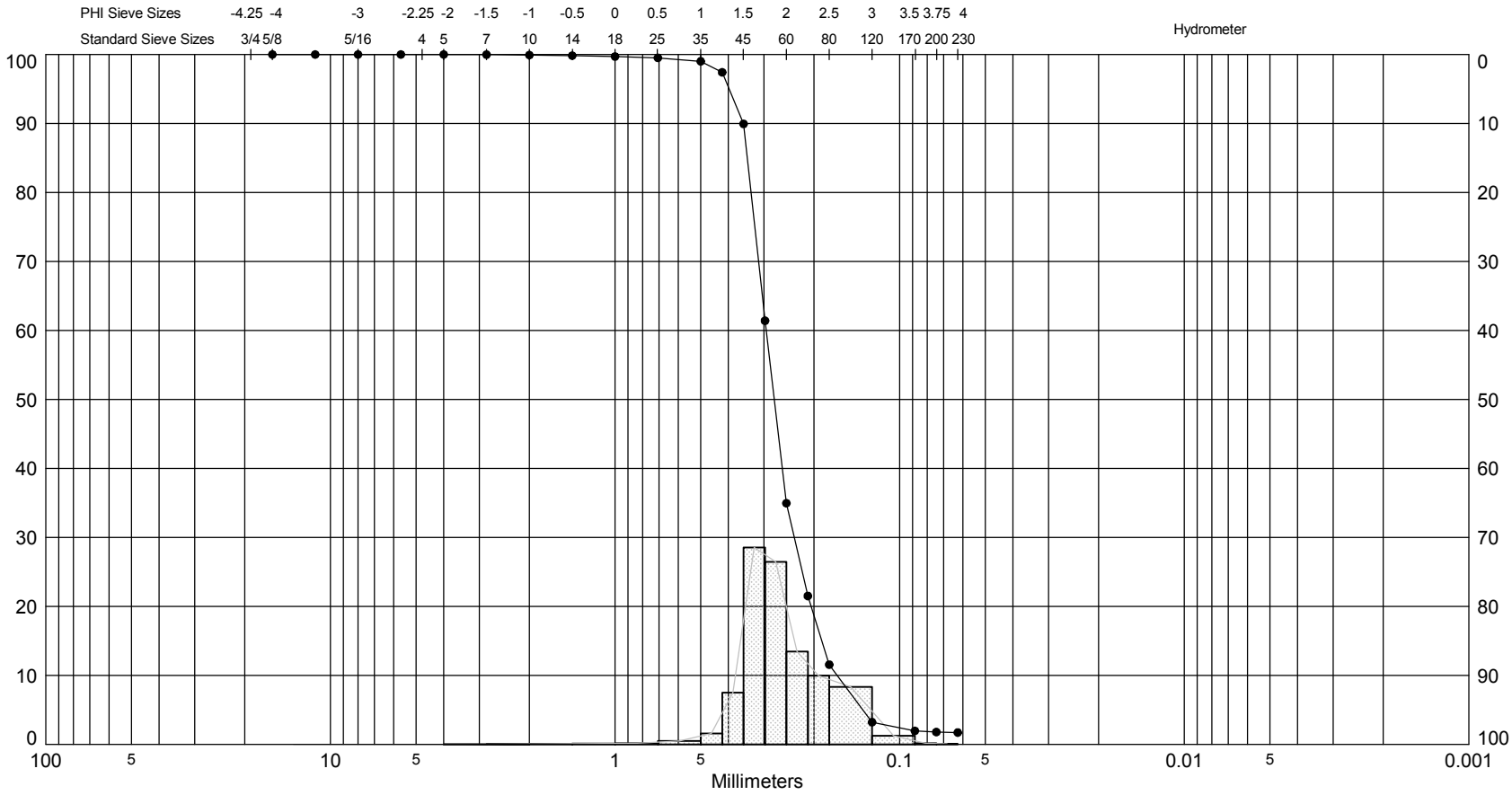
Comments:

Depths and elevations based on measured values

Sample Information	
Project Name:	Dauphin Island Shore Protection
Analysis Date:	09-24-10
Analyzed By:	JR
Easting (X, ft):	1,790,332
Northing (Y, ft):	66,495
Horizontal System:	NAD 1983
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SIEVE ANALYSIS DIVC-10.GPJ JPBRAZIL.GDT 3/14/11



Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
DIVC-10-18 #6	—●—	-31.8	SP	#200 - 1.79 #230 - 1.72			1.86	1.92	0.01	7.4	0.46

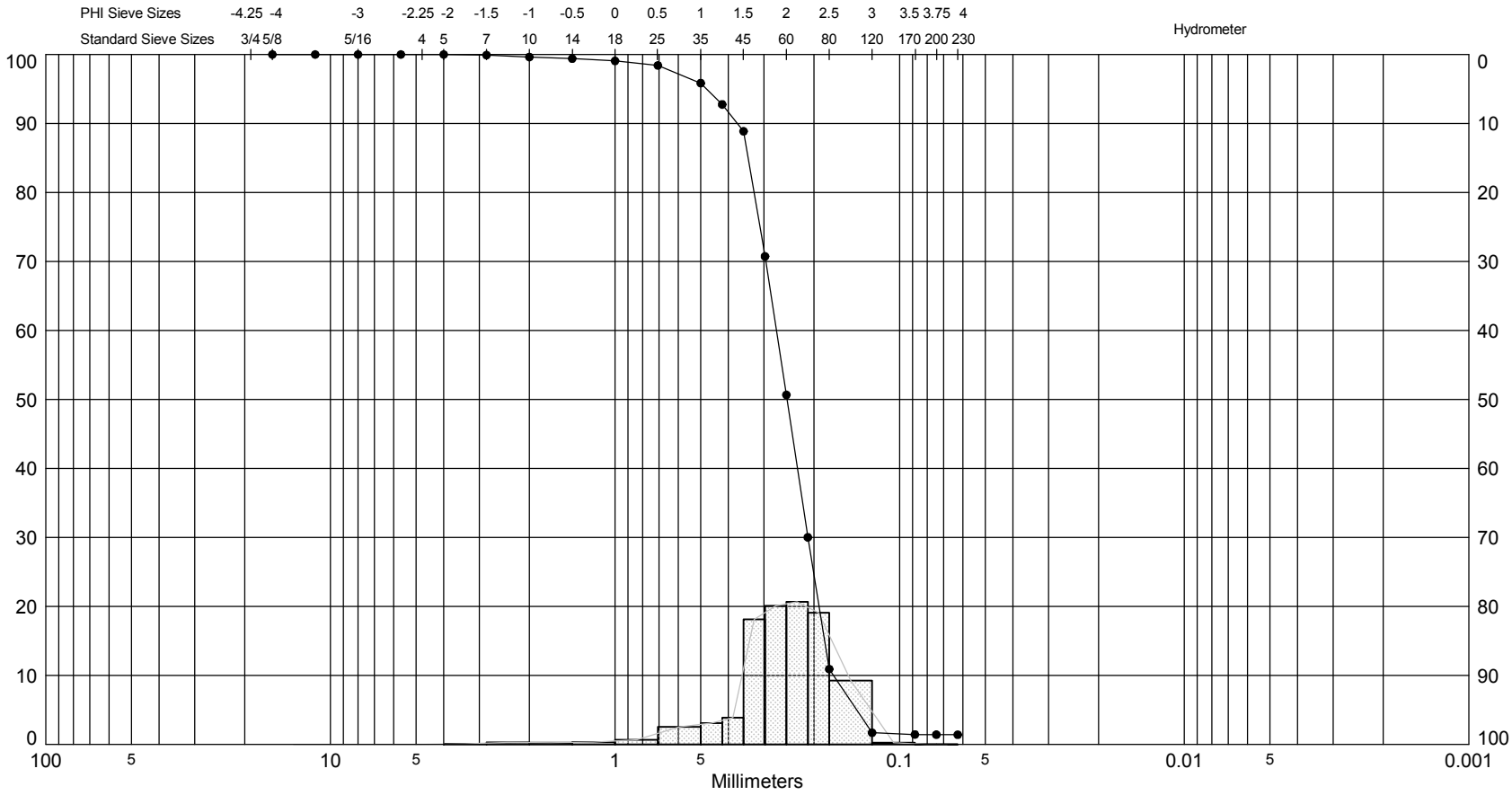
Comments:

Depths and elevations based on measured values

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Sample Information	
Project Name:	Dauphin Island Shore Protection
Analysis Date:	09-24-10
Analyzed By:	JR
Easting (X, ft):	1,790,332
Northing (Y, ft):	66,495
Horizontal System:	NAD 1983
Vertical System:	NAVD 88

SIEVE ANALYSIS DIVC-10.GPJ JPBRAZIL.GDT 3/14/11



Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
DIVC-10-19 #1	—●—	-18.2	SP	#200 - 1.41 #230 - 1.40			2.01	1.96	-1.66	10.03	0.54

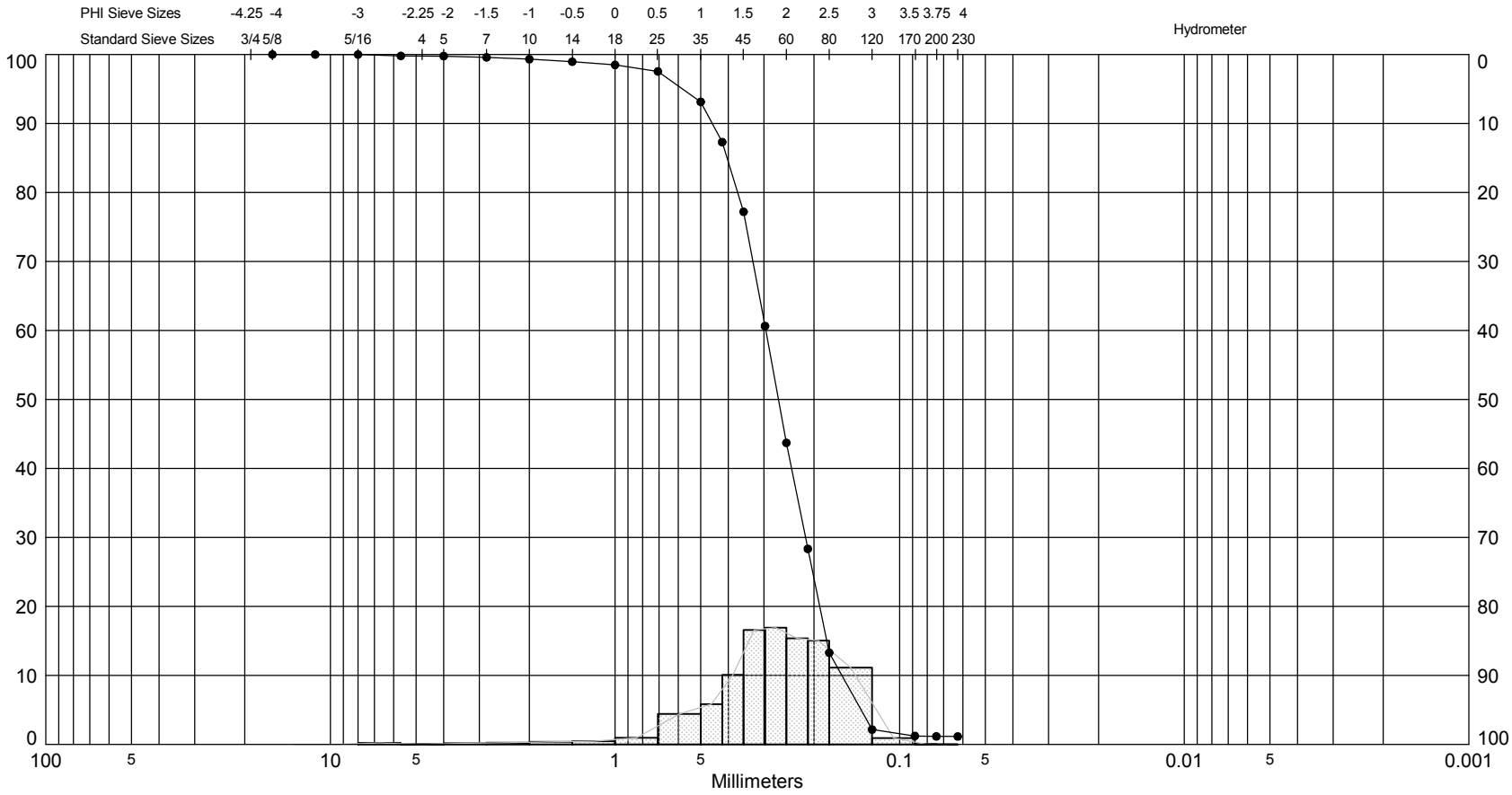
Comments:

Depths and elevations based on measured values

Sample Information	
Project Name:	Dauphin Island Shore Protection
Analysis Date:	09-24-10
Analyzed By:	JR
Easting (X, ft):	1,791,209
Northing (Y, ft):	66,338
Horizontal System:	NAD 1983
Vertical System:	NAVD 88

Coastal Planning & Engineering
2481 NW Boca Raton Blvd, Boca Raton
FL 33431
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SIEVE ANALYSIS DIVC-10.GPJ JPBRAZIL.GDT 3/14/11



Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
DIVC-10-19 #2	—●—	-20.5	SP	#200 - 1.16 #230 - 1.15			1.91	1.85	-1.64	10.41	0.67

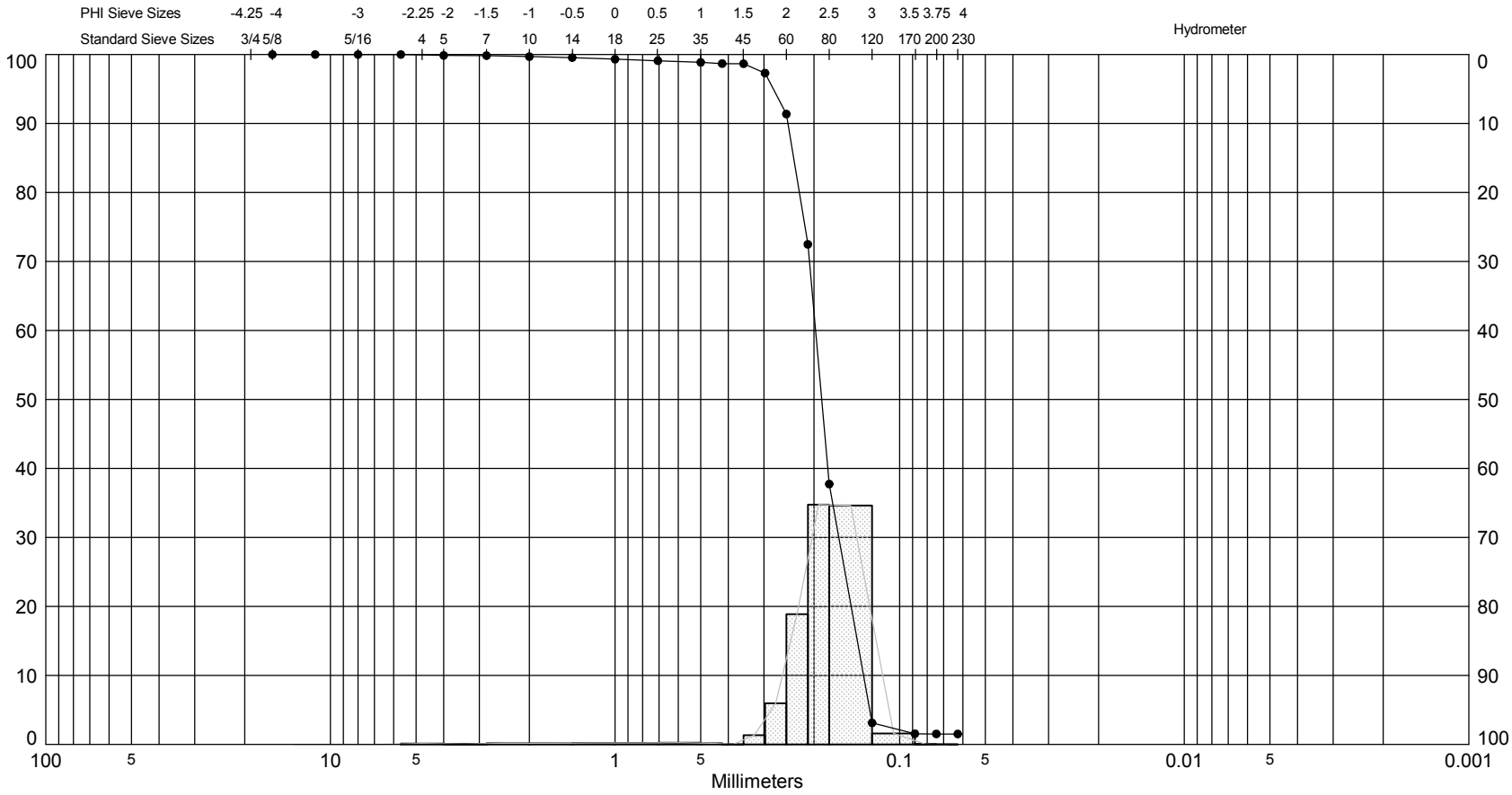
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Depths and elevations based on measured values

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Sample Information	
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Analysis Date:	09-24-10
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Easting (X, ft):	1,791,209
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SIEVE ANALYSIS DIVC-10.GPJ JPBRAZIL.GDT 3/14/11



Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
DIVC-10-19 #3	—●—	-22.2	SP	#200 - 1.52 #230 - 1.51			2.41	2.4	-3.87	33.26	0.45

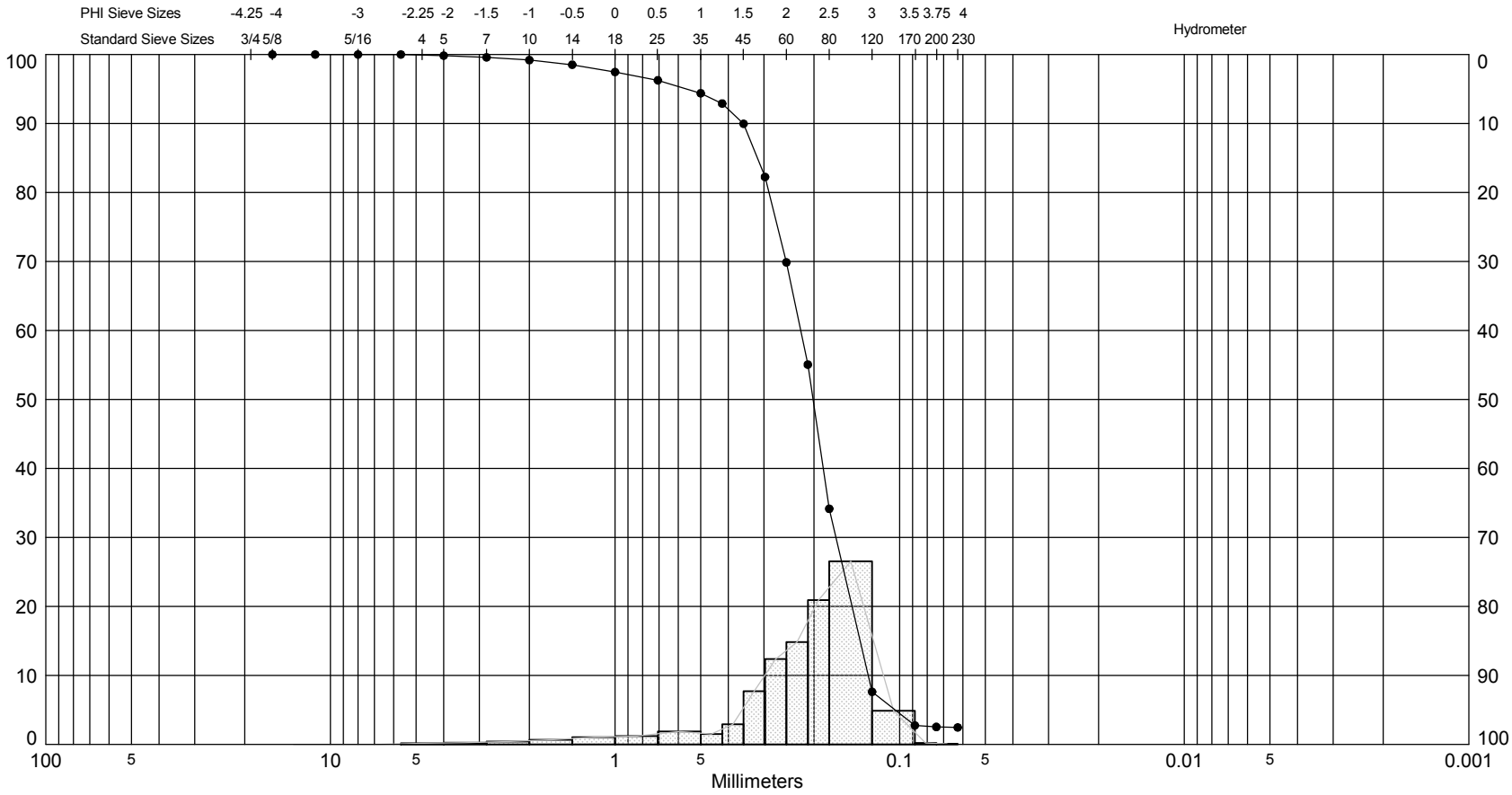
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Depths and elevations based on measured values

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Vertical System:	NAVD 88

SIEVE ANALYSIS DIVC-10.GPJ JPBRAZIL.GDT 3/14/11



Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
DIVC-10-19 #4	—●—	-23.9	SP	#200 - 2.53 #230 - 2.46			2.31	2.17	-2.04	9.79	0.75

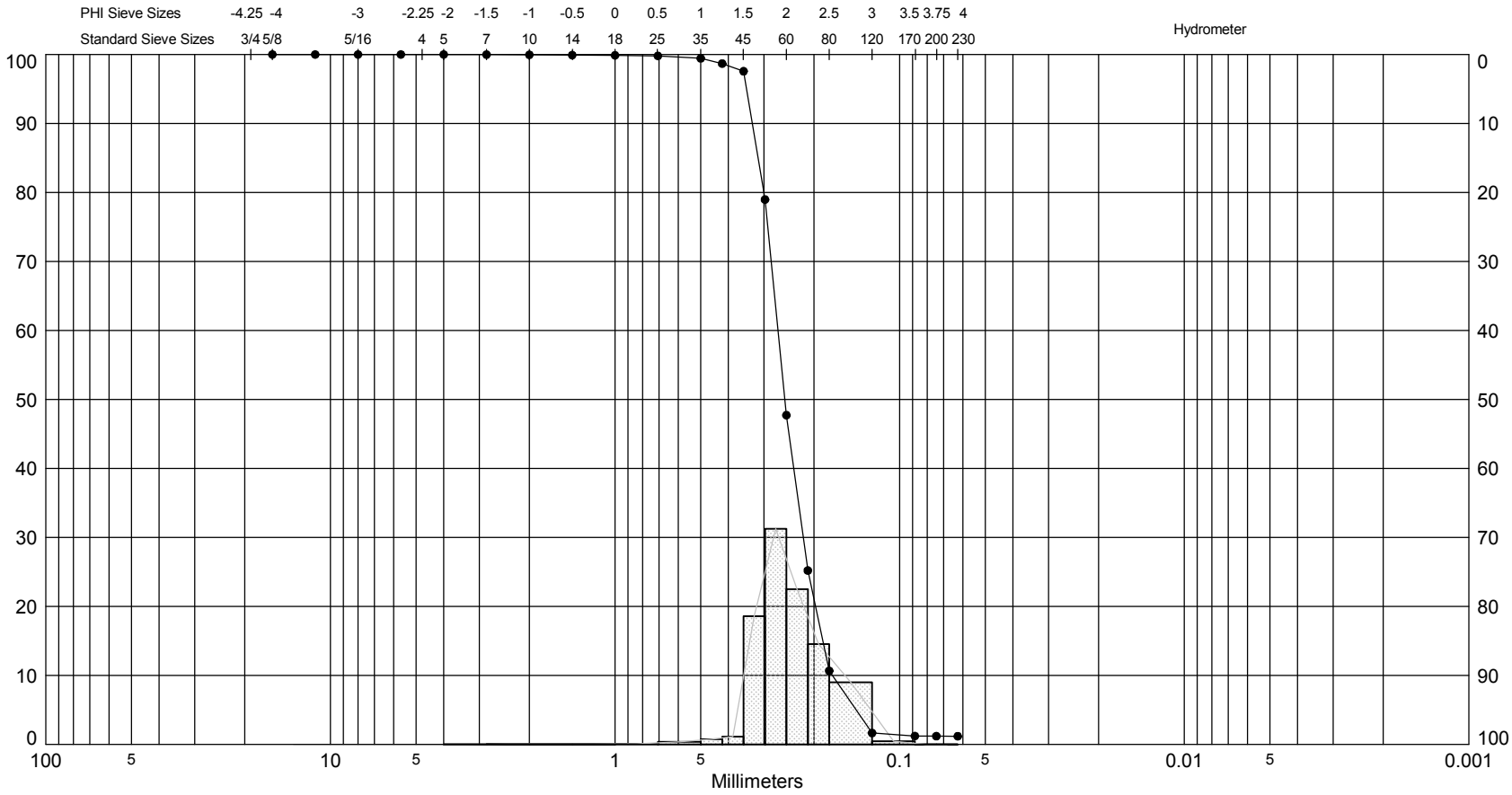
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Vertical System:	NAVD 88

SIEVE ANALYSIS DIVC-10.GPJ JPBRAZIL.GDT 3/14/11



Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
DIVC-10-19 #5	—●—	-29.5	SP	#200 - 1.19 #230 - 1.18			1.98	2.02	-0.31	8.68	0.38

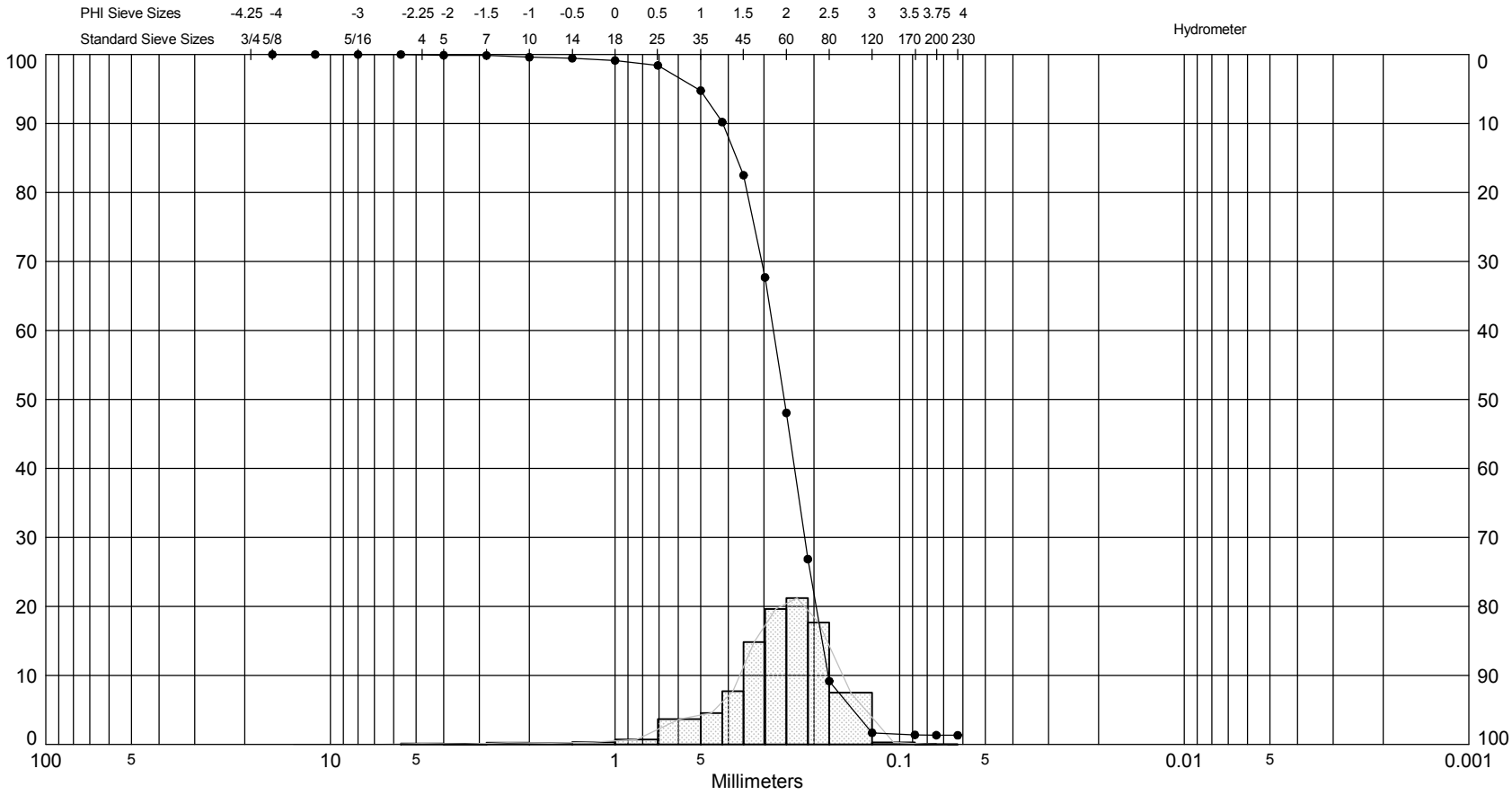
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SIEVE ANALYSIS DIVC-10.GPJ JPBRAZIL.GDT 3/14/11



Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
DIVC-10-20 #1	—●—	-19.4	SP	#200 - 1.33 #230 - 1.32			1.98	1.9	-1.57	9.78	0.56

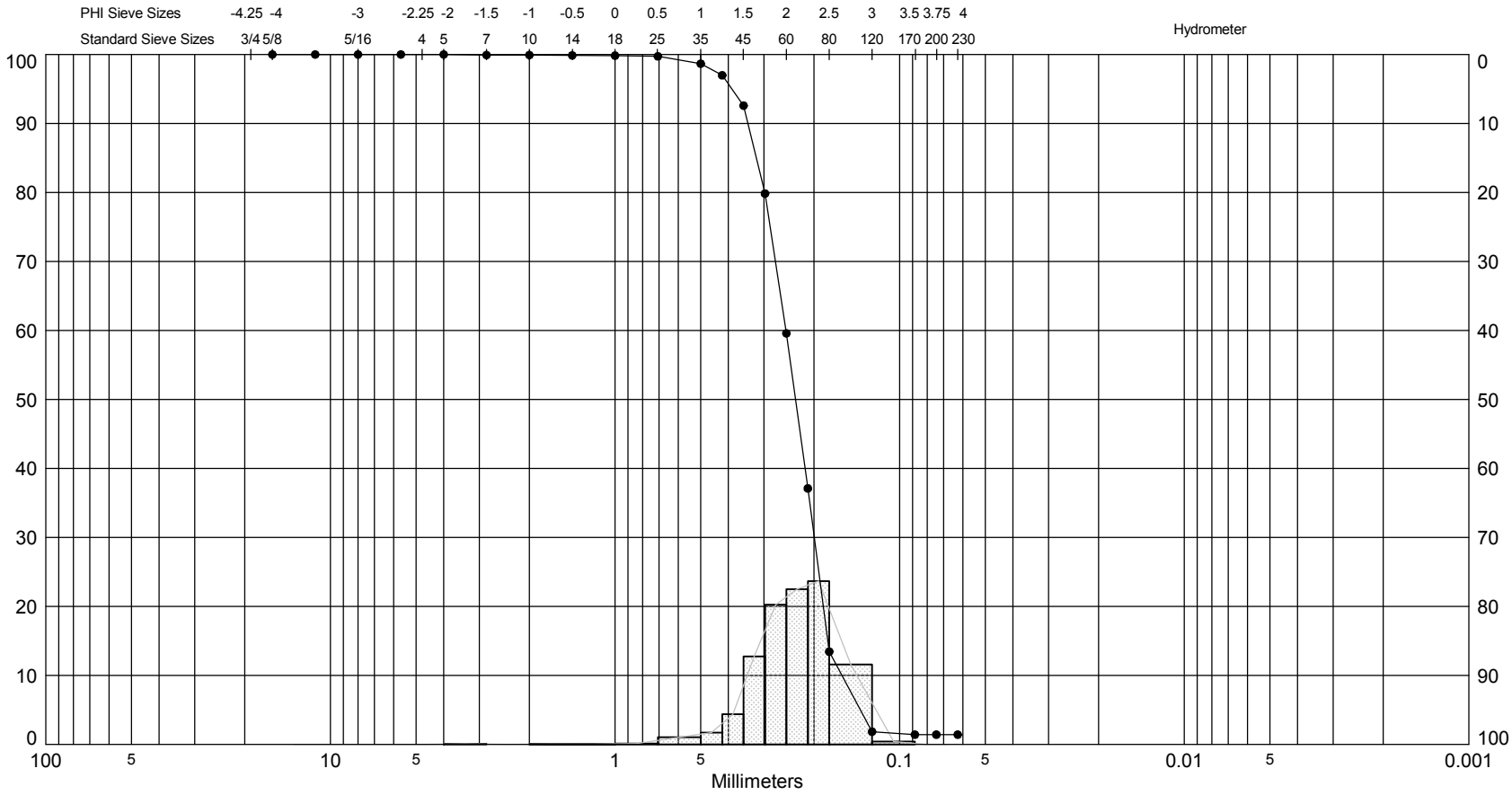
Comments:

Depths and elevations based on measured values

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FL 33431
ph (561) 391-8102
fax (561) 391-9116

Sample Information	
Project Name:	Dauphin Island Shore Protection
Analysis Date:	09-28-10
Analyzed By:	TD
Easting (X, ft):	1,790,576
Northing (Y, ft):	65,529
Horizontal System:	NAD 1983
Vertical System:	NAVD 88

SIEVE ANALYSIS DIVC-10.GPJ JPBRAZIL.GDT 3/14/11



Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
DIVC-10-20 #2	—●—	-24.7	SP	#200 - 1.41 #230 - 1.41			2.11	2.07	-1.01	8.68	0.44

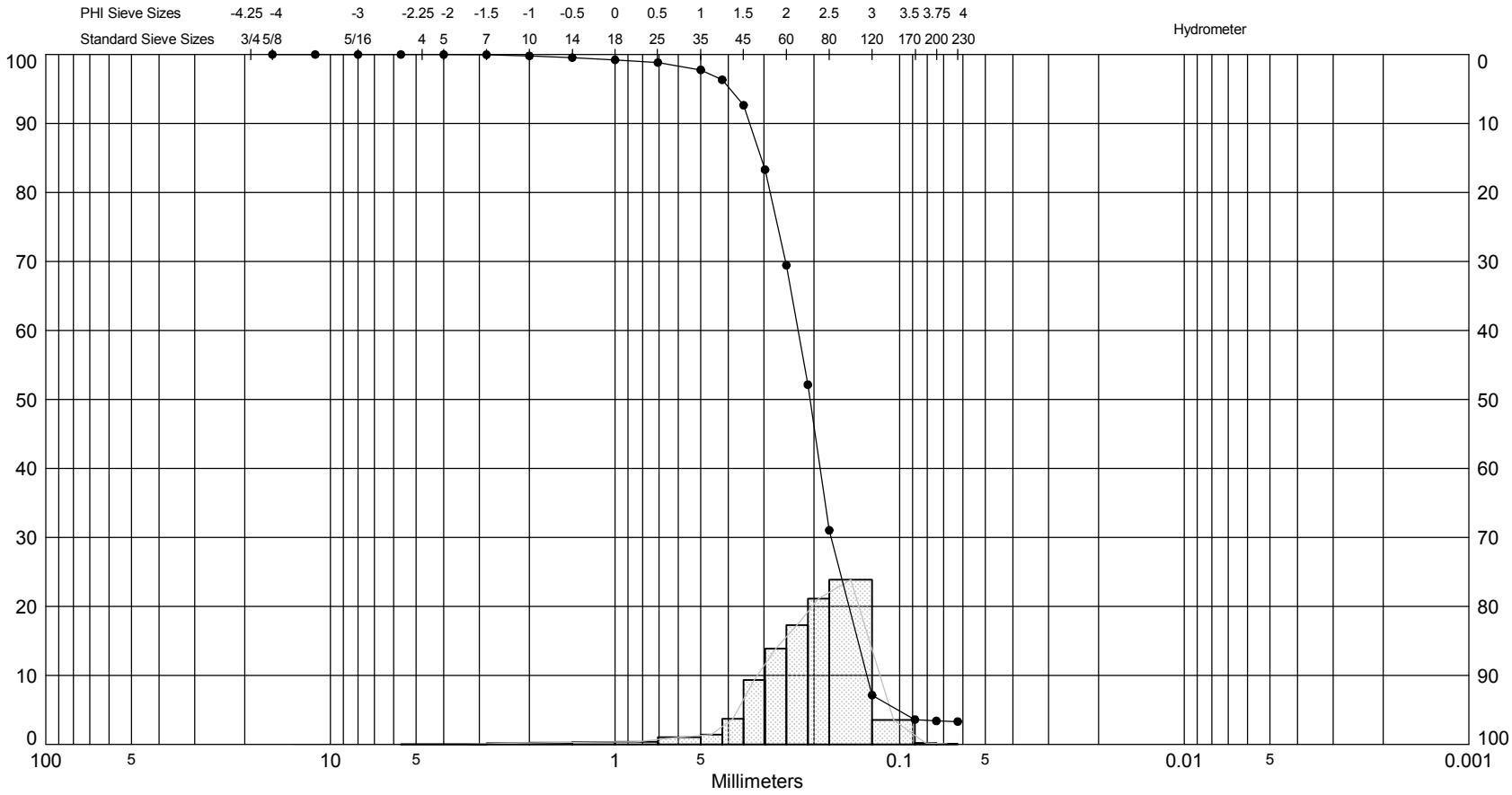
Comments:

Depths and elevations based on measured values

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Sample Information	
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Analysis Date:	09-28-10
Analyzed By:	TD
Easting (X, ft):	1,790,576
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SIEVE ANALYSIS DIVC-10.GPJ JPBRAZIL.GDT 3/14/11



Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
DIVC-10-20 #3	—●—	-29.1	SP	#200 - 3.40 #230 - 3.31			2.28	2.21	-1.32	8.39	0.57

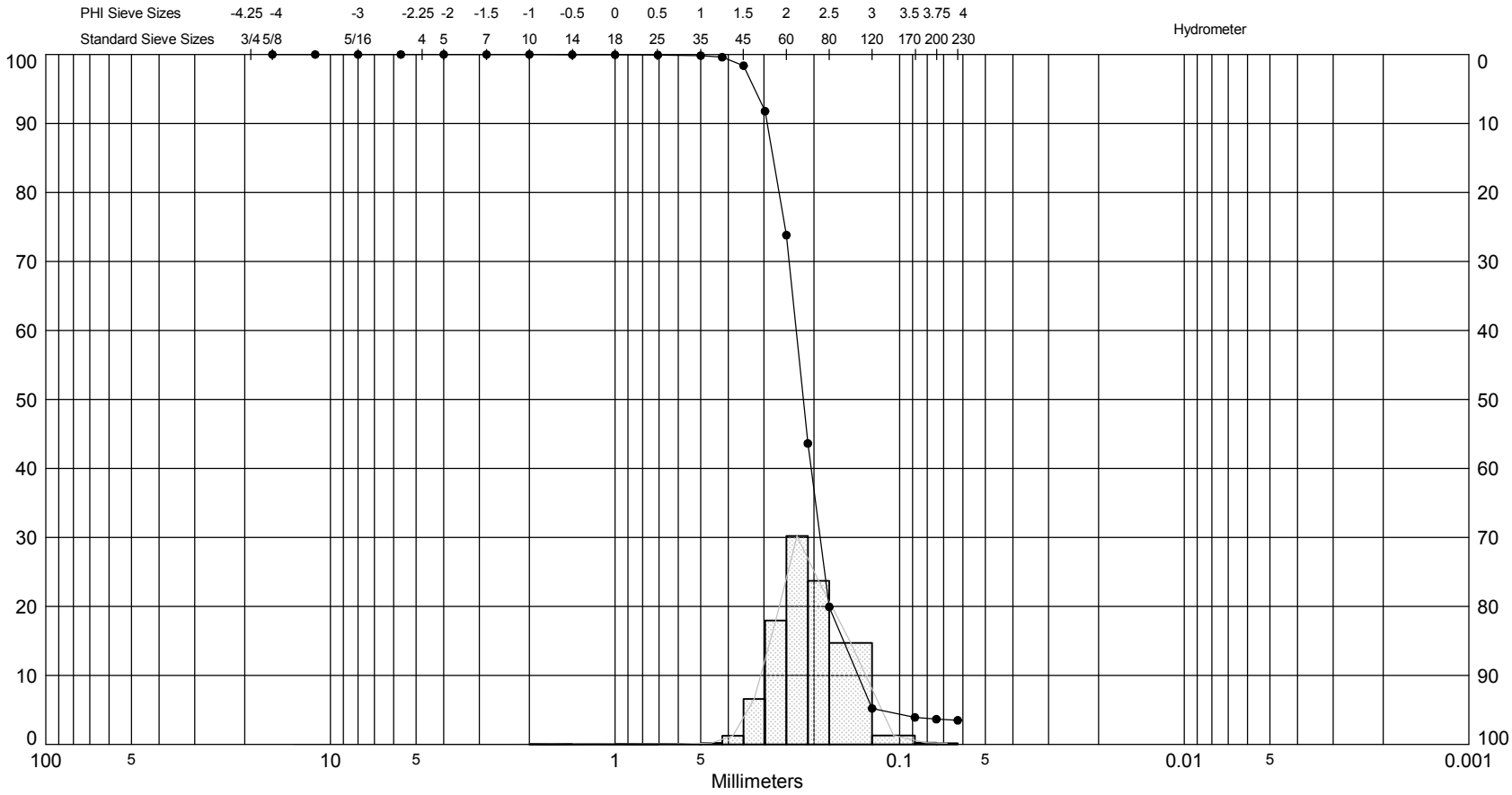
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SIEVE ANALYSIS DIVC-10.GPJ JPBRAZIL.GDT 3/14/11



Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
DIVC-10-20 #4	—●—	-33.4	SP	#200 - 3.65 #230 - 3.49			2.2	2.21	0.19	5.52	0.37

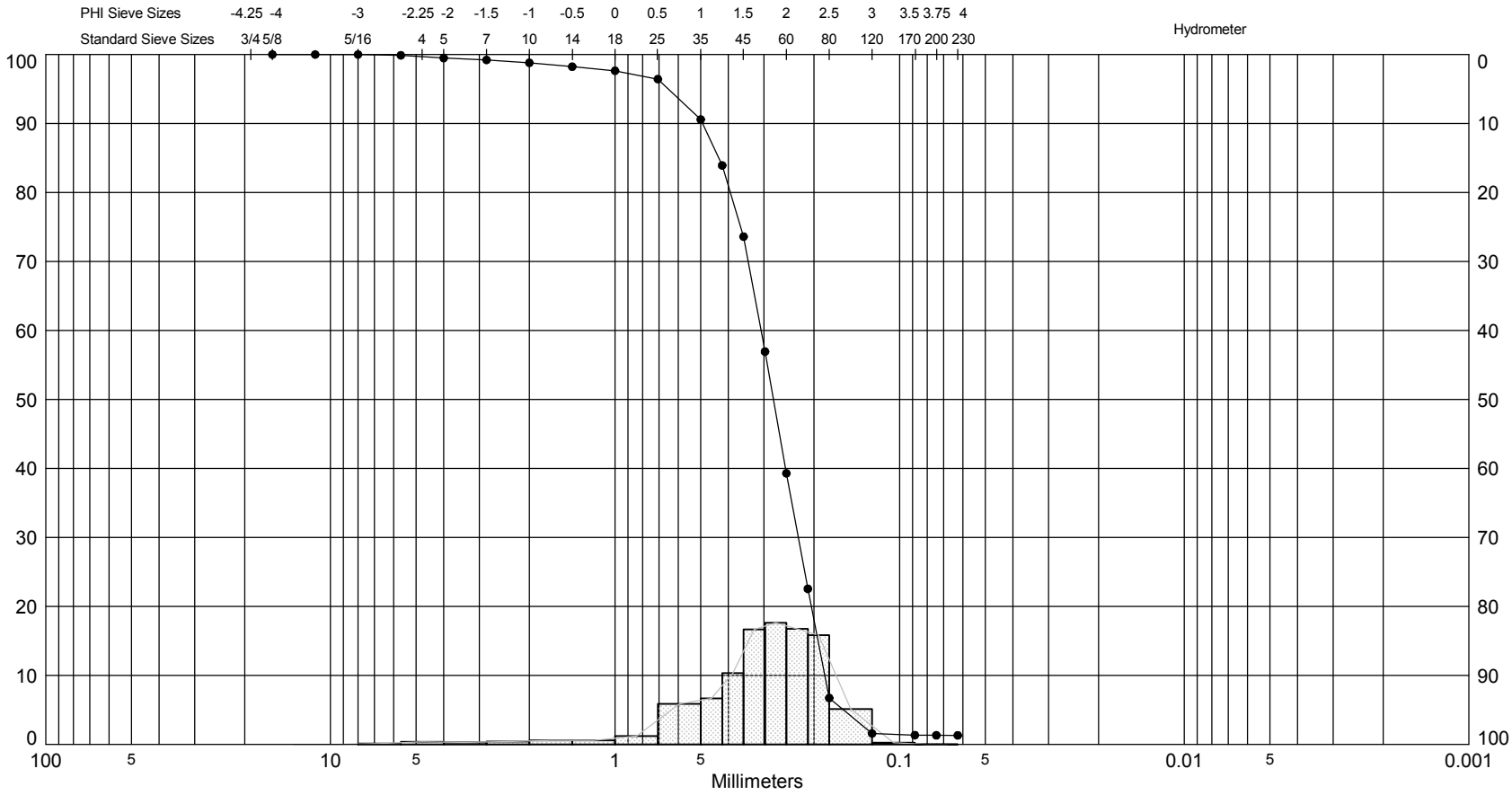
Comments:

Depths and elevations based on measured values

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Analyzed By:	TD
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SIEVE ANALYSIS DIVC-10.GPJ JPBRAZIL.GDT 3/14/11



Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
DIVC-10-21 #1	—●—	-19.9	SP	#200 - 1.32 #230 - 1.31			1.85	1.74	-2.09	11.25	0.71

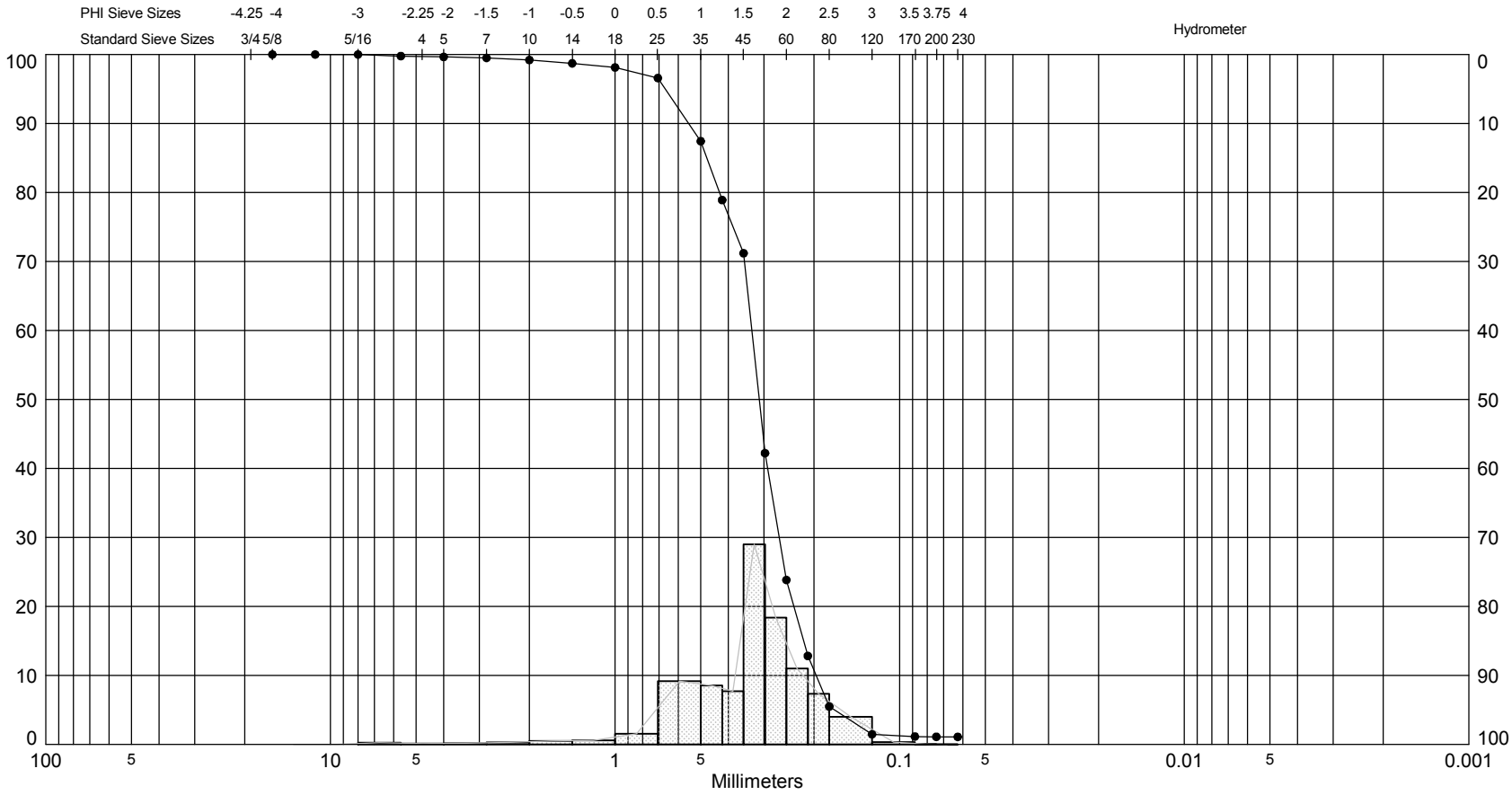
Comments:

Depths and elevations based on measured values

Sample Information	
Project Name:	Dauphin Island Shore Protection
Analysis Date:	09-29-10
Analyzed By:	JR
Easting (X, ft):	1,791,351
Northing (Y, ft):	65,352
Horizontal System:	NAD 1983
Vertical System:	NAVD 88

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SIEVE ANALYSIS DIVC-10.GPJ JPBRAZIL.GDT 3/14/11



Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
DIVC-10-21 #2	—●—	-21.7	SP	#200 - 1.10 #230 - 1.09			1.68	1.62	-1.75	11.06	0.65

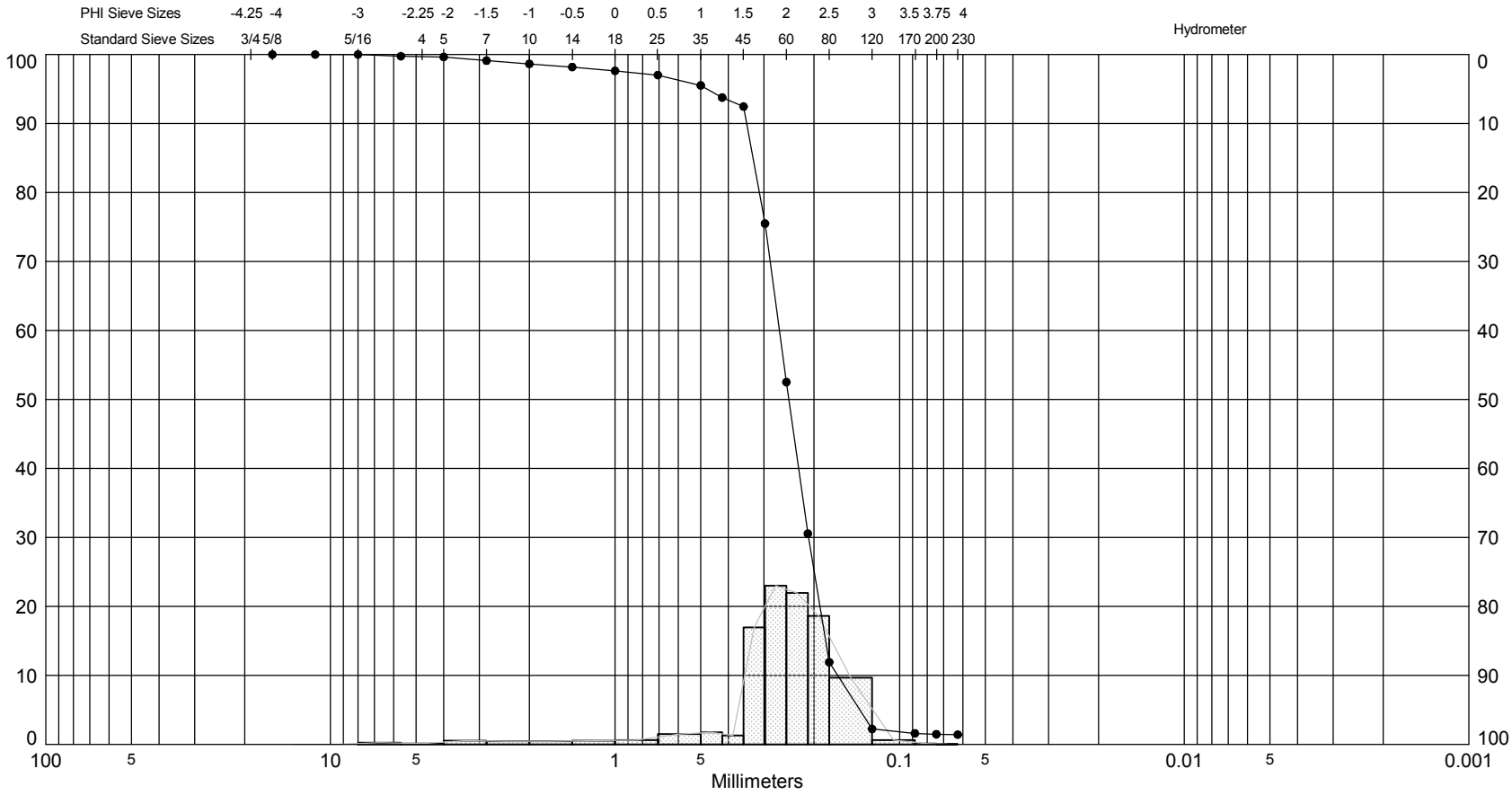
Comments:

Depths and elevations based on measured values

Sample Information	
Project Name:	Dauphin Island Shore Protection
Analysis Date:	09-29-10
Analyzed By:	JR
Easting (X, ft):	1,791,351
Northing (Y, ft):	65,352
Horizontal System:	NAD 1983
Vertical System:	NAVD 88

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SIEVE ANALYSIS DIVC-10.GPJ JPBRAZIL.GDT 3/14/11



Gravel		Sand			Silt and Clay
Coarse	Fine	Coarse	Medium	Fine	

Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
DIVC-10-21 #3	—●—	-23.5	SP	#200 - 1.47 #230 - 1.42			2.03	1.96	-3	17.7	0.68

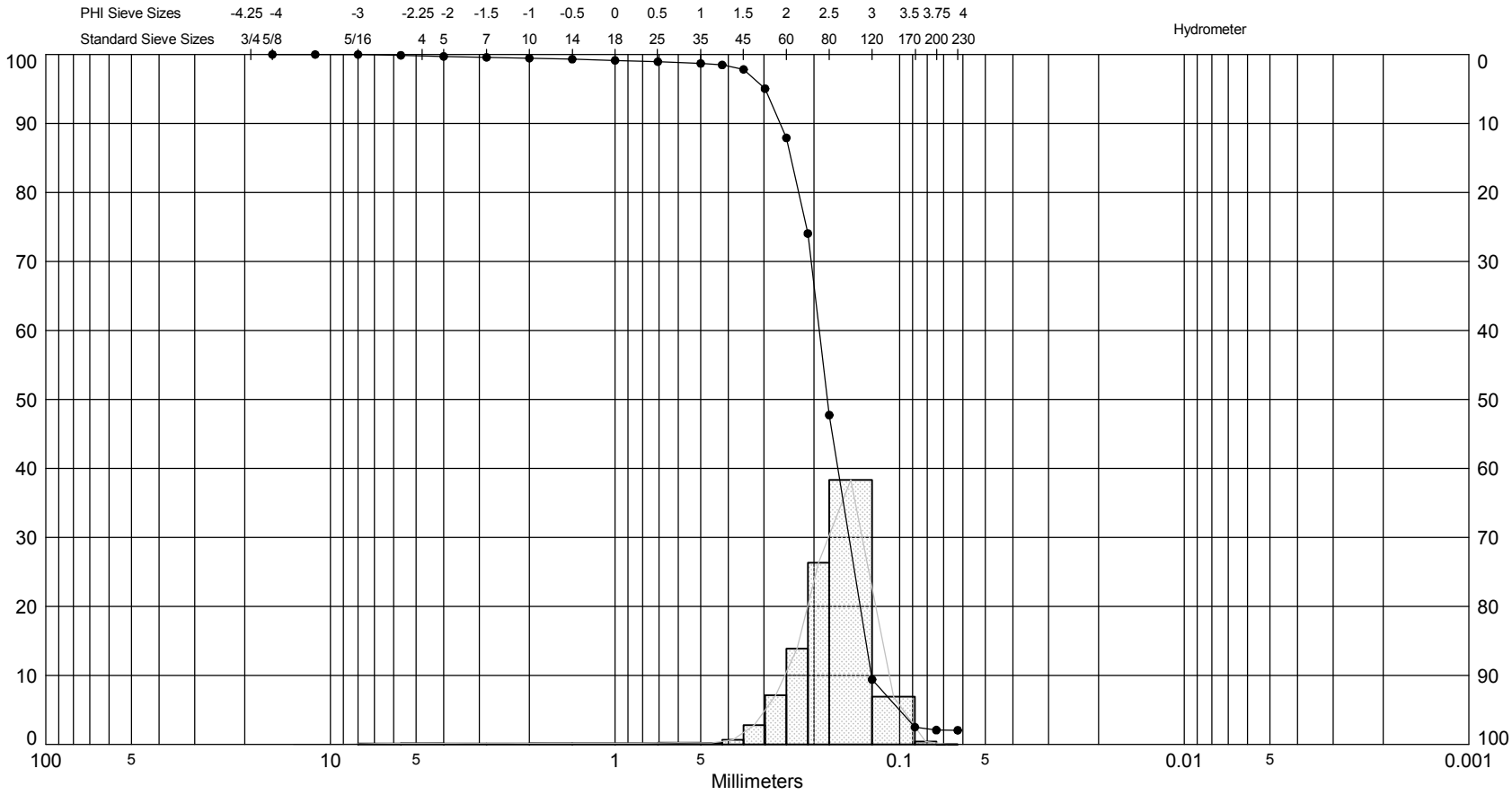
Comments:

Depths and elevations based on measured values

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Sample Information	
Project Name:	Dauphin Island Shore Protection
Analysis Date:	09-30-10
Analyzed By:	JD
Easting (X, ft):	1,791,351
Northing (Y, ft):	65,352
Horizontal System:	NAD 1983
Vertical System:	NAVD 88

SIEVE ANALYSIS DIVC-10.GPJ JPBRAZIL.GDT 3/14/11



Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
DIVC-10-21 #4	—●—	-26.0	SP	#200 - 2.07 #230 - 2.05			2.48	2.45	-3.46	27.78	0.56

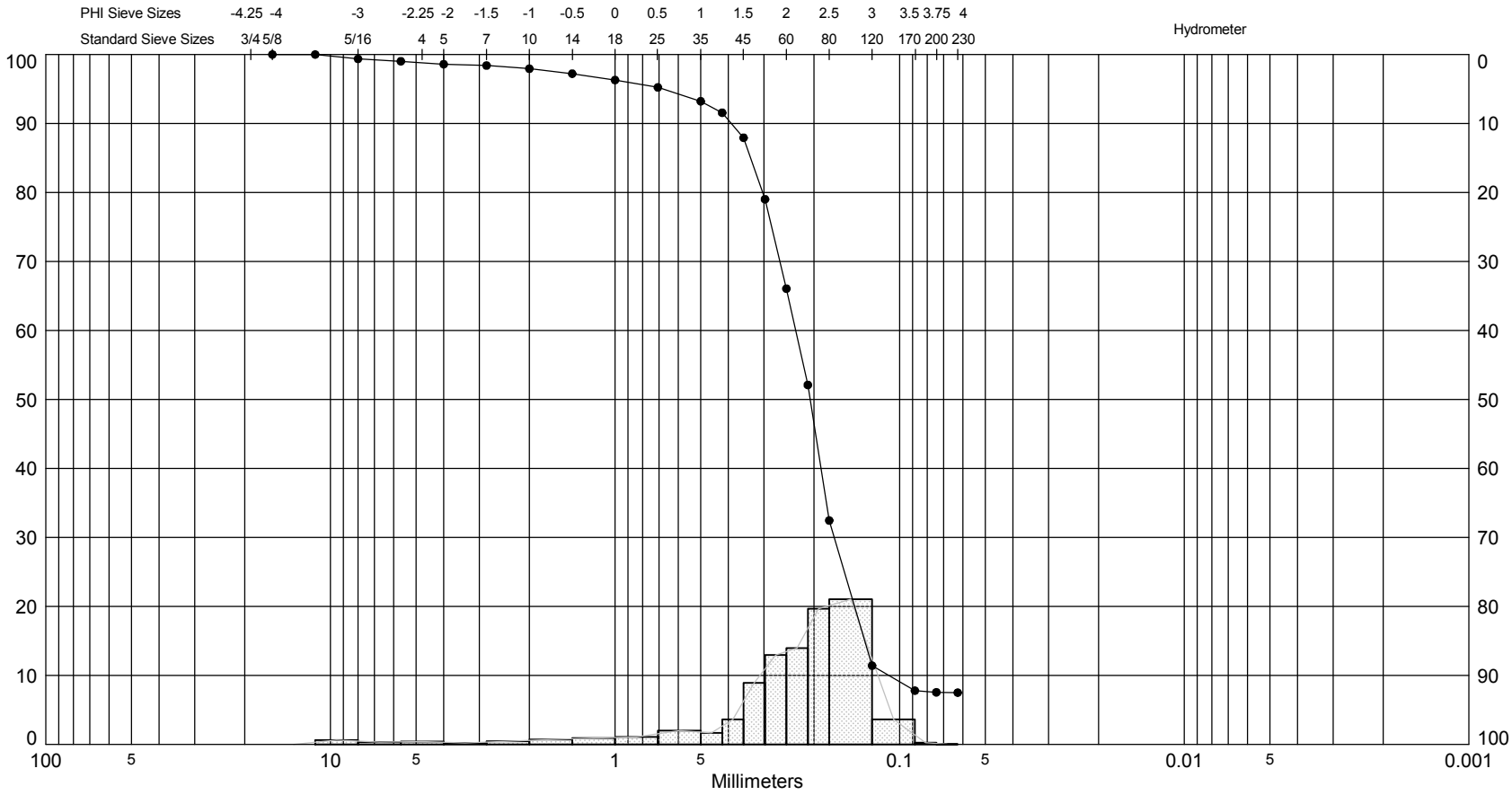
Comments:

Depths and elevations based on measured values

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Sample Information	
Project Name:	Dauphin Island Shore Protection
Analysis Date:	09-30-10
Analyzed By:	JD
Easting (X, ft):	1,791,351
Northing (Y, ft):	65,352
Horizontal System:	NAD 1983
Vertical System:	NAVD 88

SIEVE ANALYSIS DIVC-10.GPJ JPBRAZIL.GDT 3/14/11



Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
DIVC-10-21 #5	—●—	-27.4	SW-SC	#200 - 7.55 #230 - 7.50			2.28	2.04	-2.79	13.89	0.94

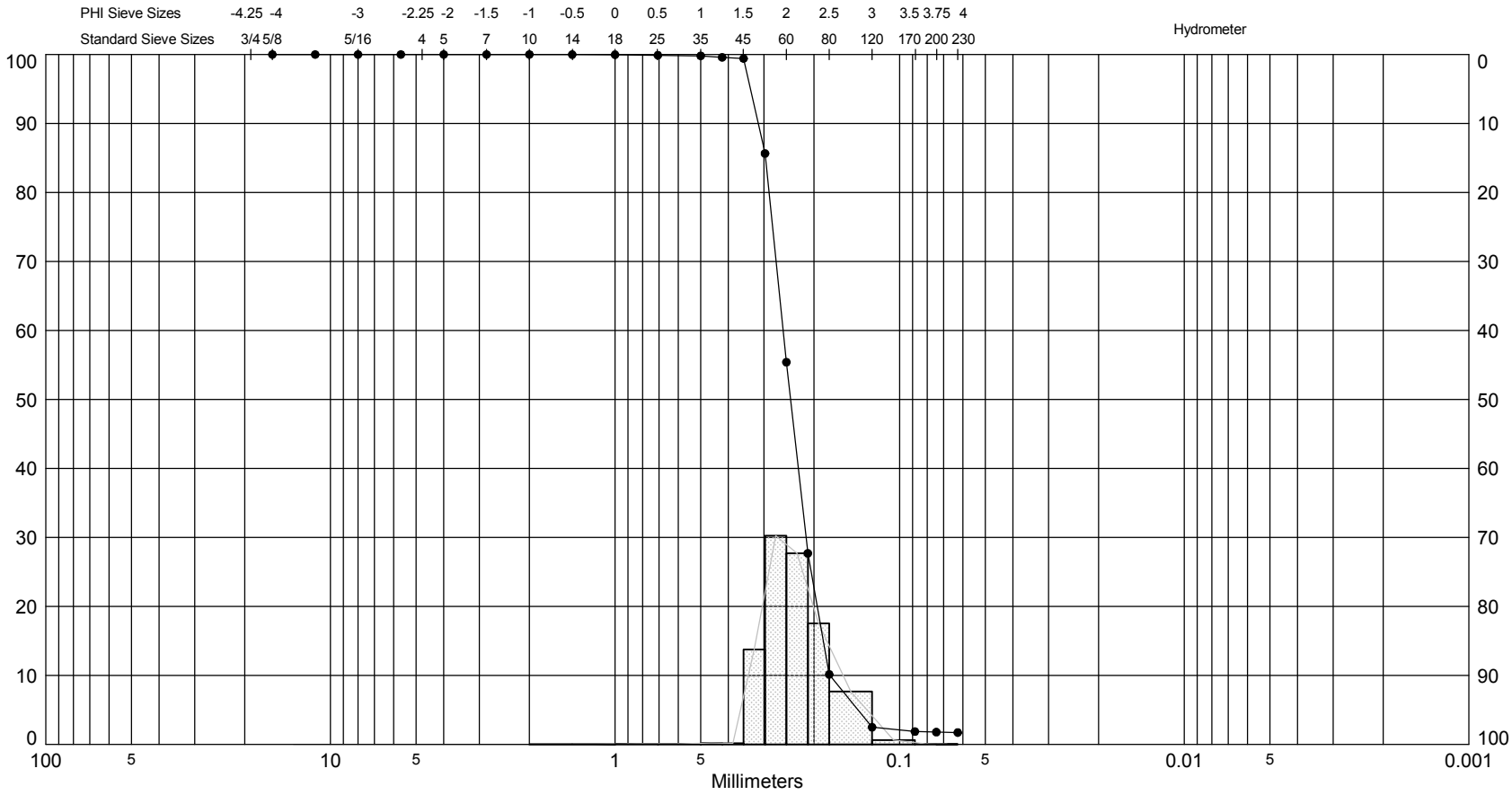
Comments:

Depths and elevations based on measured values

Sample Information	
Project Name:	Dauphin Island Shore Protection
Analysis Date:	09-30-10
Analyzed By:	JD
Easting (X, ft):	1,791,351
Northing (Y, ft):	65,352
Horizontal System:	NAD 1983
Vertical System:	NAVD 88

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SIEVE ANALYSIS DIVC-10.GPJ JPBRAZIL.GDT 3/14/11



Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
DIVC-10-21 #6	—●—	-34.9	SP	#200 - 1.78 #230 - 1.72			2.05	2.07	0.43	5.56	0.34

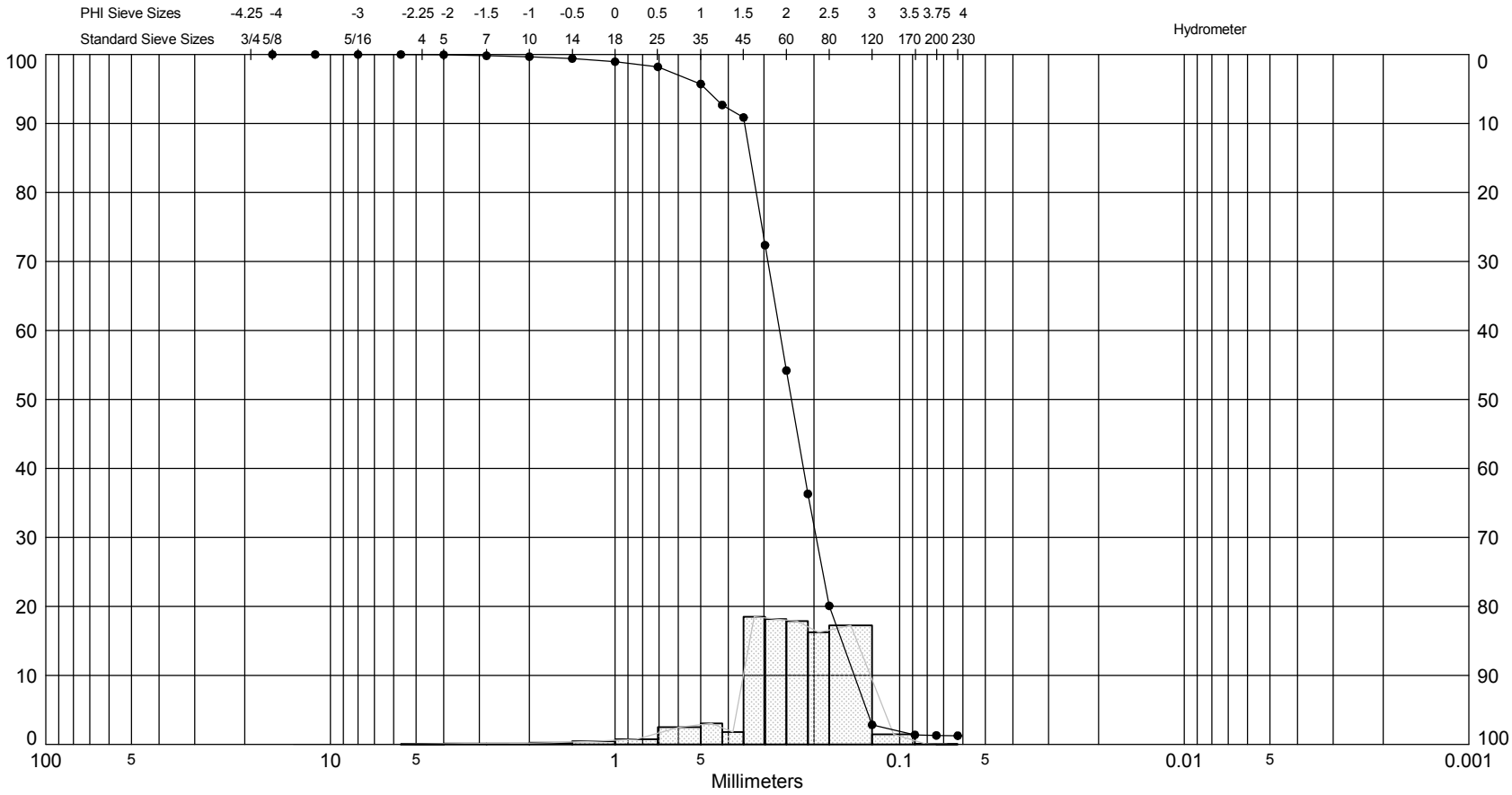
Comments:

Depths and elevations based on measured values

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Sample Information	
Project Name:	Dauphin Island Shore Protection
Analysis Date:	09-28-10
Analyzed By:	JR
Easting (X, ft):	1,791,351
Northing (Y, ft):	65,352
Horizontal System:	NAD 1983
Vertical System:	NAVD 88

SIEVE ANALYSIS DIVC-10.GPJ JPBRAZIL.GDT 3/14/11



Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
DIVC-10-22 #1	—●—	-22.1	SP	#200 - 1.30 #230 - 1.26			2.06	2.03	-1.41	8.83	0.6

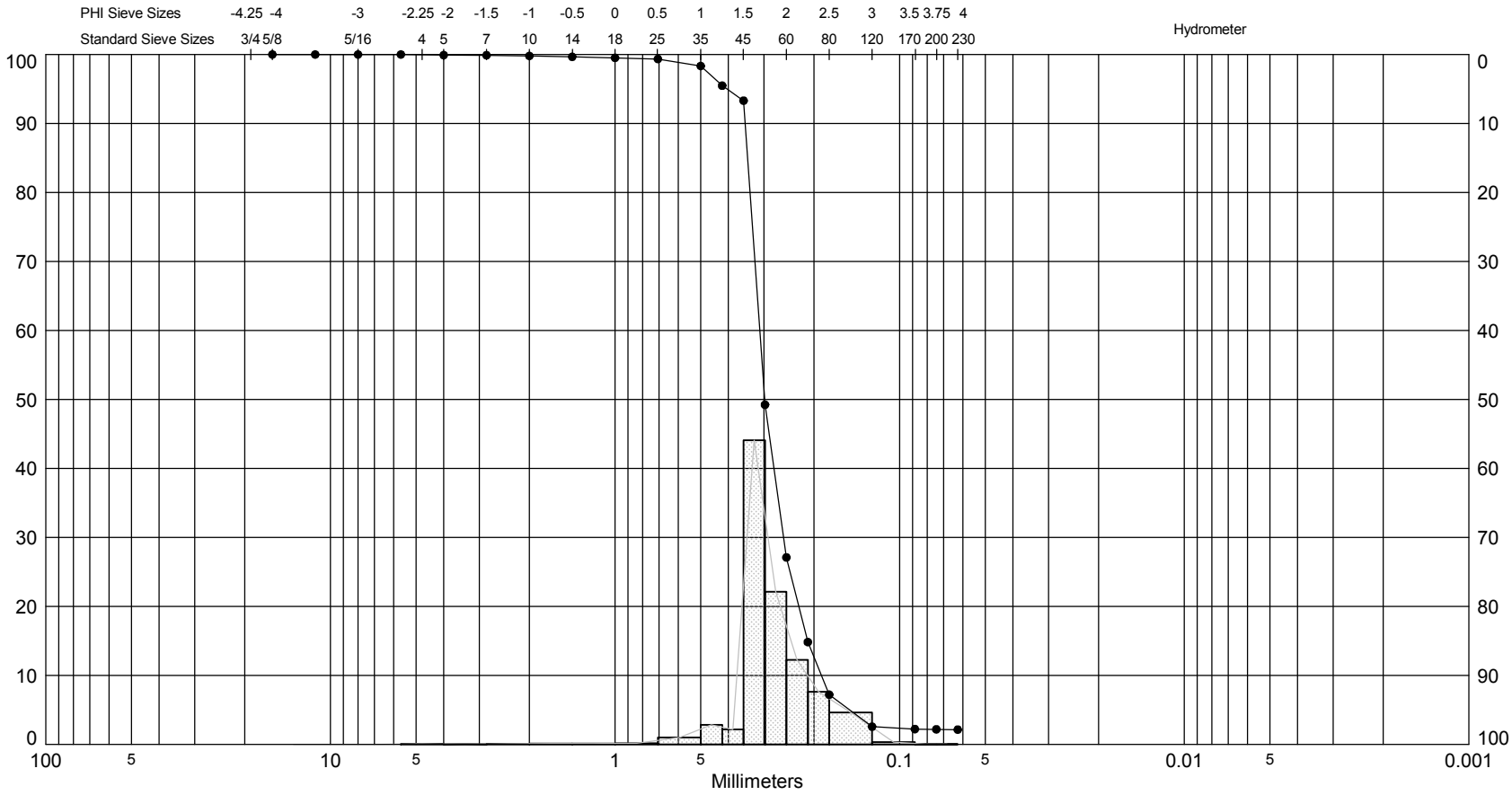
Comments:

Depths and elevations based on measured values

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Sample Information	
Project Name:	Dauphin Island Shore Protection
Analysis Date:	09-28-10
Analyzed By:	JR
Easting (X, ft):	1,792,791
Northing (Y, ft):	65,318
Horizontal System:	NAD 1983
Vertical System:	NAVD 88

SIEVE ANALYSIS DIVC-10.GPJ JPBRAZIL.GDT 3/14/11



Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
DIVC-10-22 #2	—●—	-26.1	SP	#200 - 2.18 #230 - 2.14			1.75	1.82	-1.27	16.99	0.43

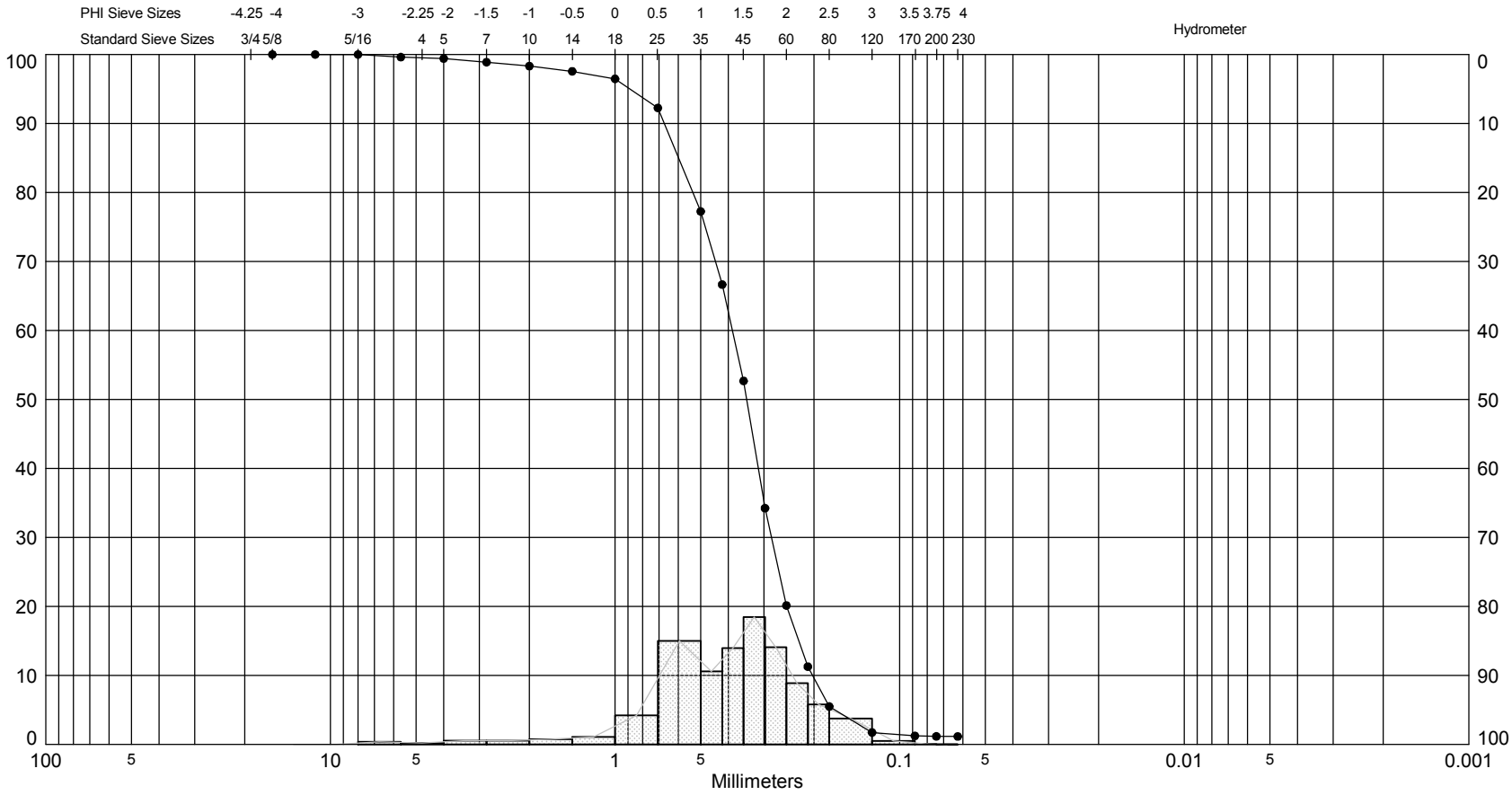
Comments:

Depths and elevations based on measured values

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Sample Information	
Project Name:	Dauphin Island Shore Protection
Analysis Date:	09-28-10
Analyzed By:	JR
Easting (X, ft):	1,792,791
Northing (Y, ft):	65,318
Horizontal System:	NAD 1983
Vertical System:	NAVD 88

SIEVE ANALYSIS DIVC-10.GPJ JPBRAZIL.GDT 3/14/11



Gravel		Sand			Silt and Clay
Coarse	Fine	Coarse	Medium	Fine	

Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
DIVC-10-22 #3	—●—	-30.9	SP	#200 - 1.16 #230 - 1.15			1.54	1.42	-1.43	7.98	0.78

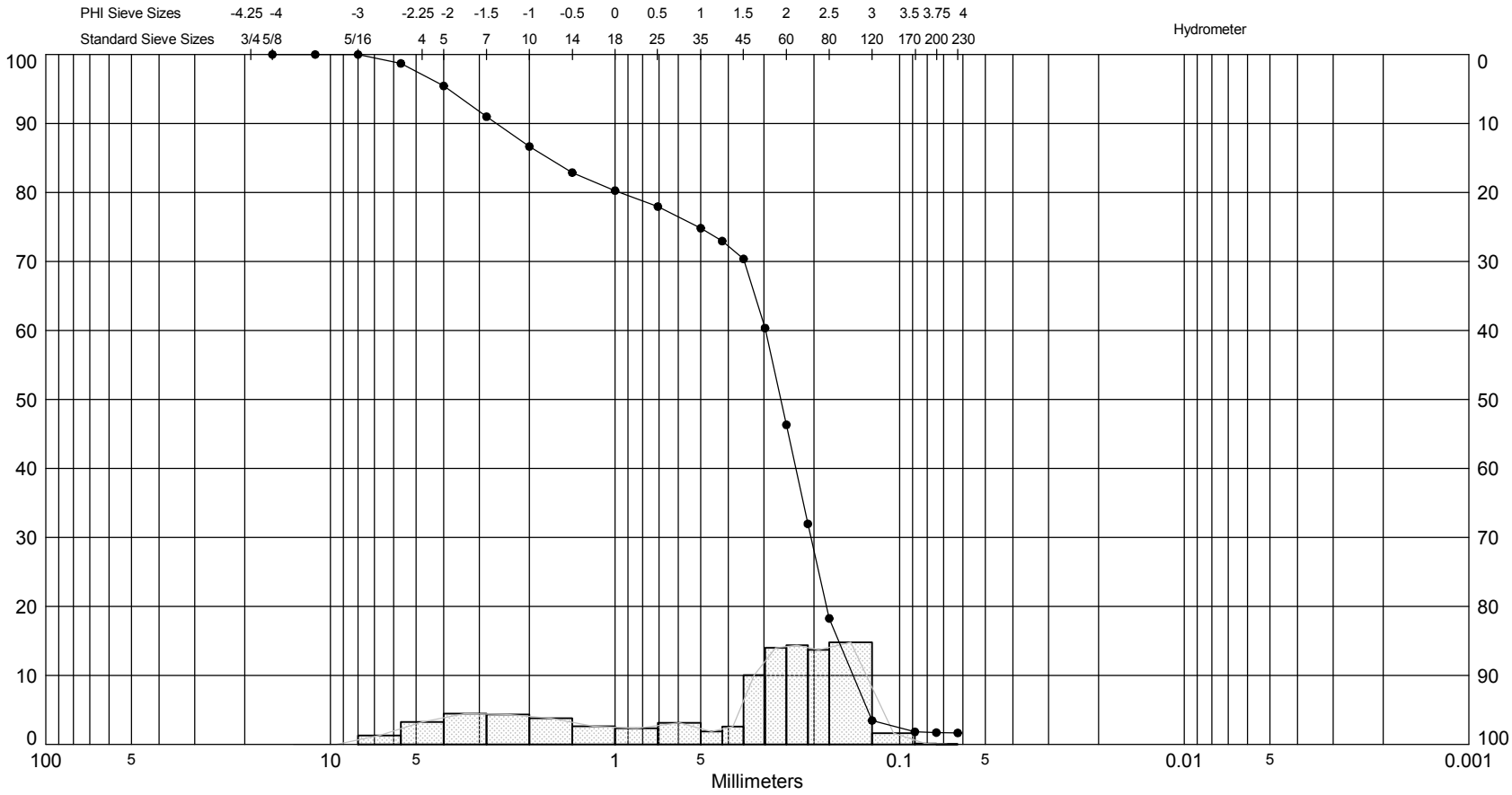
Comments:

Depths and elevations based on measured values

Sample Information	
Project Name:	Dauphin Island Shore Protection
Analysis Date:	09-28-10
Analyzed By:	JR
Easting (X, ft):	1,792,791
Northing (Y, ft):	65,318
Horizontal System:	NAD 1983
Vertical System:	NAVD 88

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SIEVE ANALYSIS DIVC-10.GPJ JPBRAZIL.GDT 3/14/11



Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
DIVC-10-22 #4	—●—	-32.8	SW	#200 - 1.71 #230 - 1.66			1.93	1.35	-1.23	3.3	1.52

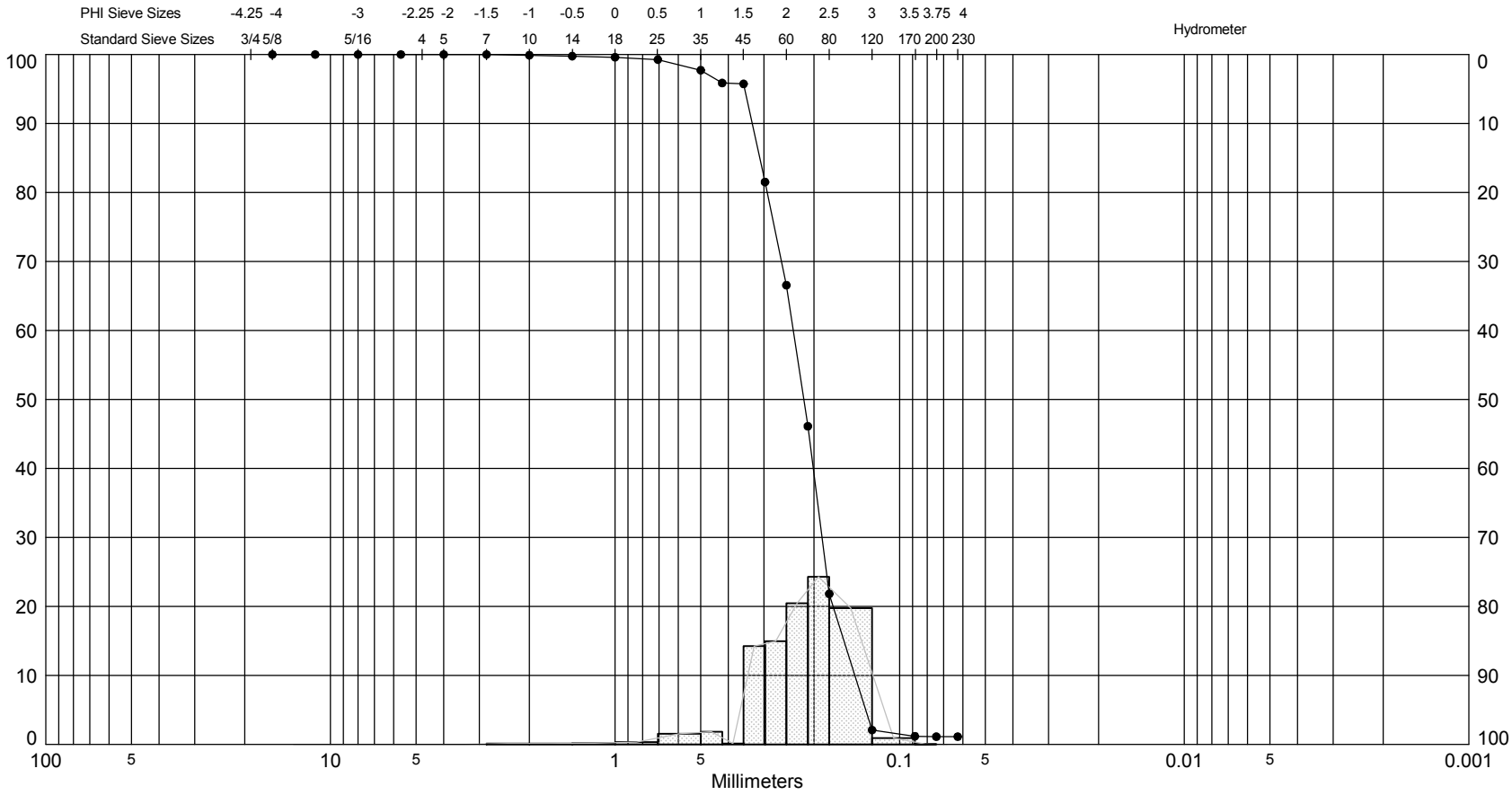
Comments:

Depths and elevations based on measured values

Sample Information	
Project Name:	Dauphin Island Shore Protection
Analysis Date:	09-28-10
Analyzed By:	JR
Easting (X, ft):	1,792,791
Northing (Y, ft):	65,318
Horizontal System:	NAD 1983
Vertical System:	NAVD 88

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SIEVE ANALYSIS DIVC-10.GPJ JPBRAZIL.GDT 3/14/11



Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
DIVC-10-23 #1	—●—	-19.7	SP	#200 - 1.12 #230 - 1.12			2.2	2.15	-1.24	7.92	0.49

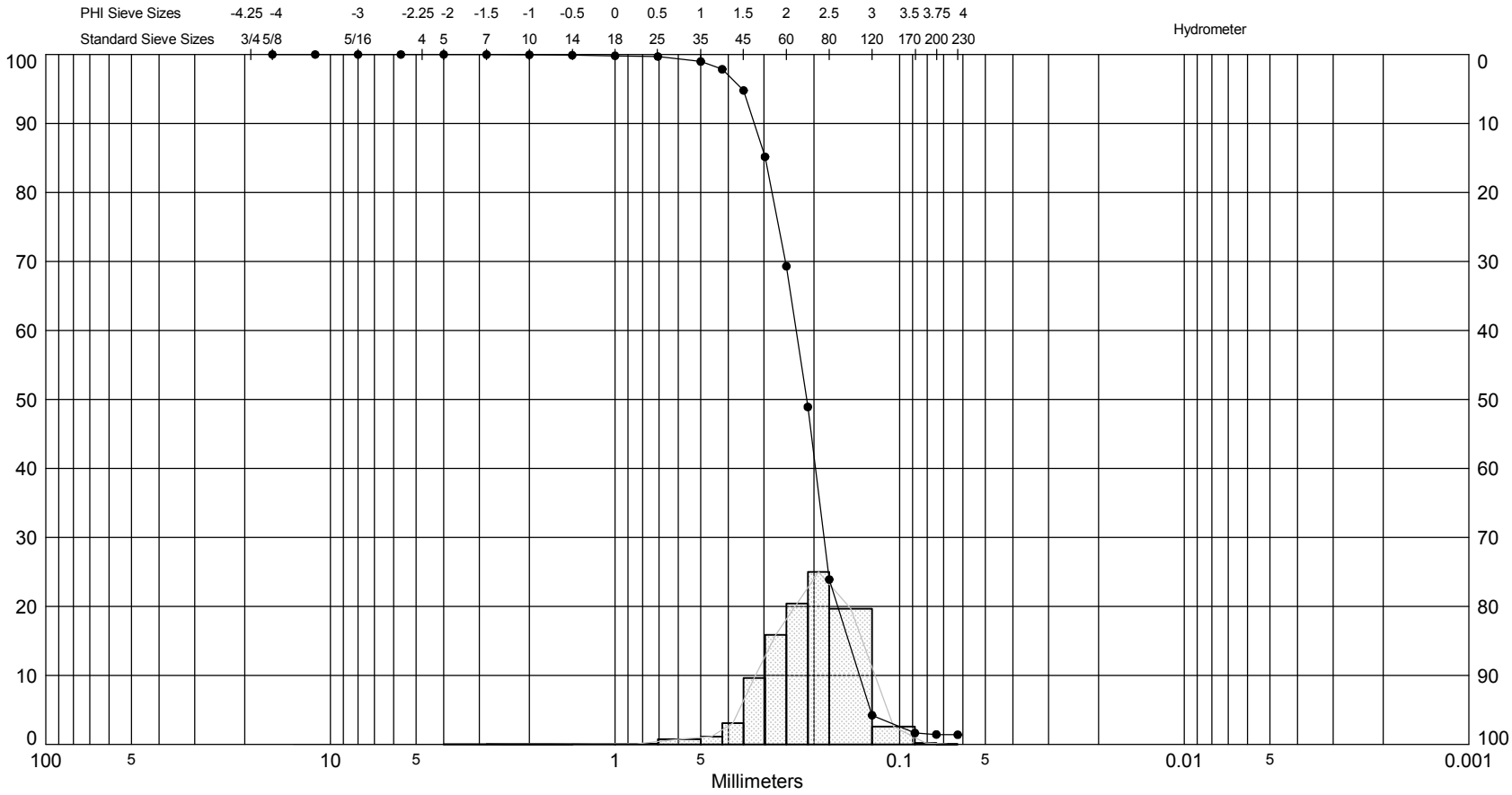
Comments:

Depths and elevations based on measured values

Sample Information	
Project Name:	Dauphin Island Shore Protection
Analysis Date:	09-28-10
Analyzed By:	JR
Easting (X, ft):	1,791,669
Northing (Y, ft):	59,181
Horizontal System:	NAD 1983
Vertical System:	NAVD 88

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SIEVE ANALYSIS DIVC-10.GPJ JPBRAZIL.GDT 3/14/11



Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
DIVC-10-23 #2	—●—	-25.0	SP	#200 - 1.43 #230 - 1.40			2.24	2.21	-0.62	6.13	0.47

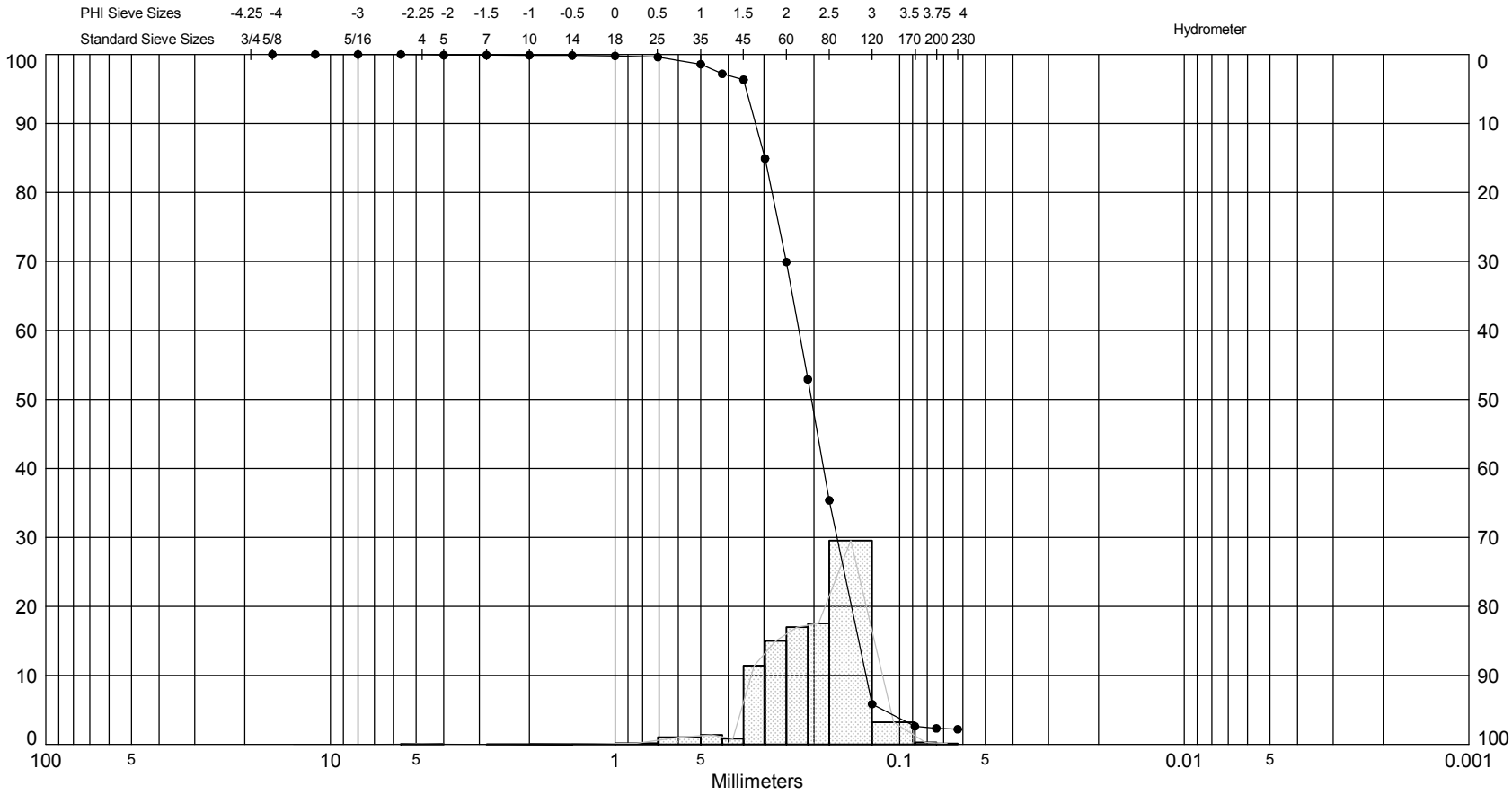
Comments:

Depths and elevations based on measured values

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Sample Information	
Project Name:	Dauphin Island Shore Protection
Analysis Date:	09-28-10
Analyzed By:	JR
Easting (X, ft):	1,791,669
Northing (Y, ft):	59,181
Horizontal System:	NAD 1983
Vertical System:	NAVD 88

SIEVE ANALYSIS DIVC-10.GPJ JPBRAZIL.GDT 3/14/11



Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
DIVC-10-23 #3	—●—	-30.5	SP	#200 - 2.32 #230 - 2.19			2.29	2.26	-1.06	9.19	0.52

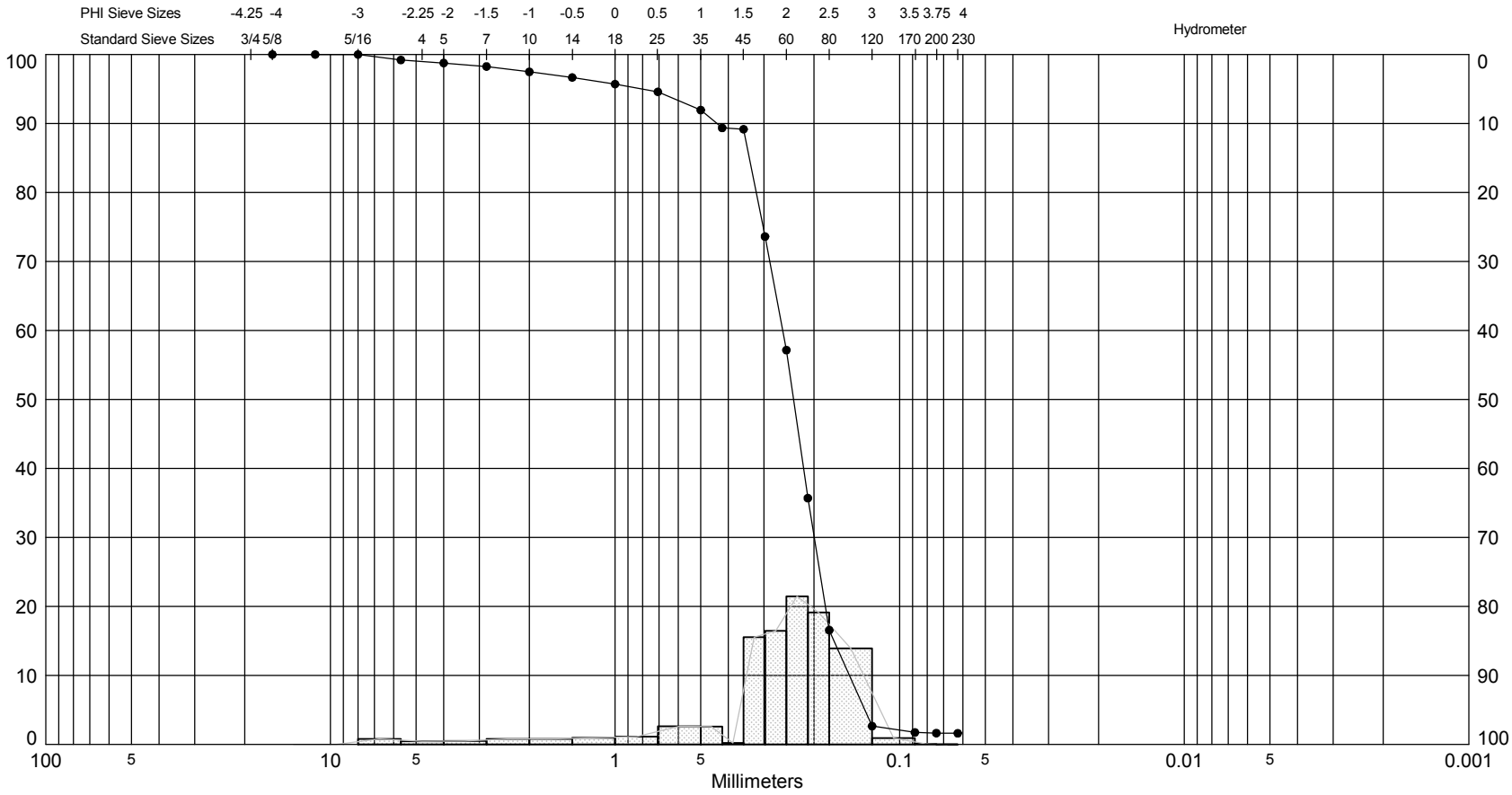
Comments:

Depths and elevations based on measured values

Sample Information	
Project Name:	Dauphin Island Shore Protection
Analysis Date:	09-28-10
Analyzed By:	JR
Easting (X, ft):	1,791,669
Northing (Y, ft):	59,181
Horizontal System:	NAD 1983
Vertical System:	NAVD 88

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SIEVE ANALYSIS DIVC-10.GPJ JPBRAZIL.GDT 3/14/11



Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
DIVC-10-23 #4	—●—	-34.5	SW	#200 - 1.63 #230 - 1.61			2.08	1.91	-2.76	13	0.88

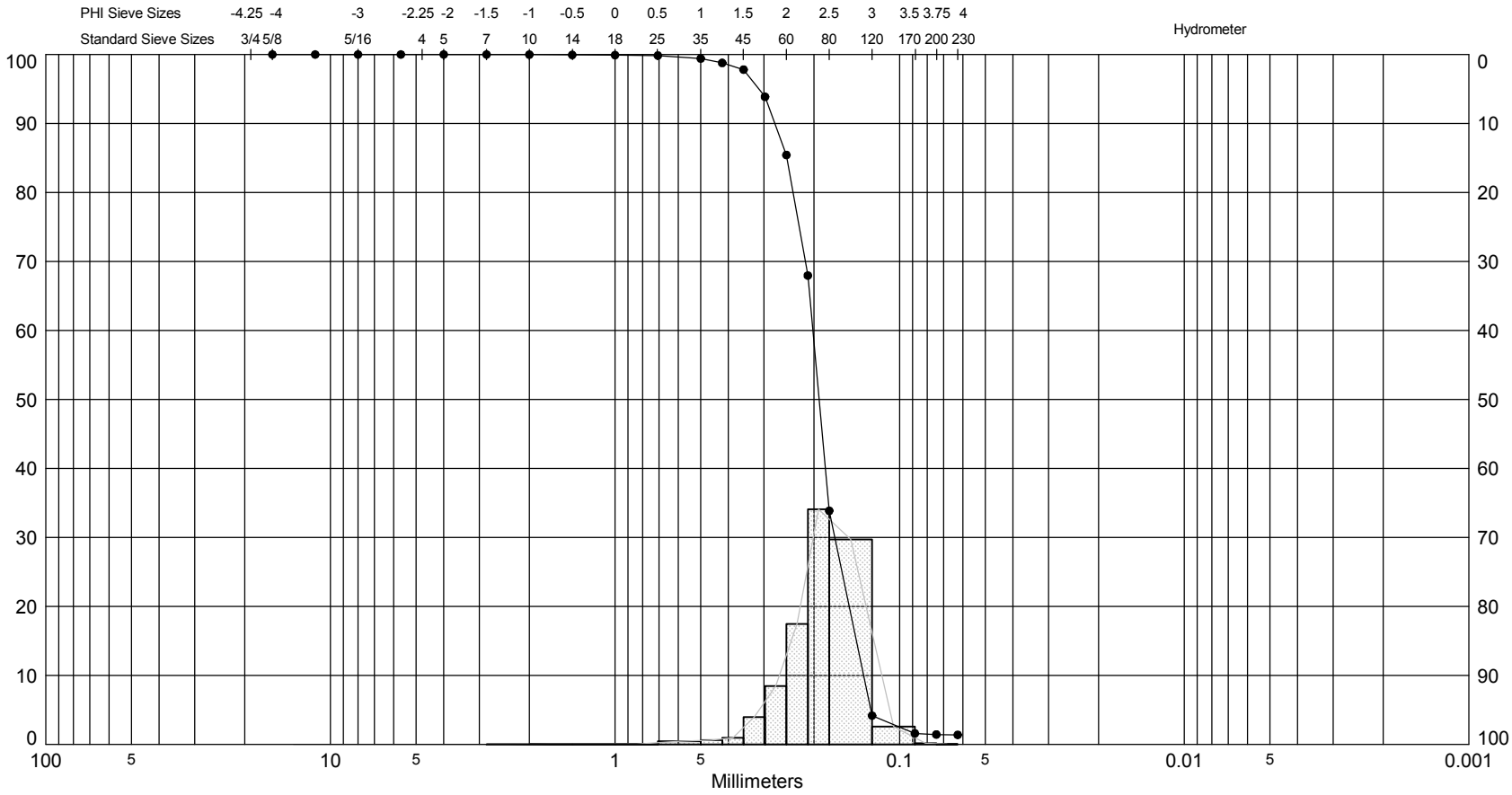
Comments:

Depths and elevations based on measured values

Sample Information	
Project Name:	Dauphin Island Shore Protection
Analysis Date:	09-28-10
Analyzed By:	JR
Easting (X, ft):	1,791,669
Northing (Y, ft):	59,181
Horizontal System:	NAD 1983
Vertical System:	NAVD 88

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SIEVE ANALYSIS DIVC-10.GPJ JPBRAZIL.GDT 3/14/11



Gravel		Sand			Silt and Clay
Coarse	Fine	Coarse	Medium	Fine	

Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
DIVC-10-24 #1	—●—	-23.6	SP	#200 - 1.43 #230 - 1.38			2.38	2.37	-0.98	7.69	0.41

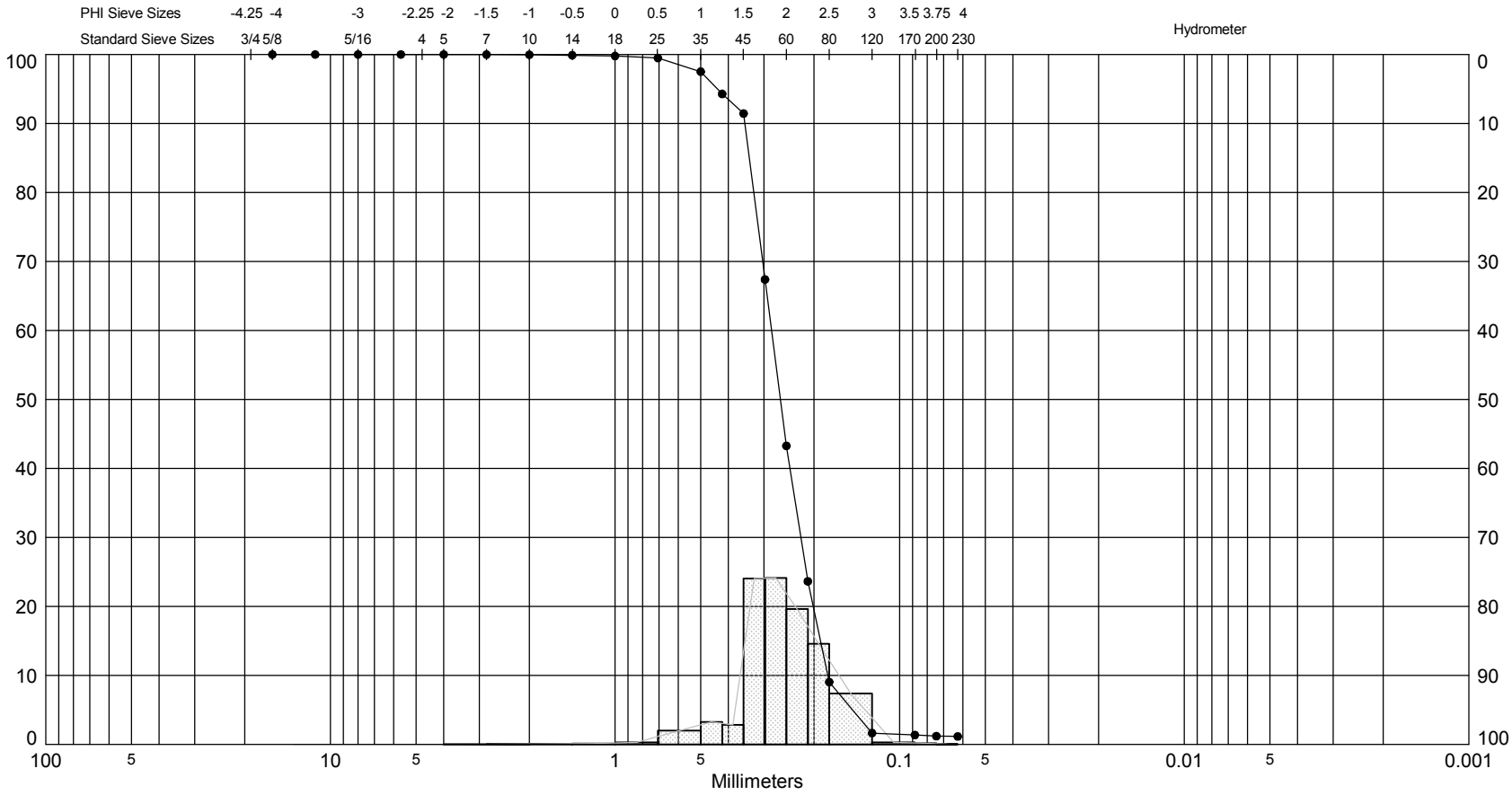
Comments:

Depths and elevations based on measured values

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Sample Information	
Project Name:	Dauphin Island Shore Protection
Analysis Date:	09-28-10
Analyzed By:	JR
Easting (X, ft):	1,790,945
Northing (Y, ft):	59,401
Horizontal System:	NAD 1983
Vertical System:	NAVD 88

SIEVE ANALYSIS DIVC-10.GPJ JPBRAZIL.GDT 3/14/11



Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
DIVC-10-24 #2	—●—	-26.6	SP	#200 - 1.19 #230 - 1.15			1.93	1.94	-0.53	6.47	0.45

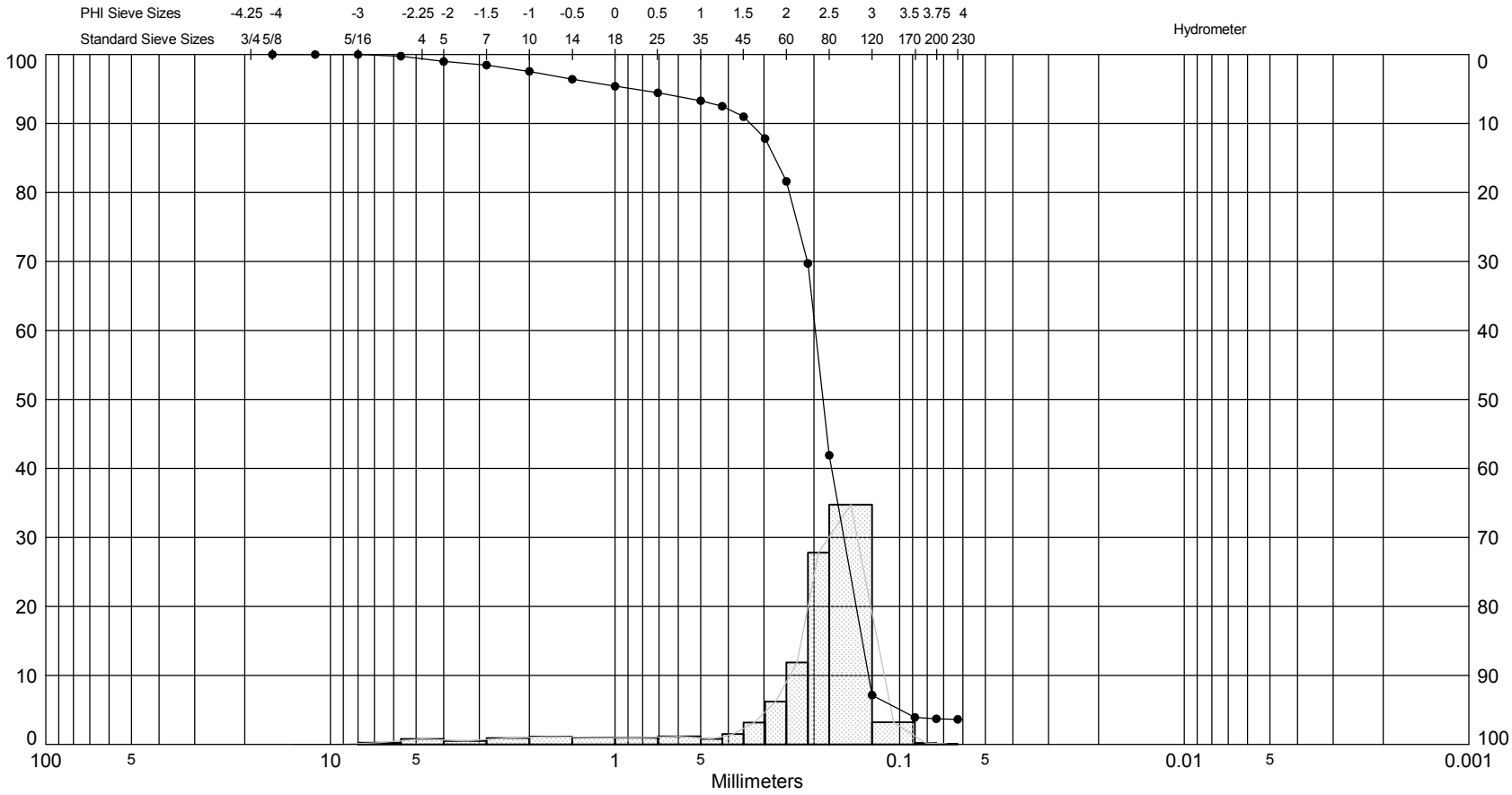
Comments:

Depths and elevations based on measured values

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Sample Information	
Project Name:	Dauphin Island Shore Protection
Analysis Date:	09-29-10
Analyzed By:	JR
Easting (X, ft):	1,790,945
Northing (Y, ft):	59,401
Horizontal System:	NAD 1983
Vertical System:	NAVD 88

SIEVE ANALYSIS DIVC-10.GPJ JPBRAZIL.GDT 3/14/11



Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
DIVC-10-24 #3	—●—	-29.4	SW	#200 - 3.71 #230 - 3.63			2.43	2.22	-2.91	12.64	0.92

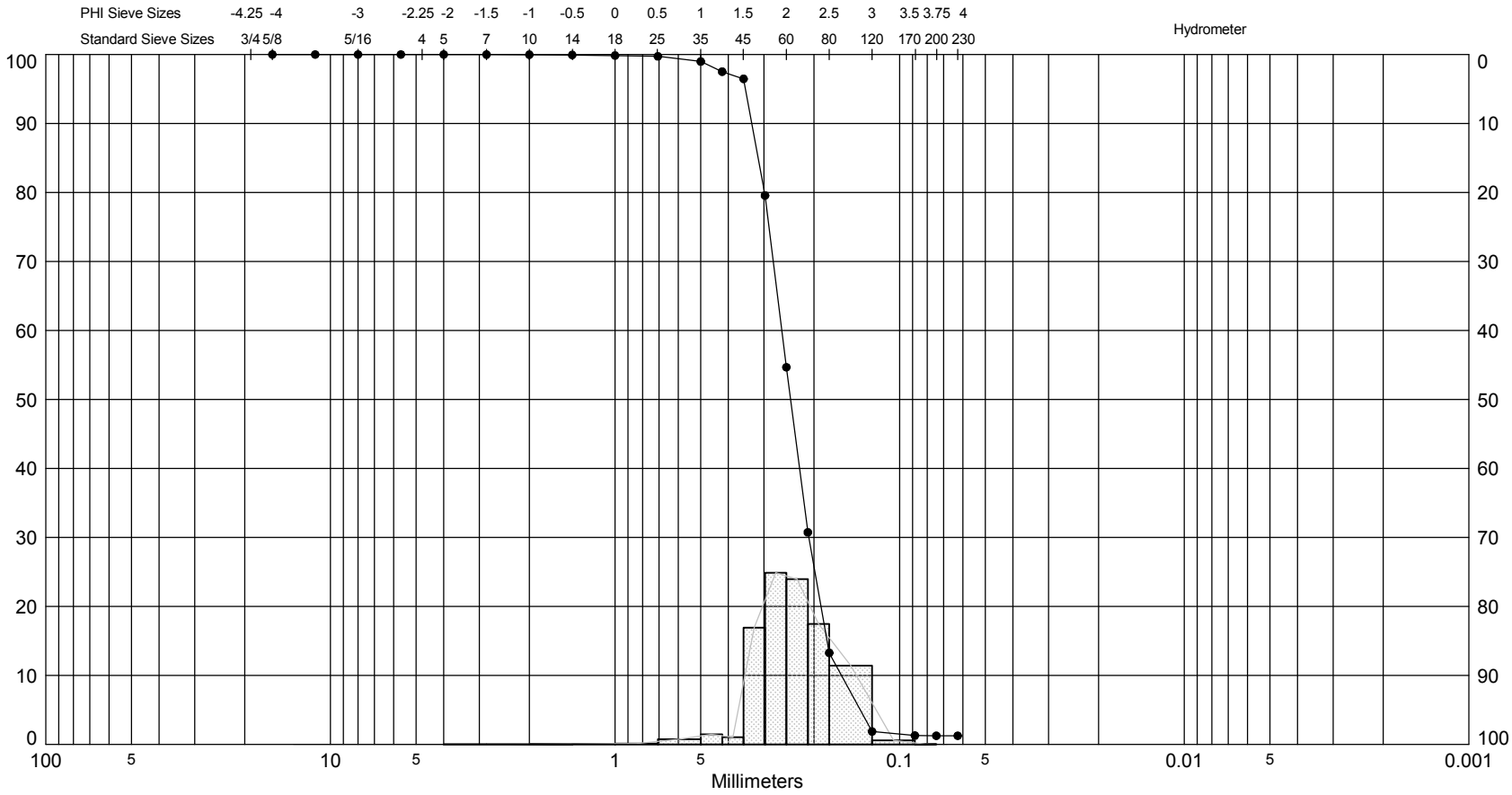
Comments:

Depths and elevations based on measured values

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Sample Information	
Project Name:	Dauphin Island Shore Protection
Analysis Date:	09-29-10
Analyzed By:	JR
Easting (X, ft):	1,790,945
Northing (Y, ft):	59,401
Horizontal System:	NAD 1983
Vertical System:	NAVD 88

SIEVE ANALYSIS DIVC-10.GPJ JPBRAZIL.GDT 3/14/11



Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
DIVC-10-24 #4	—●—	-33.6	SP	#200 - 1.25 #230 - 1.25			2.05	2.06	-0.45	6.49	0.41

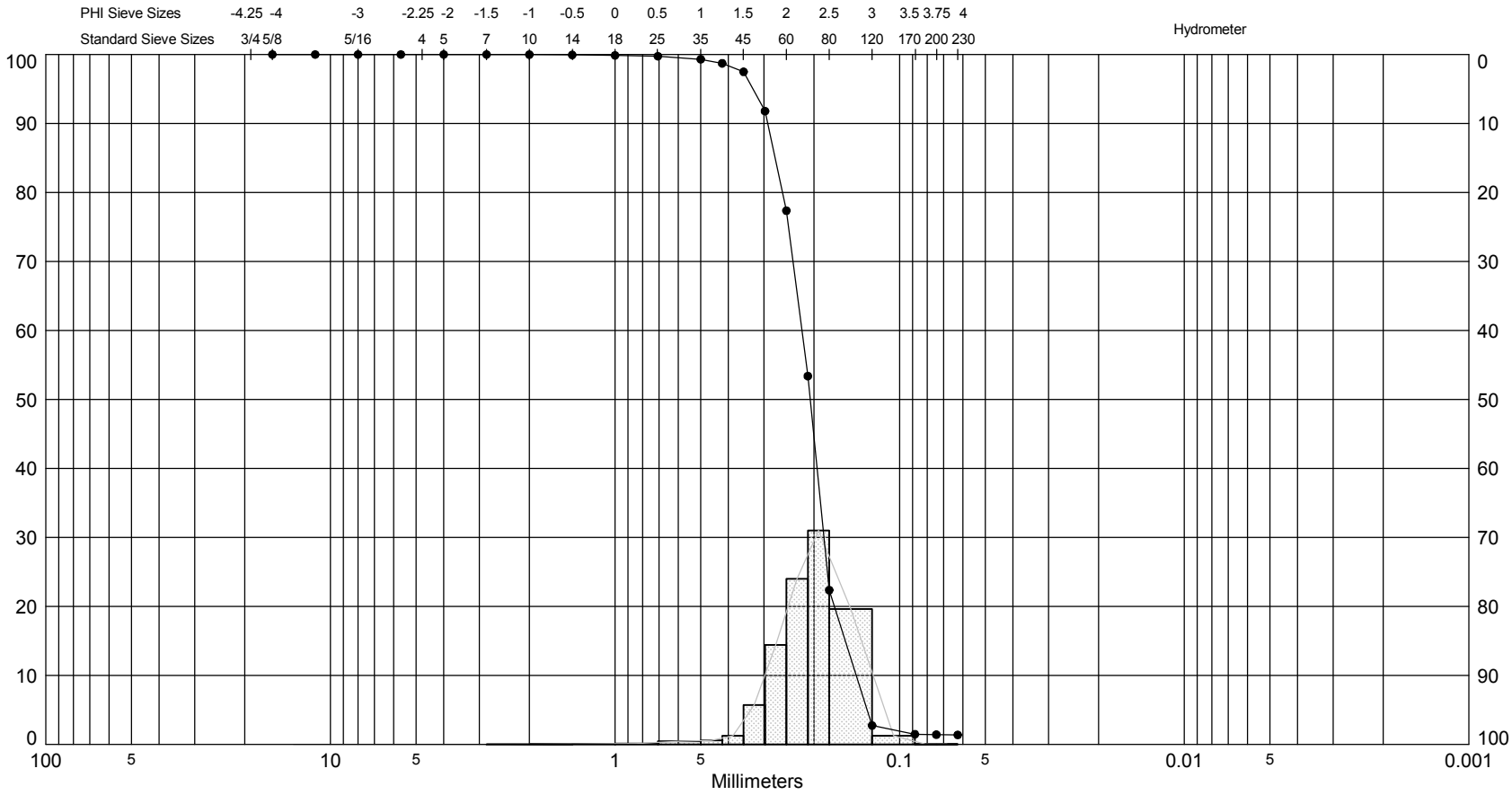
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Depths and elevations based on measured values

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Sample Information	
Project Name:	Dauphin Island Shore Protection
Analysis Date:	09-29-10
Analyzed By:	JR
Easting (X, ft):	1,790,945
Northing (Y, ft):	59,401
Horizontal System:	NAD 1983
Vertical System:	NAVD 88

SIEVE ANALYSIS DIVC-10.GPJ JPBRAZIL.GDT 3/14/11



Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
DIVC-10-24 #5	—●—	-37.6	SP	#200 - 1.41 #230 - 1.37			2.28	2.25	-0.83	7.49	0.4

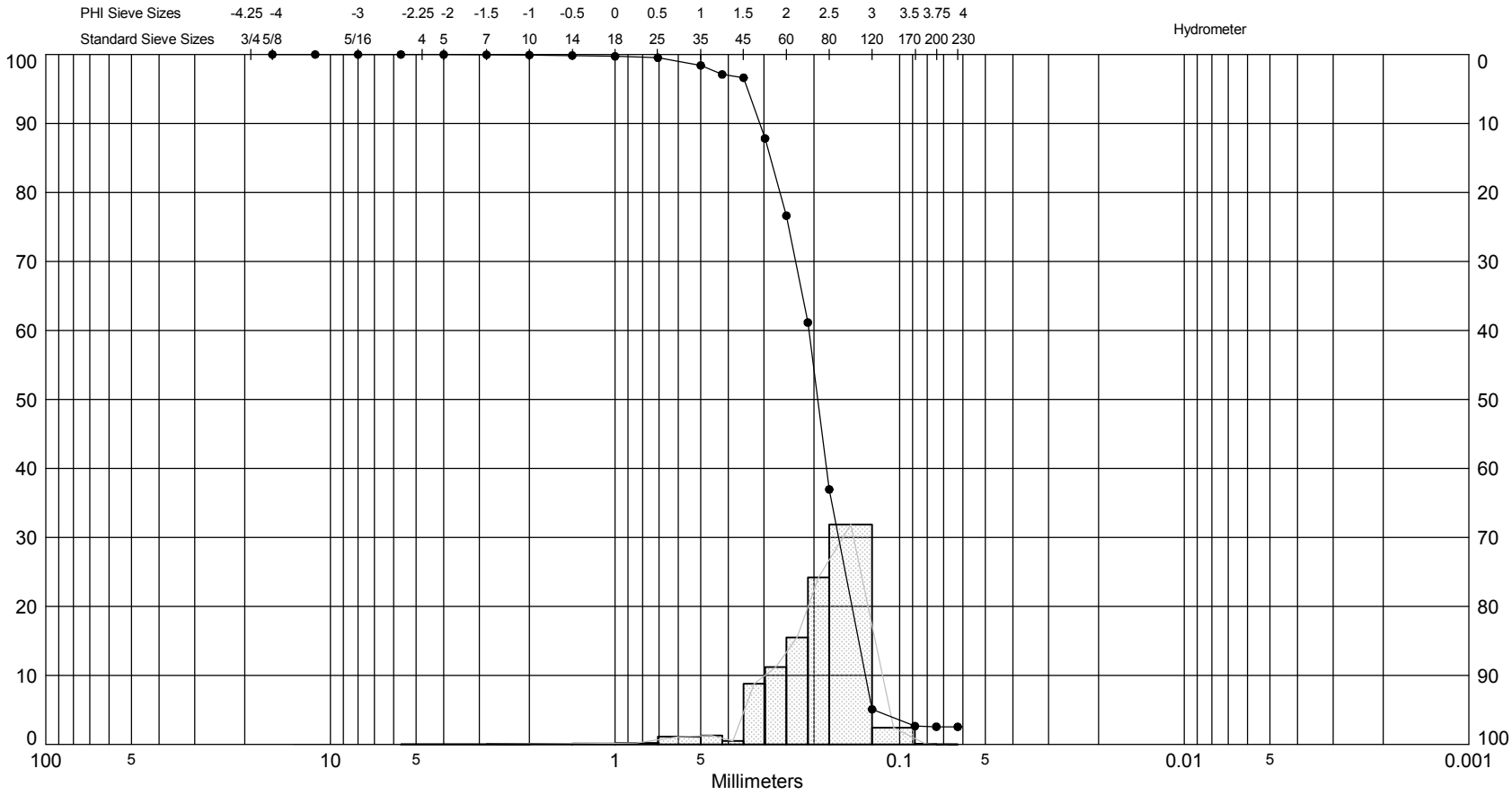
Comments:

Depths and elevations based on measured values

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Sample Information	
Project Name:	Dauphin Island Shore Protection
Analysis Date:	09-29-10
Analyzed By:	JR
Easting (X, ft):	1,790,945
Northing (Y, ft):	59,401
Horizontal System:	NAD 1983
Vertical System:	NAVD 88

SIEVE ANALYSIS DIVC-10.GPJ JPBRAZIL.GDT 3/14/11



Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
DIVC-10-25 #1	—●—	-27.5	SP	#200 - 2.56 #230 - 2.54			2.37	2.3	-1.34	8.58	0.5

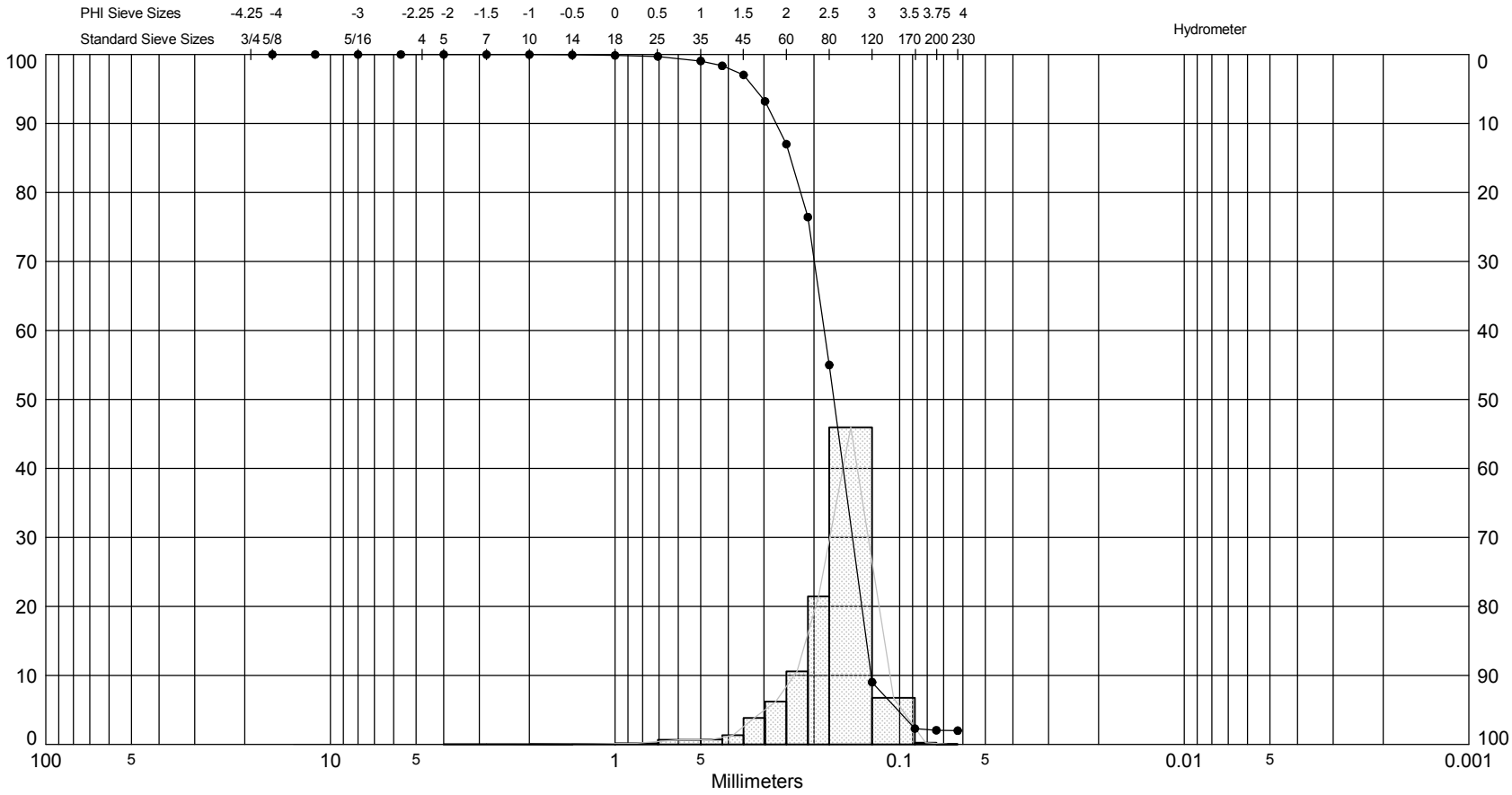
Comments:

Depths and elevations based on measured values

Sample Information	
Project Name:	Dauphin Island Shore Protection
Analysis Date:	09-29-10
Analyzed By:	JR
Easting (X, ft):	1,789,873
Northing (Y, ft):	59,320
Horizontal System:	NAD 1983
Vertical System:	NAVD 88

Coastal Planning & Engineering
2481 NW Boca Raton Blvd, Boca Raton
FL 33431
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SIEVE ANALYSIS DIVC-10.GPJ JPBRAZIL.GDT 3/14/11



Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
DIVC-10-25 #2	—●—	-31.7	SP	#200 - 2.05 #230 - 1.99			2.55	2.49	-1.3	7.43	0.47

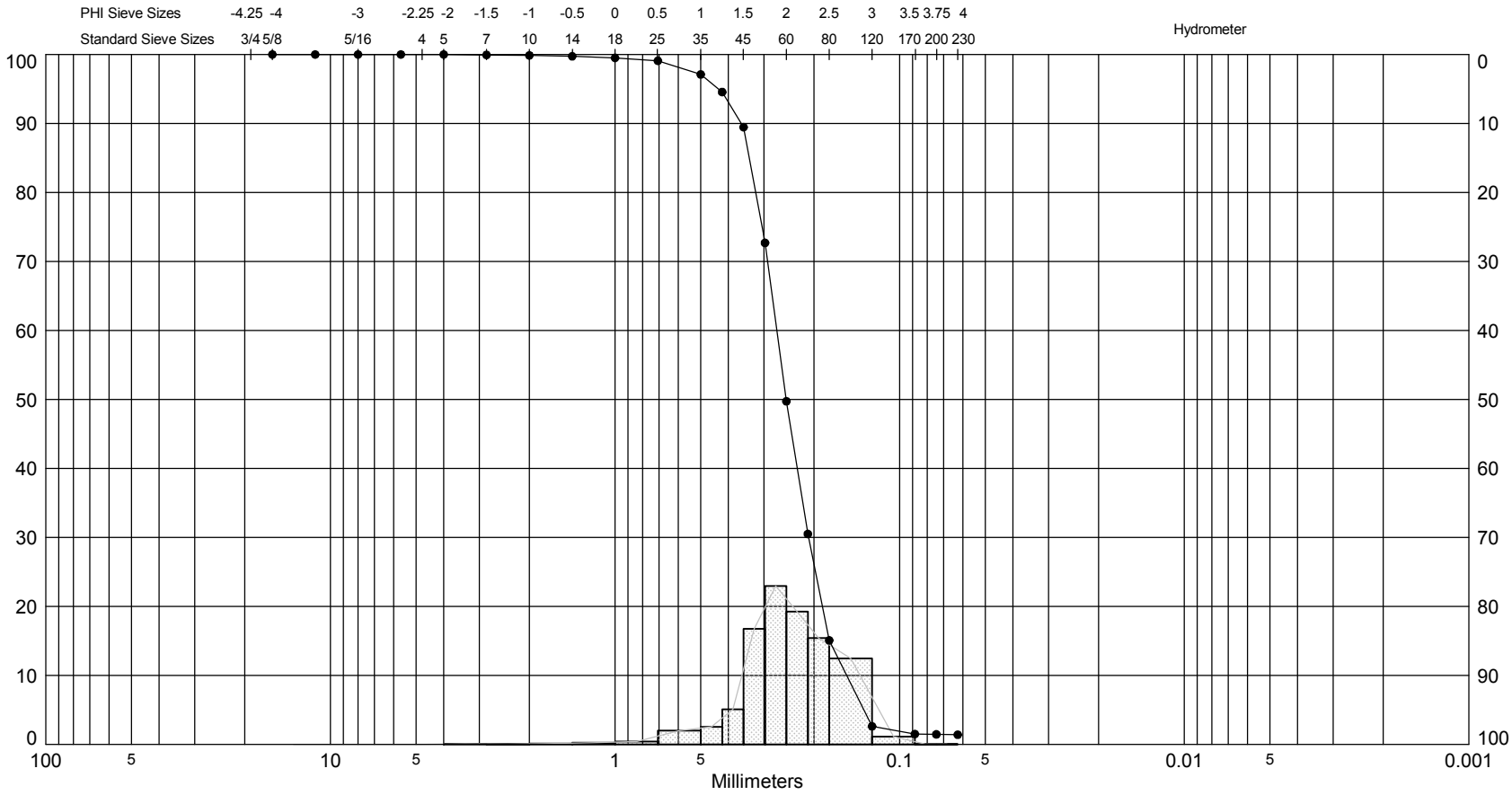
Comments:

Depths and elevations based on measured values

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Sample Information	
Project Name:	Dauphin Island Shore Protection
Analysis Date:	09-29-10
Analyzed By:	JR
Easting (X, ft):	1,789,873
Northing (Y, ft):	59,320
Horizontal System:	NAD 1983
Vertical System:	NAVD 88

SIEVE ANALYSIS DIVC-10.GPJ JPBRAZIL.GDT 3/14/11



Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
DIVC-10-25 #3	—●—	-34.2	SP	#200 - 1.45 #230 - 1.40			2	2	-0.89	7.51	0.52

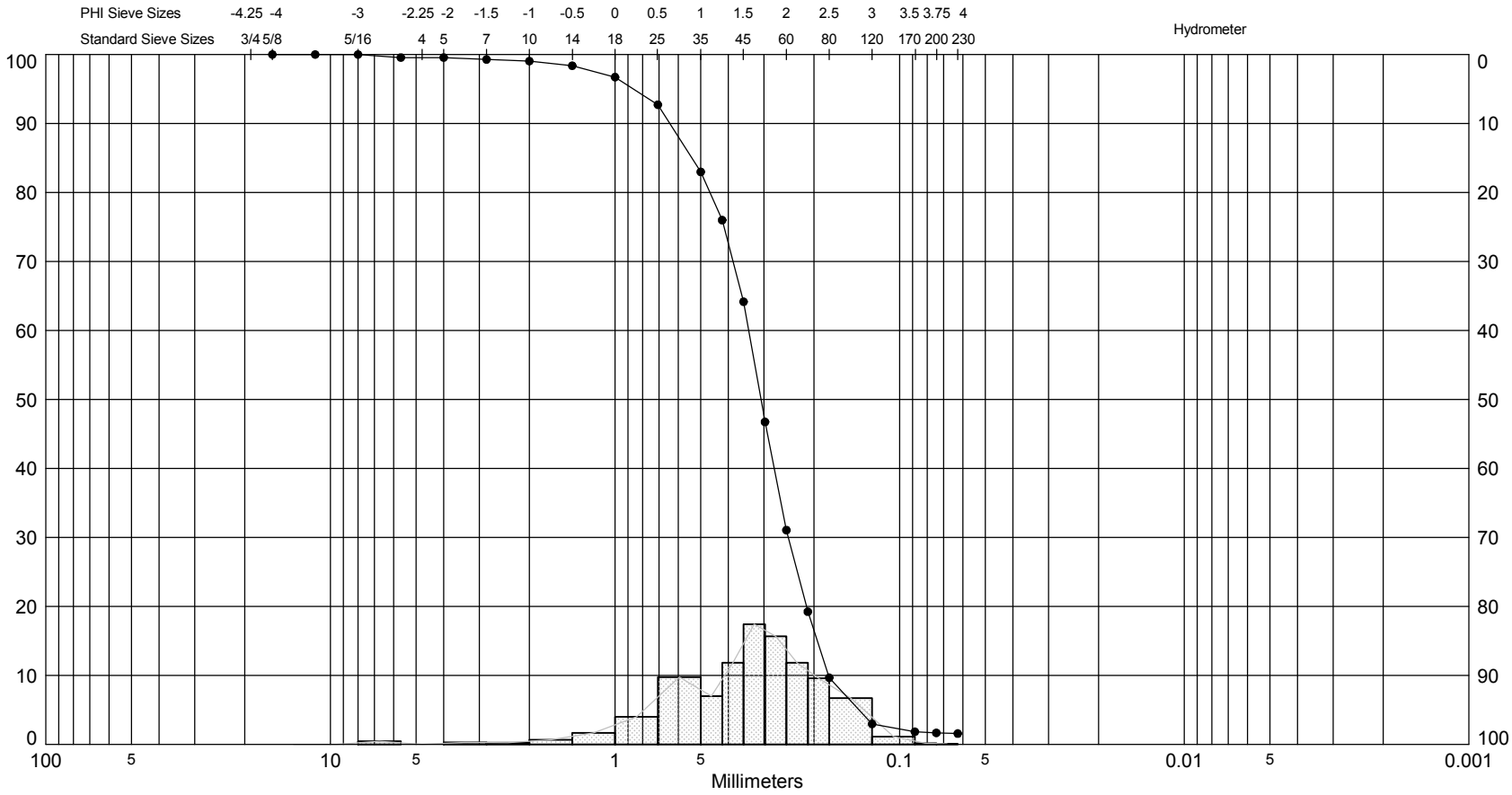
Comments:

Depths and elevations based on measured values

Sample Information	
Project Name:	Dauphin Island Shore Protection
Analysis Date:	09-29-10
Analyzed By:	JD
Easting (X, ft):	1,789,873
Northing (Y, ft):	59,320
Horizontal System:	NAD 1983
Vertical System:	NAVD 88

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SIEVE ANALYSIS DIVC-10.GPJ JPBRAZIL.GDT 3/14/11



Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
DIVC-10-26 #1	—●—	-20.1	SP	#200 - 1.67 #230 - 1.57			1.7	1.61	-1.31	7.53	0.8

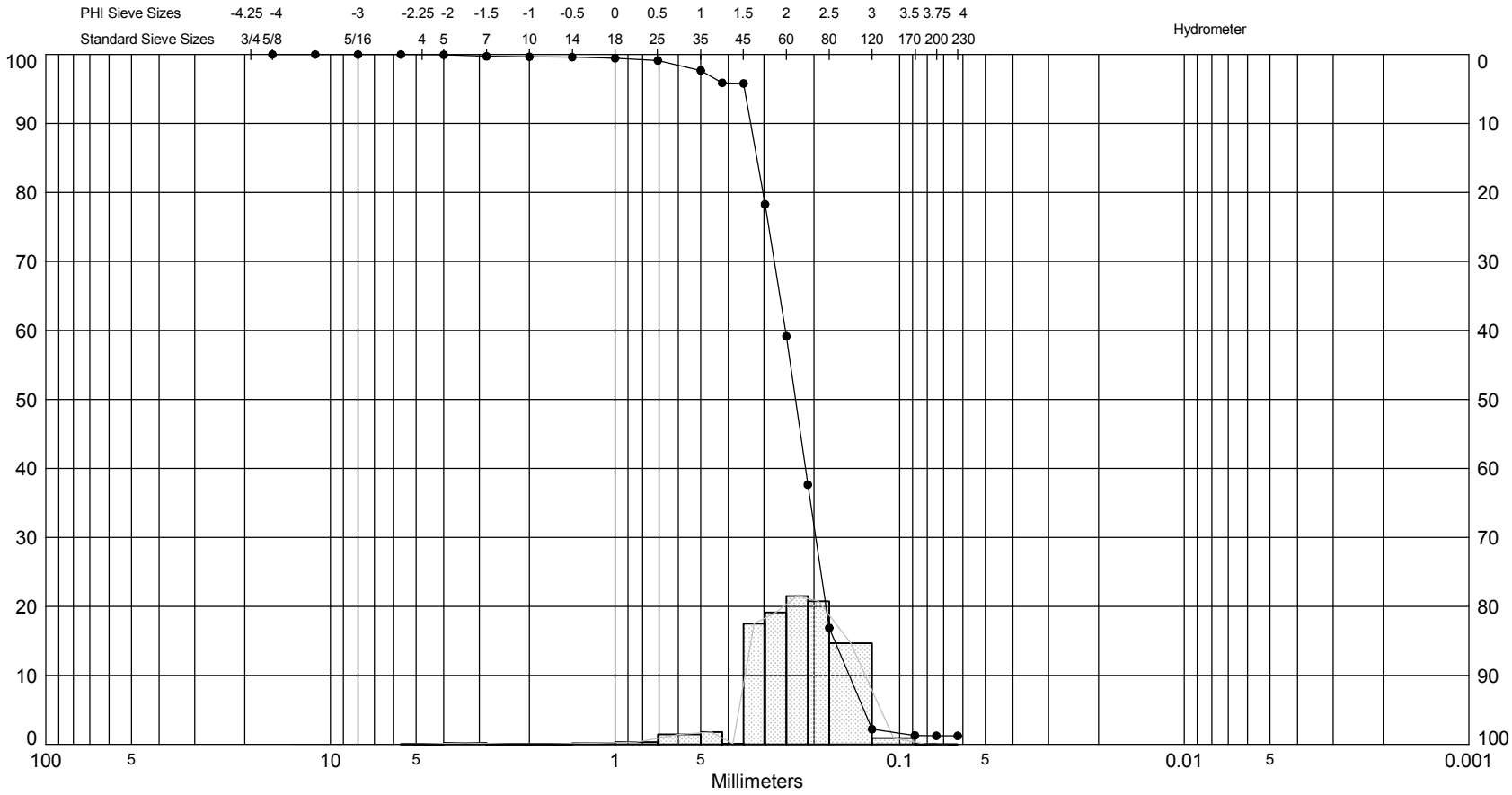
Comments:

Depths and elevations based on measured values

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FL 33431
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fax (561) 391-9116

Sample Information	
Project Name:	Dauphin Island Shore Protection
Analysis Date:	09-29-10
Analyzed By:	JD
Easting (X, ft):	1,788,778
Northing (Y, ft):	60,203
Horizontal System:	NAD 1983
Vertical System:	NAVD 88

SIEVE ANALYSIS DIVC-10.GPJ JPBRAZIL.GDT 3/14/11



Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
DIVC-10-26 #2	—●—	-23.2	SP	#200 - 1.25 #230 - 1.24			2.11	2.08	-1.84	14.38	0.51

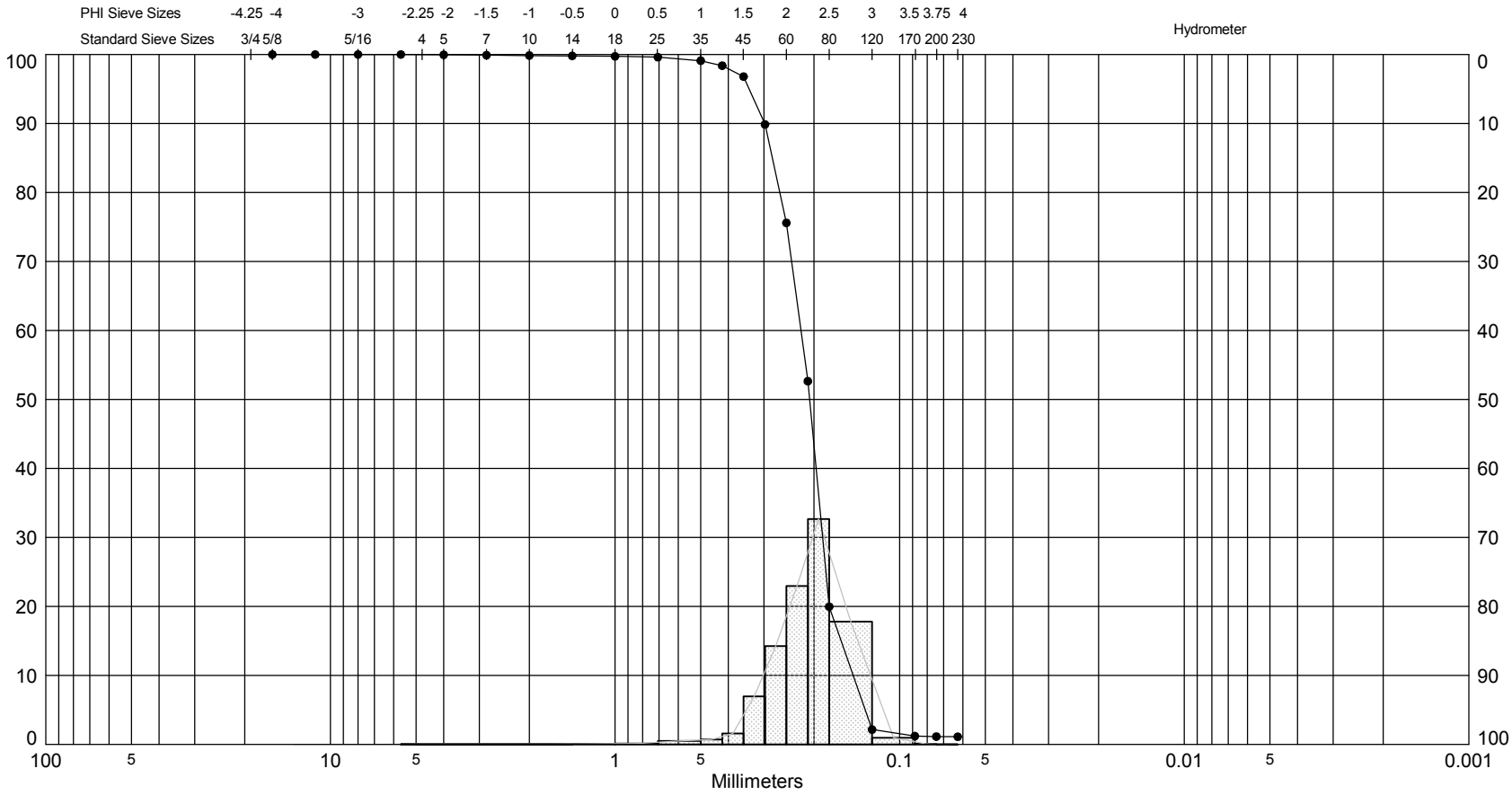
Comments:

Depths and elevations based on measured values

Sample Information	
Project Name:	Dauphin Island Shore Protection
Analysis Date:	09-29-10
Analyzed By:	JD
Easting (X, ft):	1,788,778
Northing (Y, ft):	60,203
Horizontal System:	NAD 1983
Vertical System:	NAVD 88

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SIEVE ANALYSIS DIVC-10.GPJ JPBRAZIL.GDT 3/14/11



Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
DIVC-10-26 #3	—●—	-26.2	SP	#200 - 1.13 #230 - 1.11			2.27	2.22	-1.91	17.09	0.43

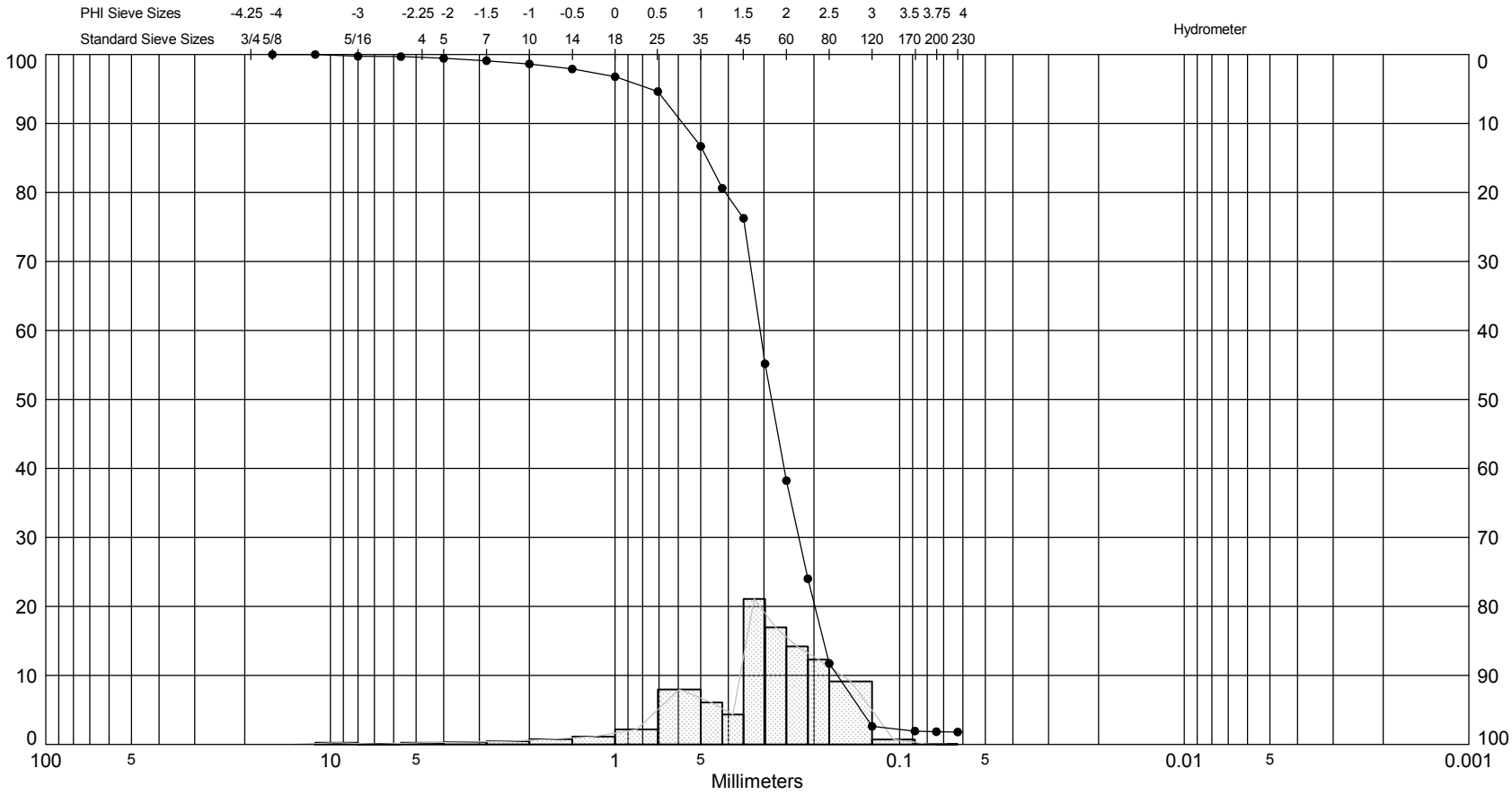
Comments:

Depths and elevations based on measured values

Sample Information	
Project Name:	Dauphin Island Shore Protection
Analysis Date:	09-29-10
Analyzed By:	JD
Easting (X, ft):	1,788,778
Northing (Y, ft):	60,203
Horizontal System:	NAD 1983
Vertical System:	NAVD 88

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SIEVE ANALYSIS DIVC-10.GPJ JPBRAZIL.GDT 3/14/11



Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
DIVC-10-26 #4	—●—	-30.2	SP	#200 - 1.84 #230 - 1.80			1.83	1.72	-1.88	9.99	0.8

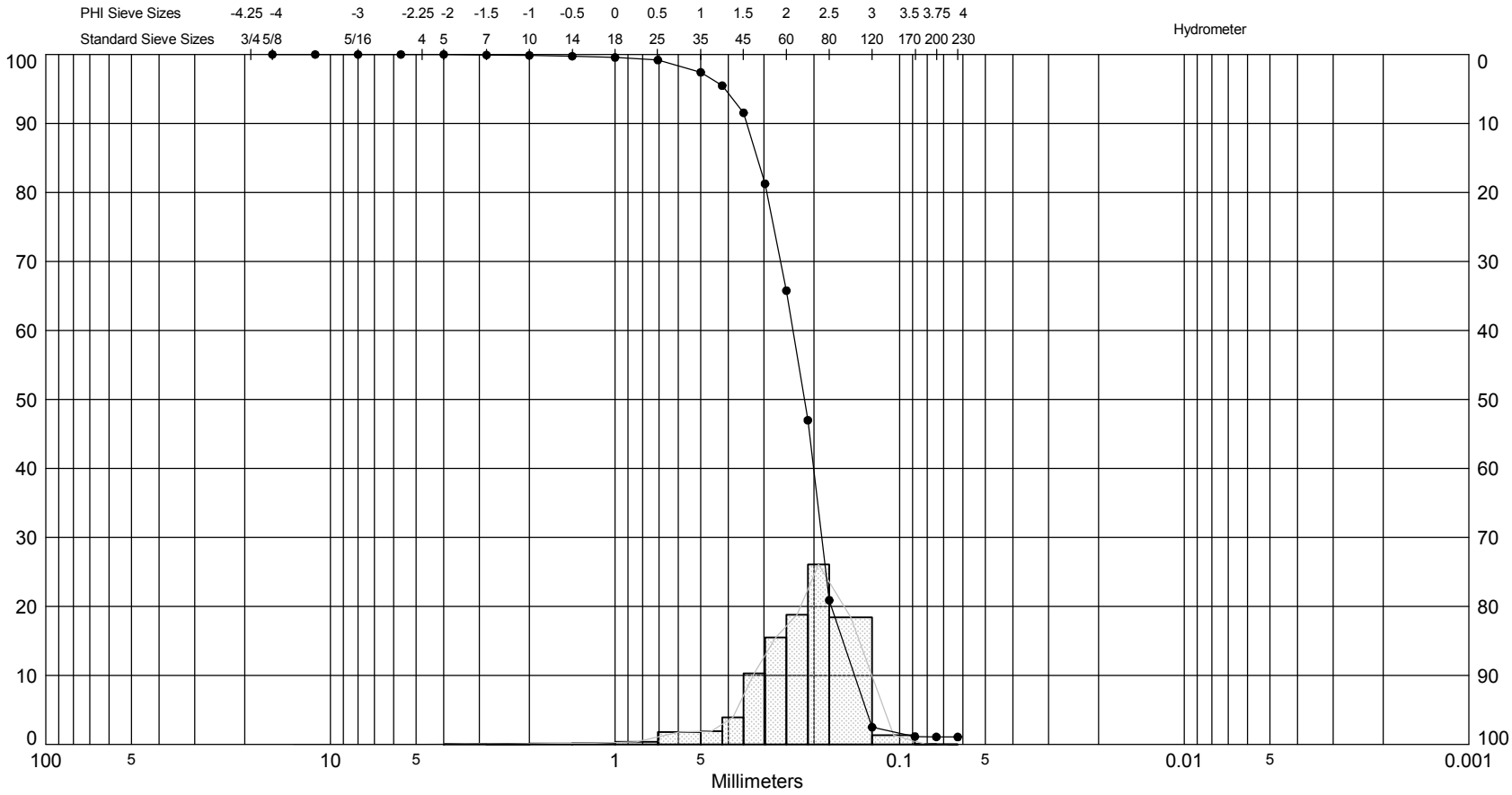
Comments:

Depths and elevations based on measured values

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Sample Information	
Project Name:	Dauphin Island Shore Protection
Analysis Date:	09-29-10
Analyzed By:	JD
Easting (X, ft):	1,788,778
Northing (Y, ft):	60,203
Horizontal System:	NAD 1983
Vertical System:	NAVD 88

SIEVE ANALYSIS DIVC-10.GPJ JPBRAZIL.GDT 3/14/11



Gravel		Sand			Silt and Clay
Coarse	Fine	Coarse	Medium	Fine	

Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
DIVC-10-27 #1	—●—	-20.7	SP	#200 - 1.08 #230 - 1.07			2.21	2.14	-1.3	8.23	0.52

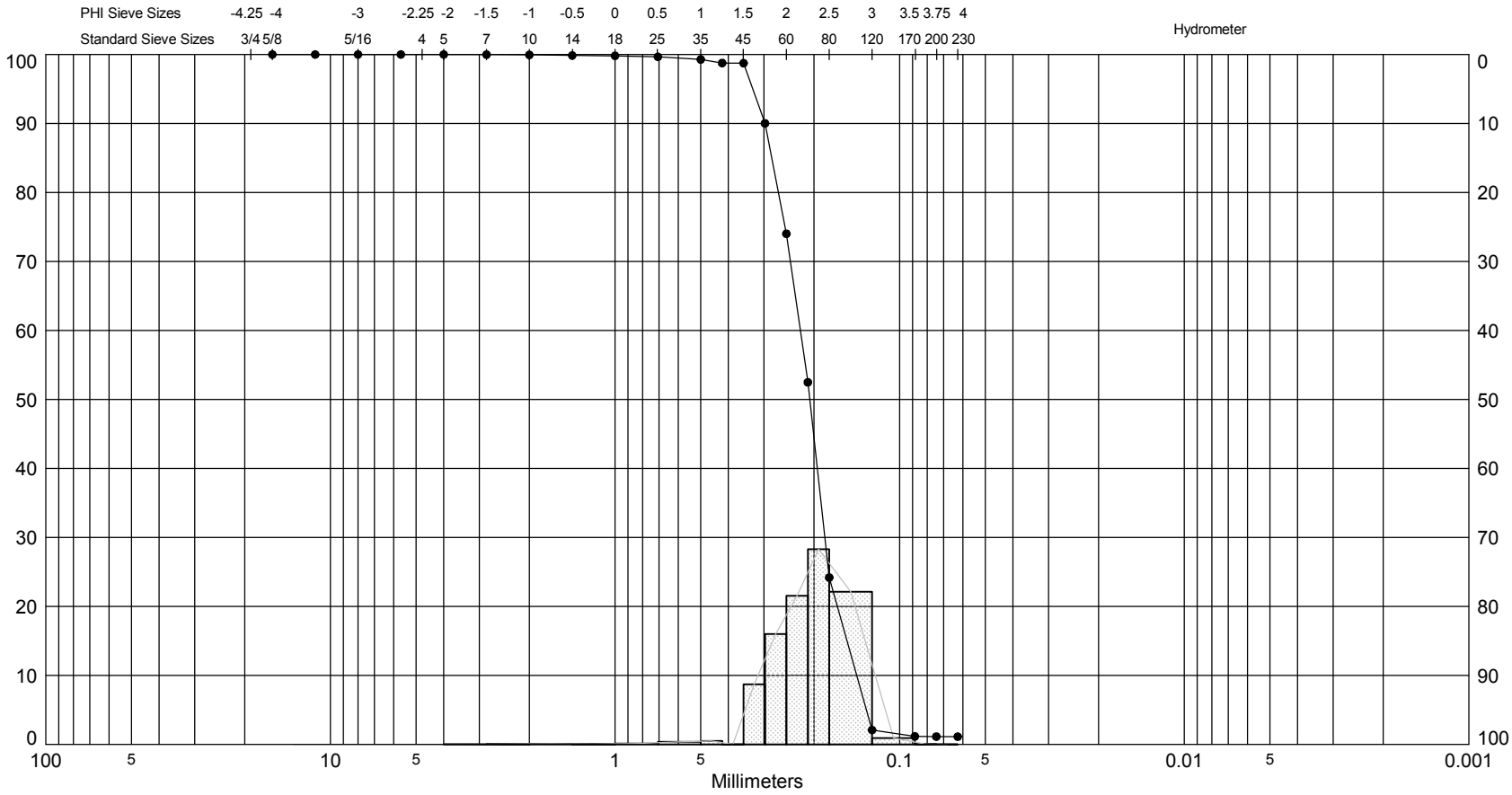
Comments:

Depths and elevations based on measured values

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Sample Information	
Project Name:	Dauphin Island Shore Protection
Analysis Date:	09-29-10
Analyzed By:	JR
Easting (X, ft):	1,789,530
Northing (Y, ft):	60,098
Horizontal System:	NAD 1983
Vertical System:	NAVD 88

SIEVE ANALYSIS DIVC-10.GPJ JPBRAZIL.GDT 3/14/11



Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
DIVC-10-27 #2	—●—	-23.7	SP	#200 - 1.13 #230 - 1.12			2.27	2.24	-1.16	10.05	0.41

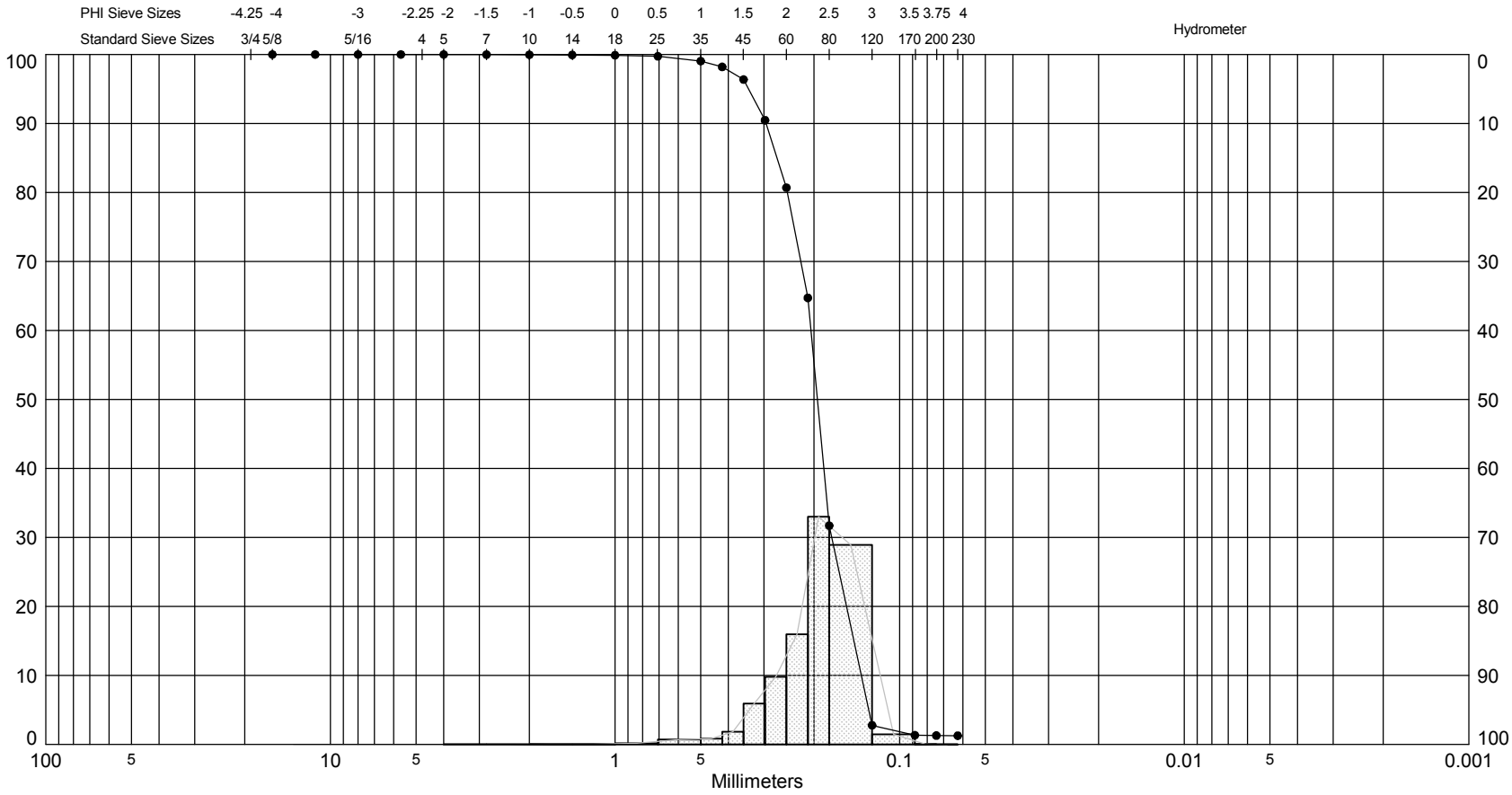
Comments:

Depths and elevations based on measured values

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Sample Information	
Project Name:	Dauphin Island Shore Protection
Analysis Date:	09-30-10
Analyzed By:	JD
Easting (X, ft):	1,789,530
Northing (Y, ft):	60,098
Horizontal System:	NAD 1983
Vertical System:	NAVD 88

SIEVE ANALYSIS DIVC-10.GPJ JPBRAZIL.GDT 3/14/11



Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
DIVC-10-27 #3	—●—	-25.9	SP	#200 - 1.28 #230 - 1.26			2.36	2.32	-1.26	8.03	0.43

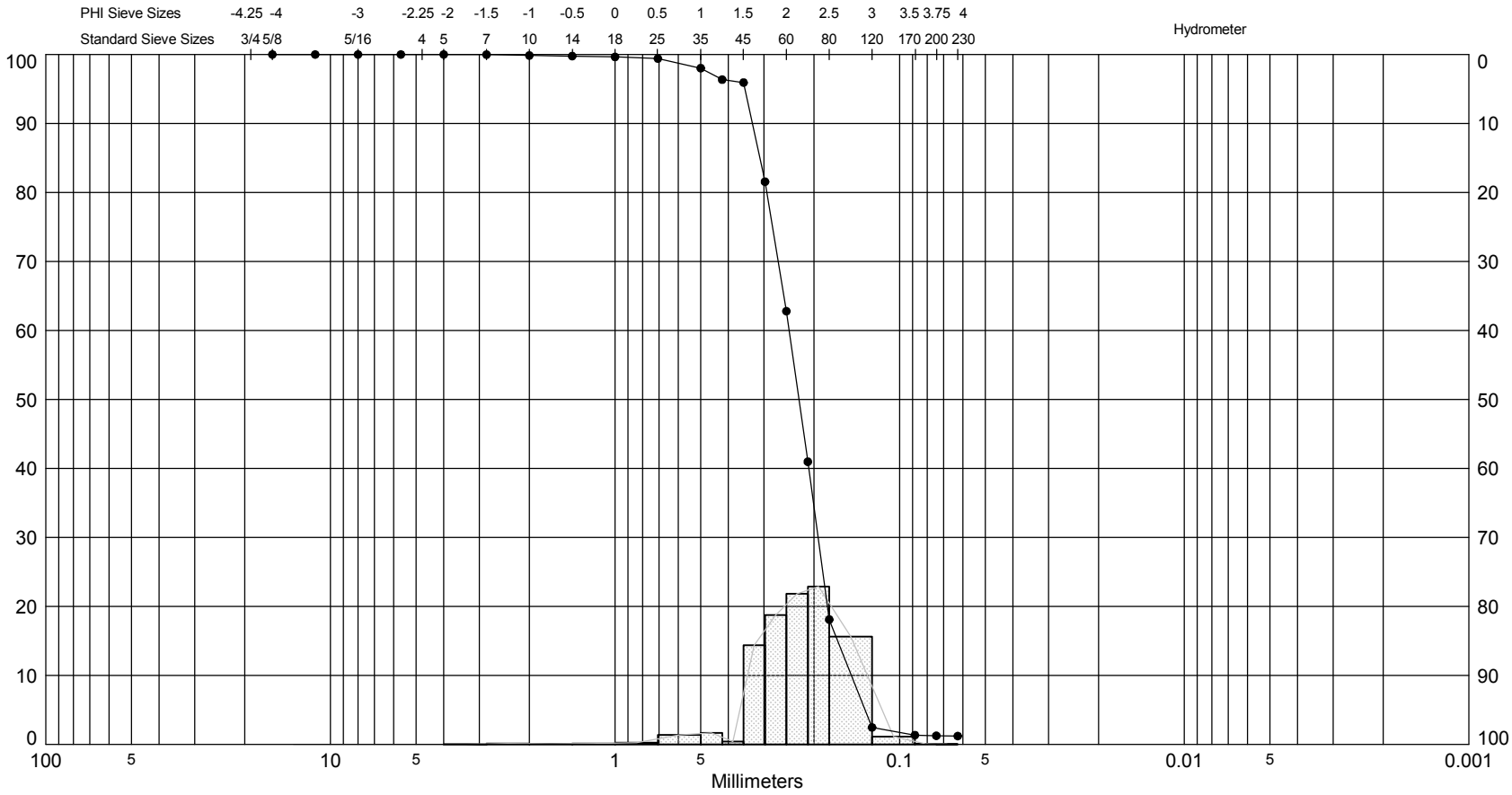
Comments:

Depths and elevations based on measured values

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Sample Information	
Project Name:	Dauphin Island Shore Protection
Analysis Date:	09-30-10
Analyzed By:	JD
Easting (X, ft):	1,789,530
Northing (Y, ft):	60,098
Horizontal System:	NAD 1983
Vertical System:	NAVD 88

SIEVE ANALYSIS DIVC-10.GPJ JPBRAZIL.GDT 3/14/11



Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
DIVC-10-28 #1	—●—	-20.7	SP	#200 - 1.25 #230 - 1.21			2.15	2.12	-1.12	8.88	0.48

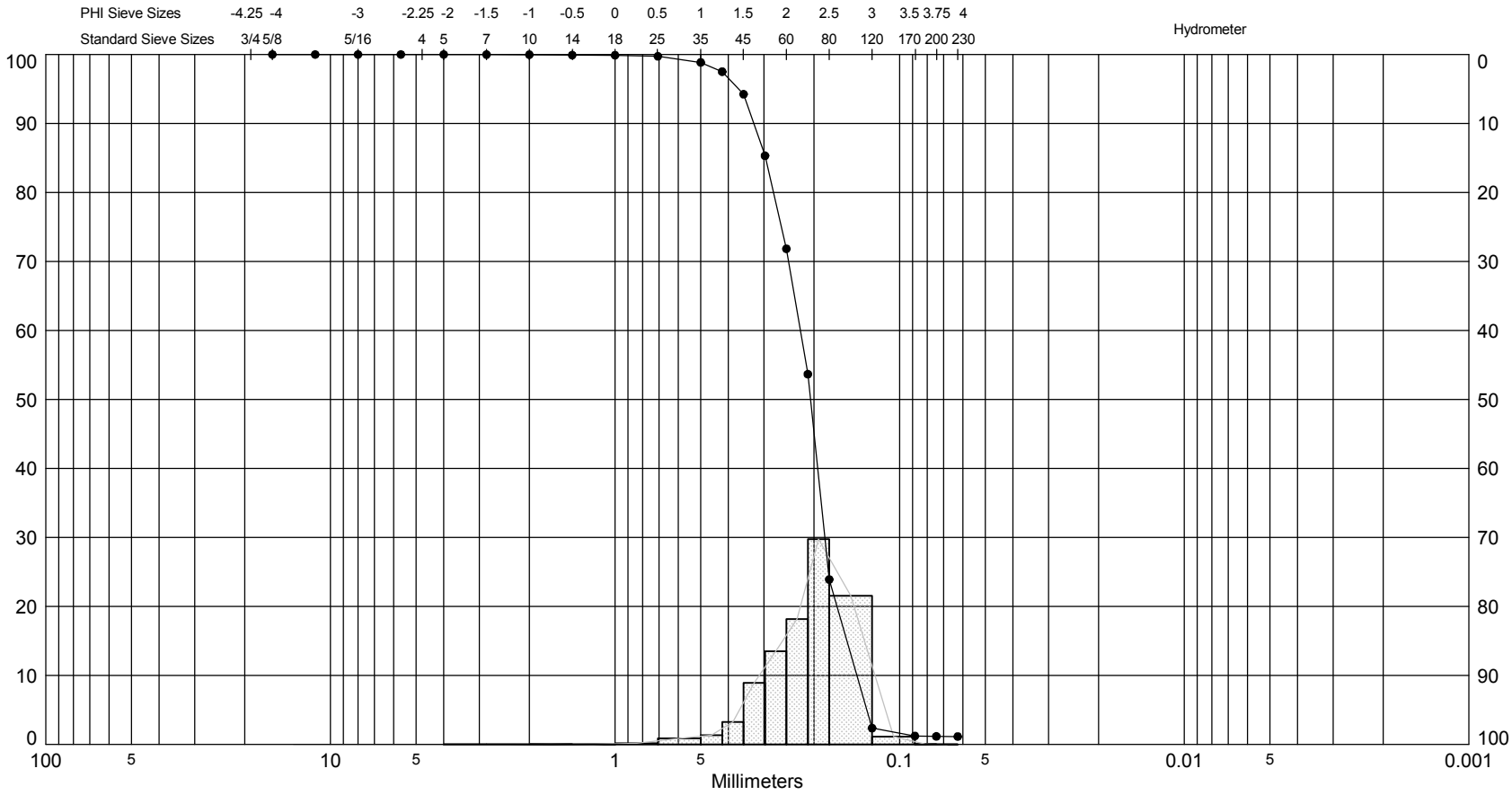
Comments:

Depths and elevations based on measured values

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Sample Information	
Project Name:	Dauphin Island Shore Protection
Analysis Date:	09-30-10
Analyzed By:	JD
Easting (X, ft):	1,790,597
Northing (Y, ft):	60,122
Horizontal System:	NAD 1983
Vertical System:	NAVD 88

SIEVE ANALYSIS DIVC-10.GPJ JPBRAZIL.GDT 3/14/11



Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
DIVC-10-28 #2	—●—	-23.7	SP	#200 - 1.16 #230 - 1.14			2.28	2.21	-0.89	5.95	0.46

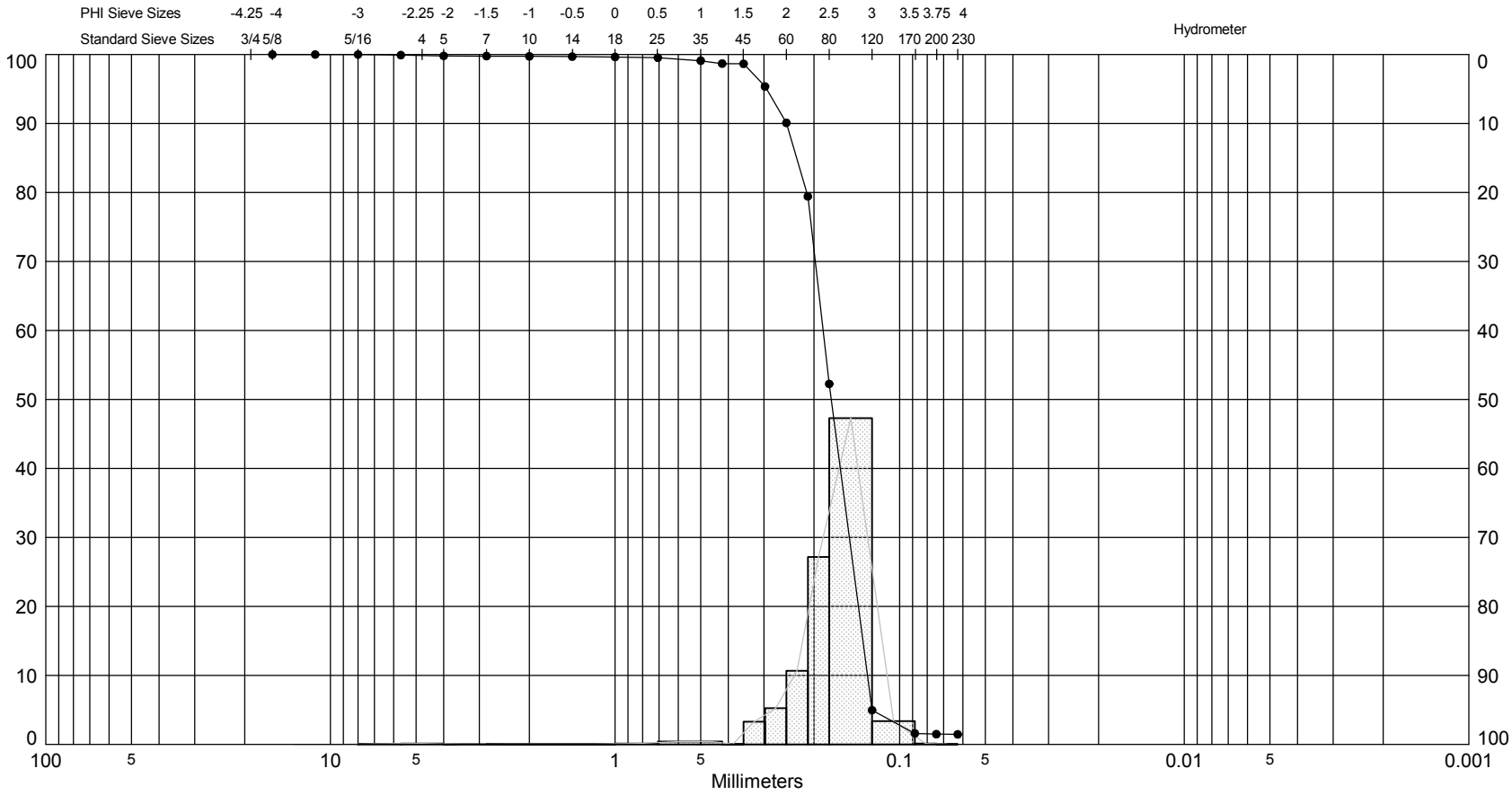
Comments:

Depths and elevations based on measured values

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Sample Information	
Project Name:	Dauphin Island Shore Protection
Analysis Date:	09-30-10
Analyzed By:	JD
Easting (X, ft):	1,790,597
Northing (Y, ft):	60,122
Horizontal System:	NAD 1983
Vertical System:	NAVD 88

SIEVE ANALYSIS DIVC-10.GPJ JPBRAZIL.GDT 3/14/11



Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
DIVC-10-28 #3	—●—	-26.4	SP	#200 - 1.48 #230 - 1.45			2.52	2.48	-3.74	35.09	0.46

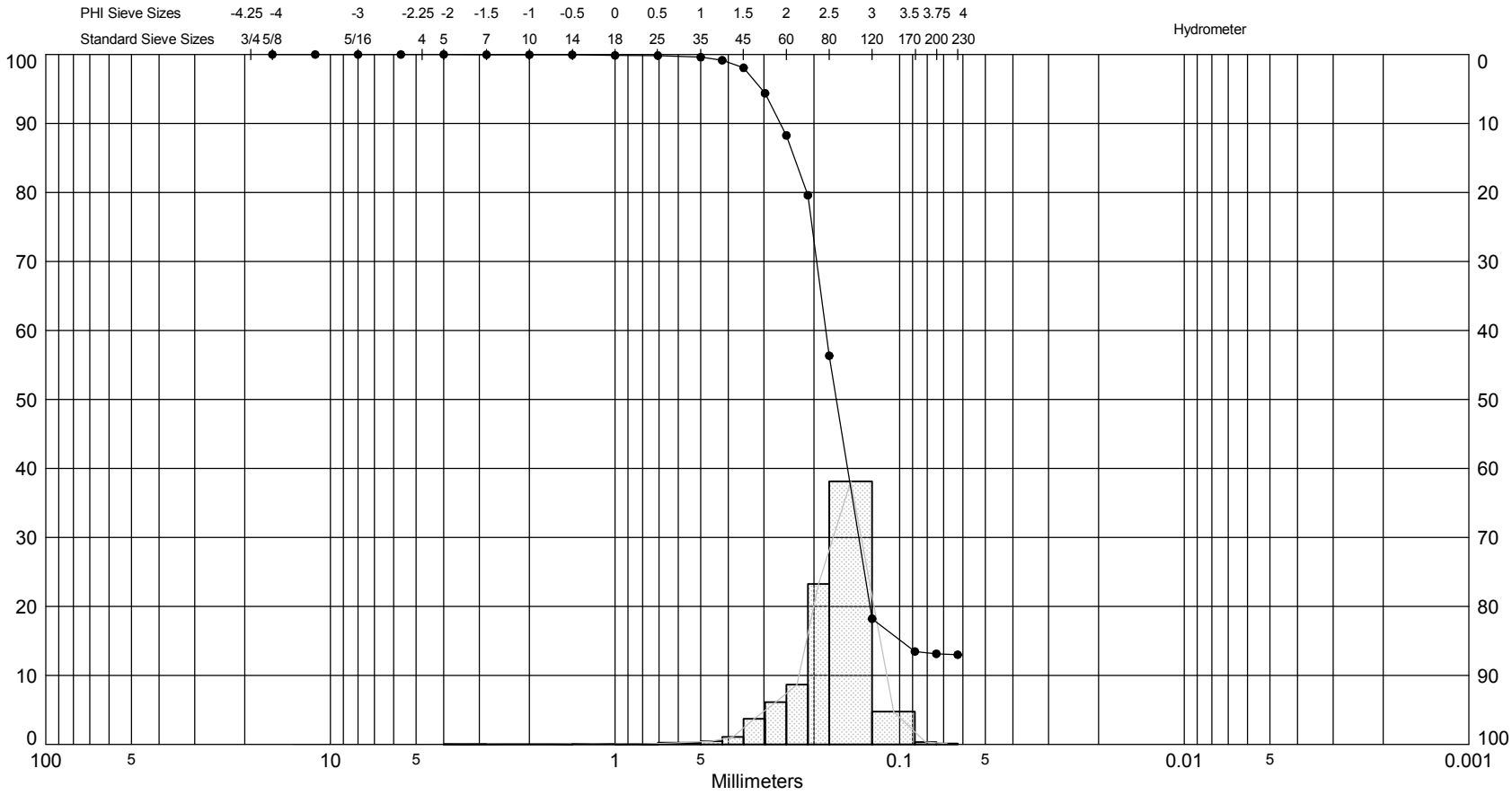
Comments:

Depths and elevations based on measured values

Sample Information	
Project Name:	Dauphin Island Shore Protection
Analysis Date:	09-30-10
Analyzed By:	JD
Easting (X, ft):	1,790,597
Northing (Y, ft):	60,122
Horizontal System:	NAD 1983
Vertical System:	NAVD 88

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SIEVE ANALYSIS DIVC-10.GPJ JPBRAZIL.GDT 3/14/11



Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
DIVC-10-28 #4	—●—	-27.0	SC	#200 - 13.13 #230 - 13.00			2.58	2.47	-1.19	8.84	0.44

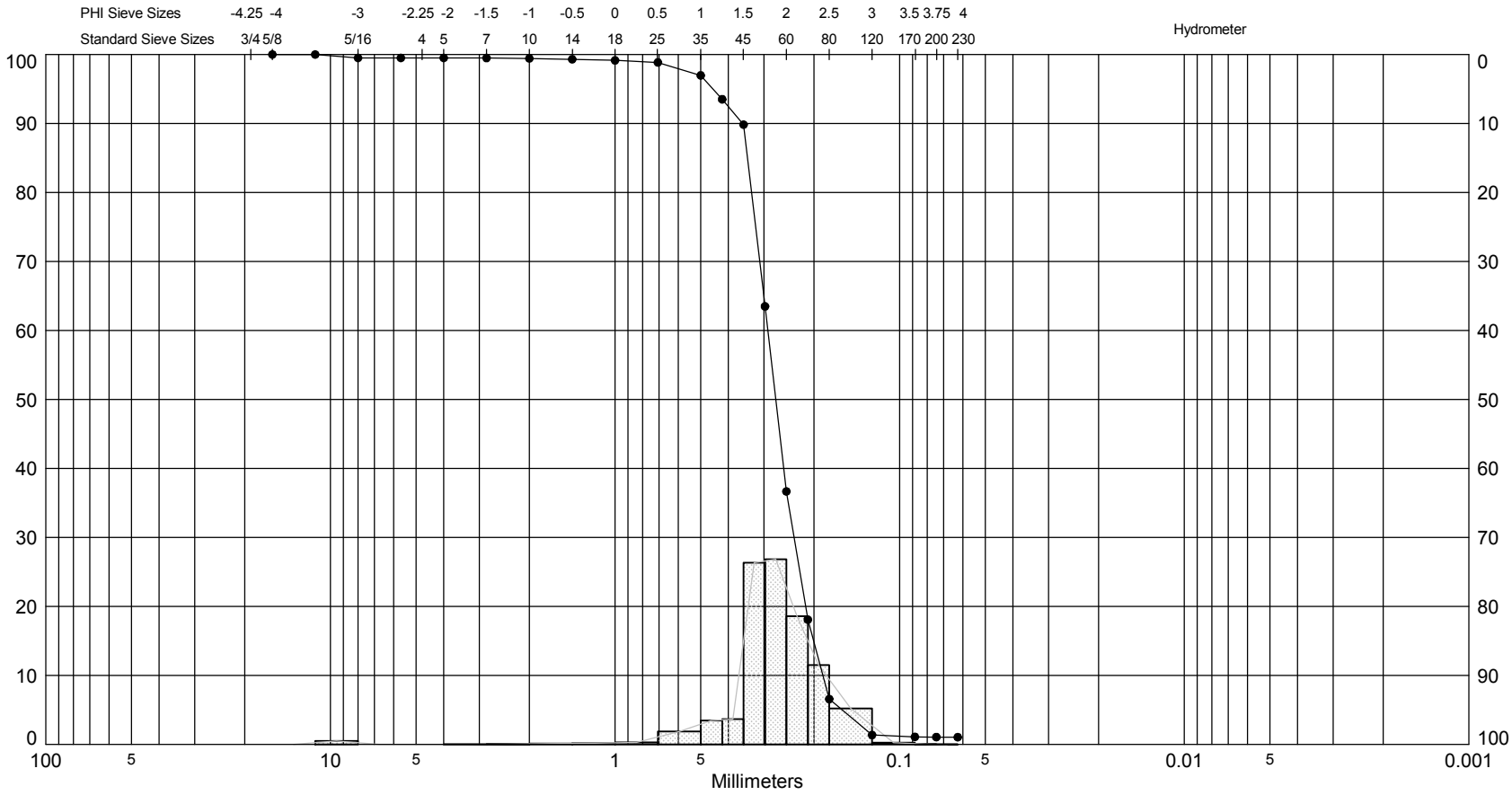
Comments:

Depths and elevations based on measured values

Sample Information	
Project Name:	Dauphin Island Shore Protection
Analysis Date:	09-30-10
Analyzed By:	JD
Easting (X, ft):	1,790,597
Northing (Y, ft):	60,122
Horizontal System:	NAD 1983
Vertical System:	NAVD 88

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SIEVE ANALYSIS DIVC-10.GPJ JPBRAZIL.GDT 3/14/11



Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
DIVC-10-28 #5	—●—	-32.0	SP	#200 - 1.06 #230 - 1.05			1.88	1.86	-3.99	36.1	0.57

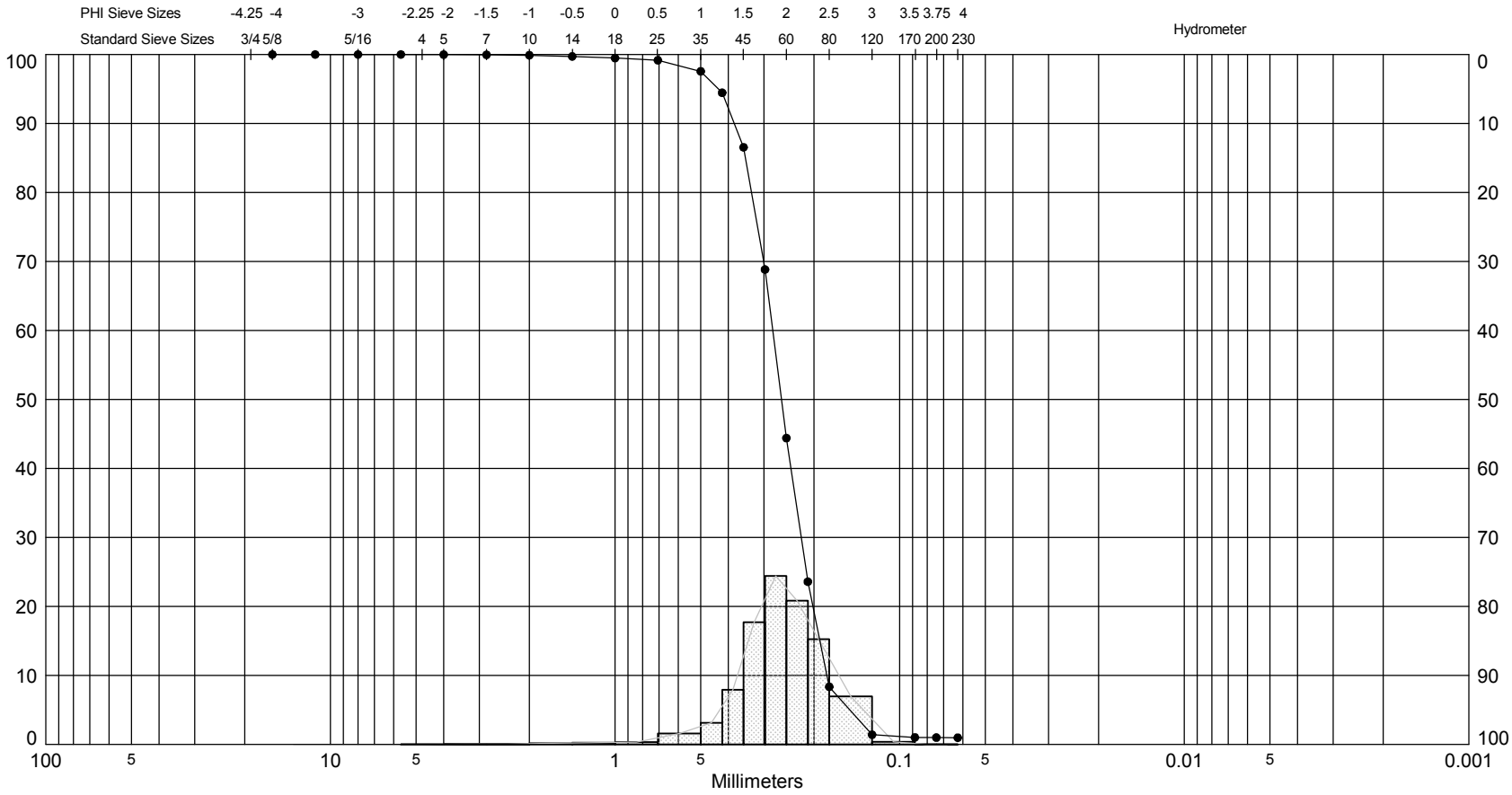
Comments:

Depths and elevations based on measured values

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Sample Information	
Project Name:	Dauphin Island Shore Protection
Analysis Date:	09-30-10
Analyzed By:	JR
Easting (X, ft):	1,790,597
Northing (Y, ft):	60,122
Horizontal System:	NAD 1983
Vertical System:	NAVD 88

SIEVE ANALYSIS DIVC-10.GPJ JPBRAZIL.GDT 3/14/11



Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
DIVC-10-28 #6	—●—	-36.0	SP	#200 - 0.99 #230 - 0.97			1.94	1.93	-1.07	8.81	0.47

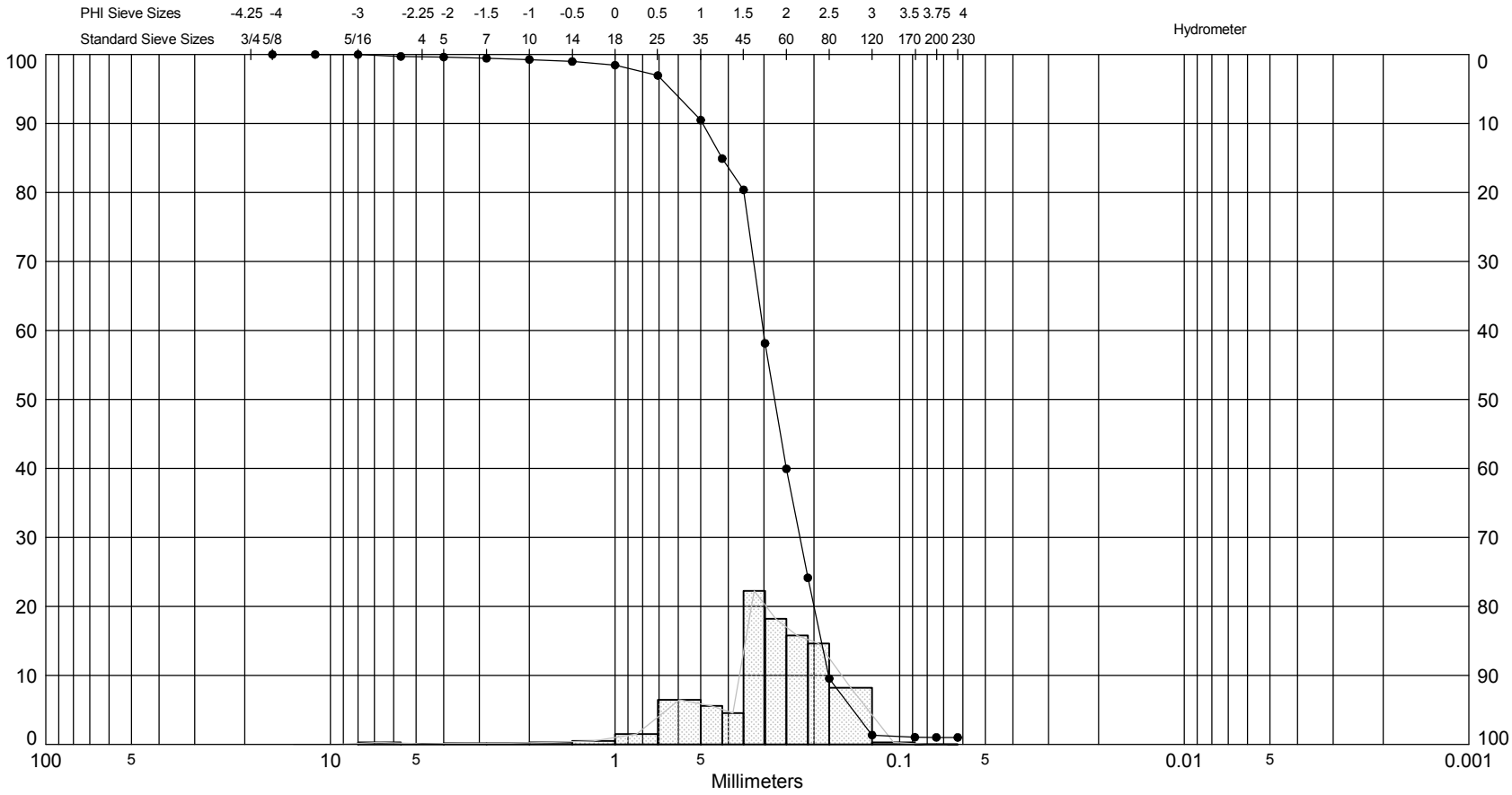
Comments:

Depths and elevations based on measured values

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Sample Information	
Project Name:	Dauphin Island Shore Protection
Analysis Date:	09-30-10
Analyzed By:	JR
Easting (X, ft):	1,790,597
Northing (Y, ft):	60,122
Horizontal System:	NAD 1983
Vertical System:	NAVD 88

SIEVE ANALYSIS DIVC-10.GPJ JPBRAZIL.GDT 3/14/11



Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
DIVC-10-29 #1	—●—	-22.0	SP	#200 - 1.02 #230 - 1.01			1.86	1.8	-1.93	11.68	0.67

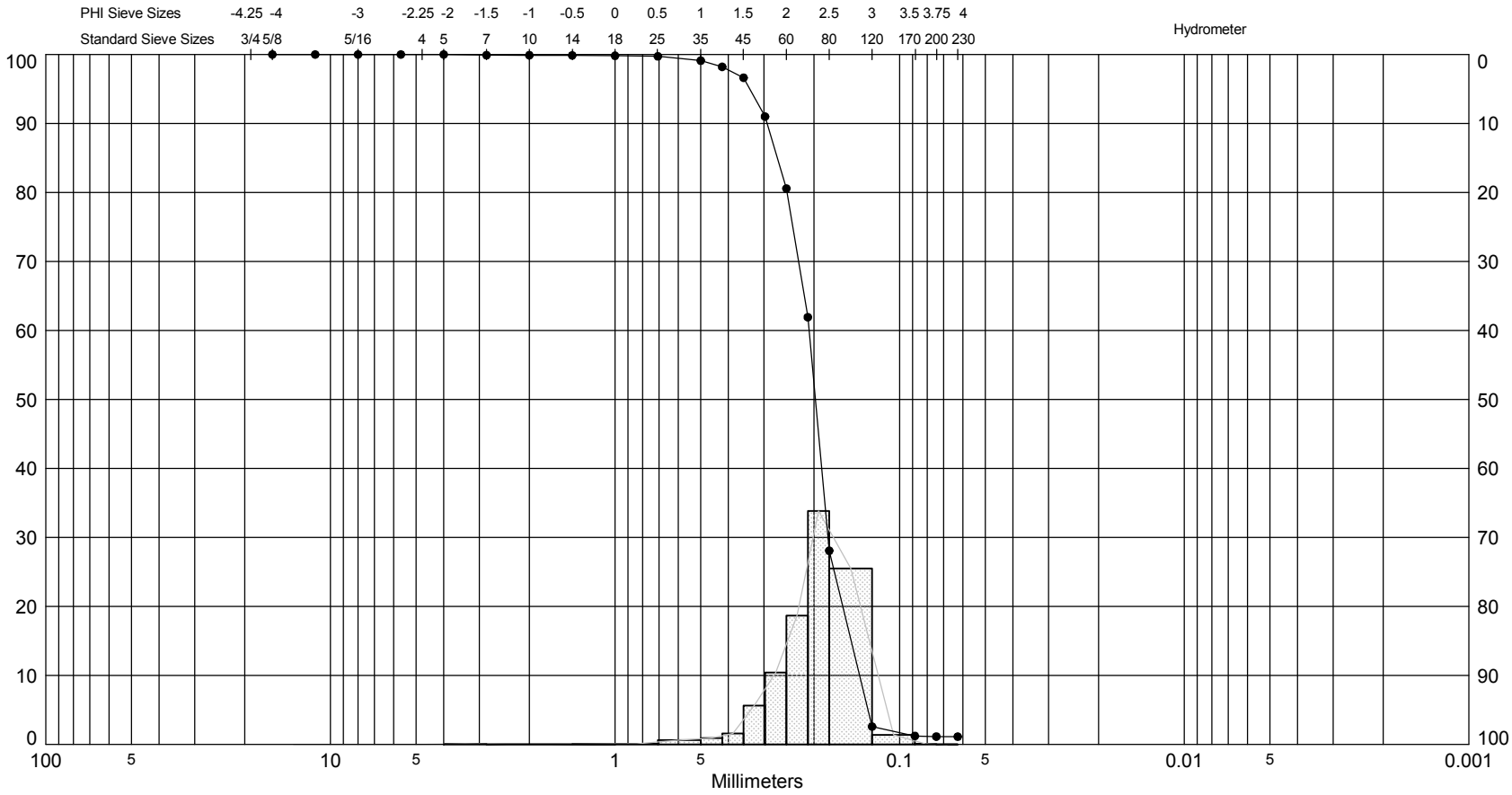
Comments:

Depths and elevations based on measured values

Sample Information	
Project Name:	Dauphin Island Shore Protection
Analysis Date:	09-30-10
Analyzed By:	JR
Easting (X, ft):	1,791,549
Northing (Y, ft):	60,168
Horizontal System:	NAD 1983
Vertical System:	NAVD 88

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SIEVE ANALYSIS DIVC-10.GPJ JPBRAZIL.GDT 3/14/11



Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
DIVC-10-29 #2	—●—	-24.2	SP	#200 - 1.13 #230 - 1.12			2.34	2.3	-1.6	12.63	0.43

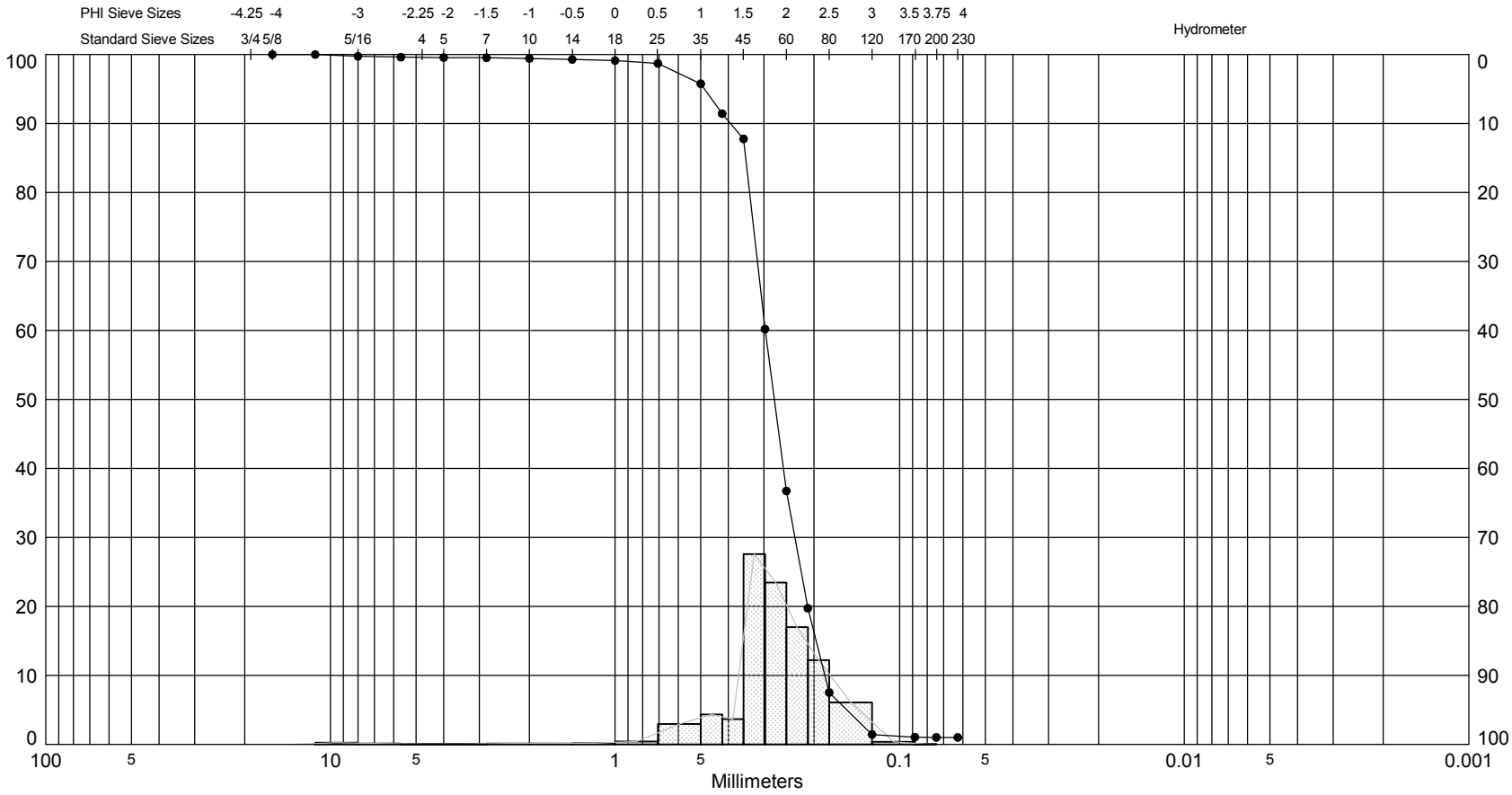
Comments:

Depths and elevations based on measured values

Sample Information	
Project Name:	Dauphin Island Shore Protection
Analysis Date:	09-30-10
Analyzed By:	JR
Easting (X, ft):	1,791,549
Northing (Y, ft):	60,168
Horizontal System:	NAD 1983
Vertical System:	NAVD 88

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SIEVE ANALYSIS DIVC-10.GPJ JPBRAZIL.GDT 3/14/11



Gravel		Sand			Silt and Clay
Coarse	Fine	Coarse	Medium	Fine	

Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
DIVC-10-29 #3	—●—	-29.6	SP	#200 - 1.01 #230 - 1.01			1.86	1.84	-3.09	26.1	0.58

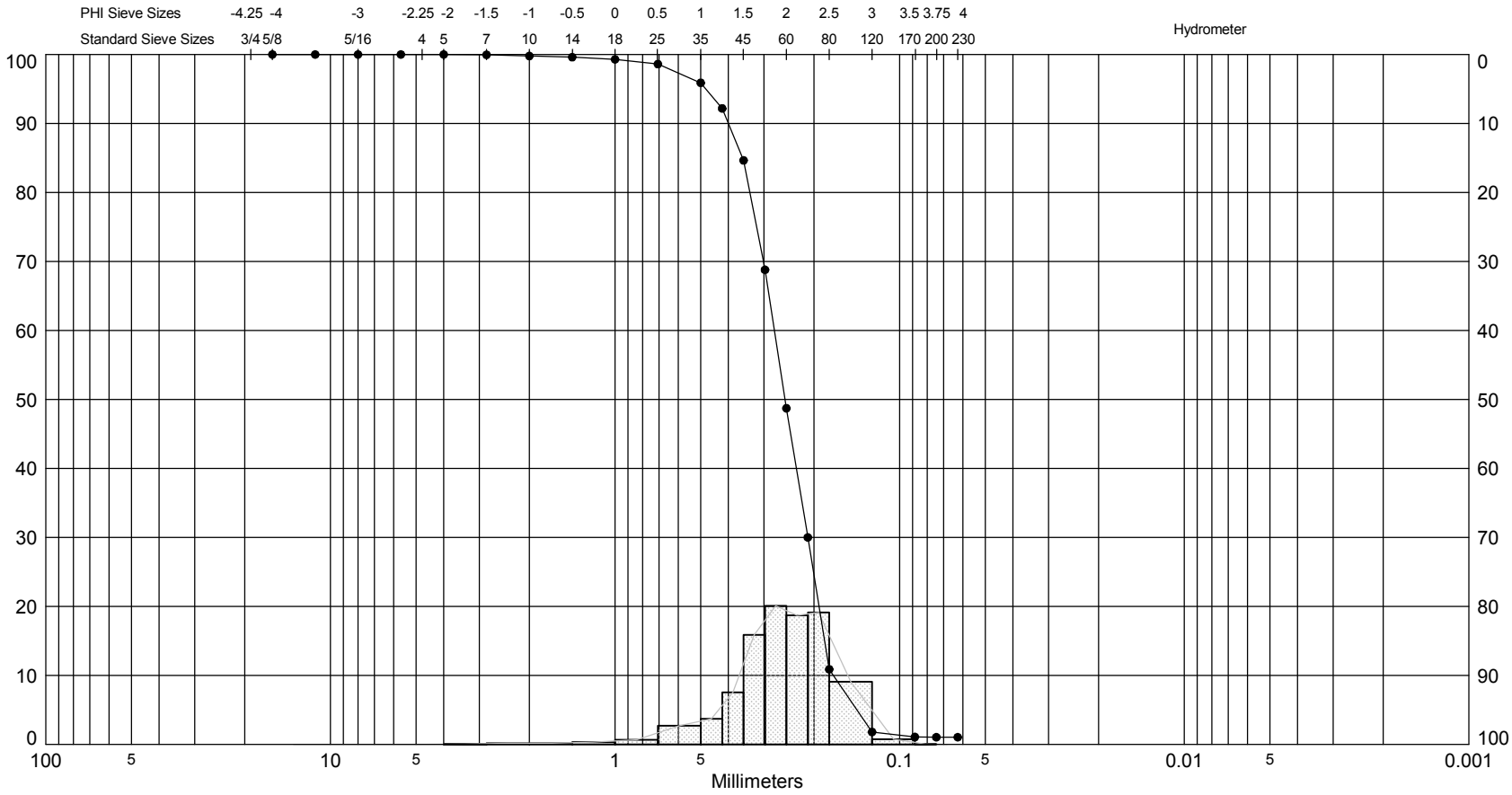
Comments:

Depths and elevations based on measured values

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Sample Information	
Project Name:	Dauphin Island Shore Protection
Analysis Date:	09-30-10
Analyzed By:	JR
Easting (X, ft):	1,791,549
Northing (Y, ft):	60,168
Horizontal System:	NAD 1983
Vertical System:	NAVD 88

SIEVE ANALYSIS DIVC-10.GPJ JPBRAZIL.GDT 3/14/11



Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
DIVC-10-29 #4	—●—	-33.6	SP	#200 - 1.04 #230 - 1.04			1.98	1.94	-1.17	7.5	0.54

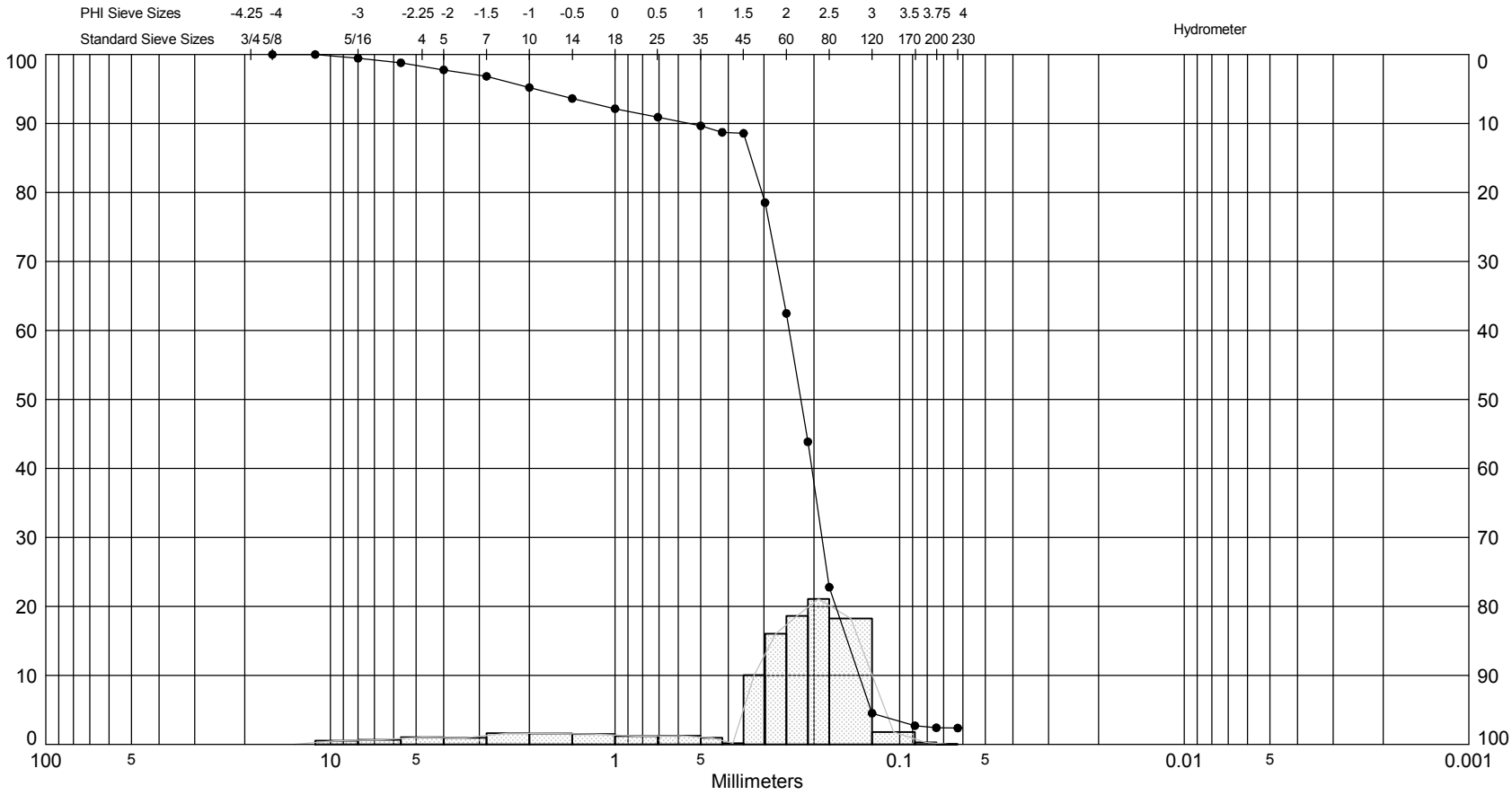
Comments:

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Sample Information	
Project Name:	Dauphin Island Shore Protection
Analysis Date:	09-30-10
Analyzed By:	JR
Easting (X, ft):	1,791,549
Northing (Y, ft):	60,168
Horizontal System:	NAD 1983
Vertical System:	NAVD 88

SIEVE ANALYSIS DIVC-10.GPJ JPBRAZIL.GDT 3/14/11



Gravel		Sand			Silt and Clay
Coarse	Fine	Coarse	Medium	Fine	

Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
DIVC-10-29 #5	—●—	-37.1	SW	#200 - 2.41 #230 - 2.37			2.17	1.89	-2.47	9.44	1.12

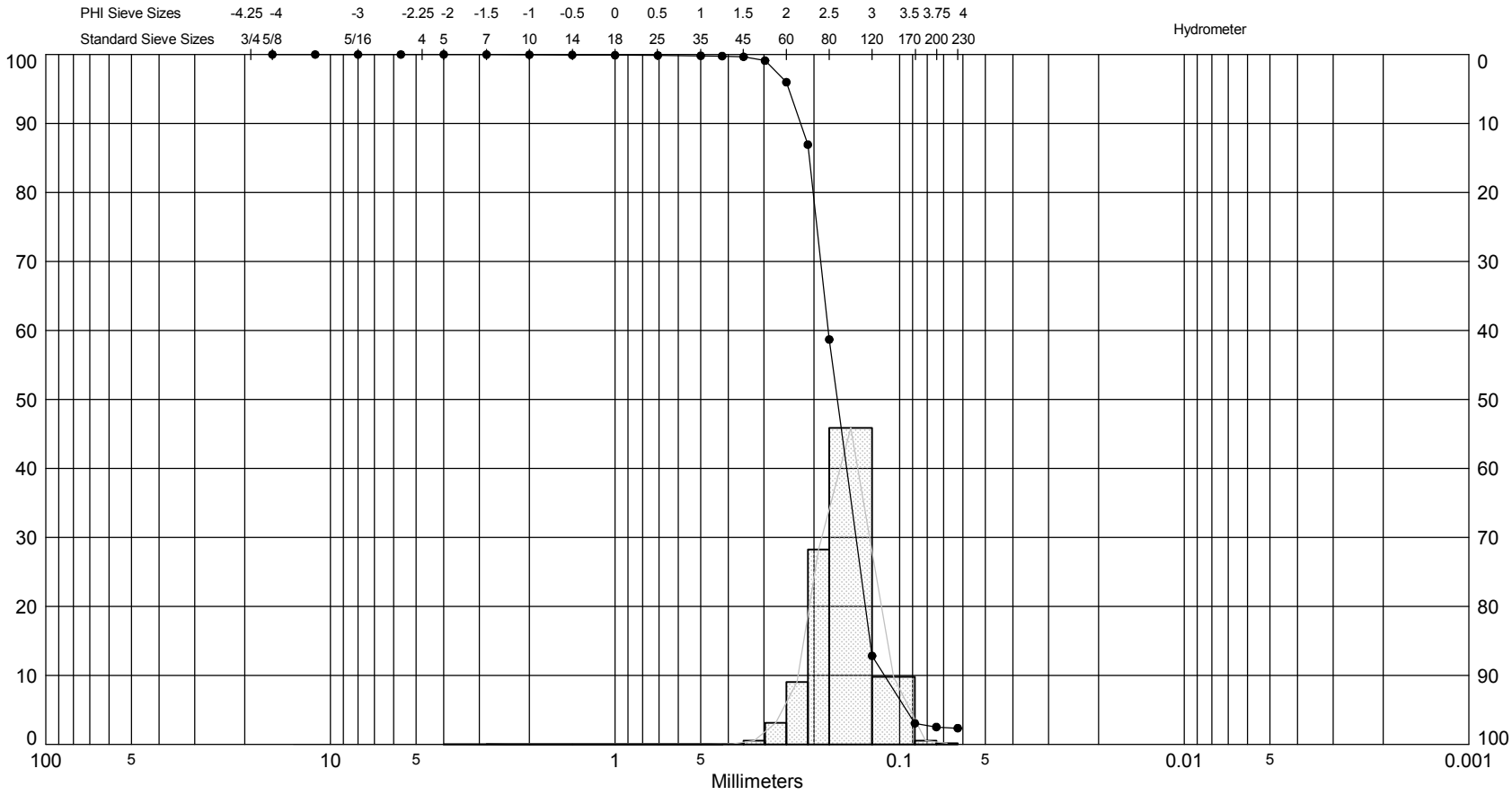
Comments:

Depths and elevations based on measured values

Coastal Planning & Engineering
2481 NW Boca Raton Blvd, Boca Raton
FL 33431
ph (561) 391-8102
fax (561) 391-9116

Sample Information	
Project Name:	Dauphin Island Shore Protection
Analysis Date:	09-30-10
Analyzed By:	JR
Easting (X, ft):	1,791,549
Northing (Y, ft):	60,168
Horizontal System:	NAD 1983
Vertical System:	NAVD 88

SIEVE ANALYSIS DIVC-10.GPJ JPBRAZIL.GDT 3/14/11



Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
DIVC-10-29 #6	—●—	-40.9	SP	#200 - 2.52 #230 - 2.35			2.59	2.6	-0.98	12.68	0.37

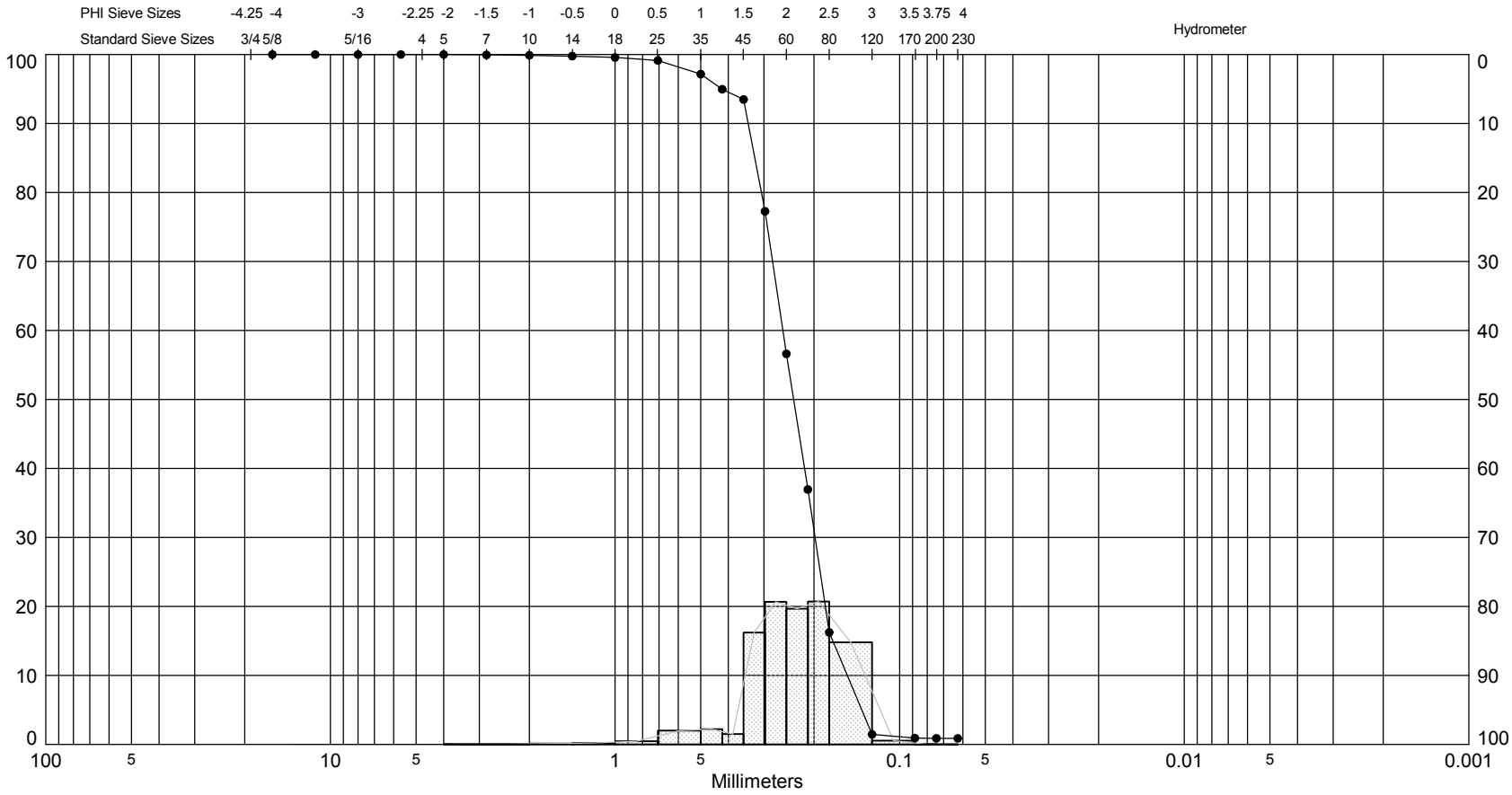
Comments:

Depths and elevations based on measured values

Sample Information	
Project Name:	Dauphin Island Shore Protection
Analysis Date:	09-30-10
Analyzed By:	JR
Easting (X, ft):	1,791,549
Northing (Y, ft):	60,168
Horizontal System:	NAD 1983
Vertical System:	NAVD 88

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SIEVE ANALYSIS DIVC-10.GPJ JPBRAZIL.GDT 3/14/11



Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
DIVC-10-30 #1	—●—	-20.3	SP	#200 - 0.88 #230 - 0.87			2.08	2.06	-1.18	8.13	0.5

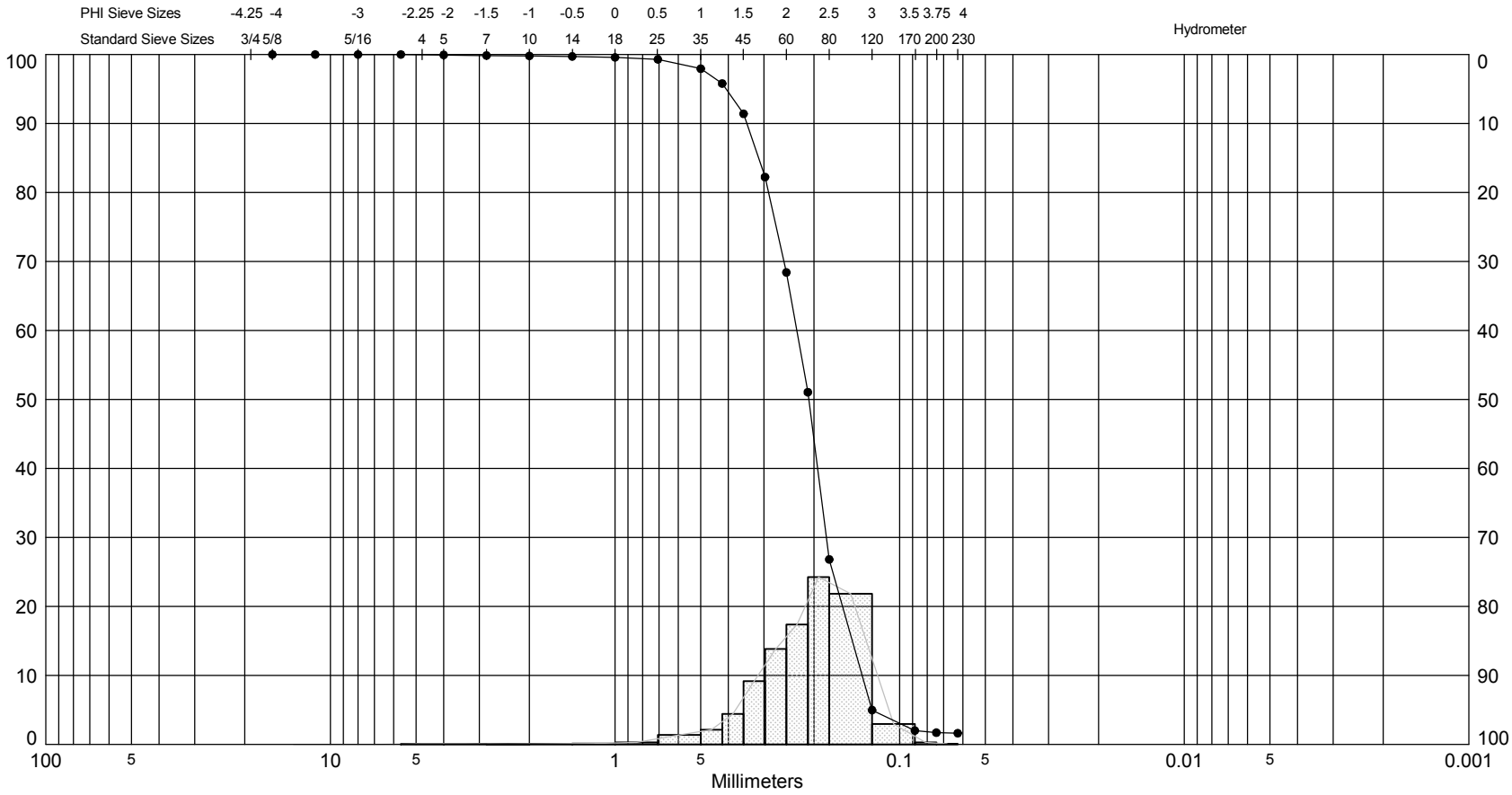
Comments:

Depths and elevations based on measured values

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fax (561) 391-9116

Sample Information	
Project Name:	Dauphin Island Shore Protection
Analysis Date:	10-01-10
Analyzed By:	JR
Easting (X, ft):	1,791,226
Northing (Y, ft):	58,662
Horizontal System:	NAD 1983
Vertical System:	NAVD 88

SIEVE ANALYSIS DIVC-10.GPJ JPBRAZIL.GDT 3/14/11



Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
DIVC-10-30 #2	—●—	-22.0	SP	#200 - 1.70 #230 - 1.62			2.26	2.19	-1.29	9.53	0.55

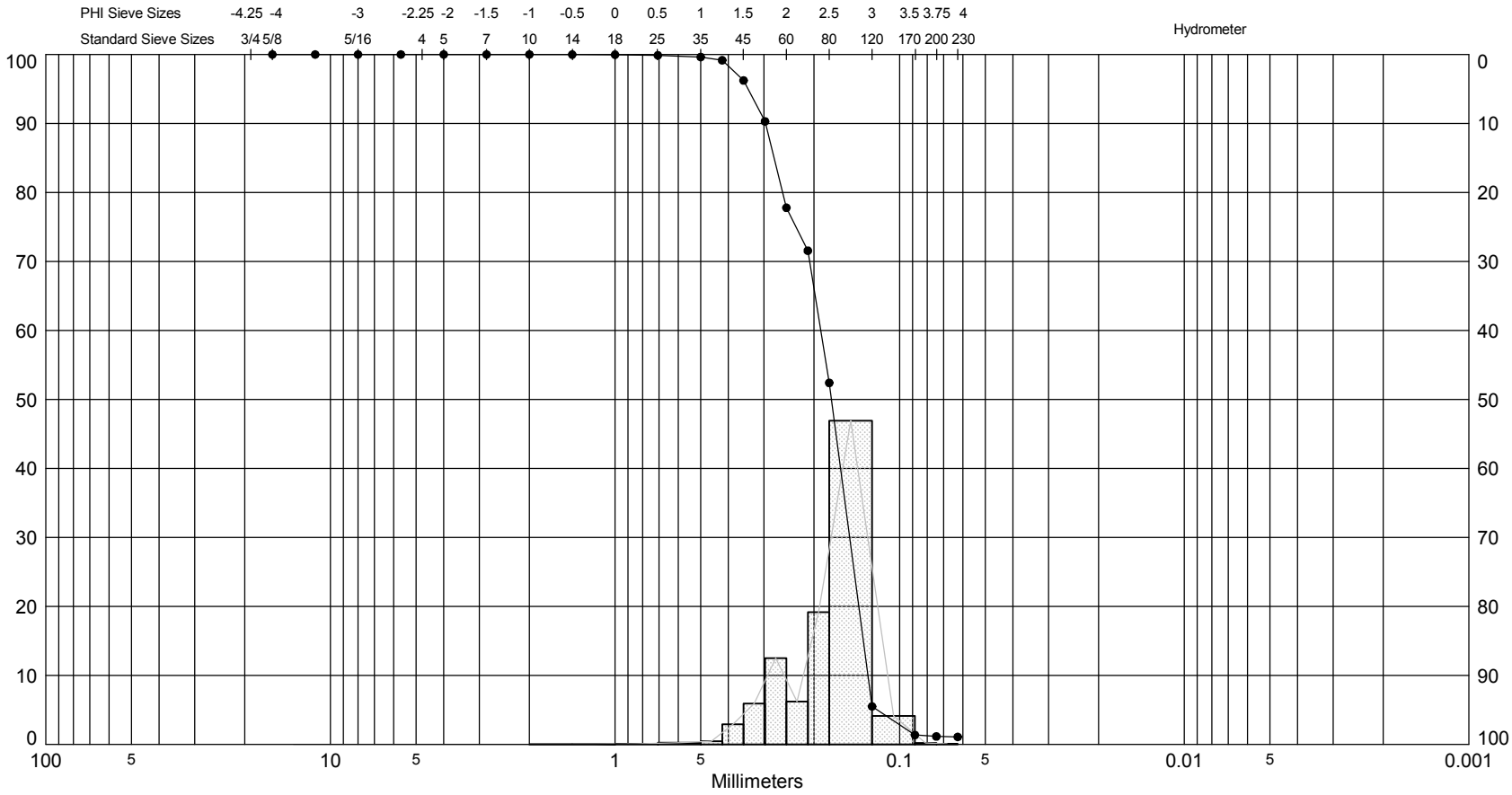
Comments:

Depths and elevations based on measured values

Sample Information	
Project Name:	Dauphin Island Shore Protection
Analysis Date:	10-01-10
Analyzed By:	JR
Easting (X, ft):	1,791,226
Northing (Y, ft):	58,662
Horizontal System:	NAD 1983
Vertical System:	NAVD 88

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SIEVE ANALYSIS DIVC-10.GPJ JPBRAZIL.GDT 3/14/11



Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
DIVC-10-30 #3	—●—	-25.3	SP	#200 - 1.15 #230 - 1.08			2.53	2.43	-0.79	3.69	0.47

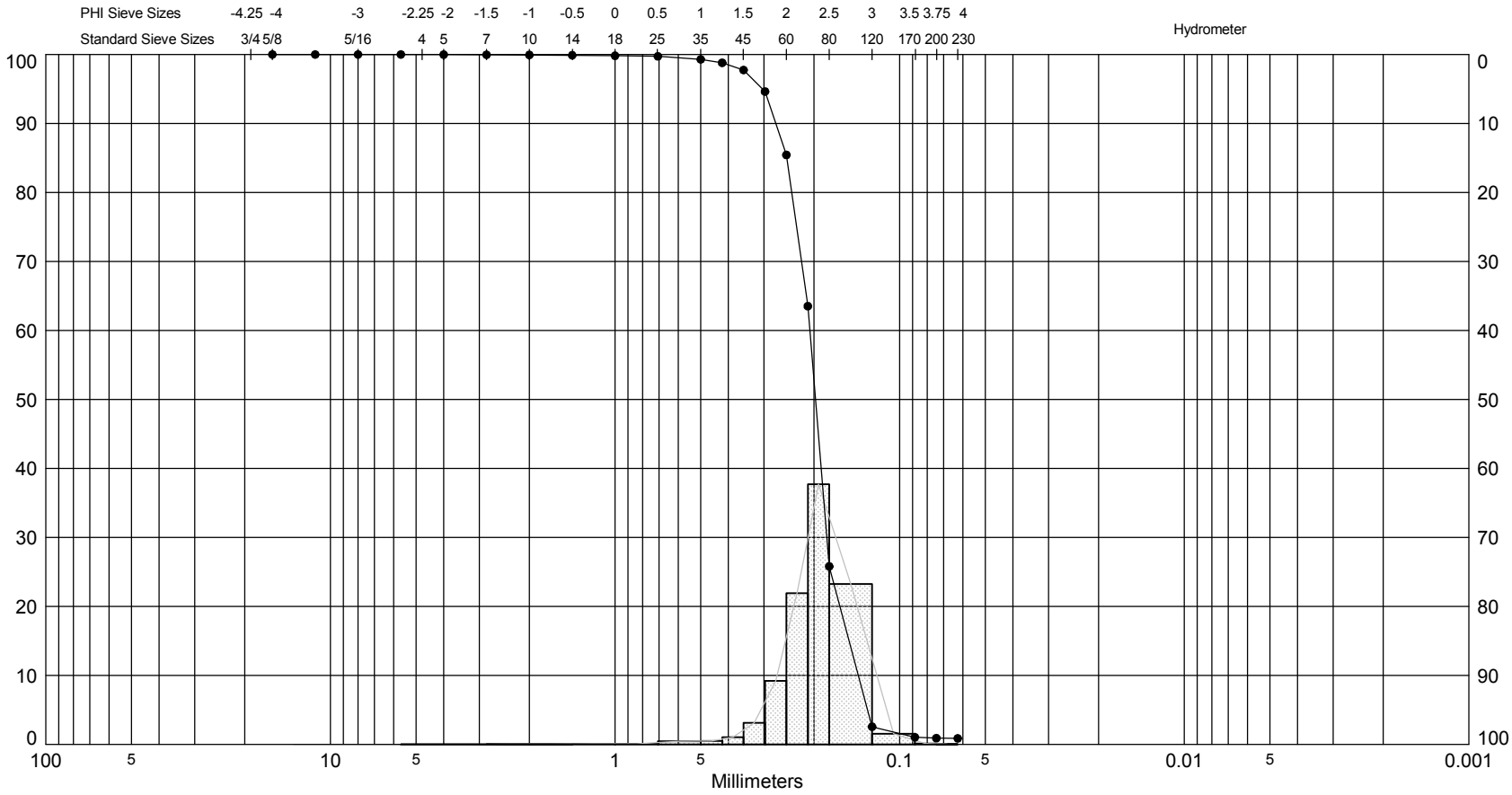
Comments:

Depths and elevations based on measured values

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Sample Information	
Project Name:	Dauphin Island Shore Protection
Analysis Date:	10-01-10
Analyzed By:	JR
Easting (X, ft):	1,791,226
Northing (Y, ft):	58,662
Horizontal System:	NAD 1983
Vertical System:	NAVD 88

SIEVE ANALYSIS DIVC-10.GPJ JPBRAZIL.GDT 3/14/11



Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
DIVC-10-30 #4	—●—	-29.3	SP	#200 - 0.90 #230 - 0.87			2.34	2.32	-1.62	15.01	0.39

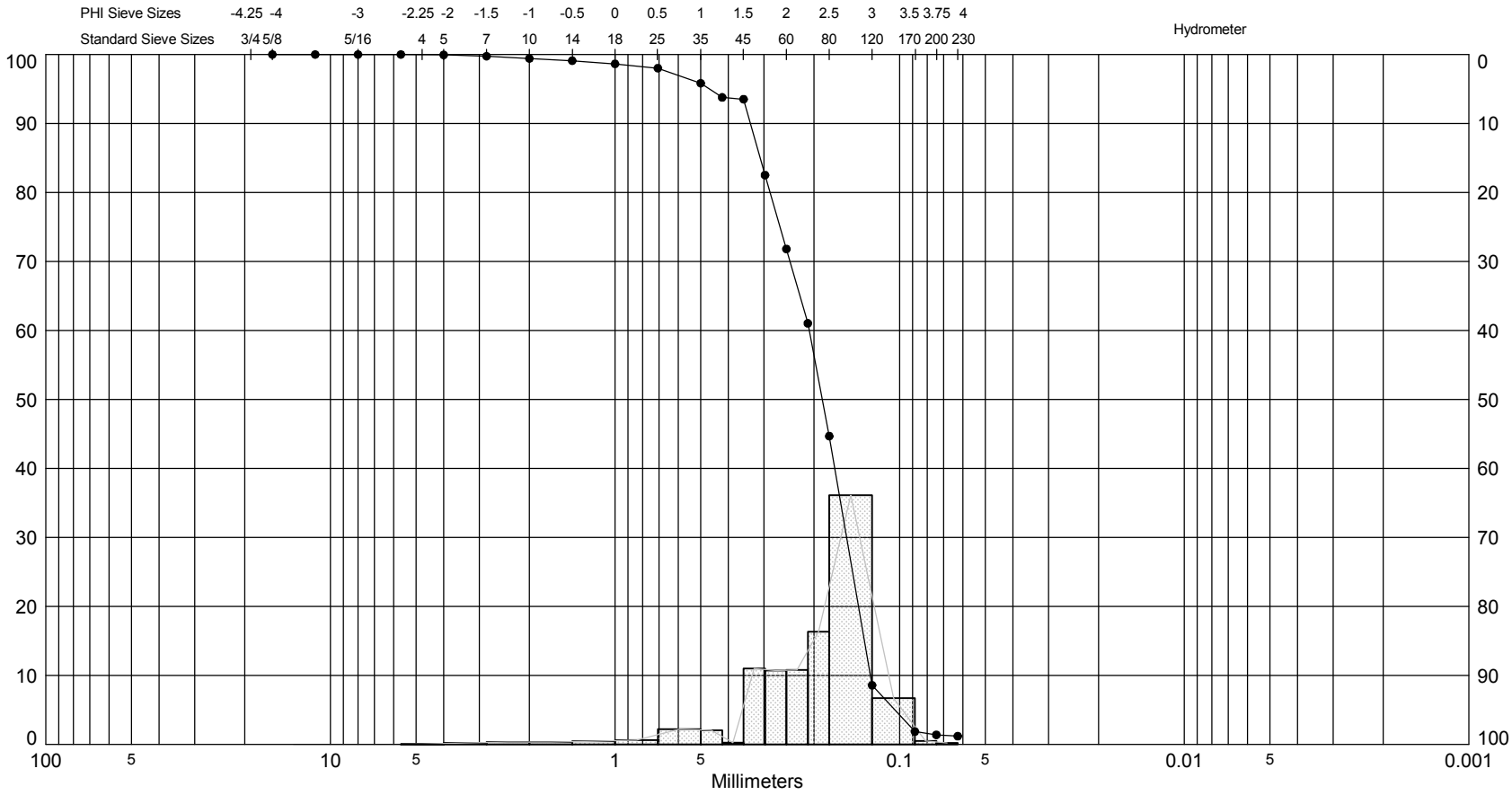
Comments:

Depths and elevations based on measured values

Sample Information	
Project Name:	Dauphin Island Shore Protection
Analysis Date:	10-01-10
Analyzed By:	JR
Easting (X, ft):	1,791,226
Northing (Y, ft):	58,662
Horizontal System:	NAD 1983
Vertical System:	NAVD 88

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SIEVE ANALYSIS DIVC-10.GPJ JPBRAZIL.GDT 3/14/11



Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
DIVC-10-30 #5	—●—	-34.3	SP	#200 - 1.38 #230 - 1.19			2.42	2.29	-1.79	9.41	0.69

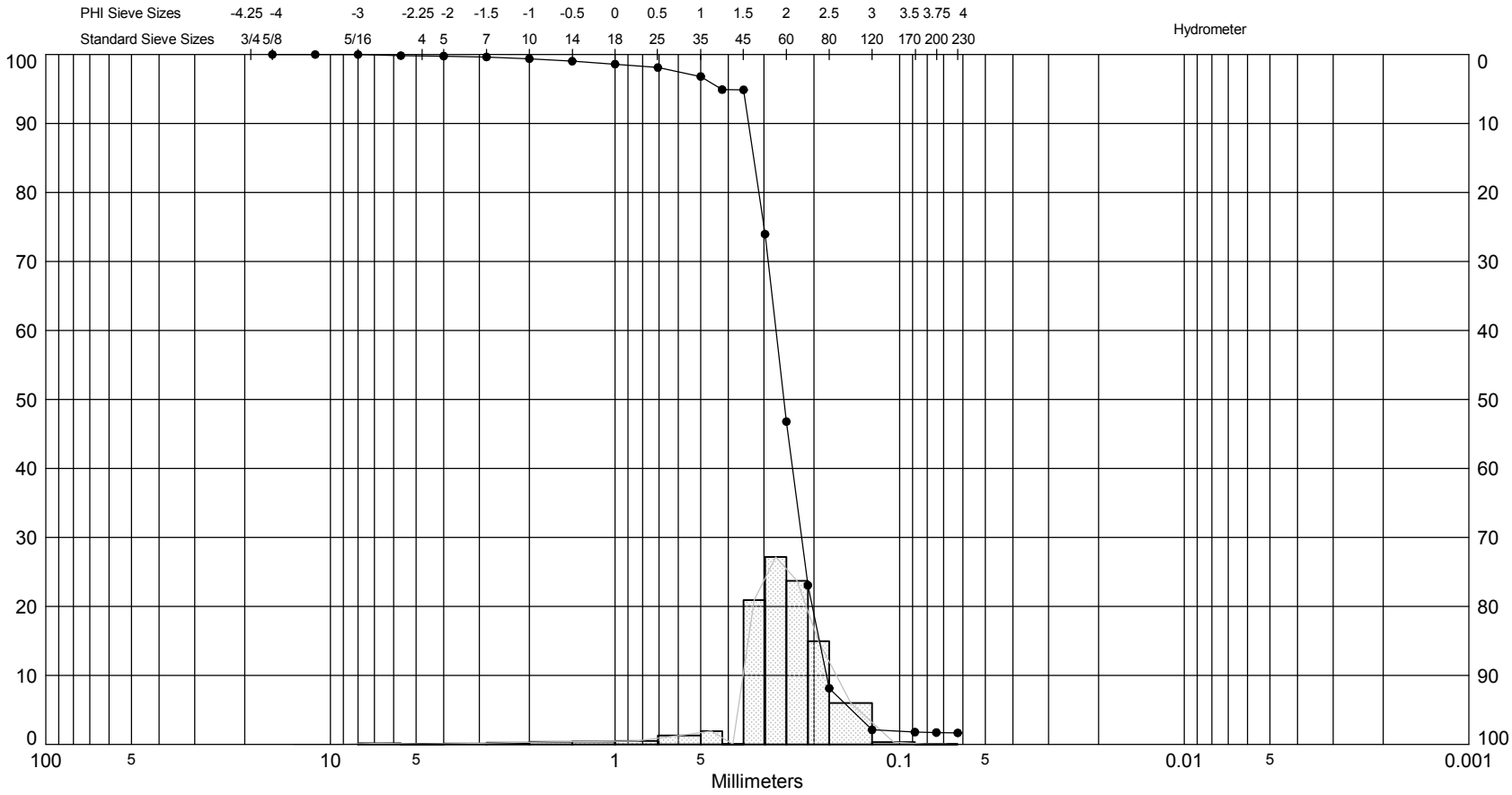
Comments:

Depths and elevations based on measured values

Sample Information	
Project Name:	Dauphin Island Shore Protection
Analysis Date:	10-01-10
Analyzed By:	JR
Easting (X, ft):	1,791,226
Northing (Y, ft):	58,662
Horizontal System:	NAD 1983
Vertical System:	NAVD 88

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SIEVE ANALYSIS DIVC-10.GPJ JPBRAZIL.GDT 3/14/11



Gravel		Sand			Silt and Clay
Coarse	Fine	Coarse	Medium	Fine	

Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
DIVC-10-30 #6	—●—	-37.3	SP	#200 - 1.72 #230 - 1.67			1.97	1.94	-3.07	22.47	0.54

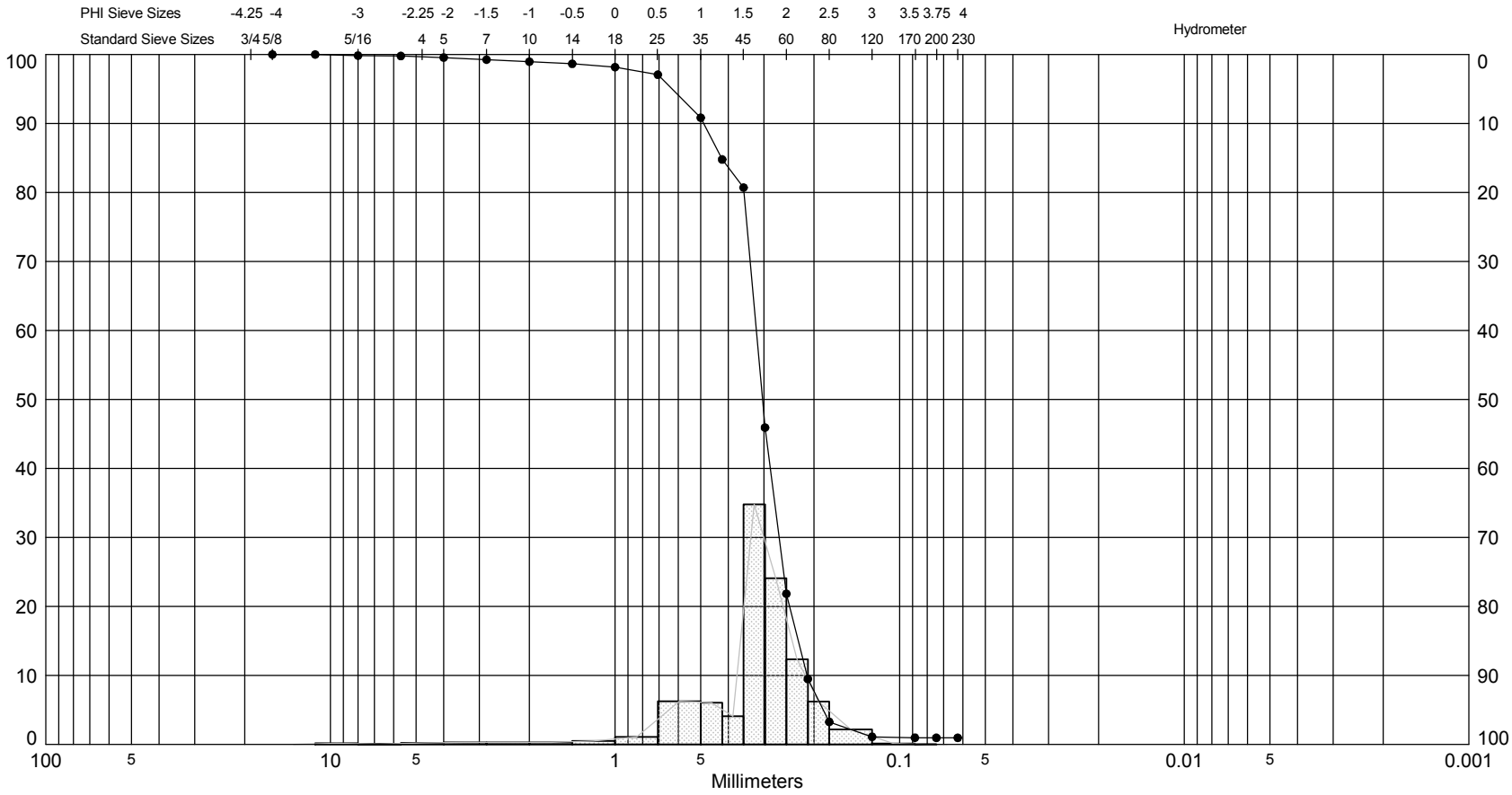
Comments:

Depths and elevations based on measured values

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FL 33431
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Sample Information	
Project Name:	Dauphin Island Shore Protection
Analysis Date:	10-01-10
Analyzed By:	JD
Easting (X, ft):	1,791,226
Northing (Y, ft):	58,662
Horizontal System:	NAD 1983
Vertical System:	NAVD 88

SIEVE ANALYSIS DIVC-10.GPJ JPBRAZIL.GDT 3/14/11



Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
DIVC-10-31 #1	—●—	-21.0	SP	#200 - 0.95 #230 - 0.95			1.72	1.66	-2.85	18.46	0.61

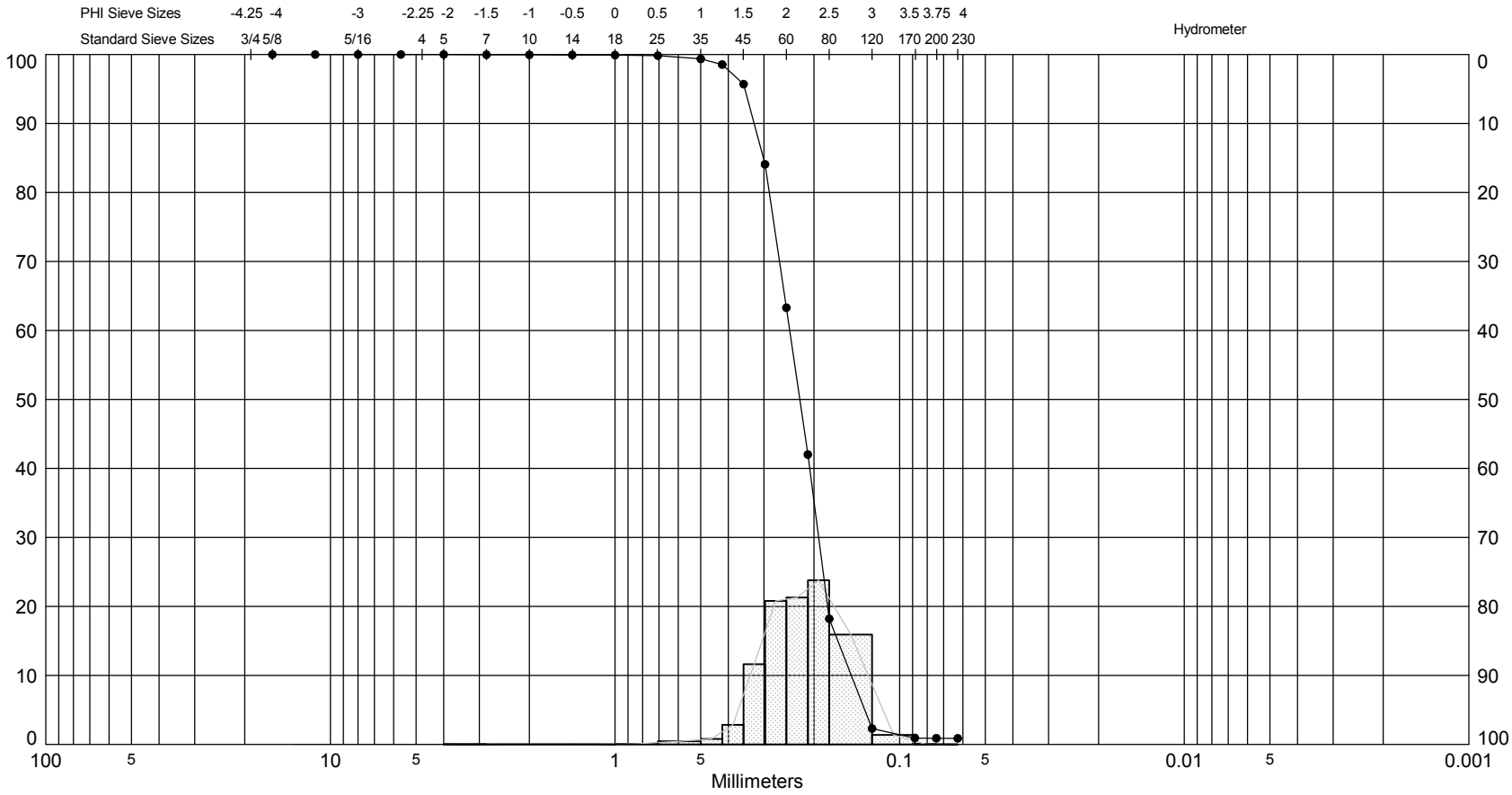
Comments:

Depths and elevations based on measured values

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FL 33431
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fax (561) 391-9116

Sample Information	
Project Name:	Dauphin Island Shore Protection
Analysis Date:	10-05-10
Analyzed By:	JR
Easting (X, ft):	1,790,189
Northing (Y, ft):	63,831
Horizontal System:	NAD 1983
Vertical System:	NAVD 88

SIEVE ANALYSIS DIVC-10.GPJ JPBRAZIL.GDT 3/14/11



Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
DIVC-10-31 #2	—●—	-23.2	SP	#200 - 0.89 #230 - 0.88			2.16	2.15	-0.48	6.53	0.43

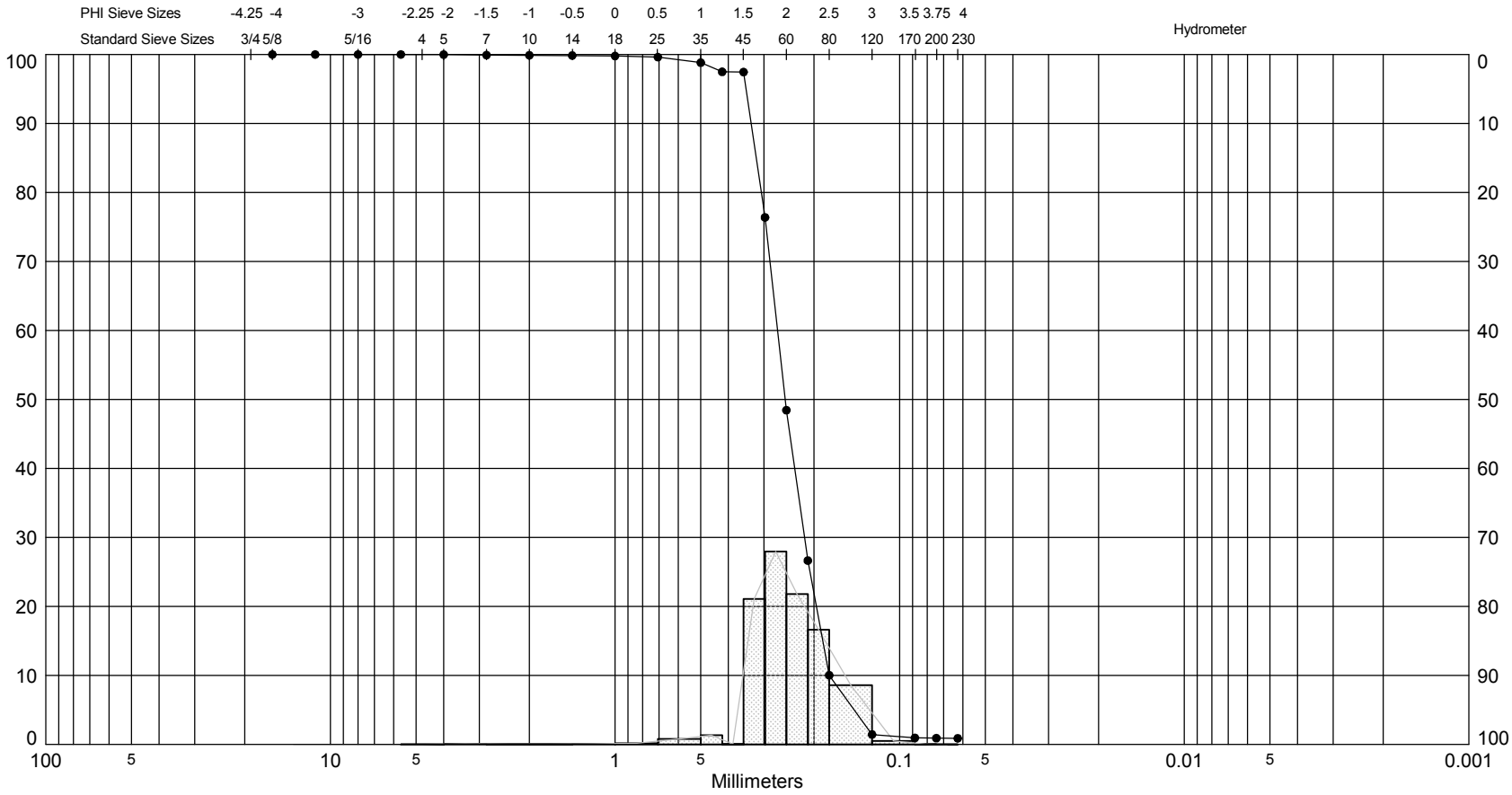
Comments:

Depths and elevations based on measured values

Sample Information	
Project Name:	Dauphin Island Shore Protection
Analysis Date:	10-01-10
Analyzed By:	JD
Easting (X, ft):	1,790,189
Northing (Y, ft):	63,831
Horizontal System:	NAD 1983
Vertical System:	NAVD 88

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SIEVE ANALYSIS DIVC-10.GPJ JPBRAZIL.GDT 3/14/11



Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
DIVC-10-31 #3	—●—	-24.7	SP	#200 - 0.90 #230 - 0.88			1.99	2.02	-1.01	12.83	0.41

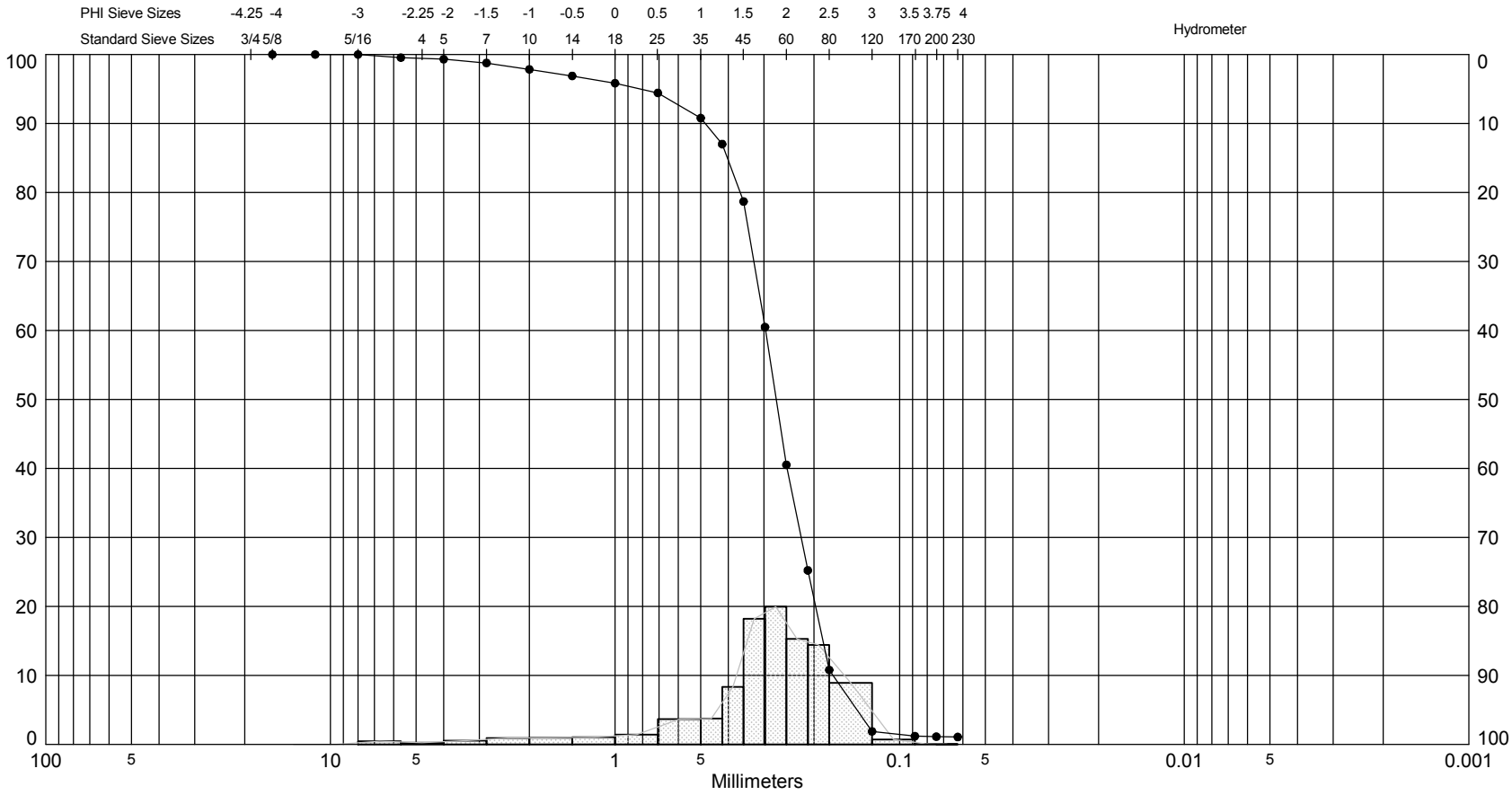
Comments:

Depths and elevations based on measured values

Sample Information	
Project Name:	Dauphin Island Shore Protection
Analysis Date:	10-01-10
Analyzed By:	JD
Easting (X, ft):	1,790,189
Northing (Y, ft):	63,831
Horizontal System:	NAD 1983
Vertical System:	NAVD 88

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SIEVE ANALYSIS DIVC-10.GPJ JPBRAZIL.GDT 3/14/11



Gravel		Sand			Silt and Clay
Coarse	Fine	Coarse	Medium	Fine	

Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
DIVC-10-31 #4	—●—	-26.5	SP	#200 - 1.12 #230 - 1.07			1.88	1.77	-2.27	10.9	0.82

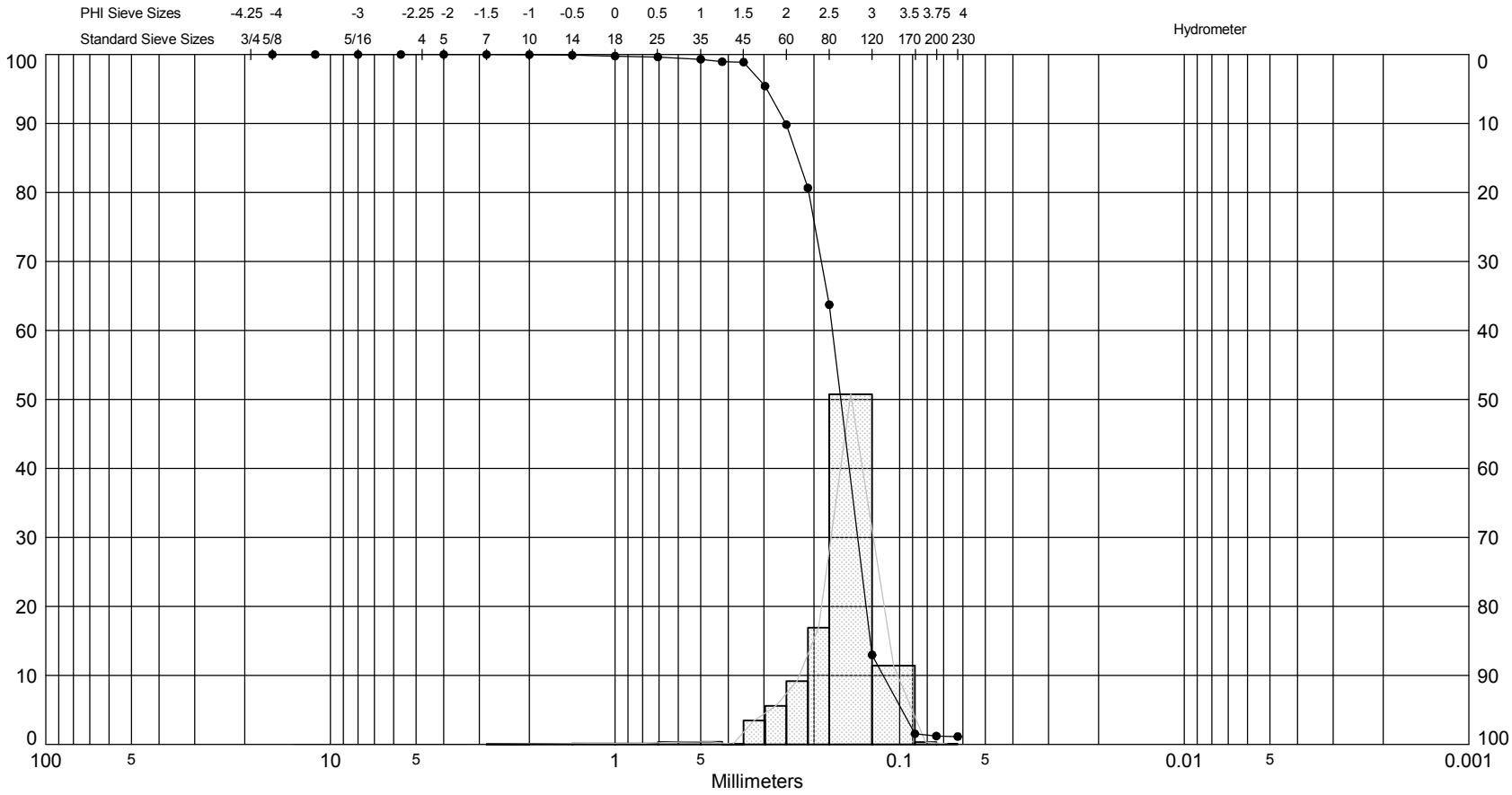
Comments:

Depths and elevations based on measured values

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2481 NW Boca Raton Blvd, Boca Raton
FL 33431
ph (561) 391-8102
fax (561) 391-9116

Sample Information	
Project Name:	Dauphin Island Shore Protection
Analysis Date:	10-01-10
Analyzed By:	JD
Easting (X, ft):	1,790,189
Northing (Y, ft):	63,831
Horizontal System:	NAD 1983
Vertical System:	NAVD 88

SIEVE ANALYSIS DIVC-10.GPJ JPBRAZIL.GDT 3/14/11



Gravel		Sand			Silt and Clay
Coarse	Fine	Coarse	Medium	Fine	

Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
DIVC-10-31 #5	—●—	-30.2	SP	#200 - 1.21 #230 - 1.14			2.64	2.58	-1.46	9.41	0.46

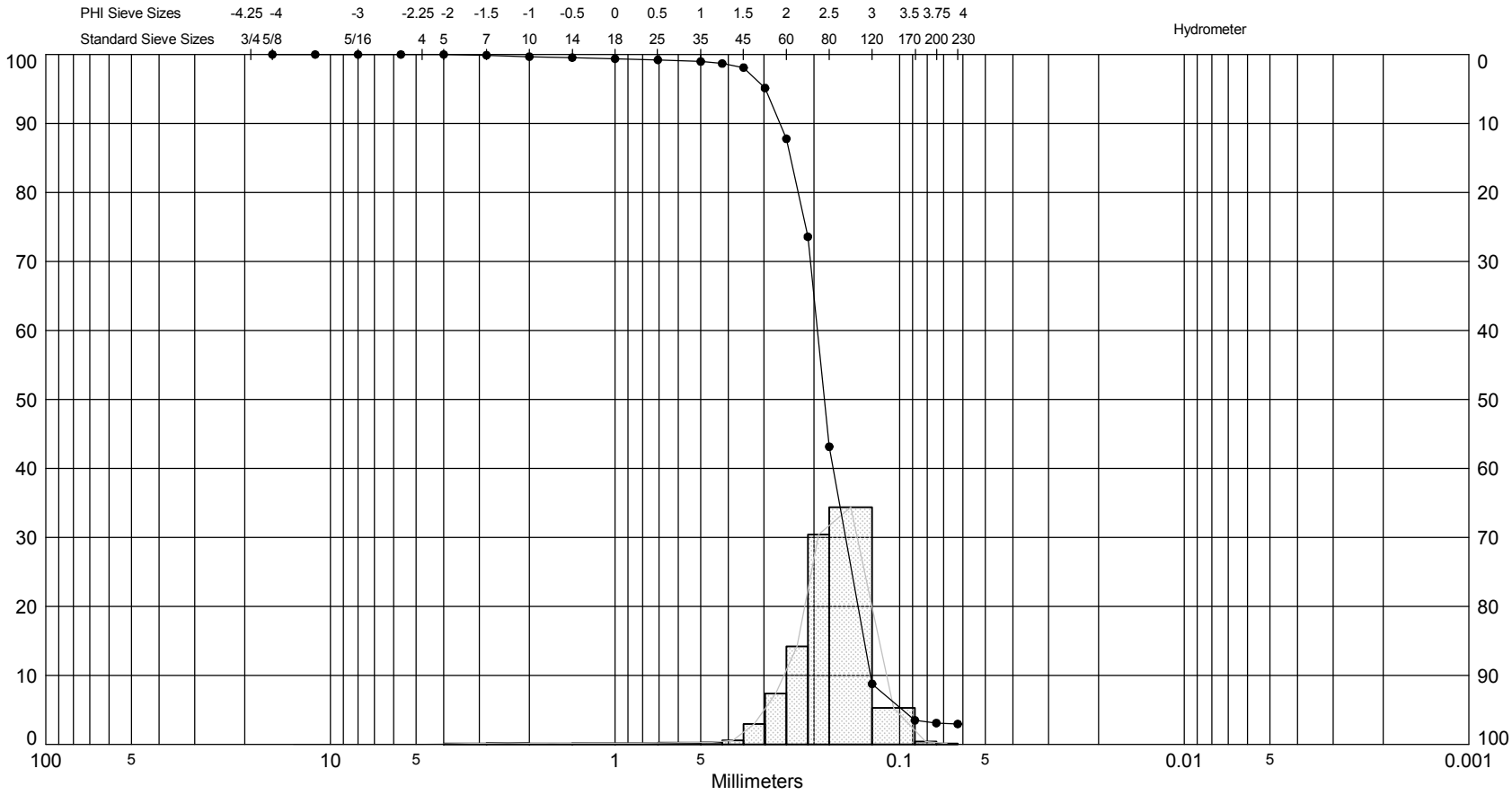
Comments:

Depths and elevations based on measured values

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FL 33431
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Sample Information	
Project Name:	Dauphin Island Shore Protection
Analysis Date:	10-04-10
Analyzed By:	JR
Easting (X, ft):	1,790,189
Northing (Y, ft):	63,831
Horizontal System:	NAD 1983
Vertical System:	NAVD 88

SIEVE ANALYSIS DIVC-10.GPJ JPBRAZIL.GDT 3/14/11



Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
DIVC-10-31 #6	—●—	-35.9	SP	#200 - 3.09 #230 - 2.96			2.44	2.43	-2.42	18.93	0.49

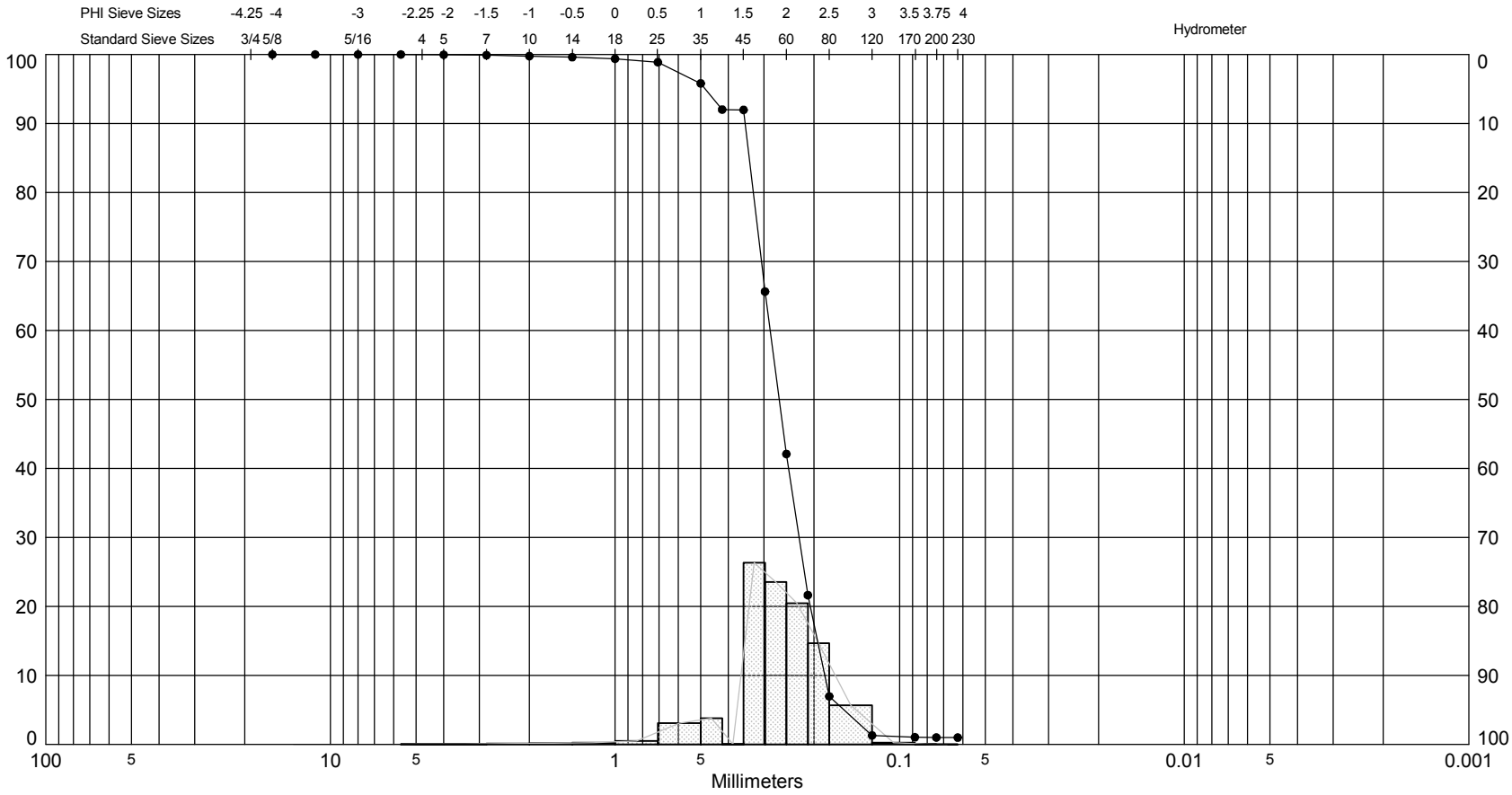
Comments:

Depths and elevations based on measured values

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Sample Information	
Project Name:	Dauphin Island Shore Protection
Analysis Date:	10-04-10
Analyzed By:	JR
Easting (X, ft):	1,790,189
Northing (Y, ft):	63,831
Horizontal System:	NAD 1983
Vertical System:	NAVD 88

SIEVE ANALYSIS DIVC-10.GPJ JPBRAZIL.GDT 3/14/11



Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
DIVC-10-32 #1	—●—	-20.8	SP	#200 - 1.00 #230 - 0.99			1.92	1.9	-1.55	11.14	0.49

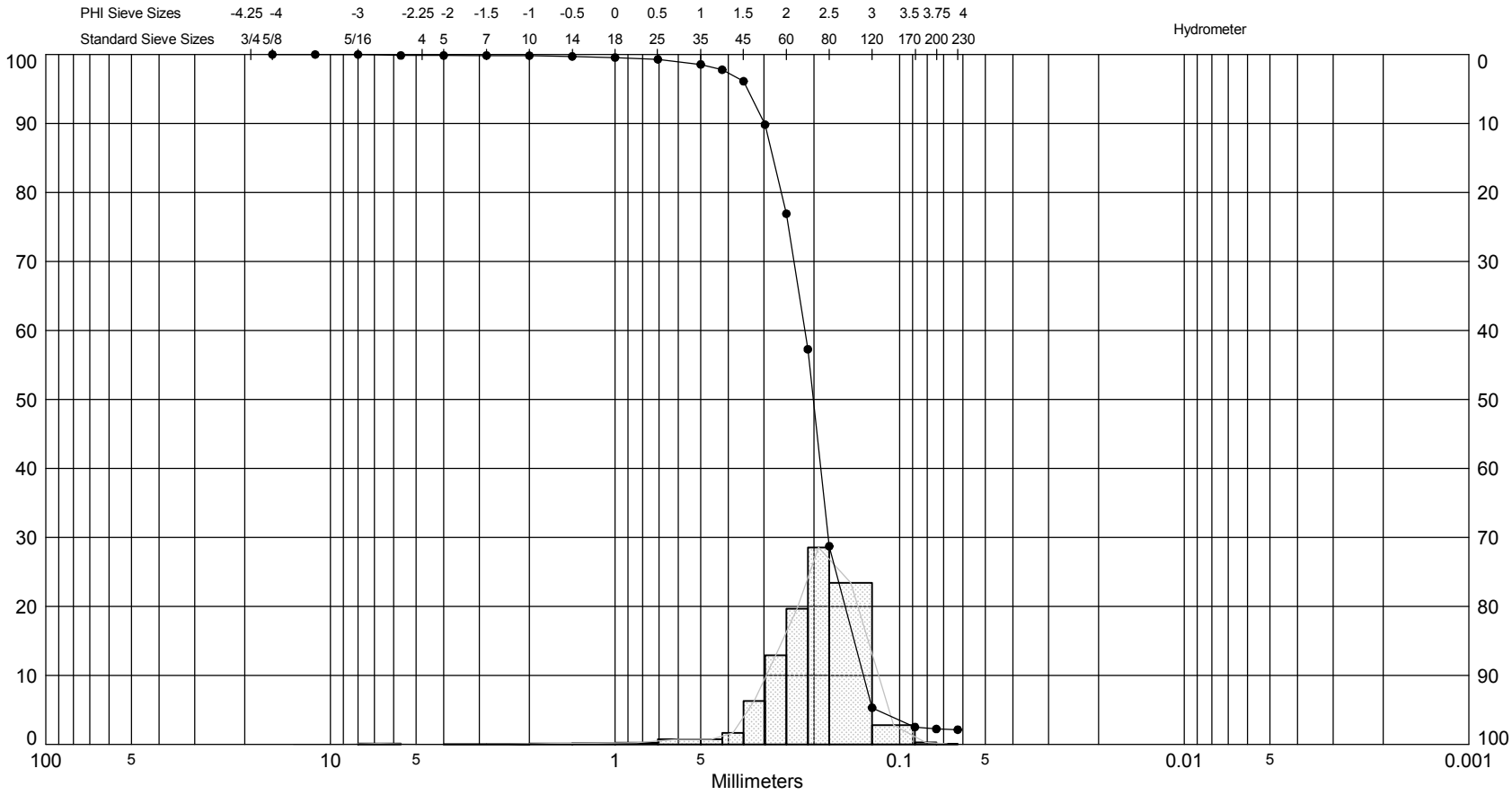
Comments:

Depths and elevations based on measured values

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FL 33431
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fax (561) 391-9116

Sample Information	
Project Name:	Dauphin Island Shore Protection
Analysis Date:	10-04-10
Analyzed By:	JR
Easting (X, ft):	1,793,136
Northing (Y, ft):	64,325
Horizontal System:	NAD 1983
Vertical System:	NAVD 88

SIEVE ANALYSIS DIVC-10.GPJ JPBRAZIL.GDT 3/14/11



Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
DIVC-10-32 #2	—●—	-23.4	SP	#200 - 2.23 #230 - 2.13			2.31	2.27	-2.18	19.51	0.51

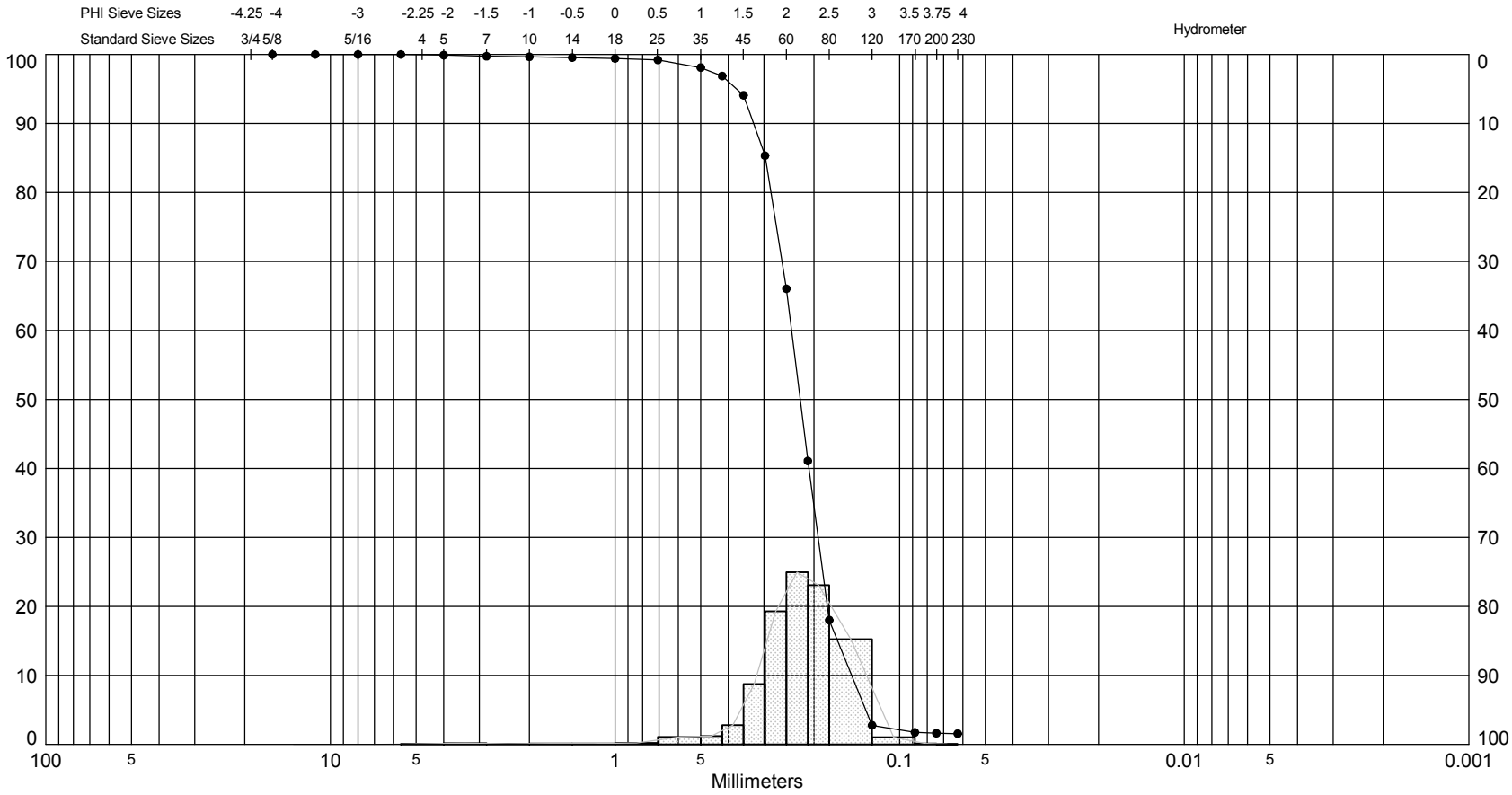
Comments:

Depths and elevations based on measured values

Sample Information	
Project Name:	Dauphin Island Shore Protection
Analysis Date:	10-04-10
Analyzed By:	JR
Easting (X, ft):	1,793,136
Northing (Y, ft):	64,325
Horizontal System:	NAD 1983
Vertical System:	NAVD 88

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SIEVE ANALYSIS DIVC-10.GPJ JPBRAZIL.GDT 3/14/11



Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
DIVC-10-32 #3	—●—	-28.2	SP	#200 - 1.62 #230 - 1.56			2.16	2.13	-2.14	17.16	0.5

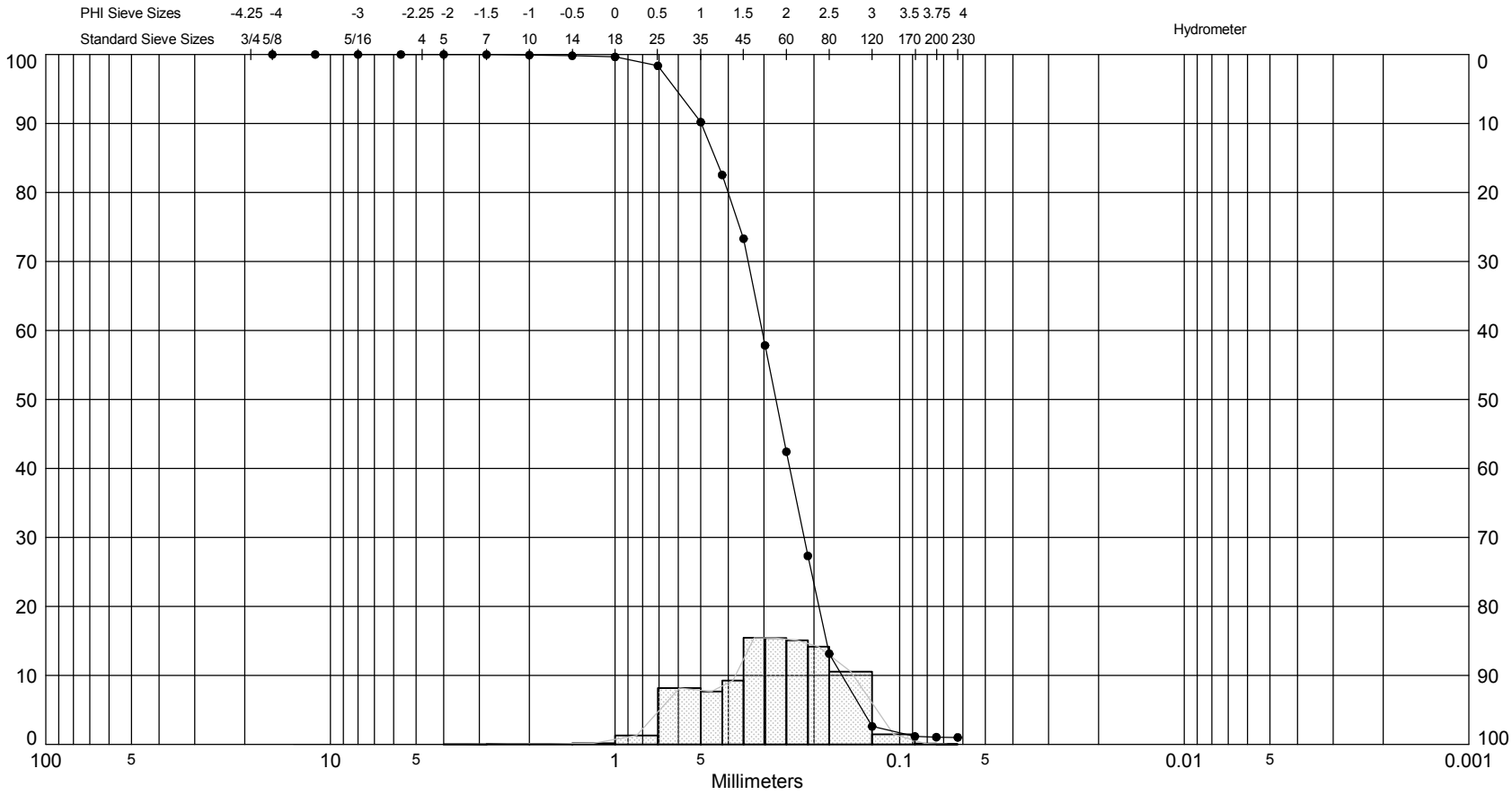
Comments:

Depths and elevations based on measured values

Sample Information	
Project Name:	Dauphin Island Shore Protection
Analysis Date:	10-04-10
Analyzed By:	JR
Easting (X, ft):	1,793,136
Northing (Y, ft):	64,325
Horizontal System:	NAD 1983
Vertical System:	NAVD 88

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SIEVE ANALYSIS DIVC-10.GPJ JPBRAZIL.GDT 3/14/11



Gravel		Sand			Silt and Clay
Coarse	Fine	Coarse	Medium	Fine	

Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
DIVC-10-32 #4	—●—	-31.2	SP	#200 - 1.05 #230 - 1.01			1.88	1.83	-0.38	3.51	0.63

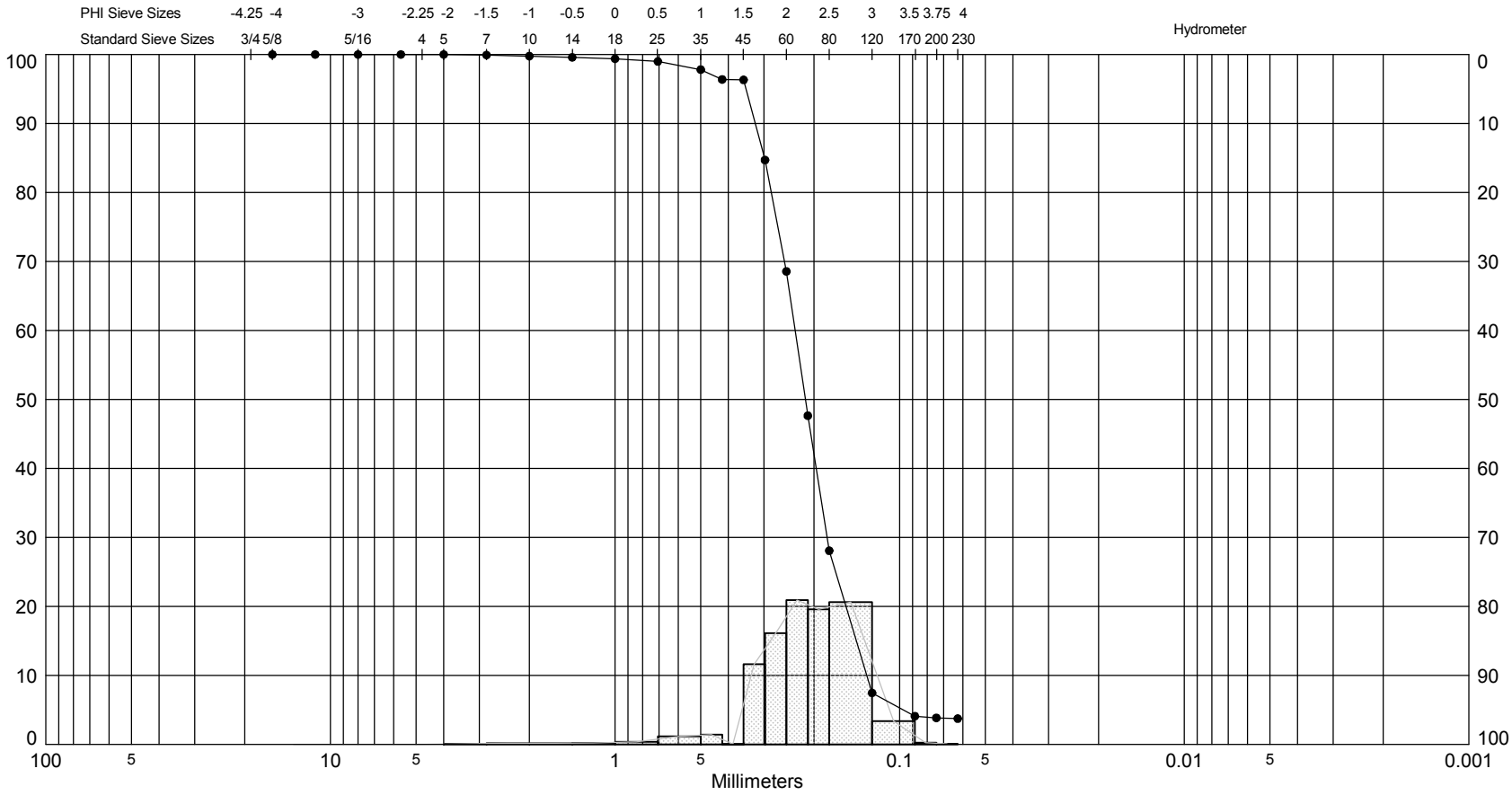
Comments:

Depths and elevations based on measured values

Sample Information	
Project Name:	Dauphin Island Shore Protection
Analysis Date:	10-04-10
Analyzed By:	JR
Easting (X, ft):	1,793,136
Northing (Y, ft):	64,325
Horizontal System:	NAD 1983
Vertical System:	NAVD 88

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Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
DIVC-10-32 #5	—●—	-34.9	SP	#200 - 3.84 #230 - 3.74			2.22	2.19	-1.34	9.94	0.54

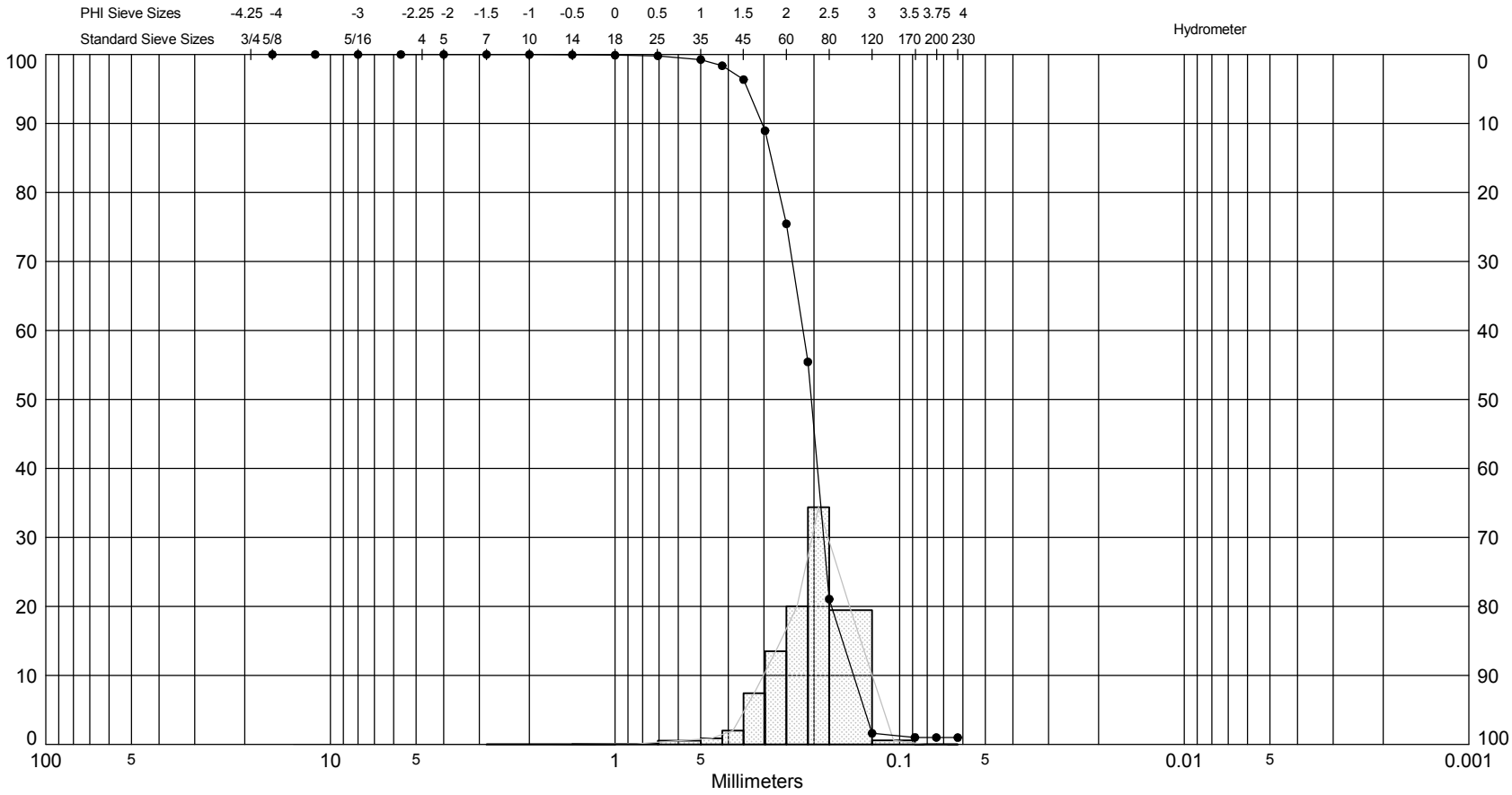
Comments:

Depths and elevations based on measured values

Sample Information	
Project Name:	Dauphin Island Shore Protection
Analysis Date:	10-04-10
Analyzed By:	JR
Easting (X, ft):	1,793,136
Northing (Y, ft):	64,325
Horizontal System:	NAD 1983
Vertical System:	NAVD 88

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SIEVE ANALYSIS DIVC-10.GPJ JPBRAZIL.GDT 3/14/11



Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
DIVC-10-33 #1	—●—	-21.6	SP	#200 - 1.00 #230 - 0.99			2.29	2.23	-0.93	6.29	0.4

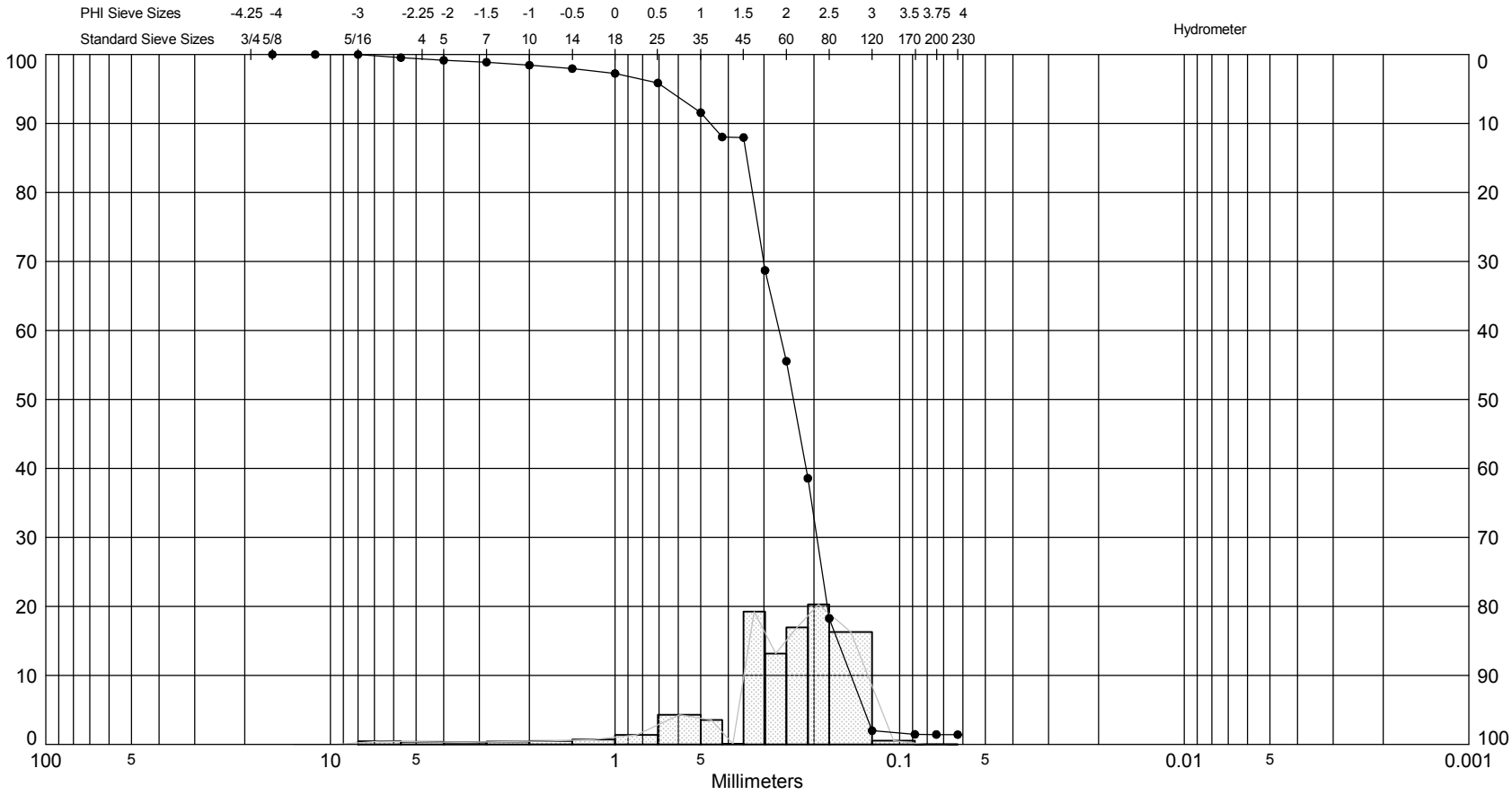
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fax (561) 391-9116

Sample Information	
Project Name:	Dauphin Island Shore Protection
Analysis Date:	10-04-10
Analyzed By:	JR
Easting (X, ft):	1,791,133
Northing (Y, ft):	63,571
Horizontal System:	NAD 1983
Vertical System:	NAVD 88

SIEVE ANALYSIS DIVC-10.GPJ JPBRAZIL.GDT 3/14/11



Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
DIVC-10-33 #2	—●—	-24.4	SP	#200 - 1.43 #230 - 1.42			2.08	1.94	-2.5	12.8	0.8

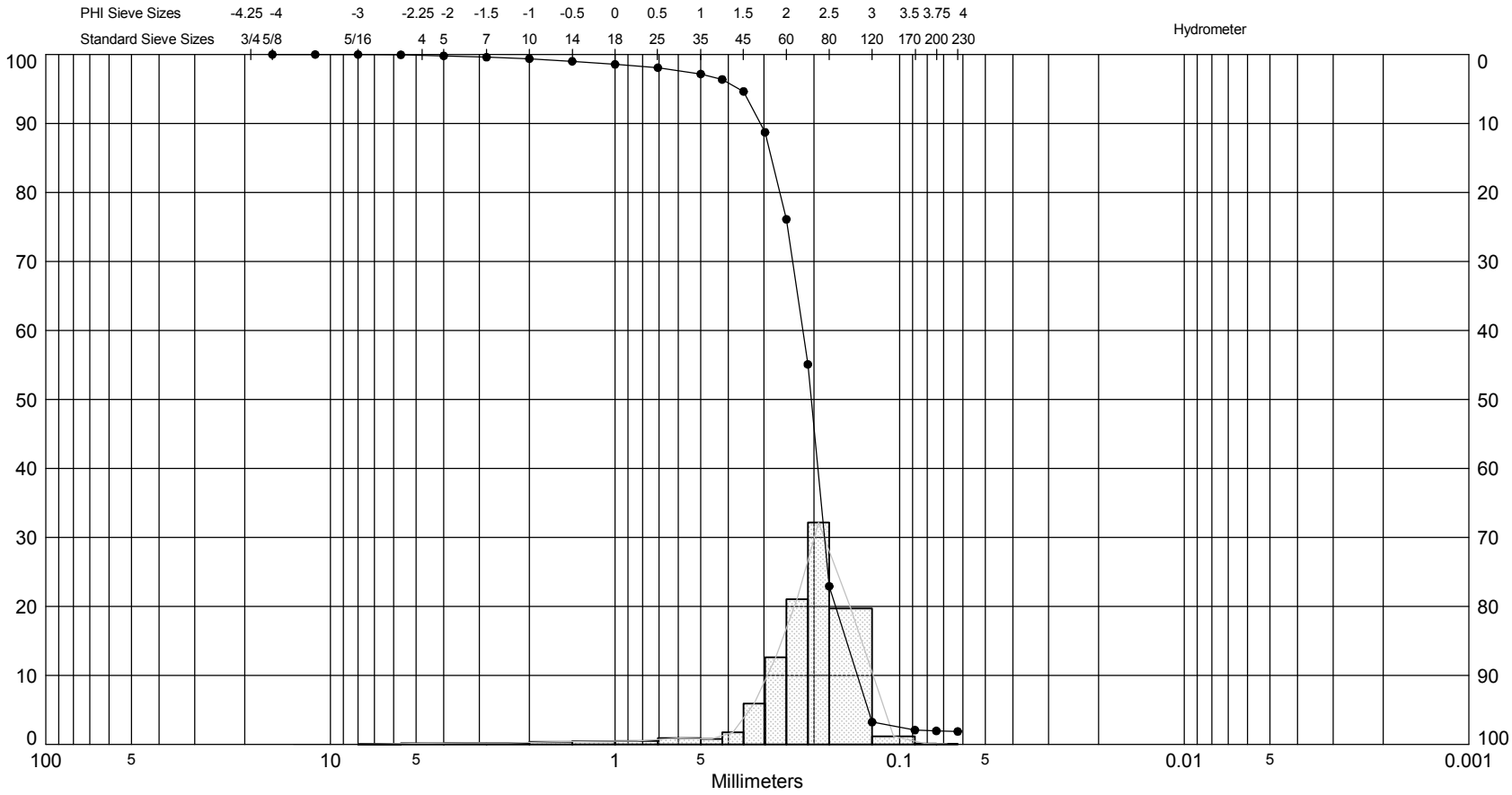
Comments:

Depths and elevations based on measured values

Sample Information	
Project Name:	Dauphin Island Shore Protection
Analysis Date:	10-04-10
Analyzed By:	JR
Easting (X, ft):	1,791,133
Northing (Y, ft):	63,571
Horizontal System:	NAD 1983
Vertical System:	NAVD 88

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SIEVE ANALYSIS DIVC-10.GPJ JPBRAZIL.GDT 3/14/11



Gravel		Sand			Silt and Clay
Coarse	Fine	Coarse	Medium	Fine	

Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
DIVC-10-33 #3	—●—	-27.5	SP	#200 - 1.95 #230 - 1.87			2.29	2.2	-3.06	19.72	0.59

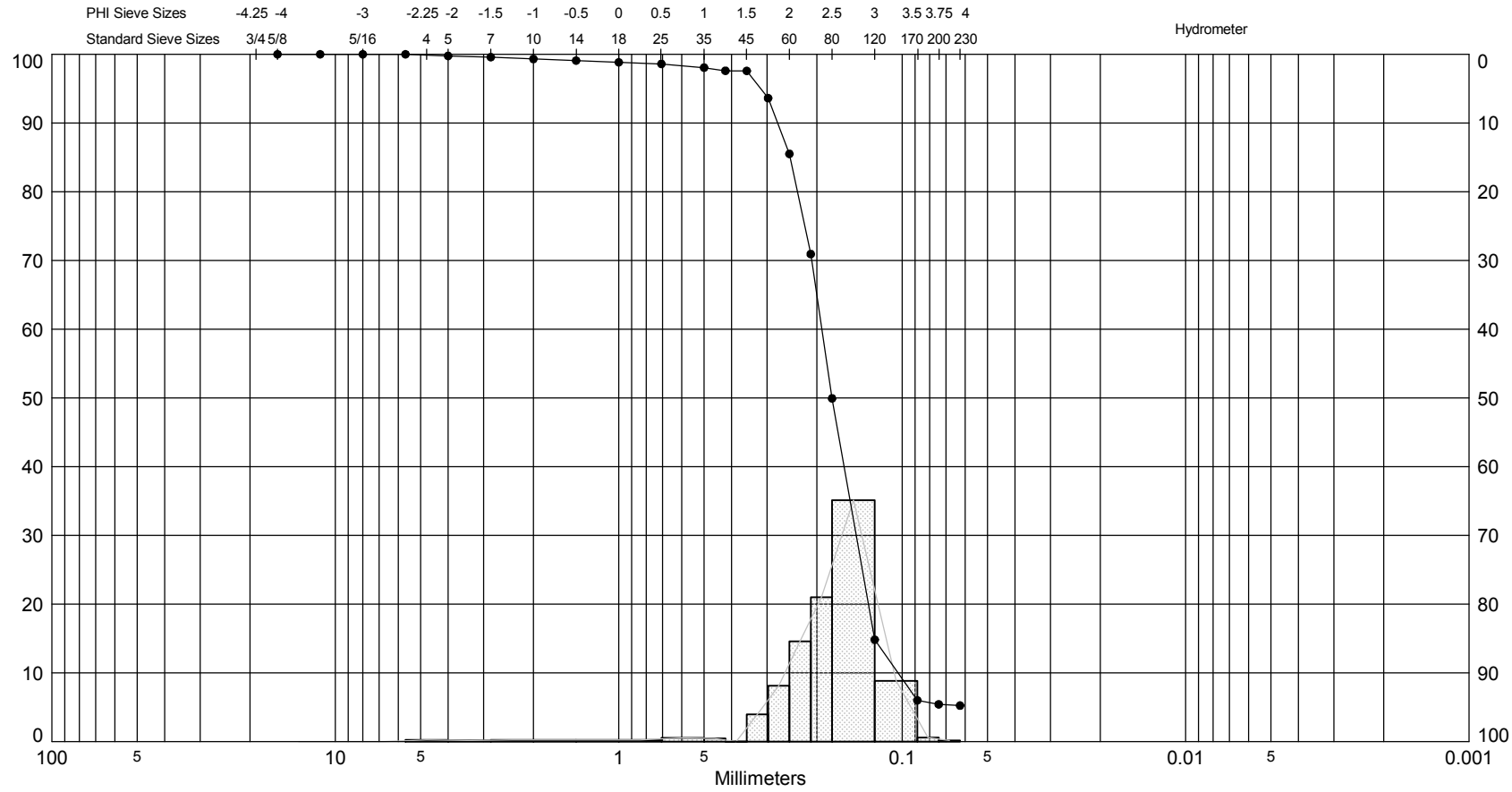
Comments:

Depths and elevations based on measured values

Sample Information	
Project Name:	Dauphin Island Shore Protection
Analysis Date:	10-04-10
Analyzed By:	JR
Easting (X, ft):	1,791,133
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Horizontal System:	NAD 1983
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SIEVE ANALYSIS DIVC-10.GPJ JPBRAZIL.GDT 3/14/11



Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
DIVC-10-33 #4	—●—	-30.3	SP-SM	#200 - 5.42 #230 - 5.24			2.5	2.43	-2.84	19.2	0.62

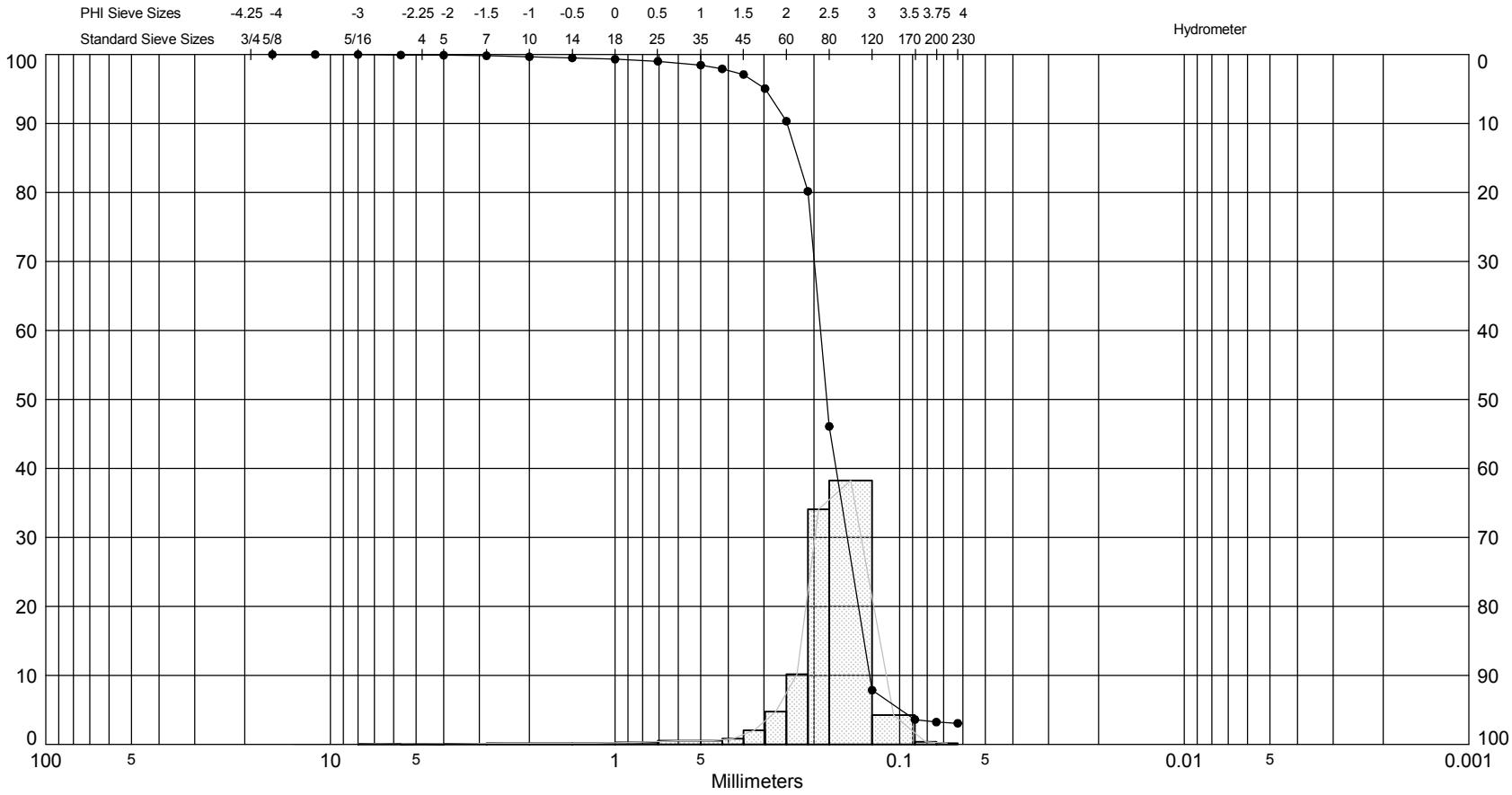
Comments:

Depths and elevations based on measured values

Sample Information	
Project Name:	Dauphin Island Shore Protection
Analysis Date:	10-04-10
Analyzed By:	JR
Easting (X, ft):	1,791,133
Northing (Y, ft):	63,571
Horizontal System:	NAD 1983
Vertical System:	NAVD 88

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SIEVE ANALYSIS DIVC-10.GPJ JPBRAZIL.GDT 3/14/11



Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
DIVC-10-33 #5	—●—	-33.6	SP	#200 - 3.23 #230 - 3.06			2.47	2.45	-3.26	25.4	0.51

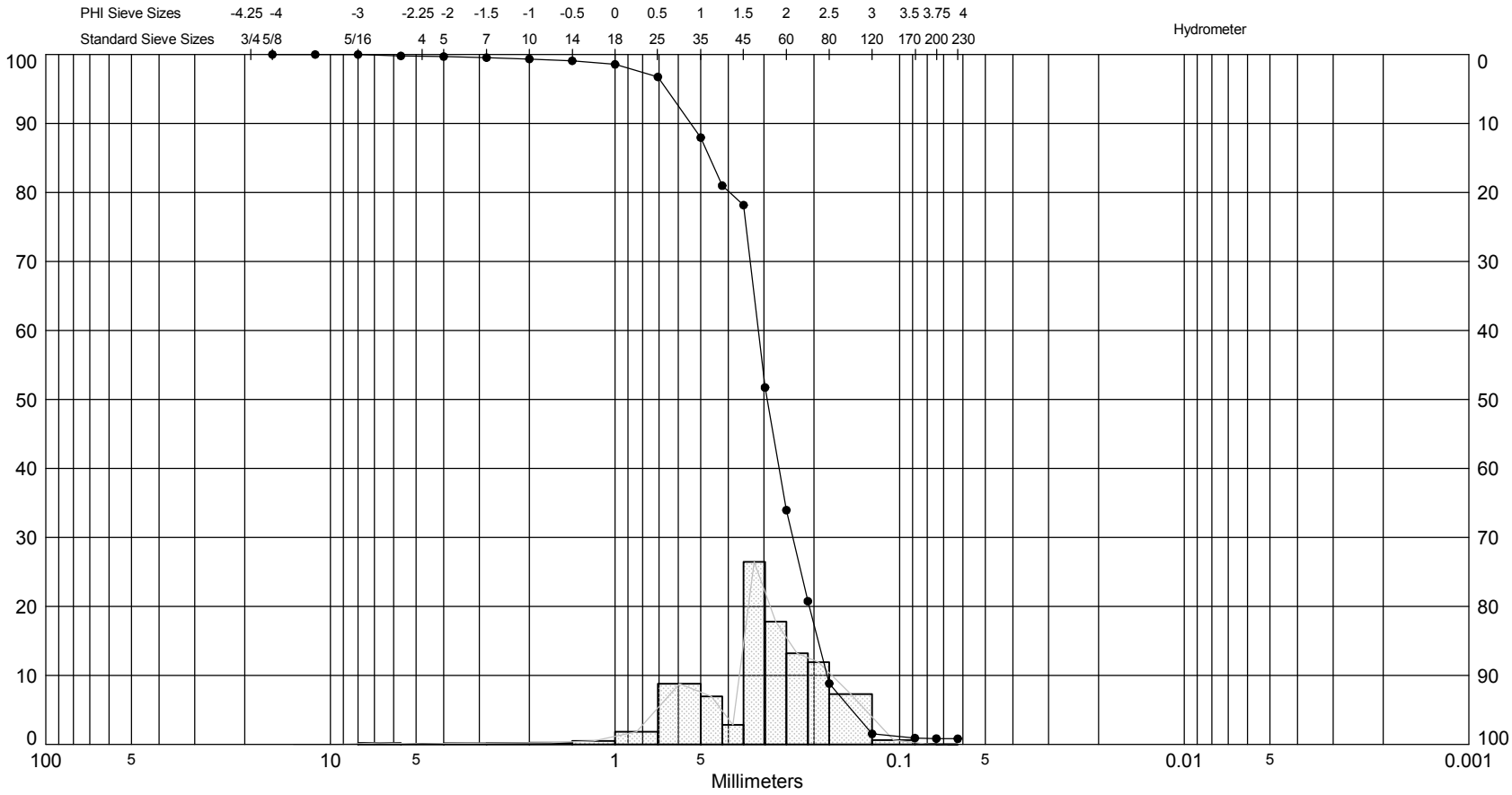
Comments:

Depths and elevations based on measured values

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Sample Information	
Project Name:	Dauphin Island Shore Protection
Analysis Date:	10-04-10
Analyzed By:	JR
Easting (X, ft):	1,791,133
Northing (Y, ft):	63,571
Horizontal System:	NAD 1983
Vertical System:	NAVD 88

SIEVE ANALYSIS DIVC-10.GPJ JPBRAZIL.GDT 3/14/11



Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
DIVC-10-34 #1	—●—	-19.5	SP	#200 - 0.84 #230 - 0.82			1.77	1.74	-1.51	9.53	0.68

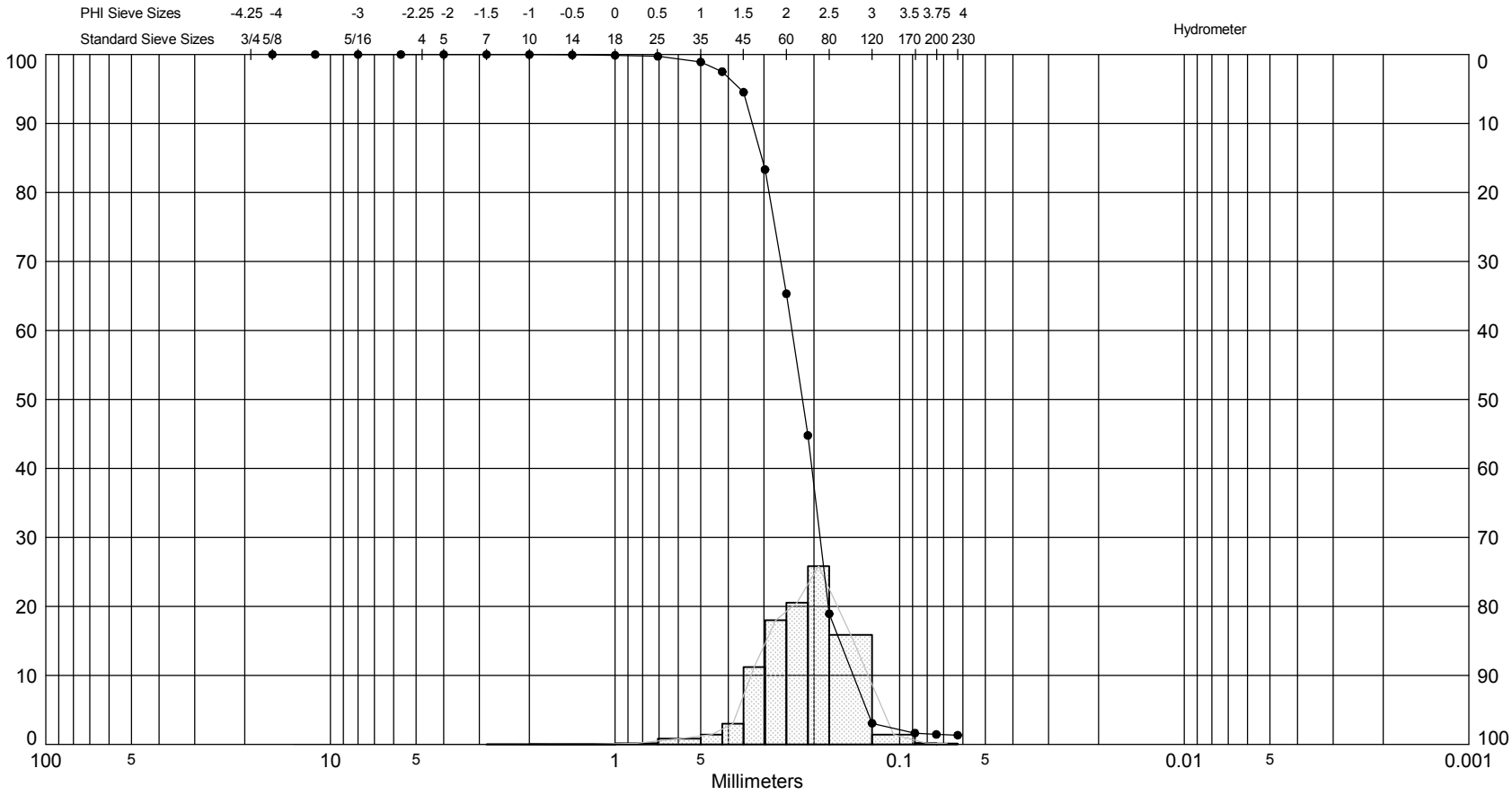
Comments:

Depths and elevations based on measured values

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Sample Information	
Project Name:	Dauphin Island Shore Protection
Analysis Date:	10-05-10
Analyzed By:	JR
Easting (X, ft):	1,792,066
Northing (Y, ft):	63,658
Horizontal System:	NAD 1983
Vertical System:	NAVD 88

SIEVE ANALYSIS DIVC-10.GPJ JPBRAZIL.GDT 3/14/11



Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
DIVC-10-34 #2	—●—	-21.8	SP	#200 - 1.44 #230 - 1.33			2.19	2.16	-0.45	5.31	0.45

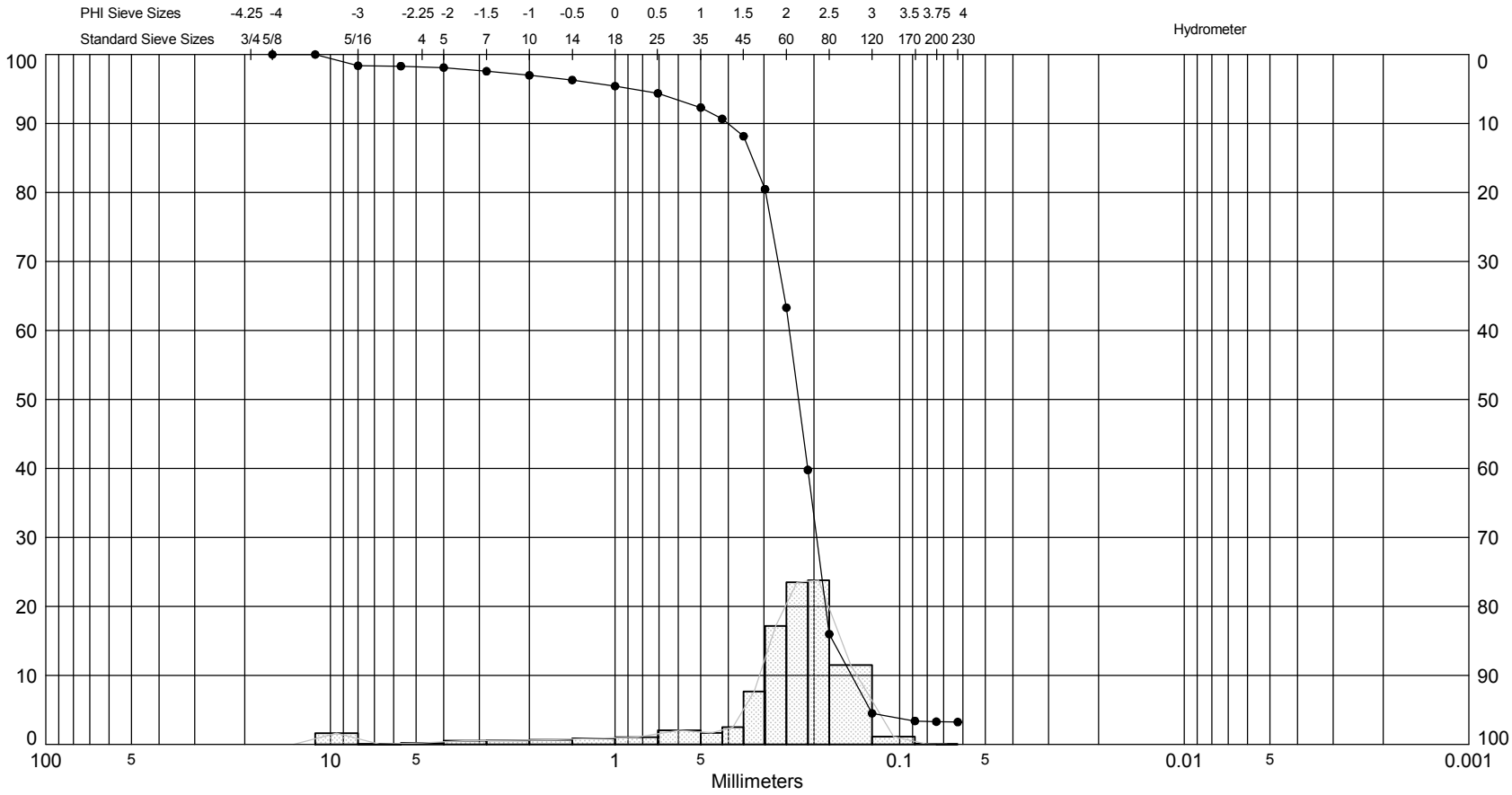
Comments:

Depths and elevations based on measured values

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Sample Information	
Project Name:	Dauphin Island Shore Protection
Analysis Date:	10-05-10
Analyzed By:	JR
Easting (X, ft):	1,792,066
Northing (Y, ft):	63,658
Horizontal System:	NAD 1983
Vertical System:	NAVD 88

SIEVE ANALYSIS DIVC-10.GPJ JPBRAZIL.GDT 3/14/11



Gravel		Sand			Silt and Clay
Coarse	Fine	Coarse	Medium	Fine	

Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
DIVC-10-34 #3	—●—	-24.0	SW	#200 - 3.29 #230 - 3.24			2.14	1.92	-3.29	15.93	0.99

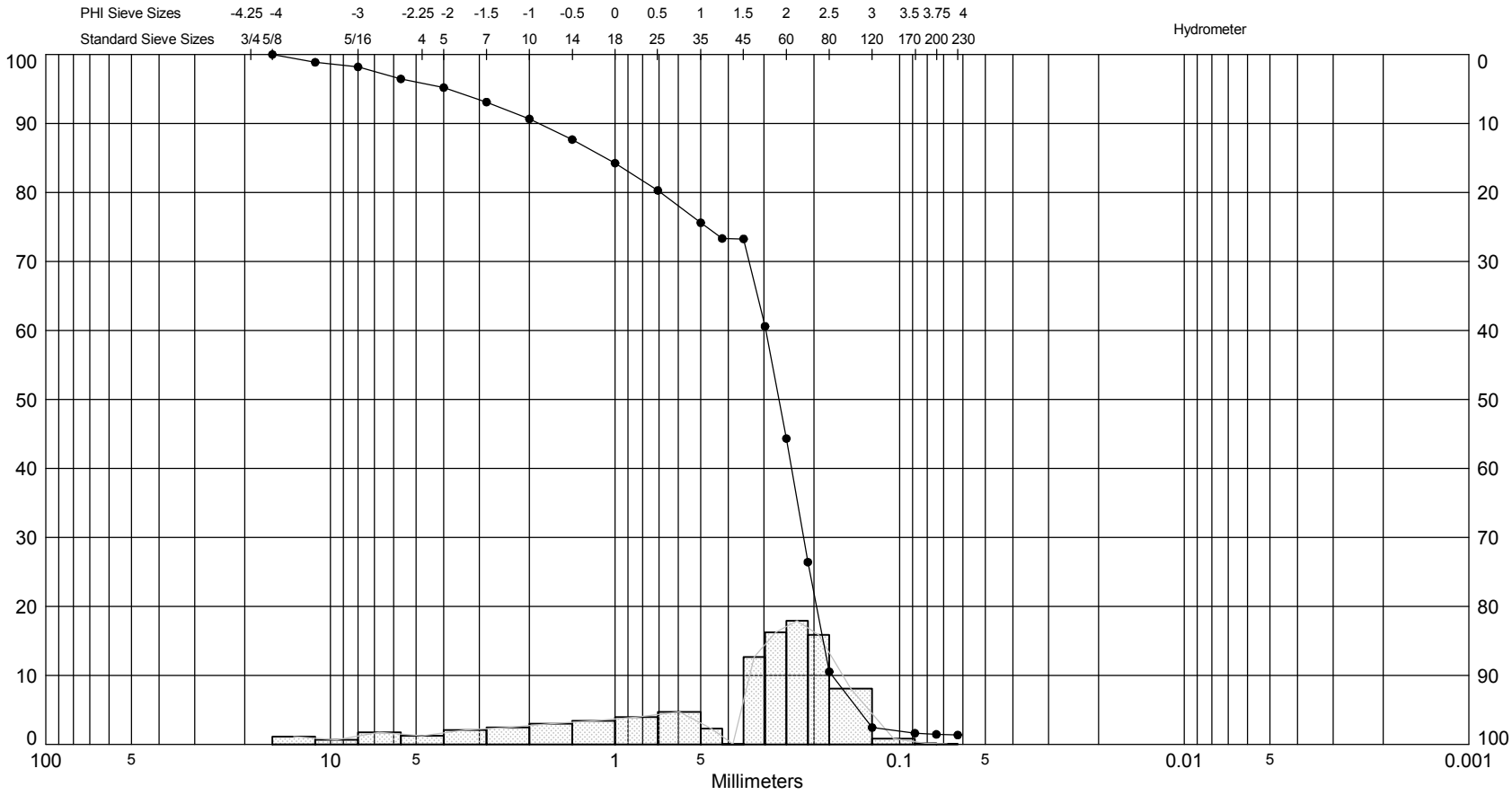
Comments:

Depths and elevations based on measured values

Sample Information	
Project Name:	Dauphin Island Shore Protection
Analysis Date:	10-05-10
Analyzed By:	JR
Easting (X, ft):	1,792,066
Northing (Y, ft):	63,658
Horizontal System:	NAD 1983
Vertical System:	NAVD 88

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SIEVE ANALYSIS DIVC-10.GPJ JPBRAZIL.GDT 3/14/11



Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
DIVC-10-34 #4	—●—	-24.8	SW	#200 - 1.45 #230 - 1.36			1.91	1.38	-1.68	5.26	1.45

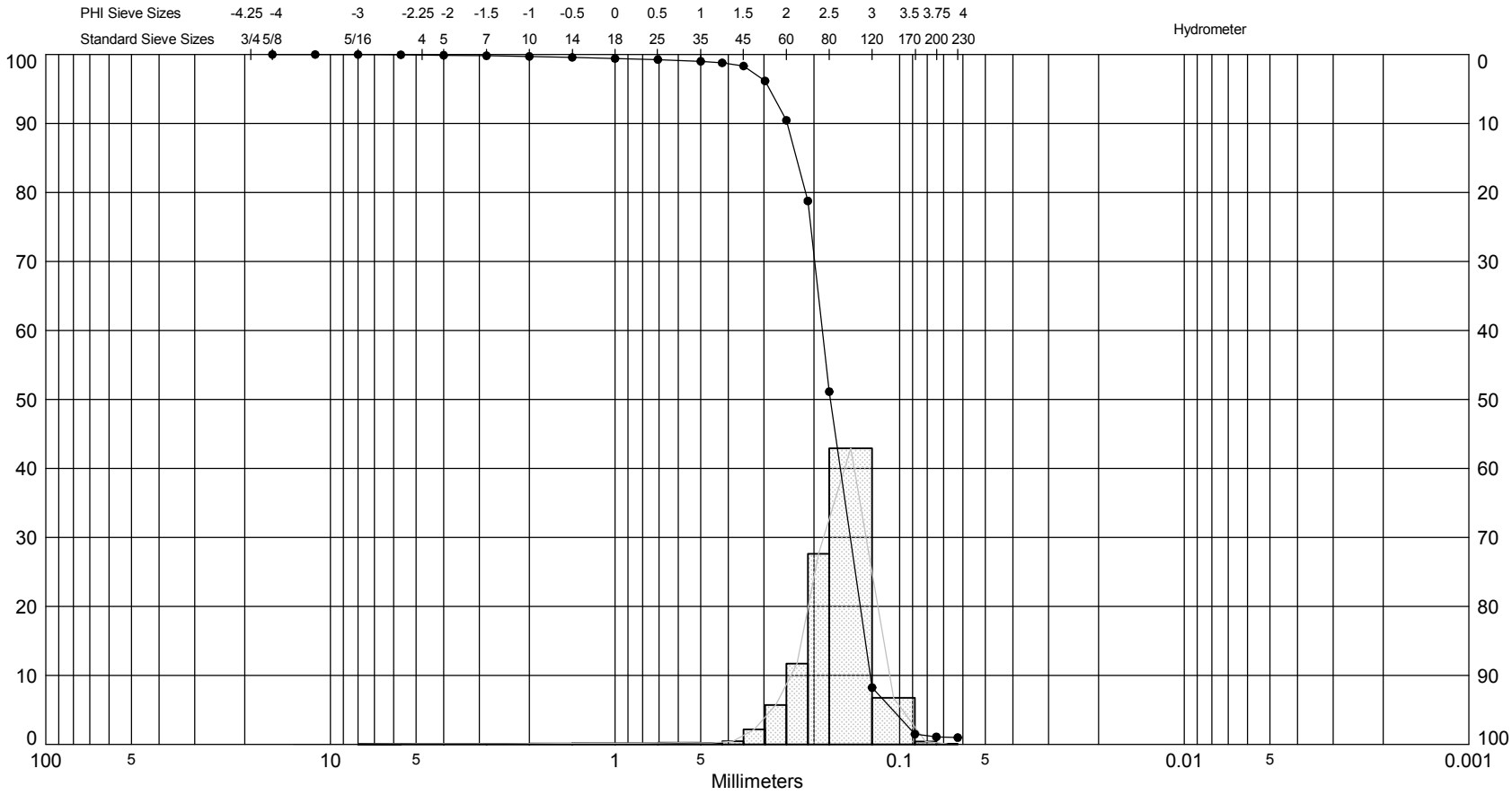
Comments:

Depths and elevations based on measured values

Sample Information	
Project Name:	Dauphin Island Shore Protection
Analysis Date:	10-05-10
Analyzed By:	JR
Easting (X, ft):	1,792,066
Northing (Y, ft):	63,658
Horizontal System:	NAD 1983
Vertical System:	NAVD 88

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SIEVE ANALYSIS DIVC-10.GPJ JPBRAZIL.GDT 3/14/11



Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
DIVC-10-34 #5	—●—	-27.6	SP	#200 - 1.09 #230 - 0.99			2.51	2.49	-3.07	26.15	0.49

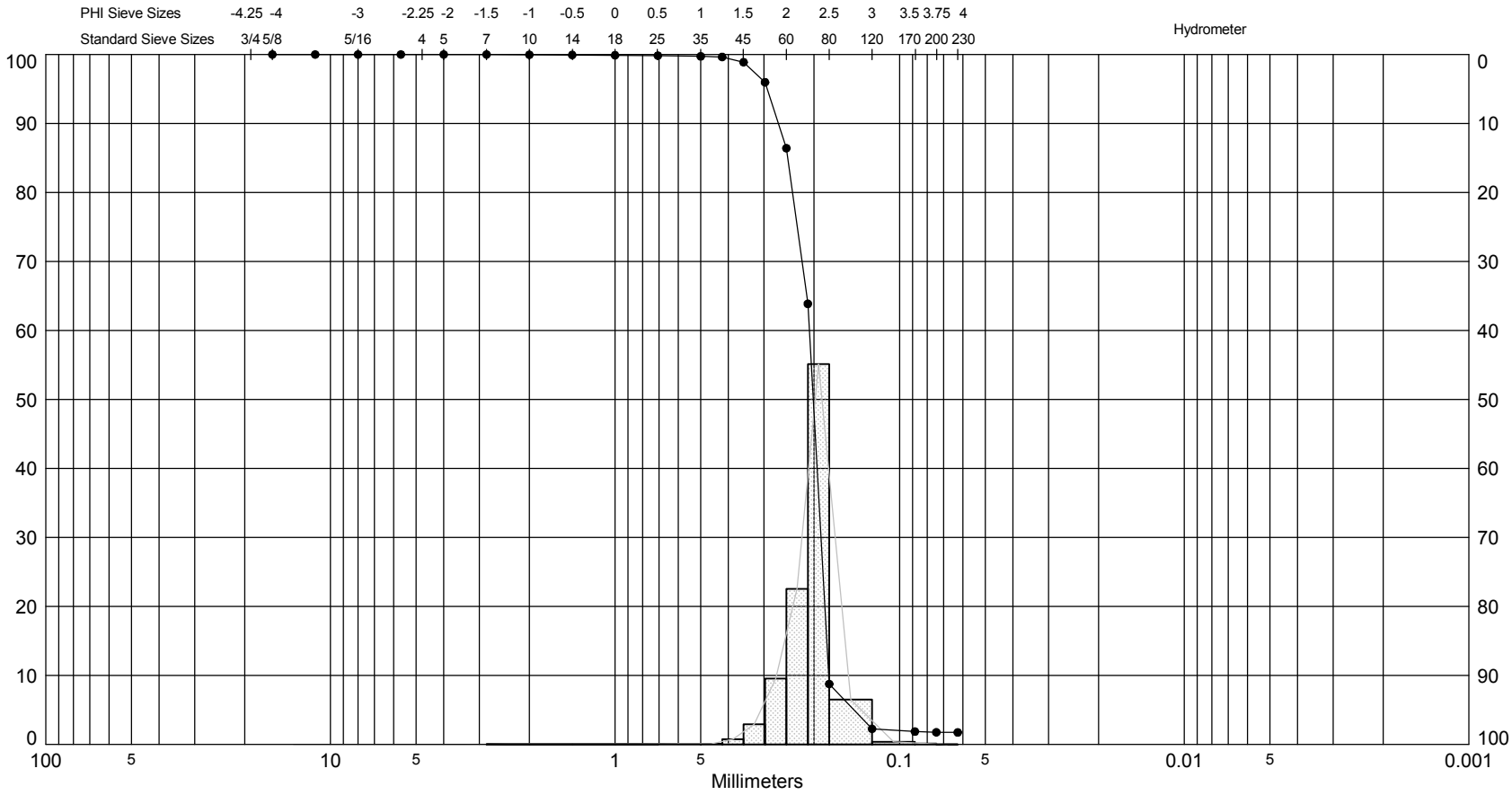
Comments:

Depths and elevations based on measured values

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Sample Information	
Project Name:	Dauphin Island Shore Protection
Analysis Date:	10-05-10
Analyzed By:	JR
Easting (X, ft):	1,792,066
Northing (Y, ft):	63,658
Horizontal System:	NAD 1983
Vertical System:	NAVD 88

SIEVE ANALYSIS DIVC-10.GPJ JPBRAZIL.GDT 3/14/11



Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
DIVC-10-34 #6	—●—	-31.6	SP	#200 - 1.75 #230 - 1.73			2.31	2.26	-1.95	21.53	0.29

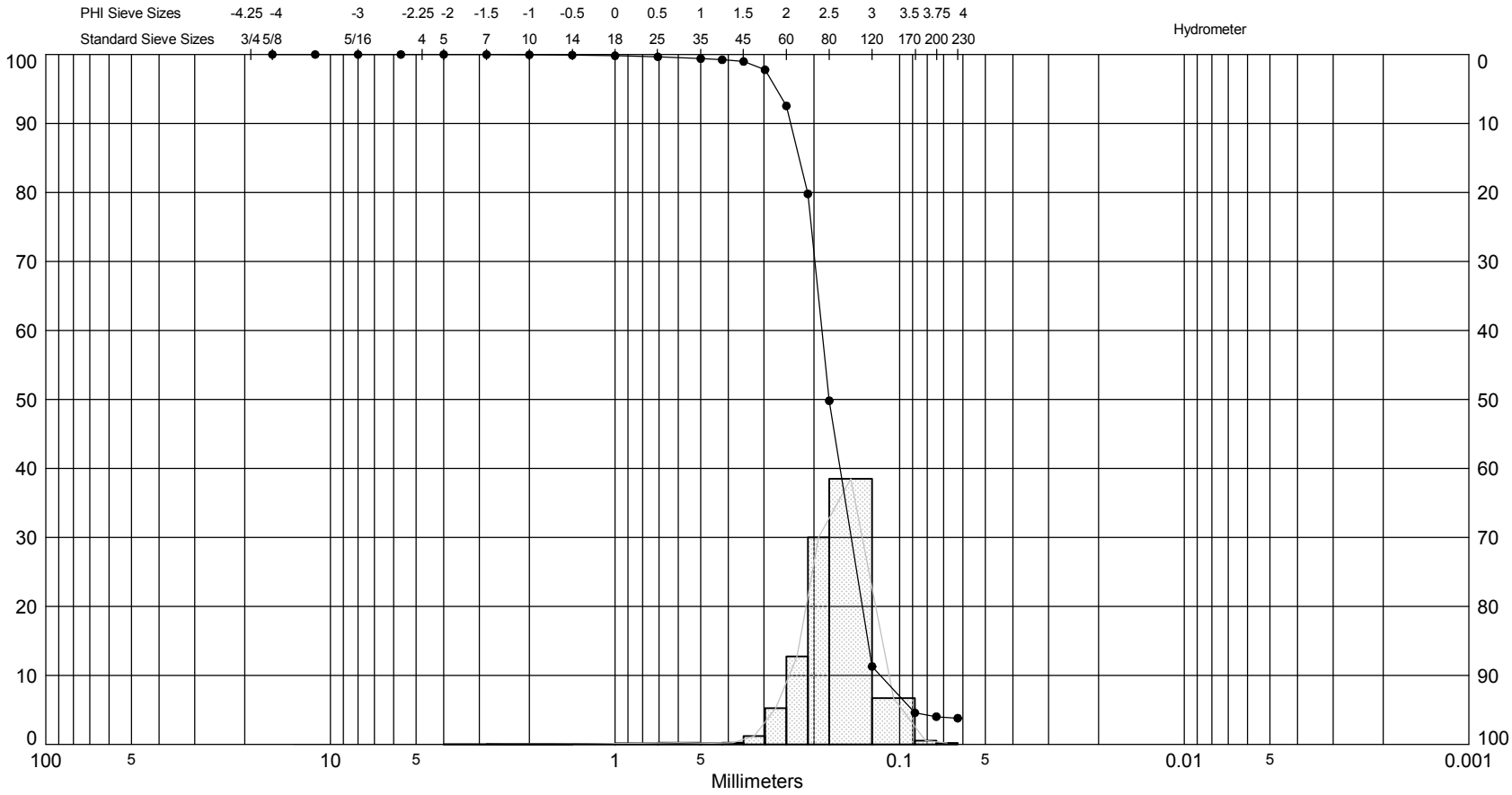
Comments:

Depths and elevations based on measured values

Sample Information	
Project Name:	Dauphin Island Shore Protection
Analysis Date:	10-05-10
Analyzed By:	JR
Easting (X, ft):	1,792,066
Northing (Y, ft):	63,658
Horizontal System:	NAD 1983
Vertical System:	NAVD 88

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SIEVE ANALYSIS DIVC-10.GPJ JPBRAZIL.GDT 3/14/11



Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
DIVC-10-34 #7	—●—	-35.4	SP	#200 - 4.02 #230 - 3.80			2.5	2.51	-1.27	12.17	0.42

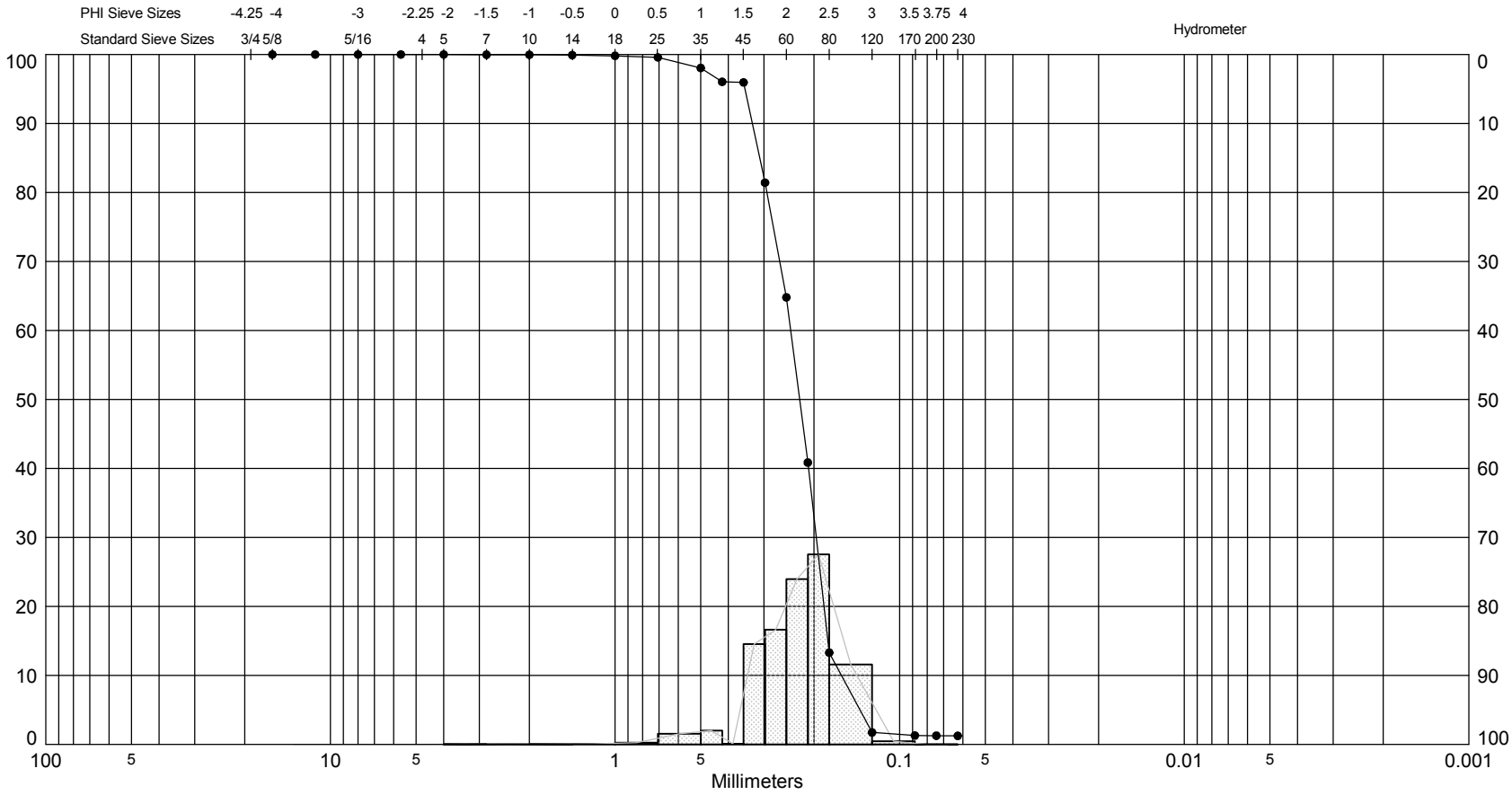
Comments:

Depths and elevations based on measured values

Sample Information	
Project Name:	Dauphin Island Shore Protection
Analysis Date:	10-05-10
Analyzed By:	JR
Easting (X, ft):	1,792,066
Northing (Y, ft):	63,658
Horizontal System:	NAD 1983
Vertical System:	NAVD 88

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SIEVE ANALYSIS DIVC-10.GPJ JPBRAZIL.GDT 3/14/11



Gravel		Sand			Silt and Clay
Coarse	Fine	Coarse	Medium	Fine	

Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
DIVC-10-35 #1	—●—	-21.3	SP	#200 - 1.26 #230 - 1.24			2.15	2.11	-1.11	7.83	0.44

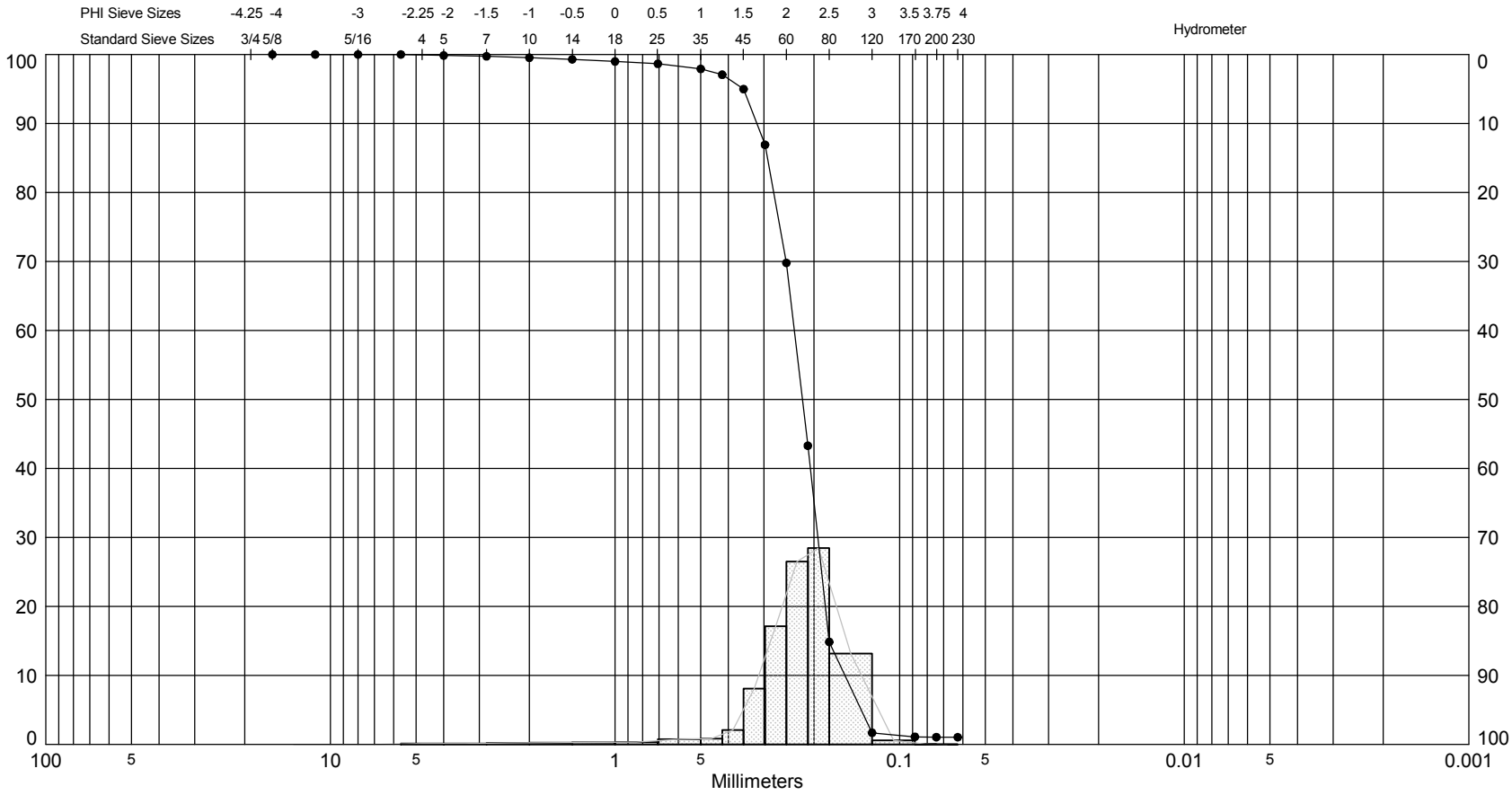
Comments:

Depths and elevations based on measured values

Sample Information	
Project Name:	Dauphin Island Shore Protection
Analysis Date:	10-06-10
Analyzed By:	JR
Easting (X, ft):	1,792,192
Northing (Y, ft):	64,538
Horizontal System:	NAD 1983
Vertical System:	NAVD 88

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SIEVE ANALYSIS DIVC-10.GPJ JPBRAZIL.GDT 3/14/11



Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
DIVC-10-35 #2	—●—	-24.1	SP	#200 - 1.05 #230 - 1.04			2.19	2.13	-2.94	21.12	0.51

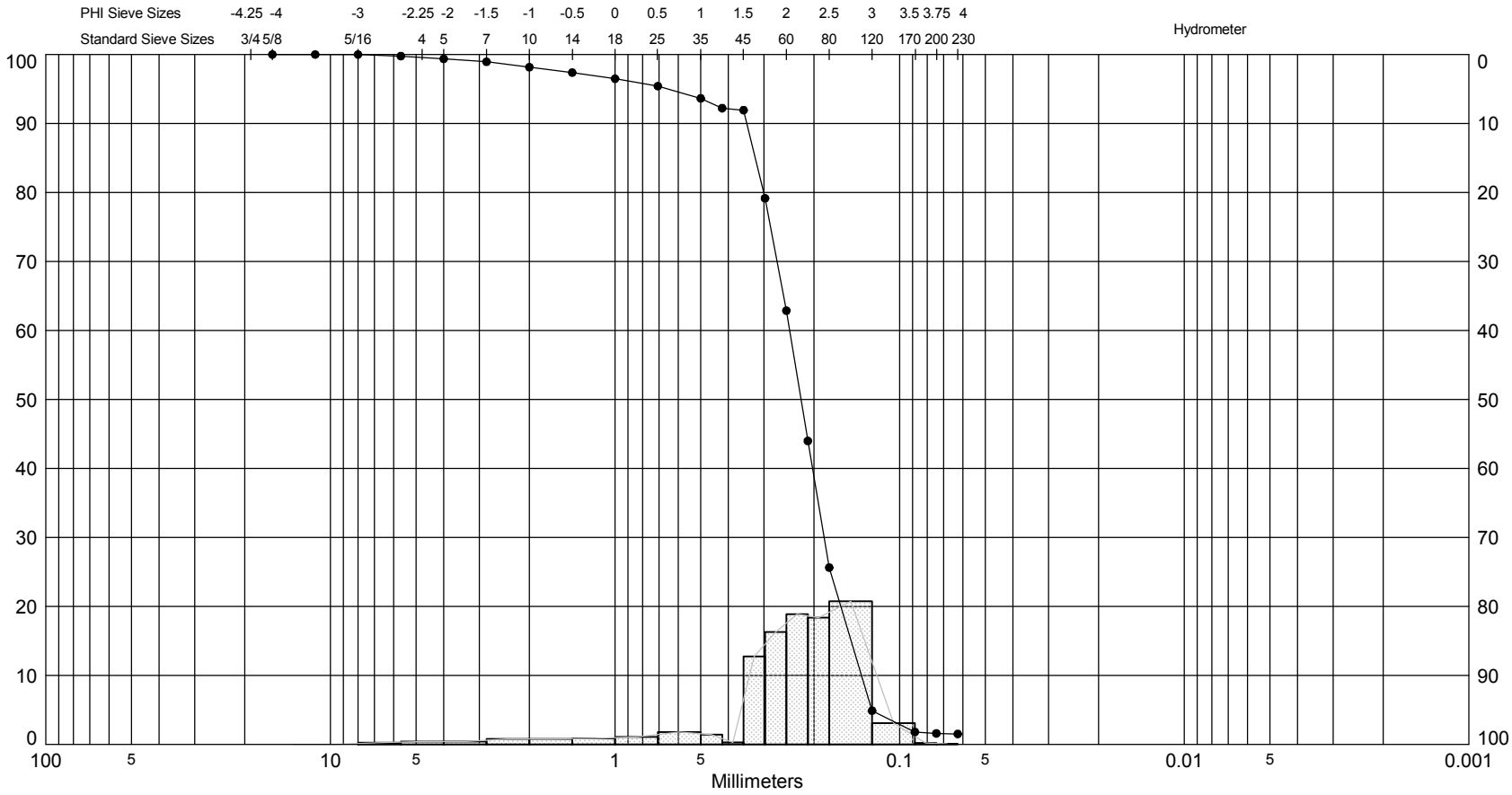
Comments:

Depths and elevations based on measured values

Sample Information	
Project Name:	Dauphin Island Shore Protection
Analysis Date:	10-06-10
Analyzed By:	JR
Easting (X, ft):	1,792,192
Northing (Y, ft):	64,538
Horizontal System:	NAD 1983
Vertical System:	NAVD 88

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SIEVE ANALYSIS DIVC-10.GPJ JPBRAZIL.GDT 3/14/11



Gravel		Sand			Silt and Clay
Coarse	Fine	Coarse	Medium	Fine	

Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
DIVC-10-35 #3	—●—	-27.4	SP	#200 - 1.59 #230 - 1.51			2.17	2.06	-2.51	12.33	0.82

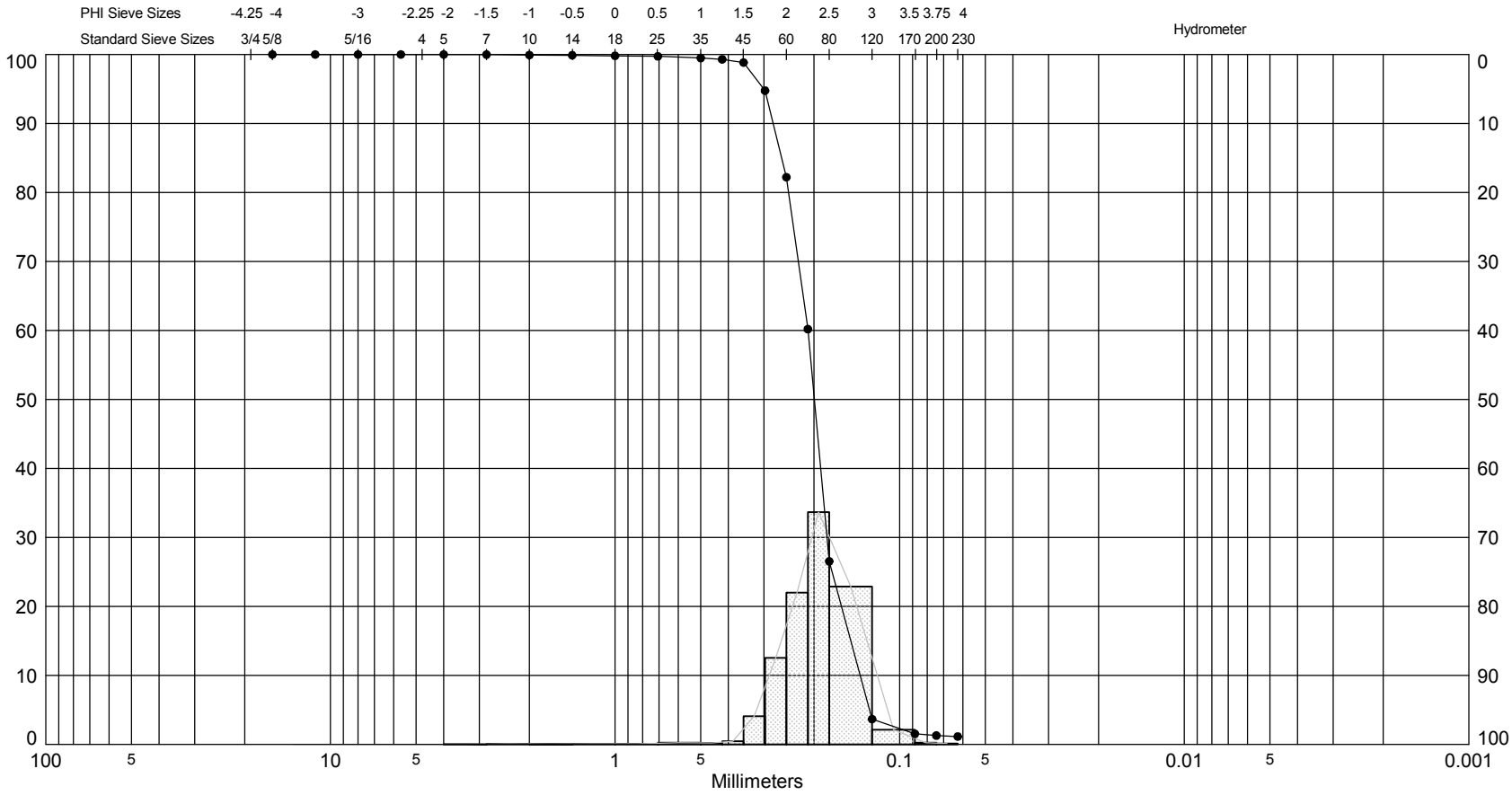
Comments:

Depths and elevations based on measured values

Sample Information	
Project Name:	Dauphin Island Shore Protection
Analysis Date:	10-06-10
Analyzed By:	JR
Easting (X, ft):	1,792,192
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Horizontal System:	NAD 1983
Vertical System:	NAVD 88

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SIEVE ANALYSIS DIVC-10.GPJ JPBRAZIL.GDT 3/14/11



Gravel		Sand			Silt and Clay
Coarse	Fine	Coarse	Medium	Fine	

Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
DIVC-10-35 #4	—●—	-33.4	SP	#200 - 1.28 #230 - 1.14			2.33	2.32	-1	11.67	0.4

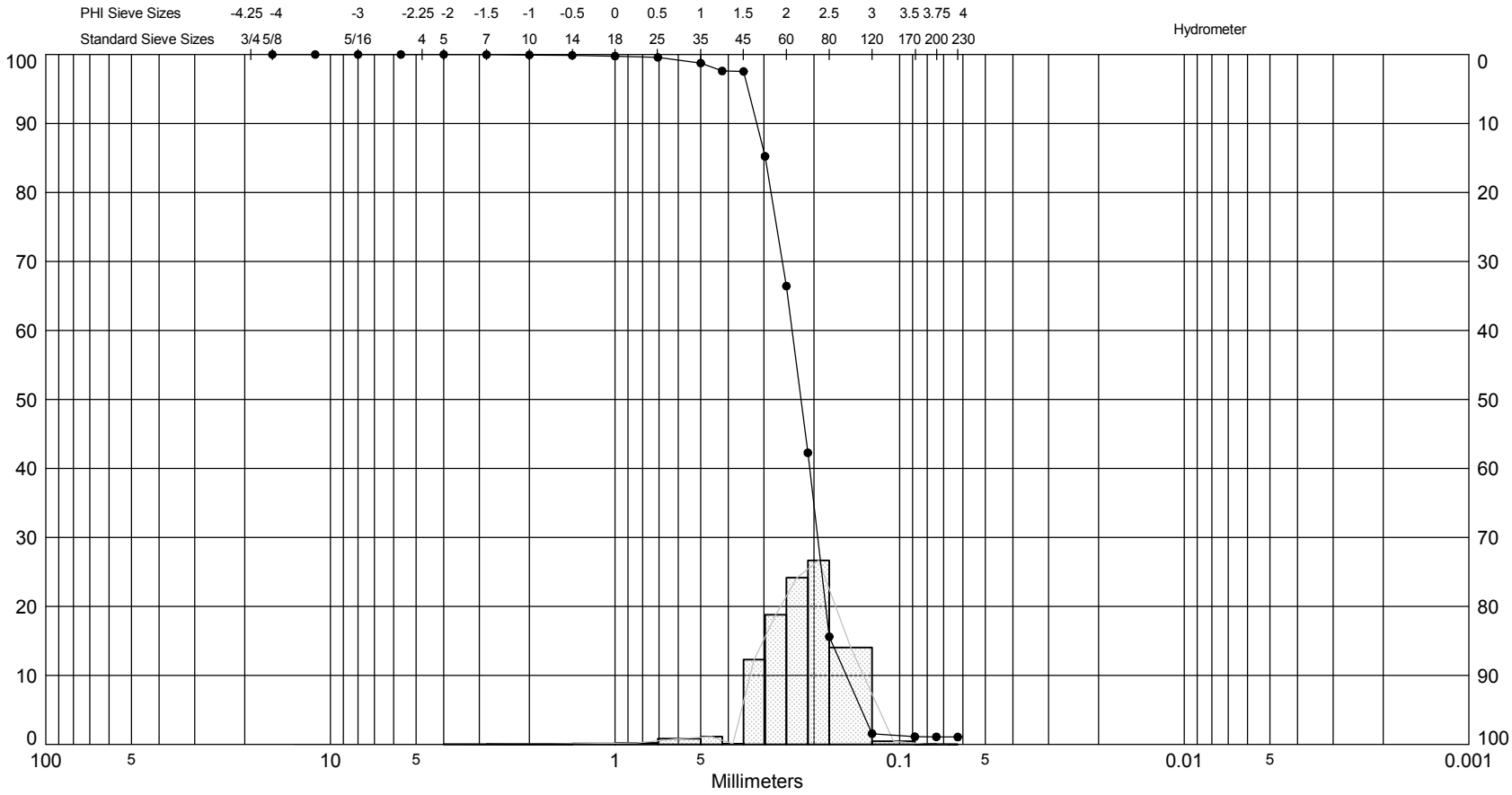
Comments:

Depths and elevations based on measured values

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Sample Information	
Project Name:	Dauphin Island Shore Protection
Analysis Date:	10-06-10
Analyzed By:	JR
Easting (X, ft):	1,792,192
Northing (Y, ft):	64,538
Horizontal System:	NAD 1983
Vertical System:	NAVD 88

SIEVE ANALYSIS DIVC-10.GPJ JPBRAZIL.GDT 3/14/11



Gravel		Sand			Silt and Clay
Coarse	Fine	Coarse	Medium	Fine	

Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
DIVC-10-36 #1	—●—	-20.3	SP	#200 - 1.09 #230 - 1.07			2.17	2.14	-1.16	9.54	0.42

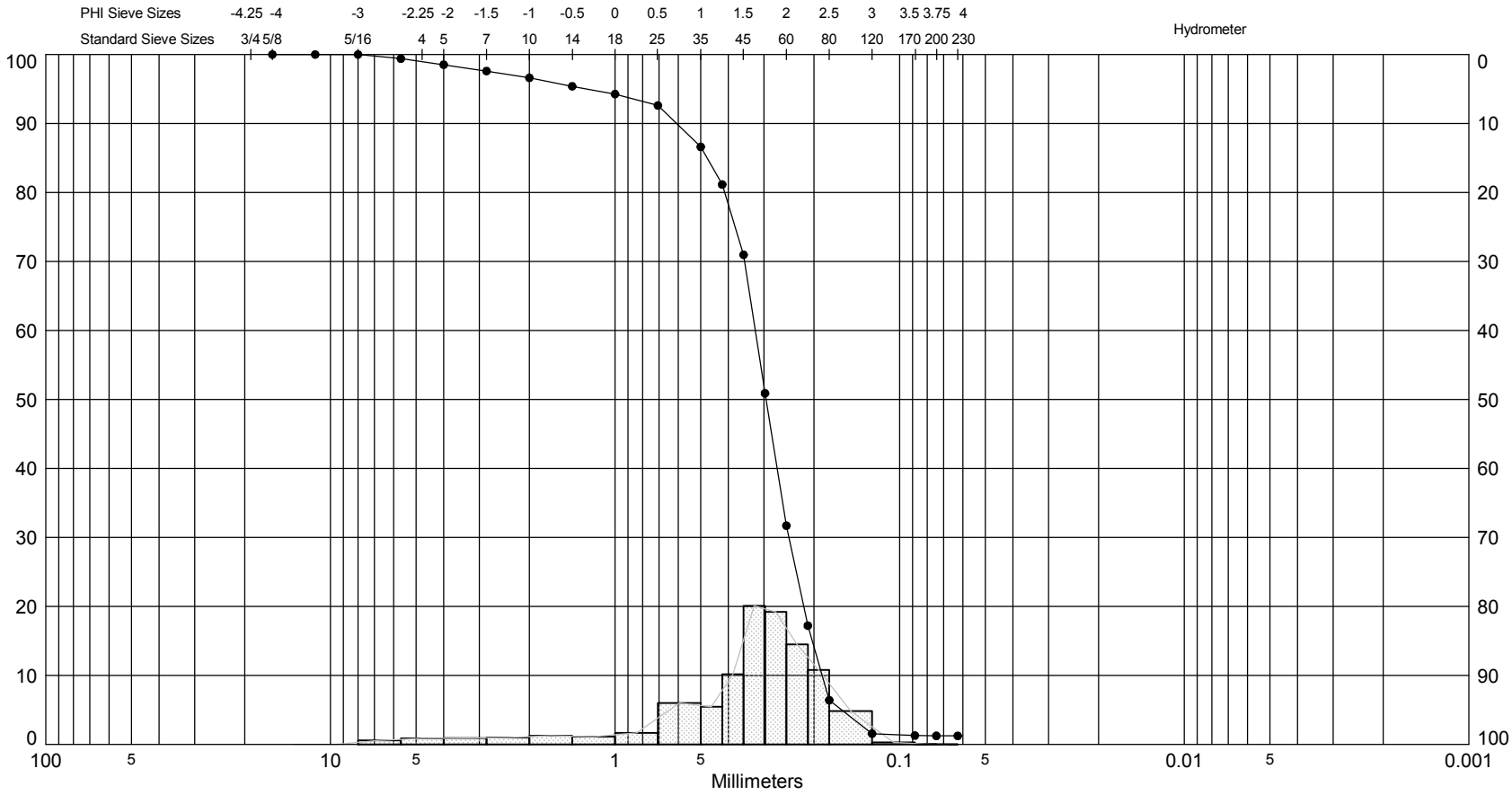
Comments:

Depths and elevations based on measured values

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ph (561) 391-8102
fax (561) 391-9116

Sample Information	
Project Name:	Dauphin Island Shore Protection
Analysis Date:	10-06-10
Analyzed By:	JR
Easting (X, ft):	1,791,262
Northing (Y, ft):	64,470
Horizontal System:	NAD 1983
Vertical System:	NAVD 88

SIEVE ANALYSIS DIVC-10.GPJ JPBRAZIL.GDT 3/14/11



Gravel		Sand			Silt and Clay
Coarse	Fine	Coarse	Medium	Fine	

Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
DIVC-10-36 #2	—●—	-22.2	SW	#200 - 1.24 #230 - 1.23			1.76	1.59	-2.27	9.71	0.91

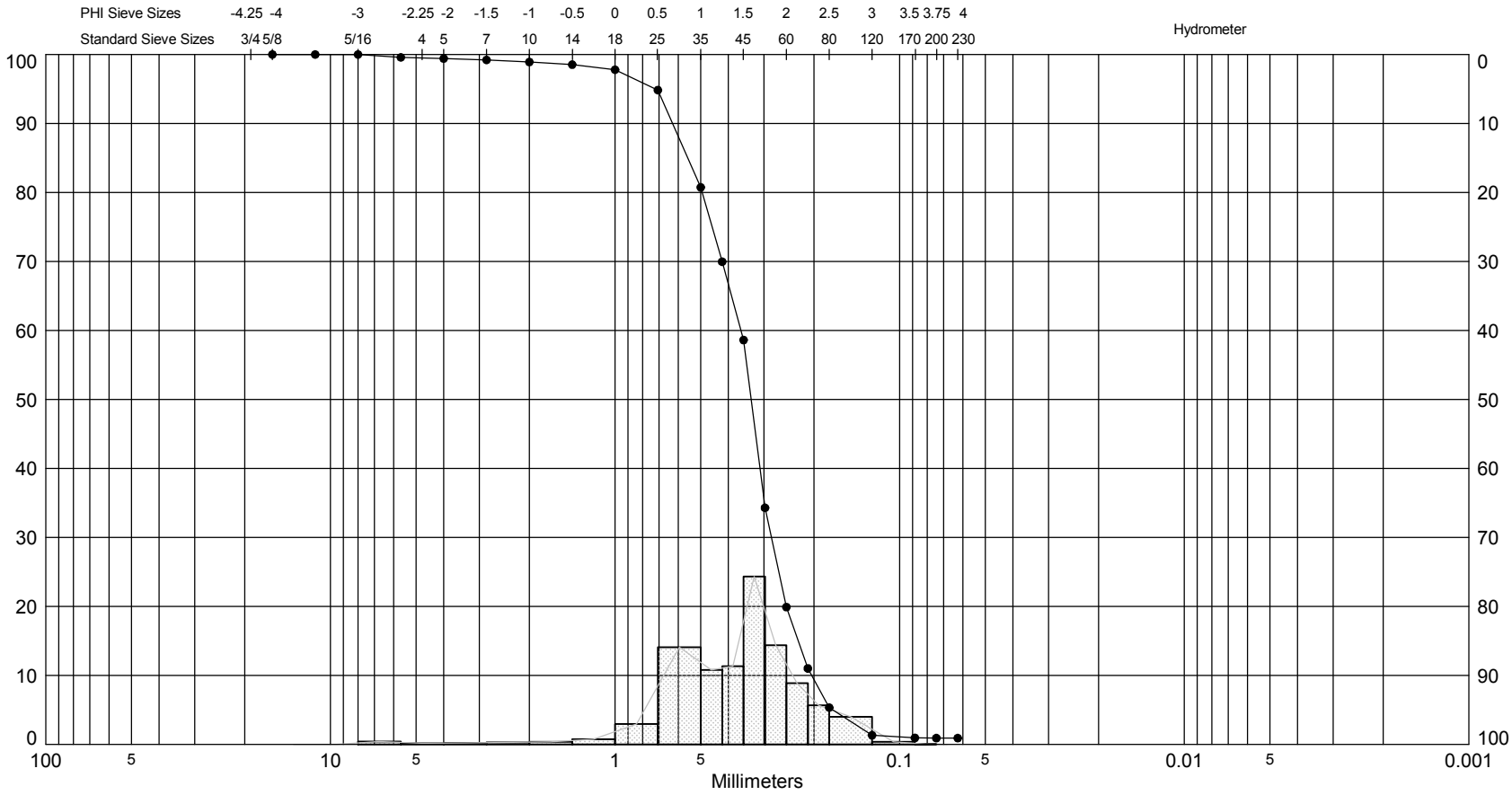
Comments:

Depths and elevations based on measured values

Sample Information	
Project Name:	Dauphin Island Shore Protection
Analysis Date:	10-06-10
Analyzed By:	JR
Easting (X, ft):	1,791,262
Northing (Y, ft):	64,470
Horizontal System:	NAD 1983
Vertical System:	NAVD 88

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SIEVE ANALYSIS DIVC-10.GPJ JPBRAZIL.GDT 3/14/11



Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
DIVC-10-36 #3	—●—	-23.7	SP	#200 - 0.91 #230 - 0.91			1.59	1.49	-1.56	9.89	0.71

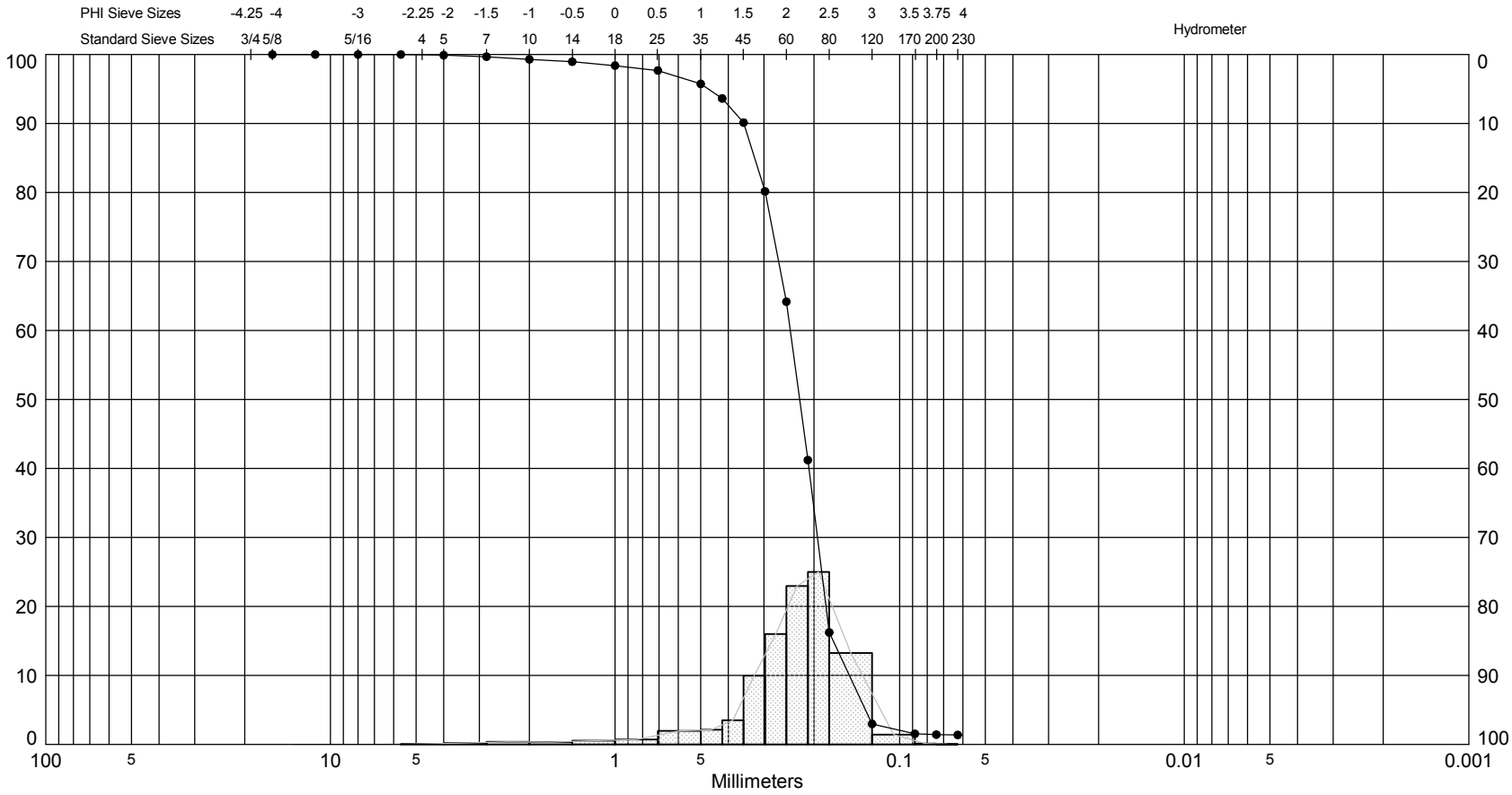
Comments:

Depths and elevations based on measured values

Sample Information	
Project Name:	Dauphin Island Shore Protection
Analysis Date:	10-06-10
Analyzed By:	JR
Easting (X, ft):	1,791,262
Northing (Y, ft):	64,470
Horizontal System:	NAD 1983
Vertical System:	NAVD 88

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SIEVE ANALYSIS DIVC-10.GPJ JPBRAZIL.GDT 3/14/11



Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
DIVC-10-36 #4	—●—	-24.5	SP	#200 - 1.42 #230 - 1.37			2.15	2.06	-2.25	12.9	0.62

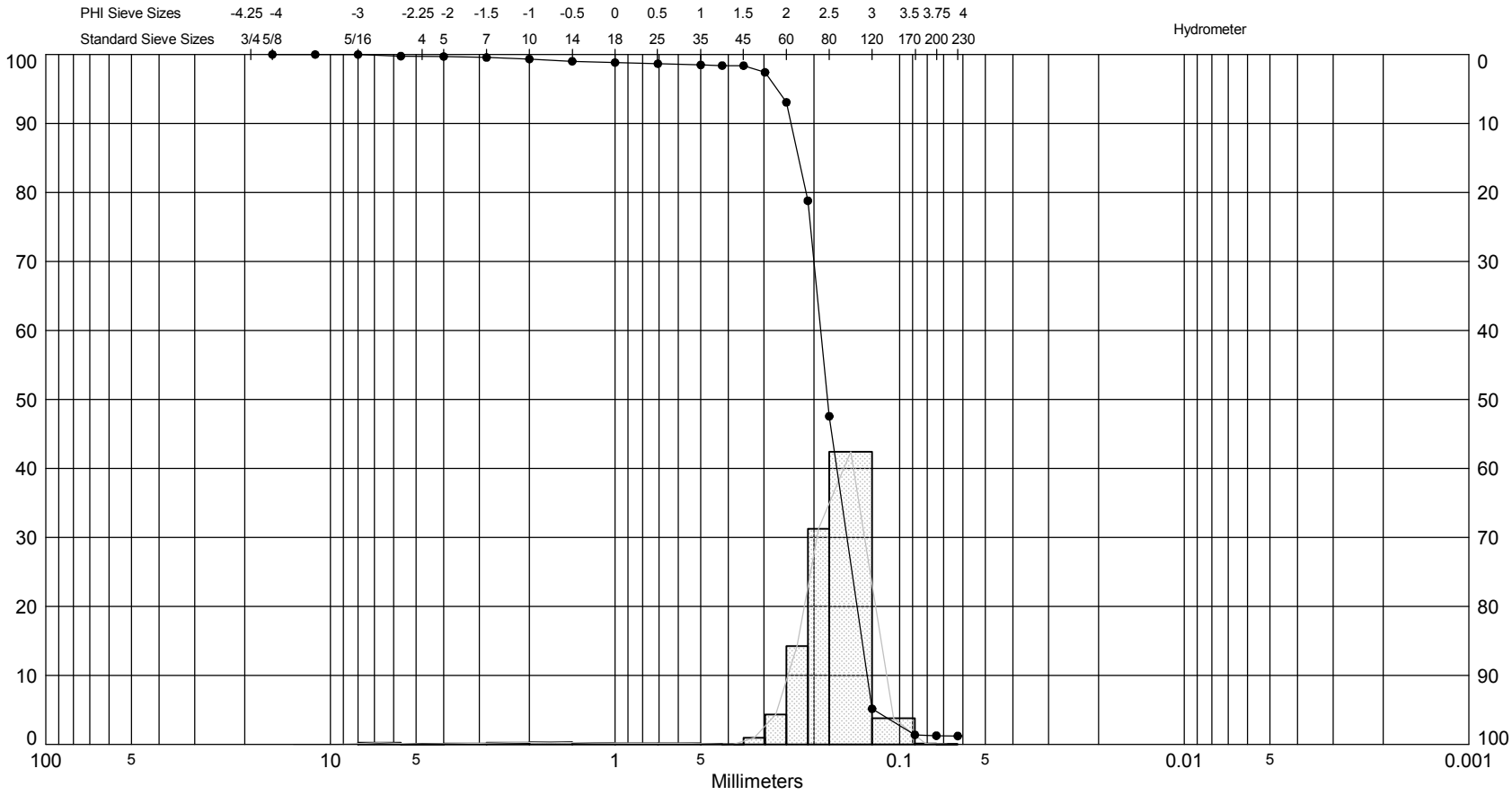
Comments:

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Sample Information	
Project Name:	Dauphin Island Shore Protection
Analysis Date:	10-06-10
Analyzed By:	JR
Easting (X, ft):	1,791,262
Northing (Y, ft):	64,470
Horizontal System:	NAD 1983
Vertical System:	NAVD 88

SIEVE ANALYSIS DIVC-10.GPJ JPBRAZIL.GDT 3/14/11



Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
DIVC-10-36 #5	—●—	-26.3	SP	#200 - 1.26 #230 - 1.22			2.48	2.45	-4.75	38.36	0.55

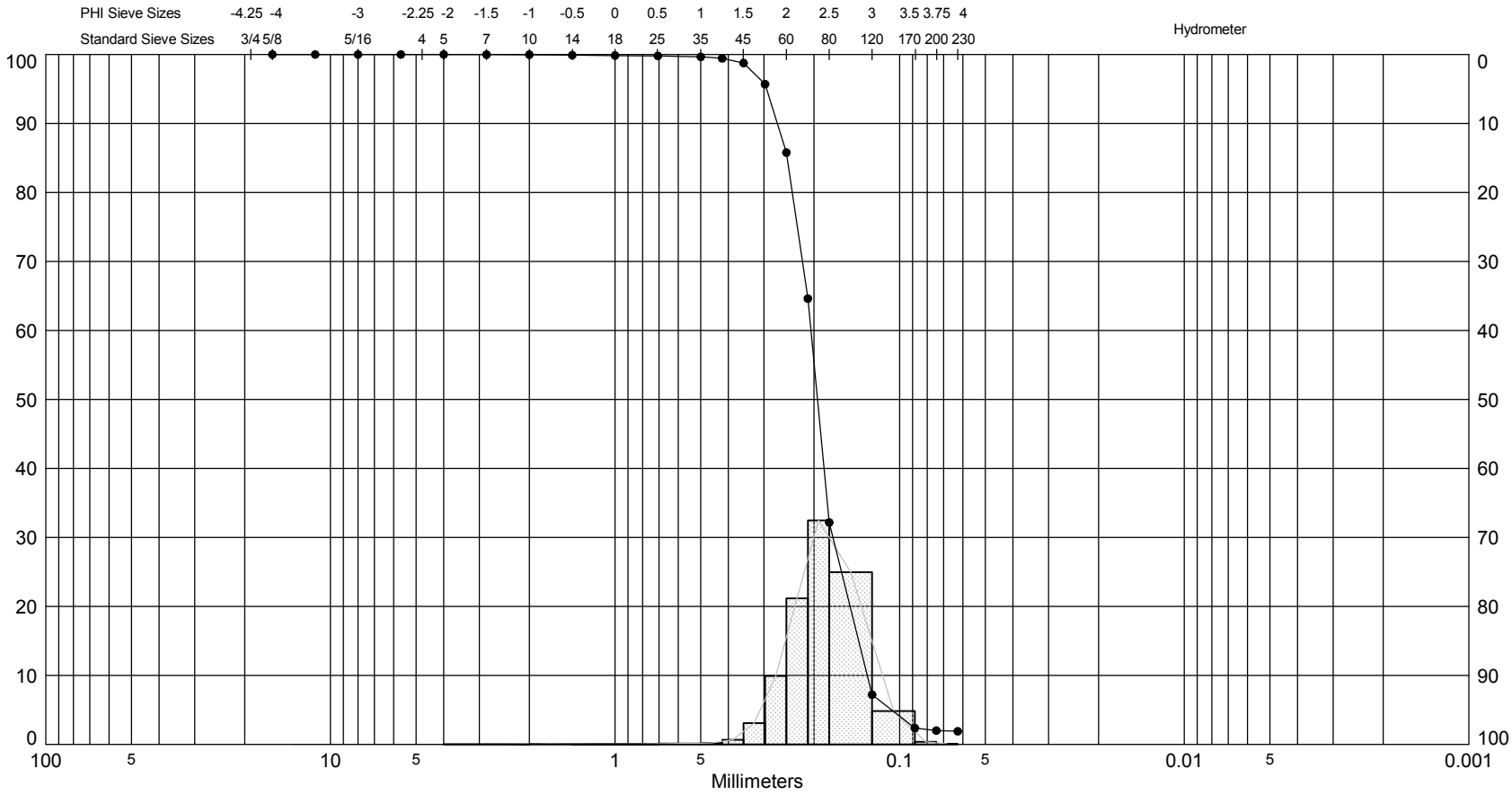
Comments:

Depths and elevations based on measured values

Coastal Planning & Engineering
2481 NW Boca Raton Blvd, Boca Raton
FL 33431
ph (561) 391-8102
fax (561) 391-9116

Sample Information	
Project Name:	Dauphin Island Shore Protection
Analysis Date:	10-06-10
Analyzed By:	JR
Easting (X, ft):	1,791,262
Northing (Y, ft):	64,470
Horizontal System:	NAD 1983
Vertical System:	NAVD 88

SIEVE ANALYSIS DIVC-10.GPJ JPBRAZIL.GDT 3/14/11



Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
DIVC-10-36 #6	—●—	-27.7	SP	#200 - 2.00 #230 - 1.90			2.36	2.37	-0.65	9.38	0.41

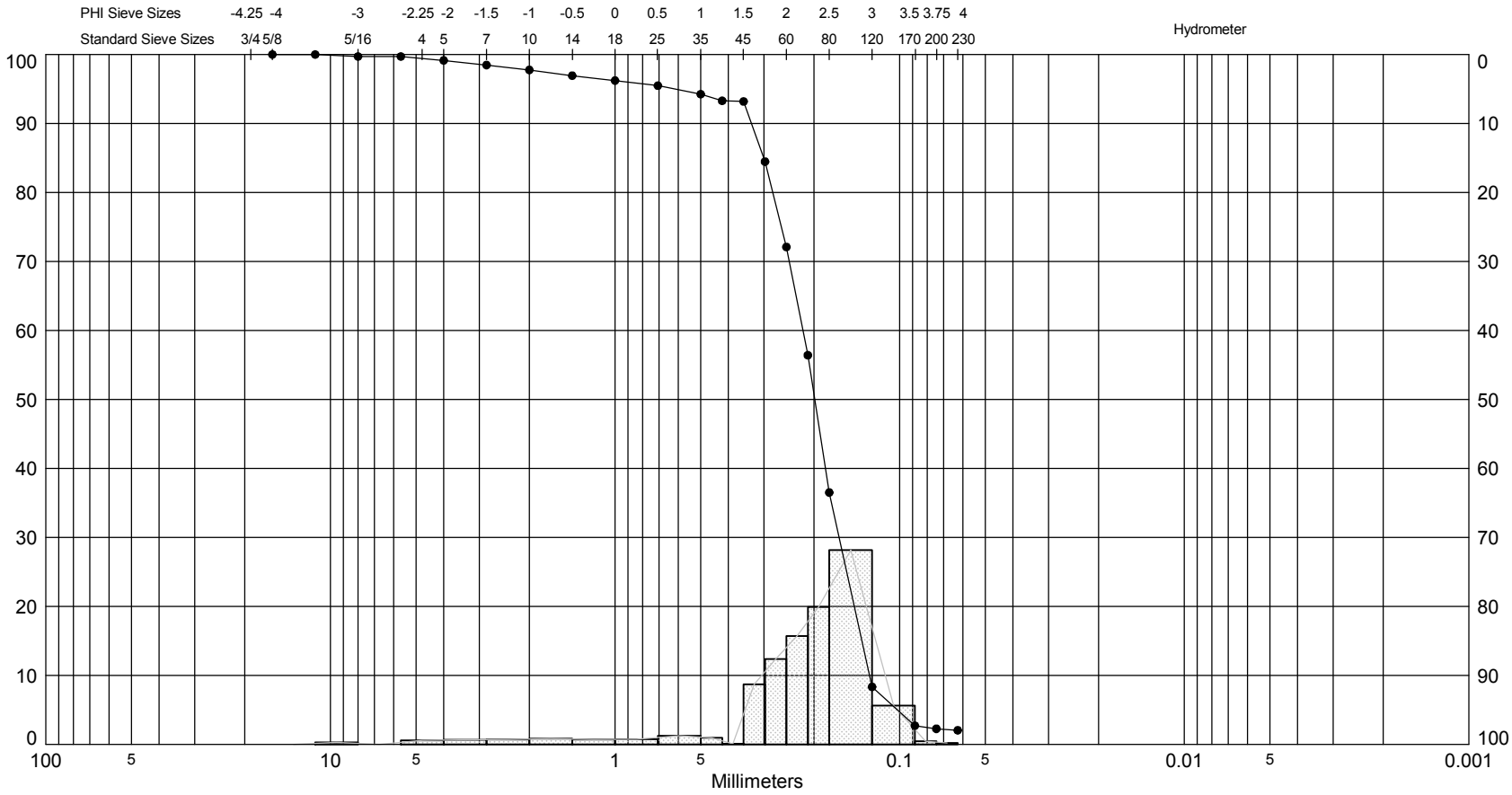
Comments:

Depths and elevations based on measured values

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Sample Information	
Project Name:	Dauphin Island Shore Protection
Analysis Date:	10-06-10
Analyzed By:	JR
Easting (X, ft):	1,791,262
Northing (Y, ft):	64,470
Horizontal System:	NAD 1983
Vertical System:	NAVD 88

SIEVE ANALYSIS DIVC-10.GPJ JPBRAZIL.GDT 3/14/11



Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
DIVC-10-36 #7	—●—	-28.7	SW	#200 - 2.26 #230 - 2.05			2.33	2.18	-2.78	13.64	0.89

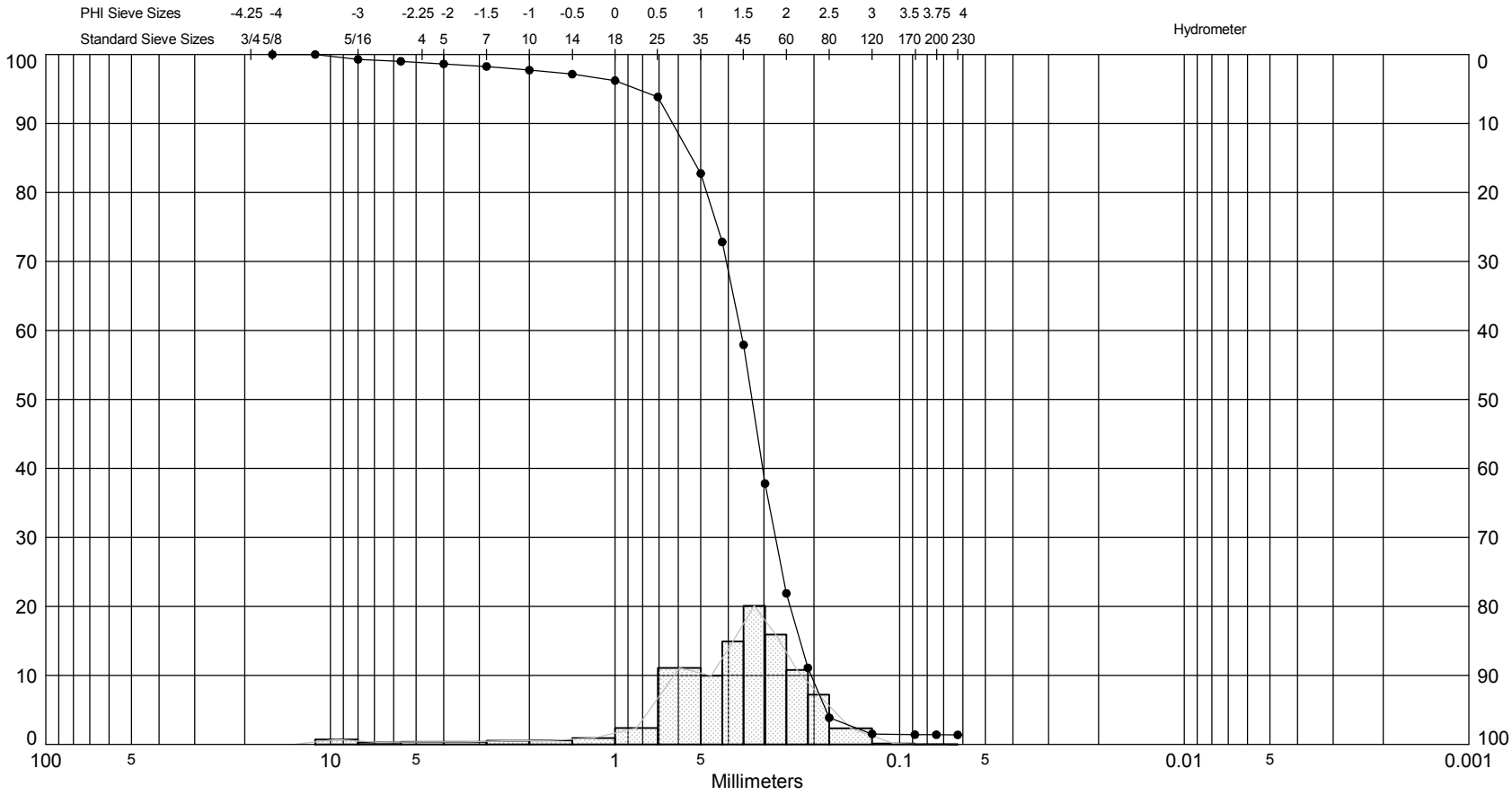
Comments:

Depths and elevations based on measured values

Sample Information	
Project Name:	Dauphin Island Shore Protection
Analysis Date:	10-06-10
Analyzed By:	JR
Easting (X, ft):	1,791,262
Northing (Y, ft):	64,470
Horizontal System:	NAD 1983
Vertical System:	NAVD 88

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SIEVE ANALYSIS DIVC-10.GPJ JPBRAZIL.GDT 3/14/11



Gravel		Sand			Silt and Clay
Coarse	Fine	Coarse	Medium	Fine	

Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
DIVC-10-37 #1	—●—	-20.9	SP	#200 - 1.40 #230 - 1.38			1.6	1.46	-2.5	13.32	0.83

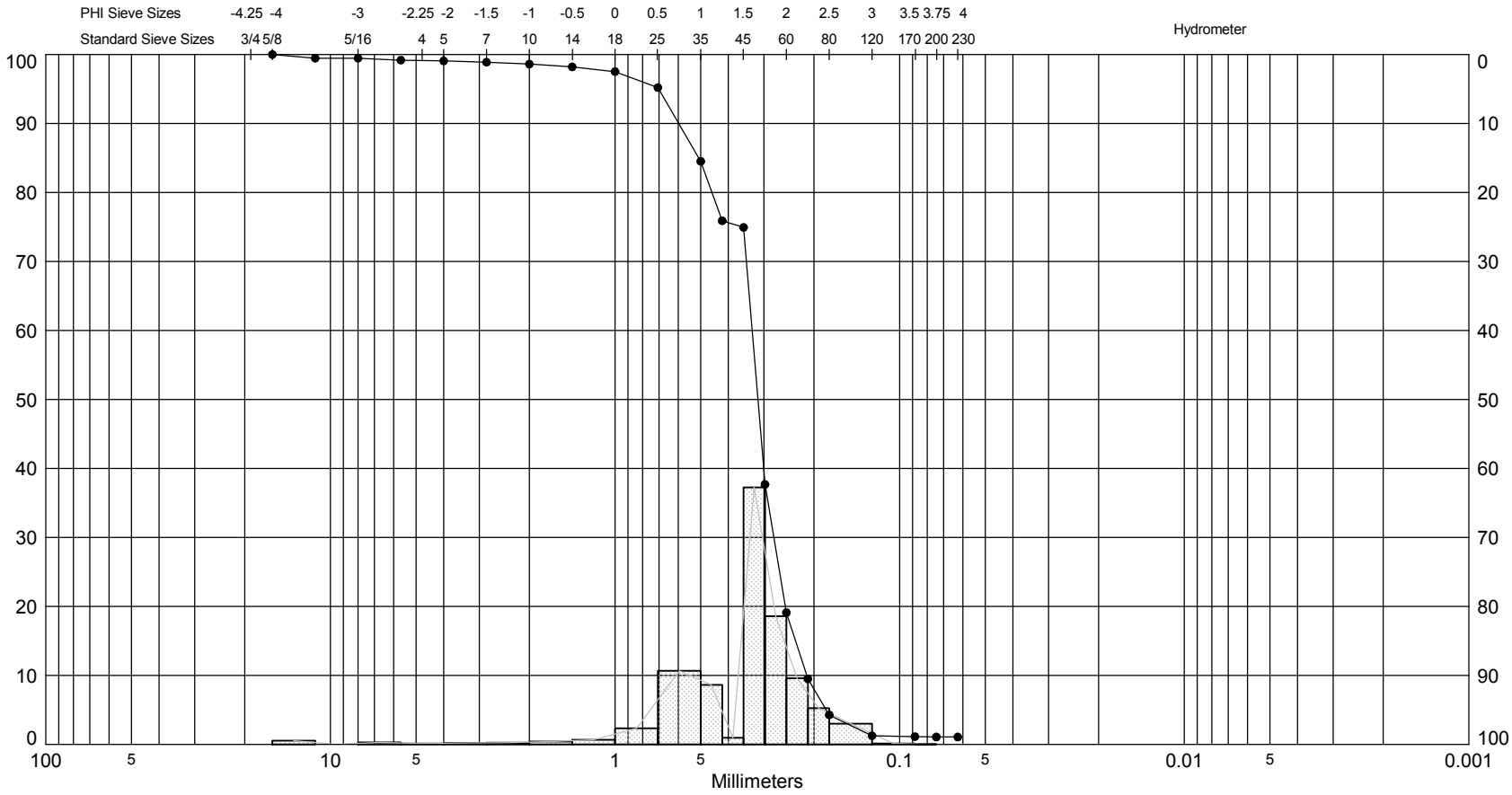
Comments:

Depths and elevations based on measured values

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FL 33431
ph (561) 391-8102
fax (561) 391-9116

Sample Information	
Project Name:	Dauphin Island Shore Protection
Analysis Date:	10-06-10
Analyzed By:	JR
Easting (X, ft):	1,790,318
Northing (Y, ft):	64,684
Horizontal System:	NAD 1983
Vertical System:	NAVD 88

SIEVE ANALYSIS DIVC-10.GPJ JPBRAZIL.GDT 3/14/11



Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
DIVC-10-37 #2	—●—	-23.9	SP	#200 - 1.07 #230 - 1.07			1.67	1.54	-2.99	19.13	0.76

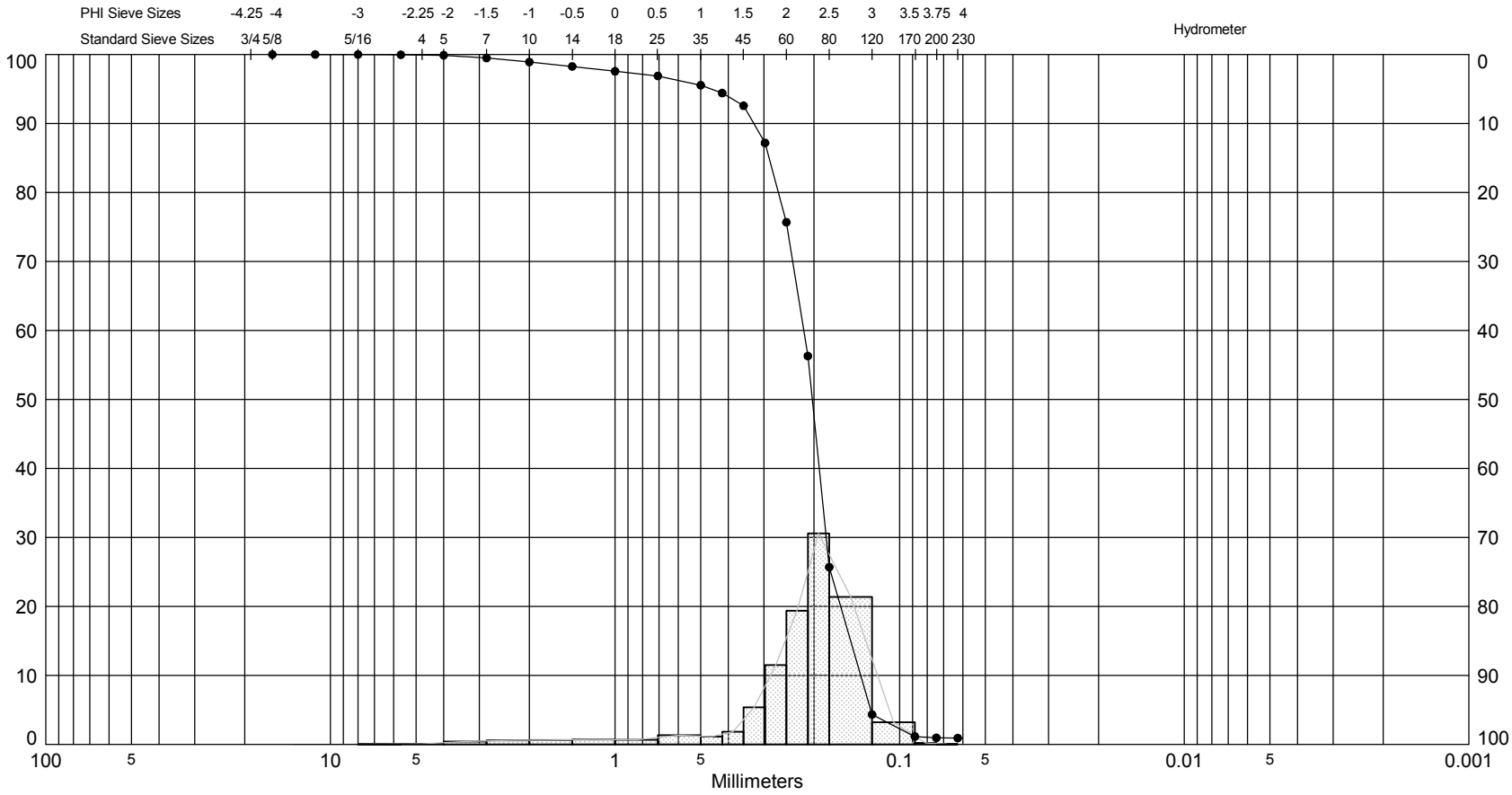
Comments:

Depths and elevations based on measured values

Sample Information	
Project Name:	Dauphin Island Shore Protection
Analysis Date:	10-06-10
Analyzed By:	JR
Easting (X, ft):	1,790,318
Northing (Y, ft):	64,684
Horizontal System:	NAD 1983
Vertical System:	NAVD 88

Coastal Planning & Engineering
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SIEVE ANALYSIS DIVC-10.GPJ JPBRAZIL.GDT 3/14/11



Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
DIVC-10-37 #3	—●—	-30.9	SP	#200 - 0.95 #230 - 0.92			2.3	2.19	-2.7	14.19	0.69

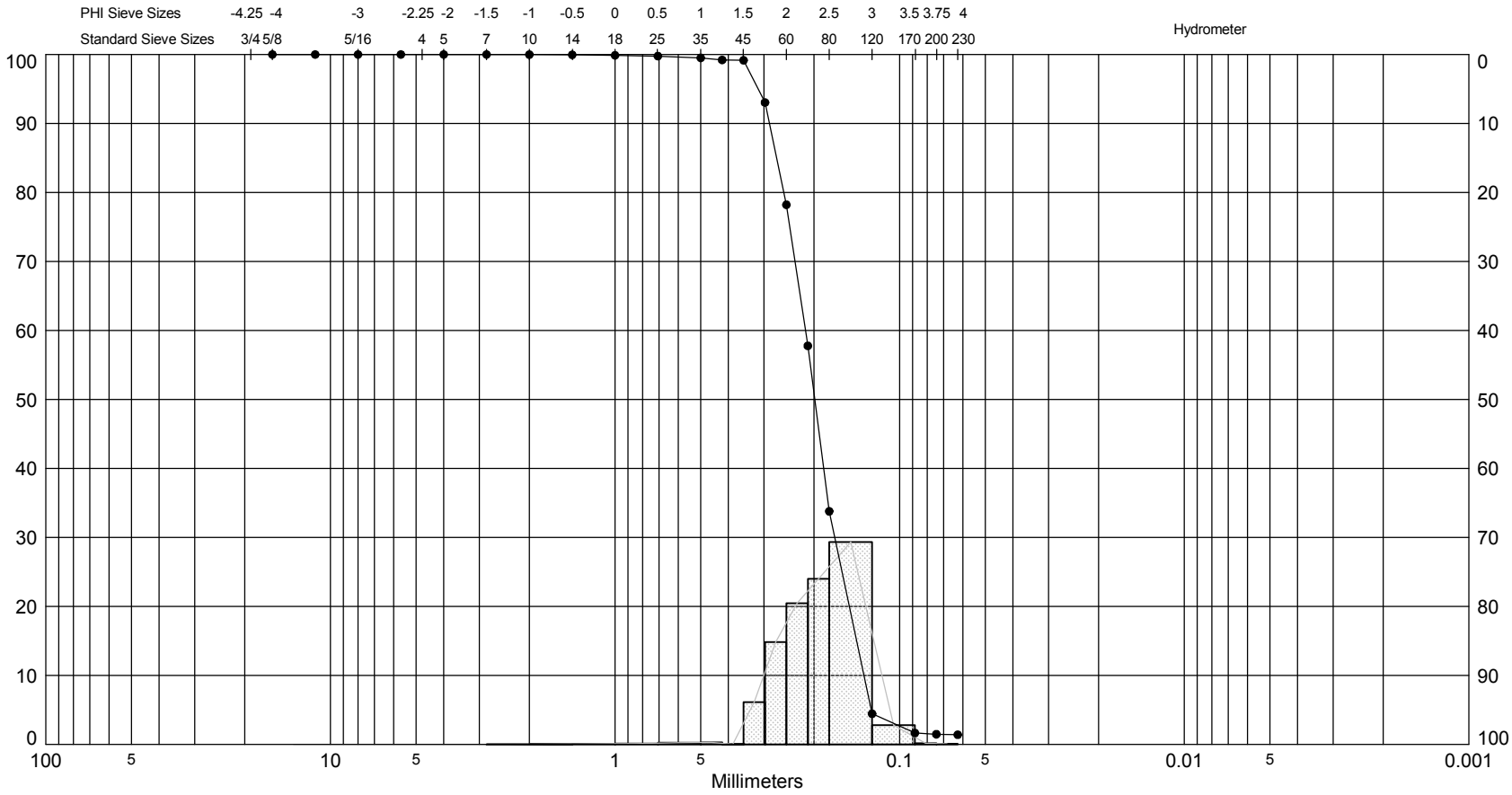
Comments:

Depths and elevations based on measured values

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FL 33431
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Sample Information	
Project Name:	Dauphin Island Shore Protection
Analysis Date:	10-06-10
Analyzed By:	JR
Easting (X, ft):	1,790,318
Northing (Y, ft):	64,684
Horizontal System:	NAD 1983
Vertical System:	NAVD 88

SIEVE ANALYSIS DIVC-10.GPJ JPBRAZIL.GDT 3/14/11



Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
DIVC-10-37 #4	—●—	-34.9	SP	#200 - 1.47 #230 - 1.40			2.33	2.33	-0.56	6.17	0.42

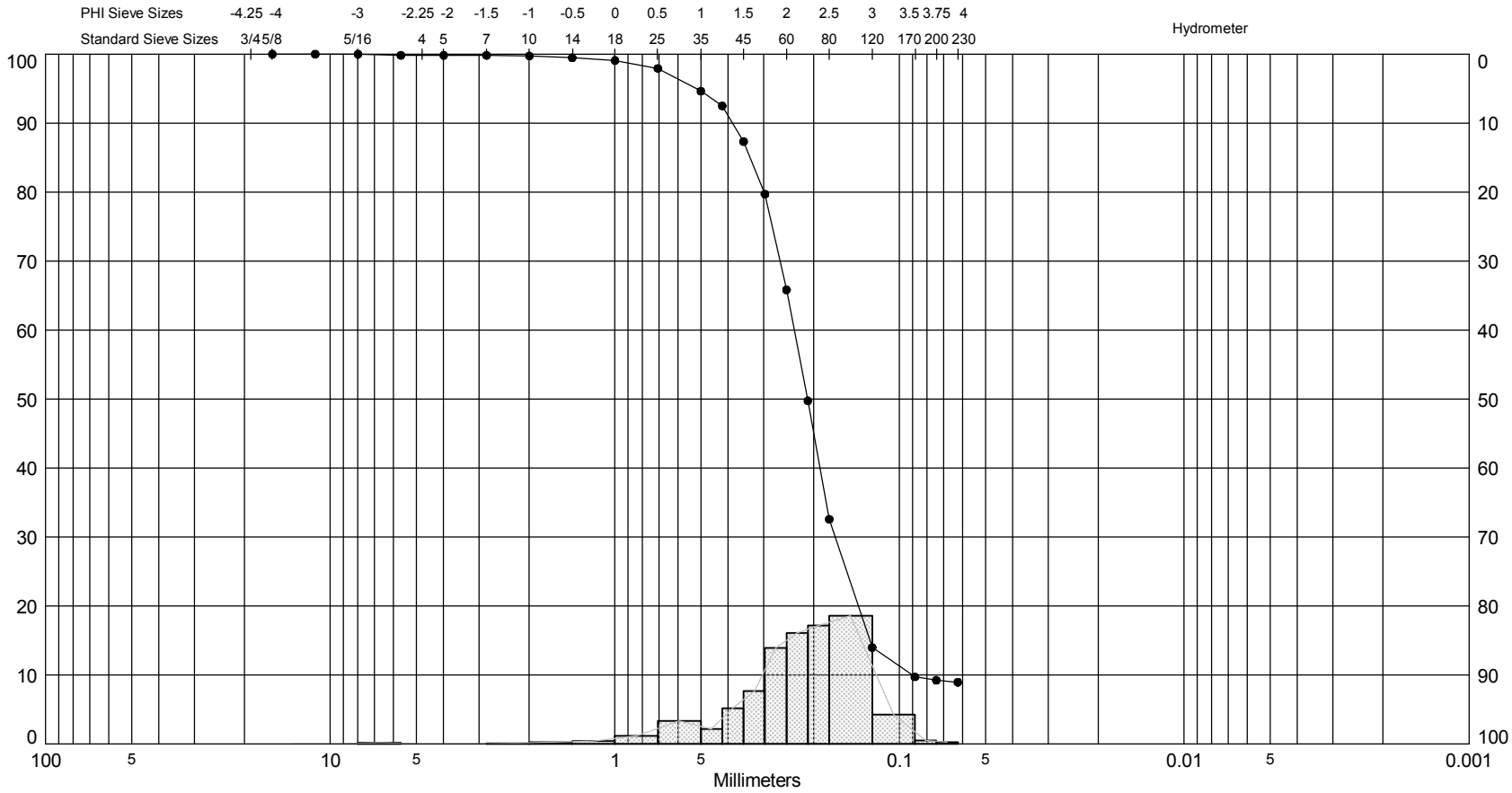
Comments:

Depths and elevations based on measured values

Sample Information	
Project Name:	Dauphin Island Shore Protection
Analysis Date:	10-06-10
Analyzed By:	JR
Easting (X, ft):	1,790,318
Northing (Y, ft):	64,684
Horizontal System:	NAD 1983
Vertical System:	NAVD 88

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SIEVE ANALYSIS DIVC-10.GPJ JPBRAZIL.GDT 3/14/11



Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
DIVC-11-01 #1	—●—	-44.1	SP-SM	#200 - 9.22 #230 - 8.95			2.25	2.12	-1.37	8.78	0.69

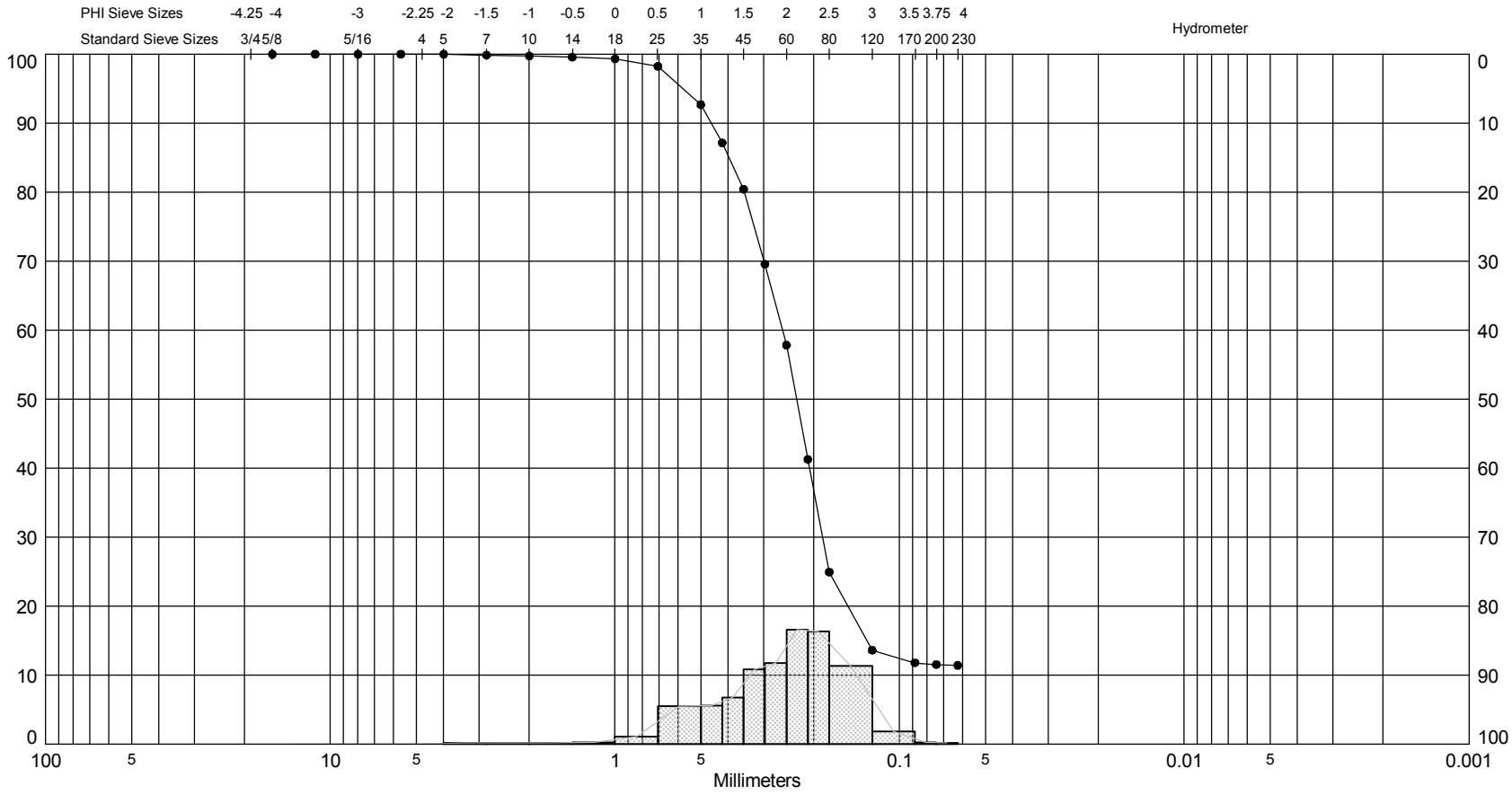
Comments:

Depths and elevations based on measured values

Coastal Planning & Engineering
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FL 33431
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fax (561) 391-9116

Sample Information	
Project Name:	Dauphin Island Shore Protection
Analysis Date:	01-18-11
Analyzed By:	JR
Easting (X, ft):	1,725,121
Northing (Y, ft):	73,380
Horizontal System:	NAD 1983
Vertical System:	NAVD 88

SIEVE ANALYSIS DIVC-11.GPJ JPBRAZIL.GDT 5/12/11



Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
DIVC-11-01 #2	—●—	-46.5	SP-SM	#200 - 11.54 #230 - 11.41			2.12	1.94	-0.83	5.24	0.66

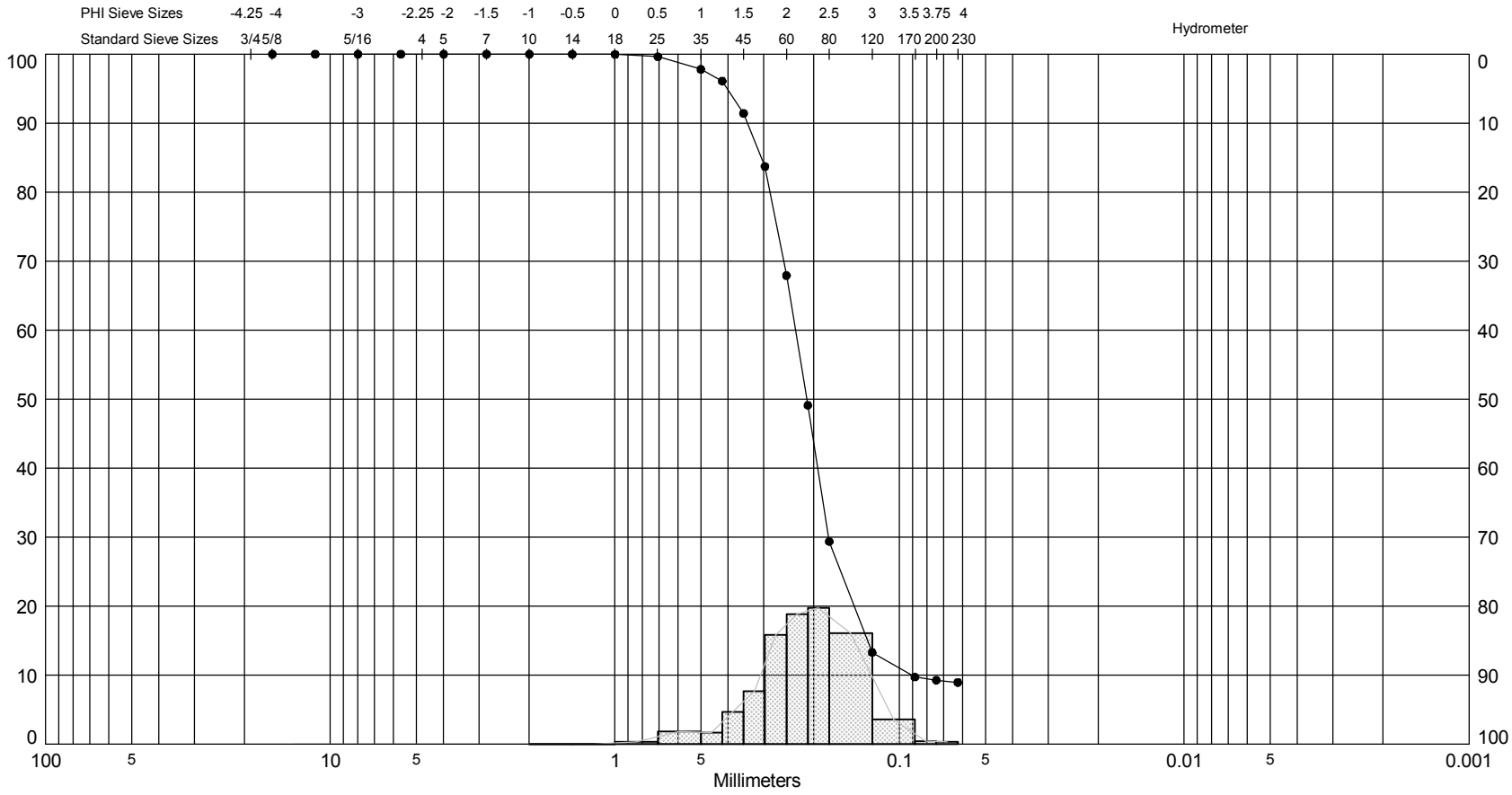
Comments:

Depths and elevations based on measured values

Sample Information	
Project Name:	Dauphin Island Shore Protection
Analysis Date:	01-18-11
Analyzed By:	JR
Easting (X, ft):	1,725,121
Northing (Y, ft):	73,380
Horizontal System:	NAD 1983
Vertical System:	NAVD 88

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SIEVE ANALYSIS DIVC-11.GPJ JPBRAZIL.GDT 5/12/11



Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
DIVC-11-01 #3	—●—	-49.4	SP-SM	#200 - 9.26 #230 - 8.95			2.24	2.17	-0.25	4.04	0.53

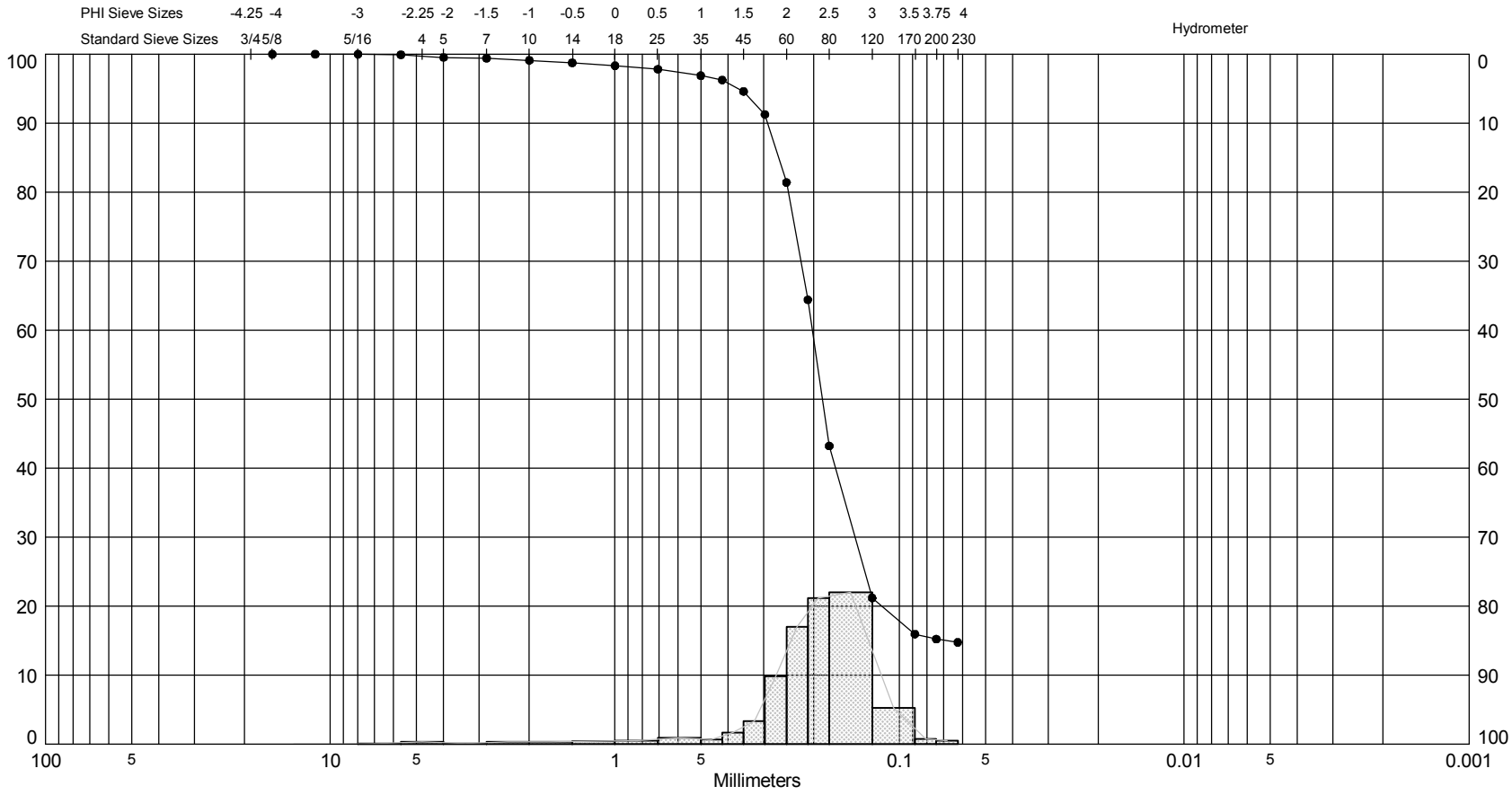
Comments:

Depths and elevations based on measured values

Sample Information	
Project Name:	Dauphin Island Shore Protection
Analysis Date:	01-18-11
Analyzed By:	JR
Easting (X, ft):	1,725,121
Northing (Y, ft):	73,380
Horizontal System:	NAD 1983
Vertical System:	NAVD 88

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SIEVE ANALYSIS DIVC-11.GPJ JPBRAZIL.GDT 5/12/11



Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
DIVC-11-01 #4	—●—	-51.2	SC	#200 - 15.21 #230 - 14.75			2.42	2.28	-2.67	16.15	0.72

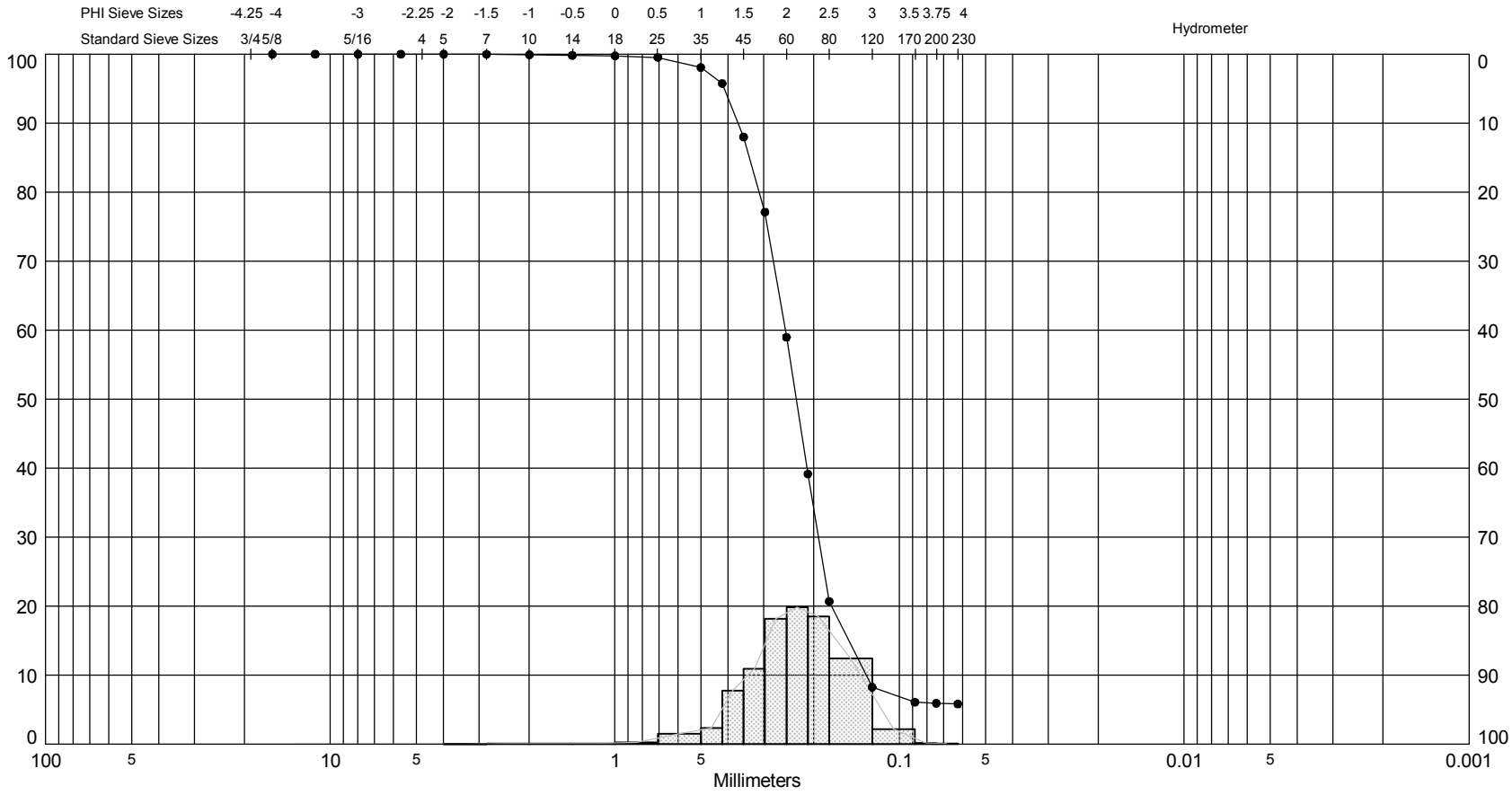
Comments: 2 (0.5") shell fragments removed prior to sieving

Depths and elevations based on measured values

Sample Information	
Project Name:	Dauphin Island Shore Protection
Analysis Date:	01-20-11
Analyzed By:	JR
Easting (X, ft):	1,725,121
Northing (Y, ft):	73,380
Horizontal System:	NAD 1983
Vertical System:	NAVD 88

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SIEVE ANALYSIS DIVC-11.GPJ JPBRAZIL.GDT 5/12/11



Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
DIVC-11-02 #1	—●—	-42.0	SP-SM	#200 - 5.92 #230 - 5.80			2.11	2.06	-0.51	5.76	0.52

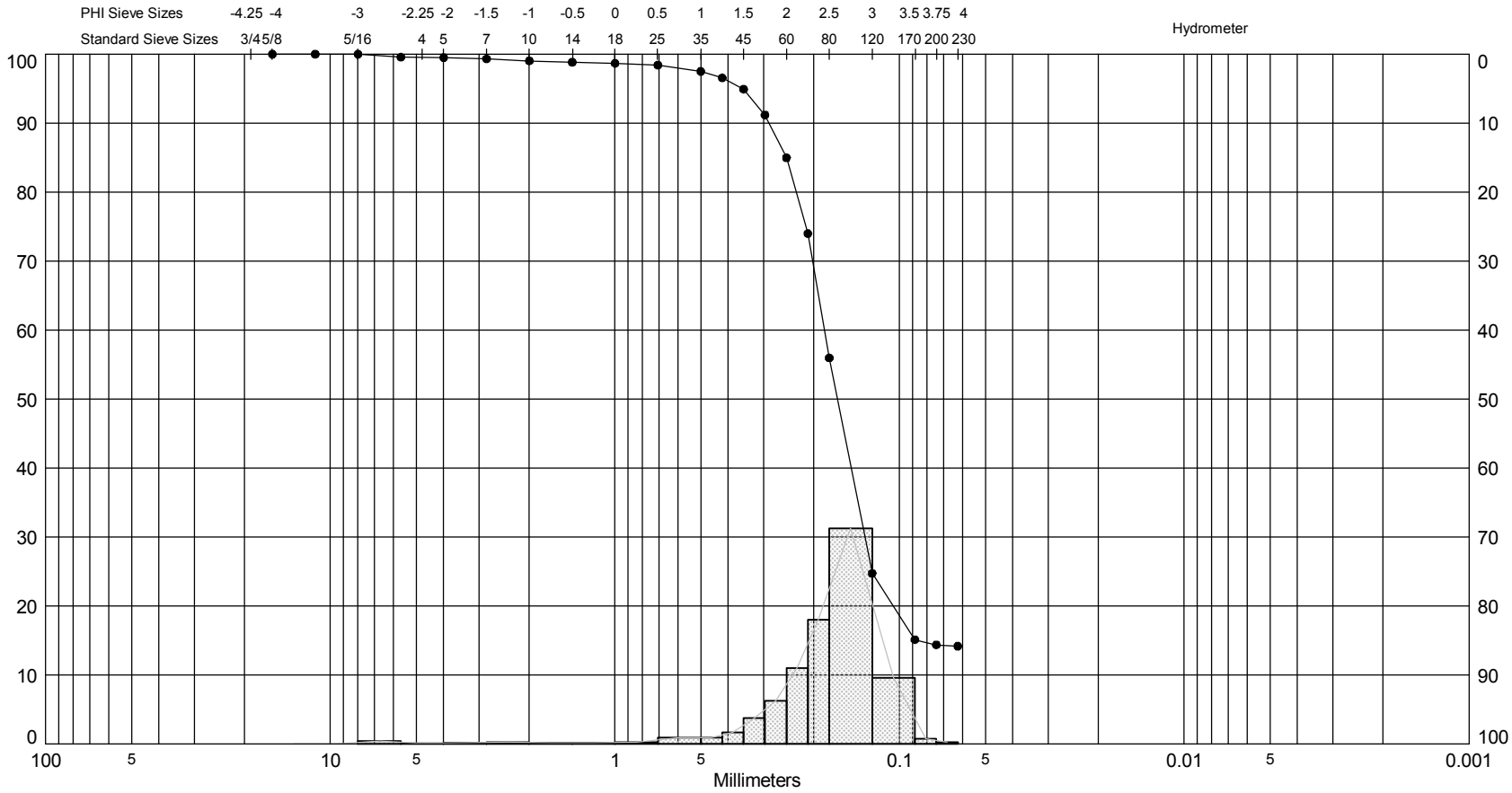
Comments:

Depths and elevations based on measured values

Coastal Planning & Engineering
2481 NW Boca Raton Blvd, Boca Raton
FL 33431
ph (561) 391-8102
fax (561) 391-9116

Sample Information	
Project Name:	Dauphin Island Shore Protection
Analysis Date:	01-18-11
Analyzed By:	JR
Easting (X, ft):	1,741,192
Northing (Y, ft):	79,039
Horizontal System:	NAD 1983
Vertical System:	NAVD 88

SIEVE ANALYSIS DIVC-11.GPJ JPBRAZIL.GDT 5/12/11



Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
DIVC-11-02 #2	—●—	-43.4	SM-SC	#200 - 14.37 #230 - 14.16			2.6	2.4	-3.06	19.31	0.74

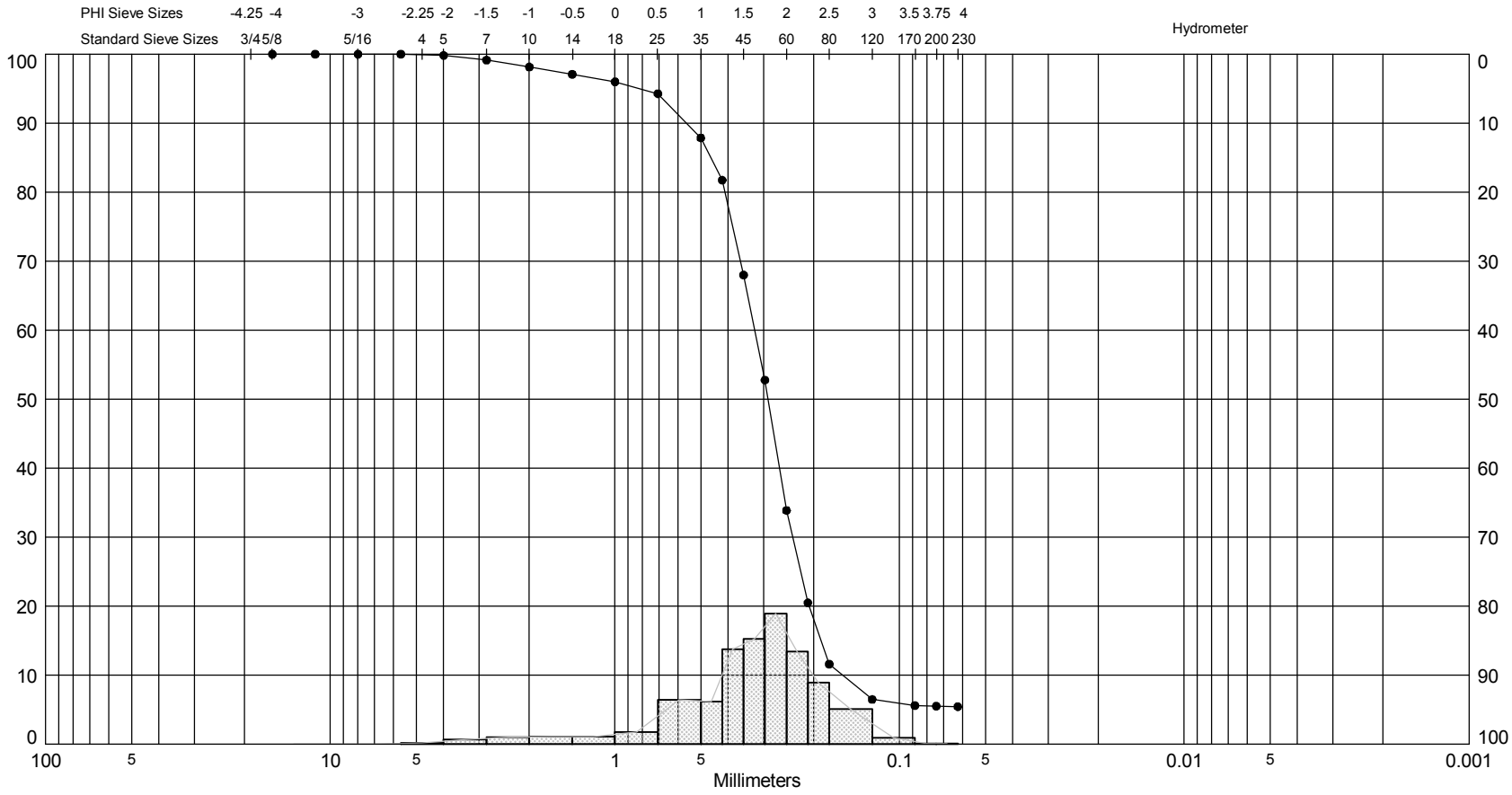
Comments:

Depths and elevations based on measured values

Sample Information	
Project Name:	Dauphin Island Shore Protection
Analysis Date:	01-18-11
Analyzed By:	JR
Easting (X, ft):	1,741,192
Northing (Y, ft):	79,039
Horizontal System:	NAD 1983
Vertical System:	NAVD 88

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SIEVE ANALYSIS DIVC-11.GPJ JPBRAZIL.GDT 5/12/11



Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
DIVC-11-03 #1	—●—	-40.8	SP-SM	#200 - 5.50 #230 - 5.43			1.79	1.63	-1.64	7.8	0.78

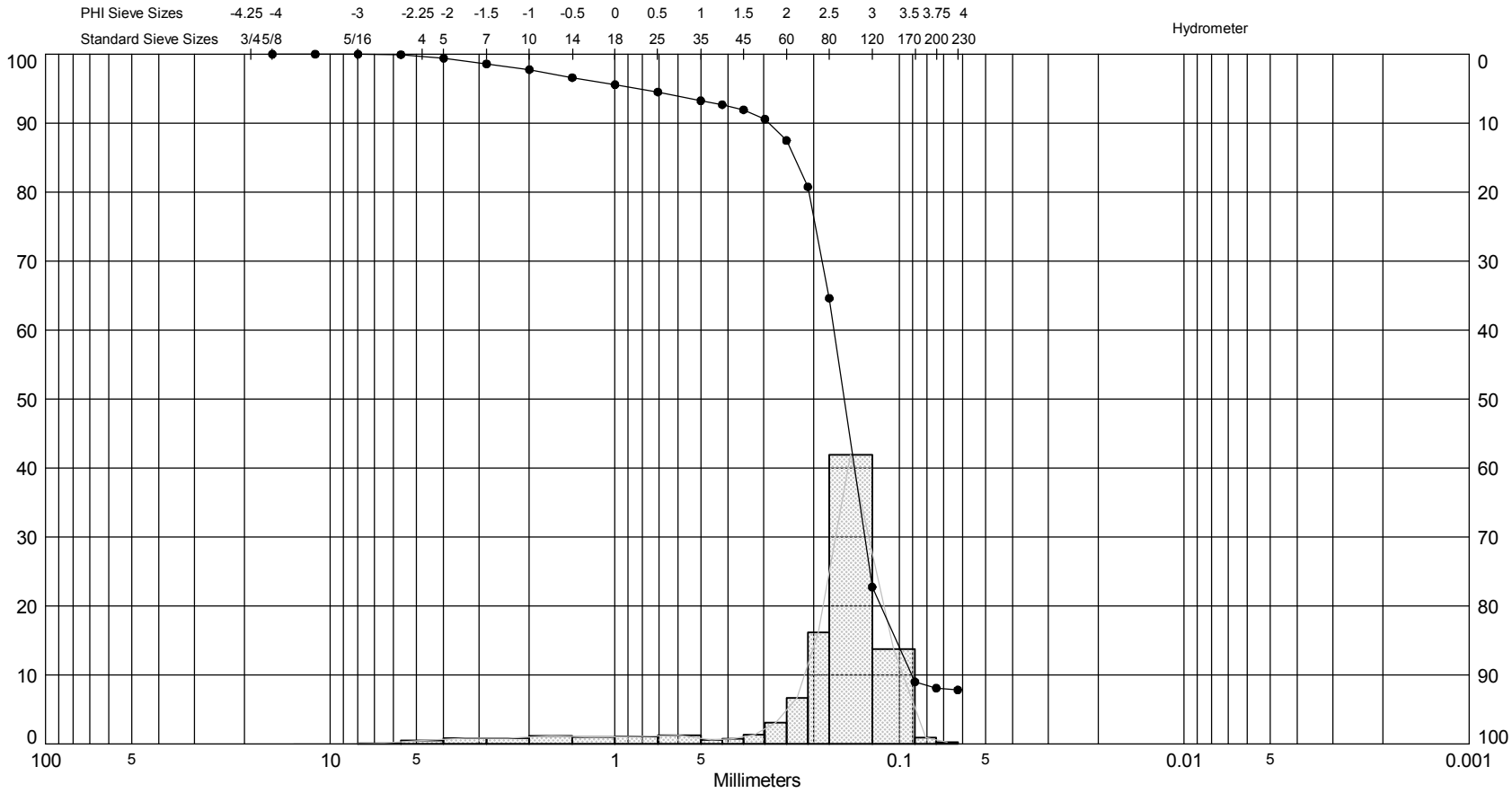
Comments:

Depths and elevations based on measured values

Sample Information	
Project Name:	Dauphin Island Shore Protection
Analysis Date:	01-18-11
Analyzed By:	JR
Easting (X, ft):	1,749,629
Northing (Y, ft):	80,529
Horizontal System:	NAD 1983
Vertical System:	NAVD 88

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SIEVE ANALYSIS DIVC-11.GPJ JPBRAZIL.GDT 5/12/11



Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
DIVC-11-03 #2	—●—	-43.5	SW-SM	#200 - 8.08 #230 - 7.82			2.67	2.42	-2.72	11.28	0.97

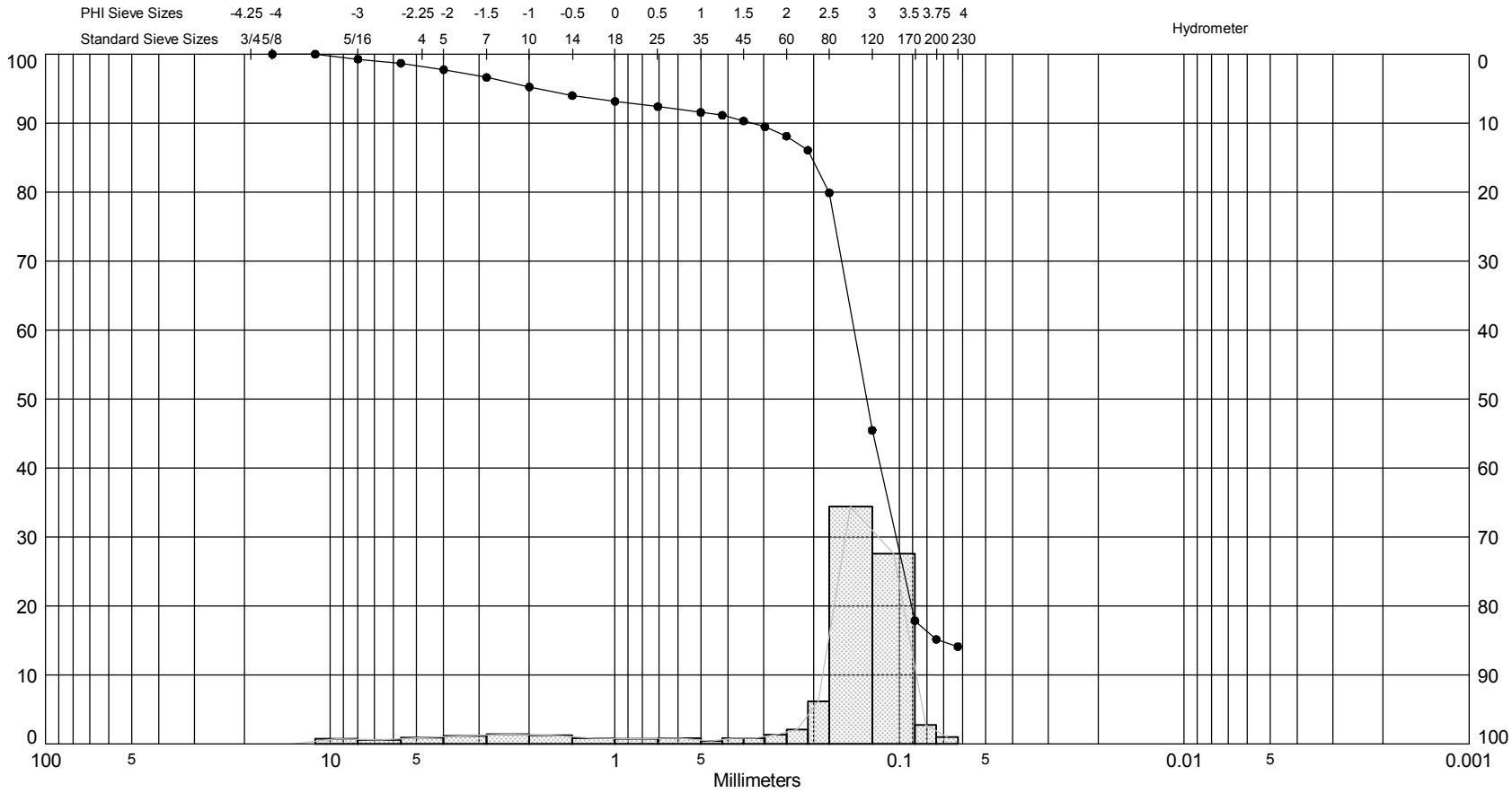
Comments:

Depths and elevations based on measured values

Sample Information	
Project Name:	Dauphin Island Shore Protection
Analysis Date:	01-18-11
Analyzed By:	JR
Easting (X, ft):	1,749,629
Northing (Y, ft):	80,529
Horizontal System:	NAD 1983
Vertical System:	NAVD 88

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SIEVE ANALYSIS DIVC-11.GPJ JPBRAZIL.GDT 5/12/11



Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
DIVC-11-03 #3	—●—	-45.1	SM-SC	#200 - 15.15 #230 - 14.11			2.93	2.48	-2.58	9.25	1.34

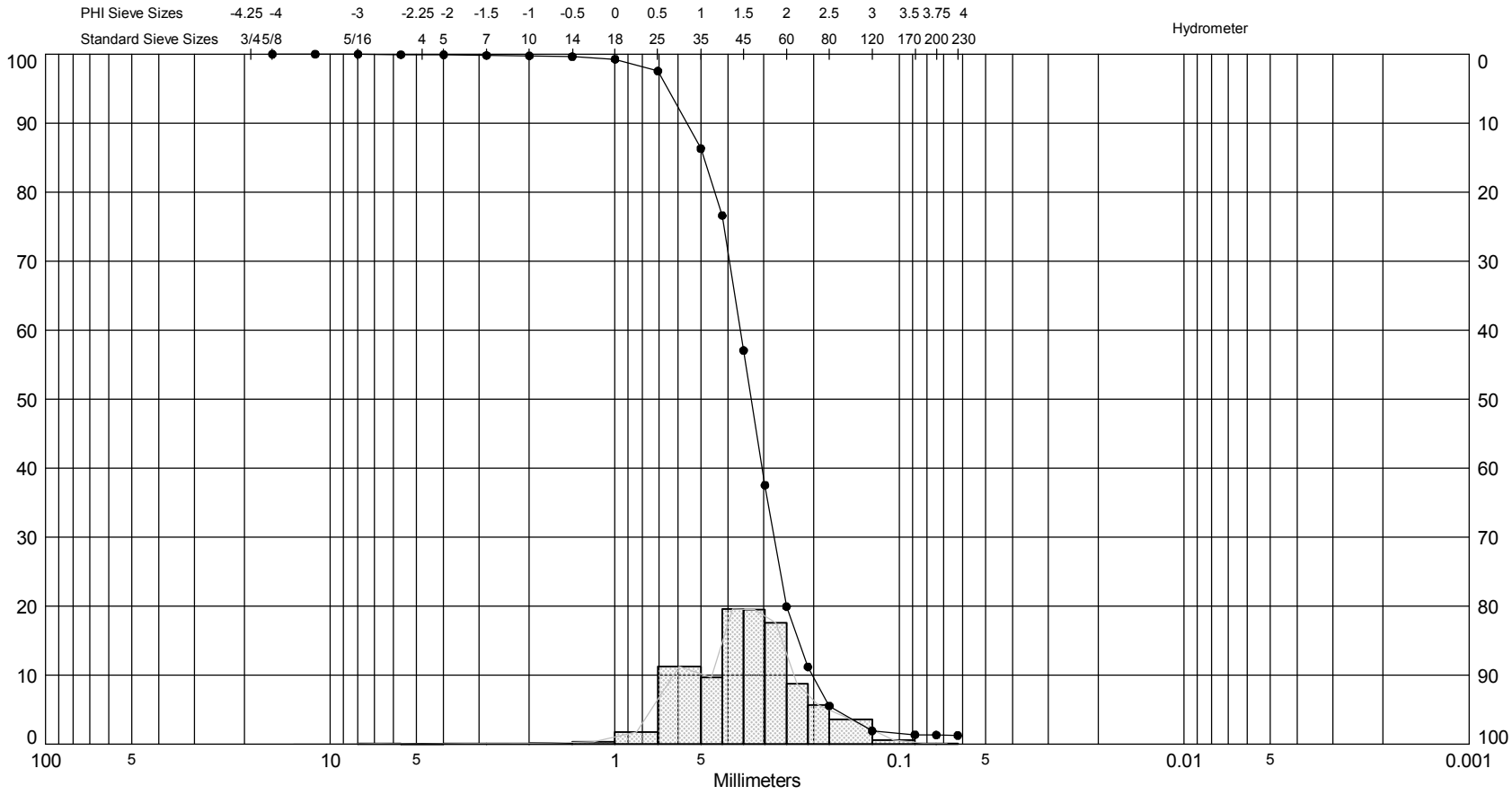
Comments:

Depths and elevations based on measured values

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Sample Information	
Project Name:	Dauphin Island Shore Protection
Analysis Date:	01-19-11
Analyzed By:	JR
Easting (X, ft):	1,749,629
Northing (Y, ft):	80,529
Horizontal System:	NAD 1983
Vertical System:	NAVD 88

SIEVE ANALYSIS DIVC-11.GPJ JPBRAZIL.GDT 5/12/11



Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
DIVC-11-06 #1	—●—	-33.5	SP	#200 - 1.31 #230 - 1.26			1.59	1.57	-0.57	6.84	0.58

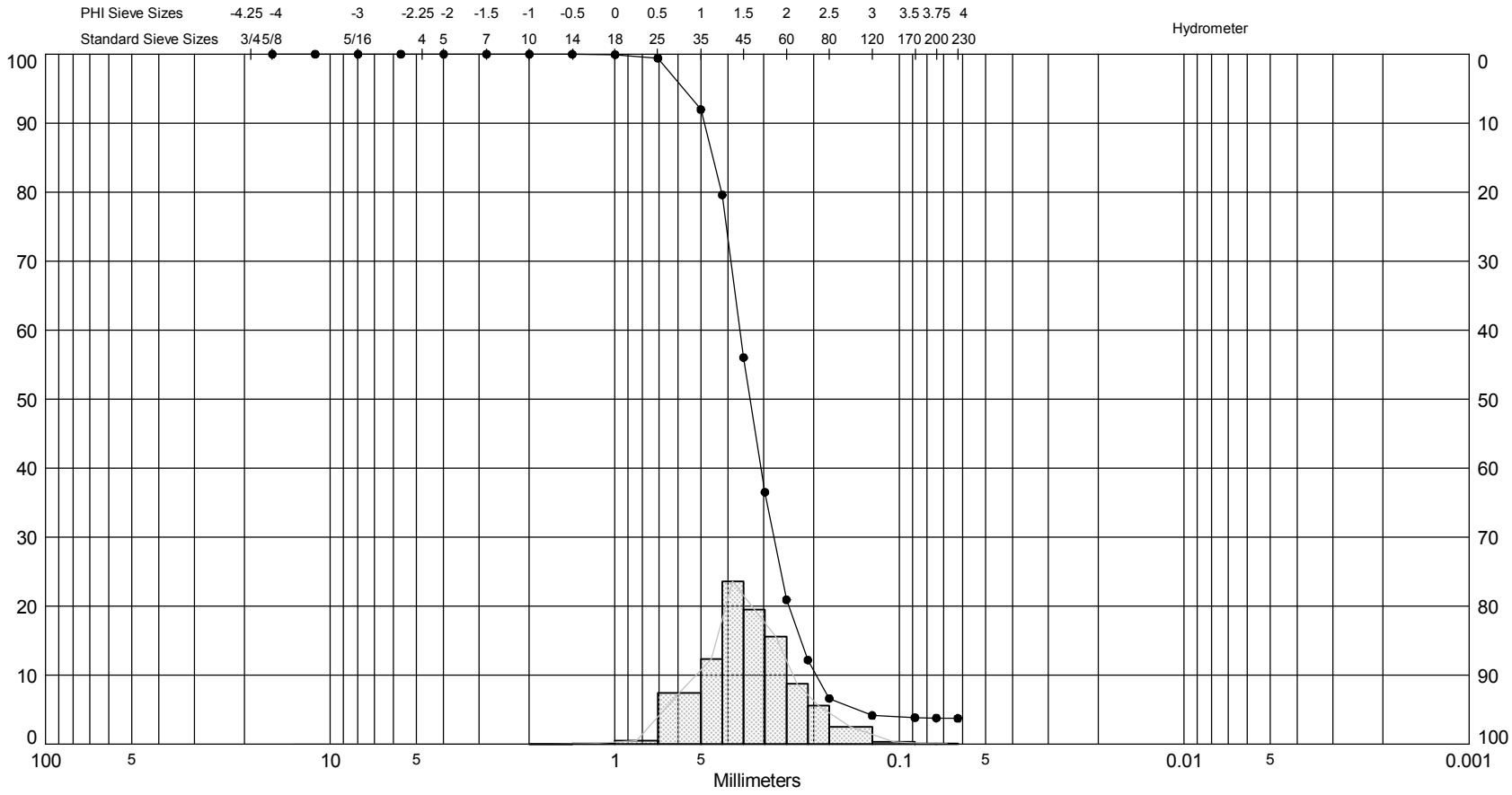
Comments:

Depths and elevations based on measured values

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FL 33431
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Sample Information	
Project Name:	Dauphin Island Shore Protection
Analysis Date:	01-20-11
Analyzed By:	JR
Easting (X, ft):	1,724,087
Northing (Y, ft):	78,872
Horizontal System:	NAD 1983
Vertical System:	NAVD 88

SIEVE ANALYSIS DIVC-11.GPJ JPBRAZIL.GDT 5/12/11



Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
DIVC-11-06 #2	—●—	-37.2	SP	#200 - 3.78 #230 - 3.72			1.58	1.59	0.31	3.79	0.48

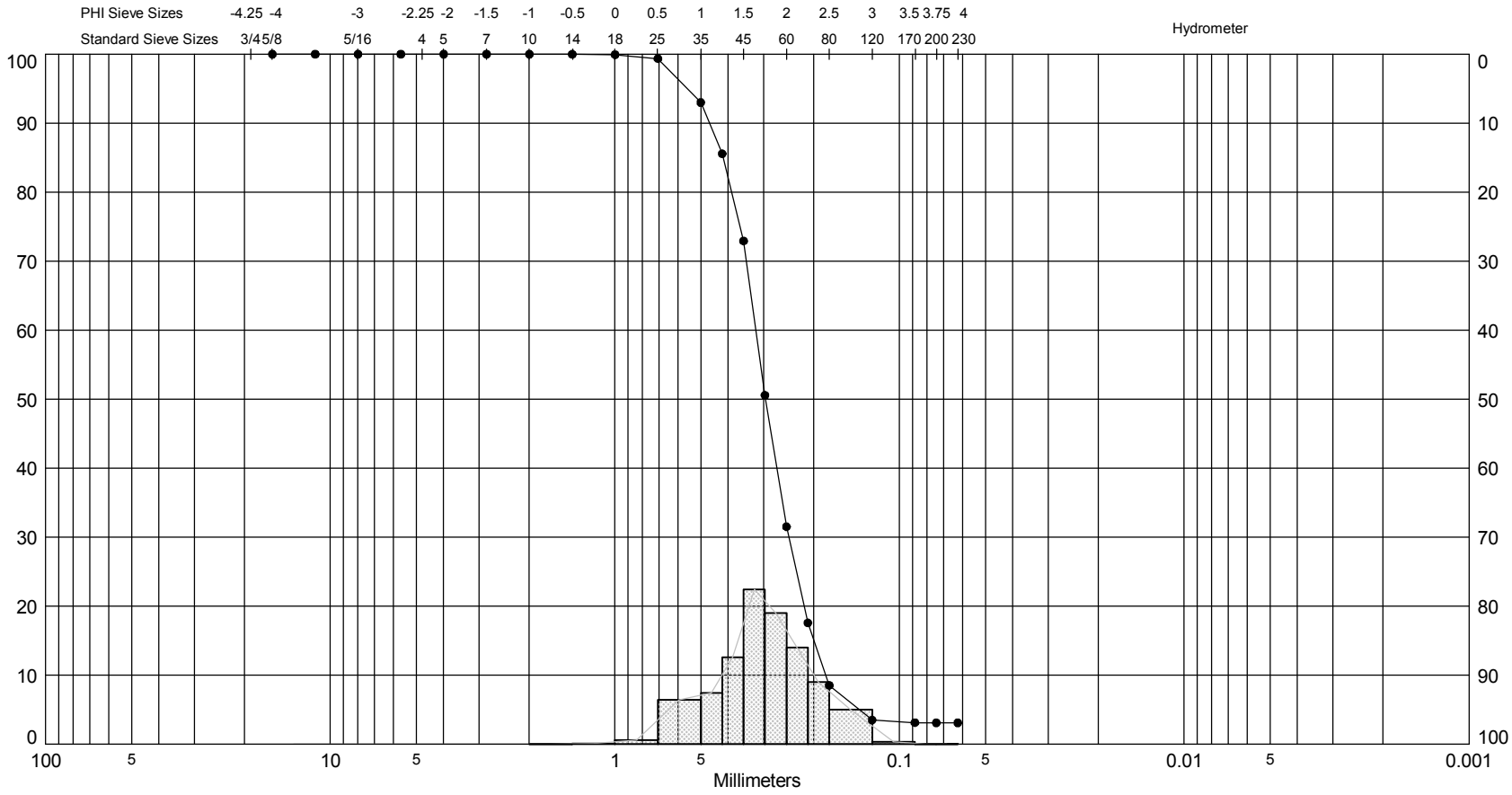
Comments:

Depths and elevations based on measured values

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Sample Information	
Project Name:	Dauphin Island Shore Protection
Analysis Date:	01-20-11
Analyzed By:	JR
Easting (X, ft):	1,724,087
Northing (Y, ft):	78,872
Horizontal System:	NAD 1983
Vertical System:	NAVD 88

SIEVE ANALYSIS DIVC-11.GPJ JPBRAZIL.GDT 5/12/11



Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
DIVC-11-06 #3	—●—	-39.9	SP	#200 - 3.09 #230 - 3.08			1.76	1.74	-0.12	3.35	0.51

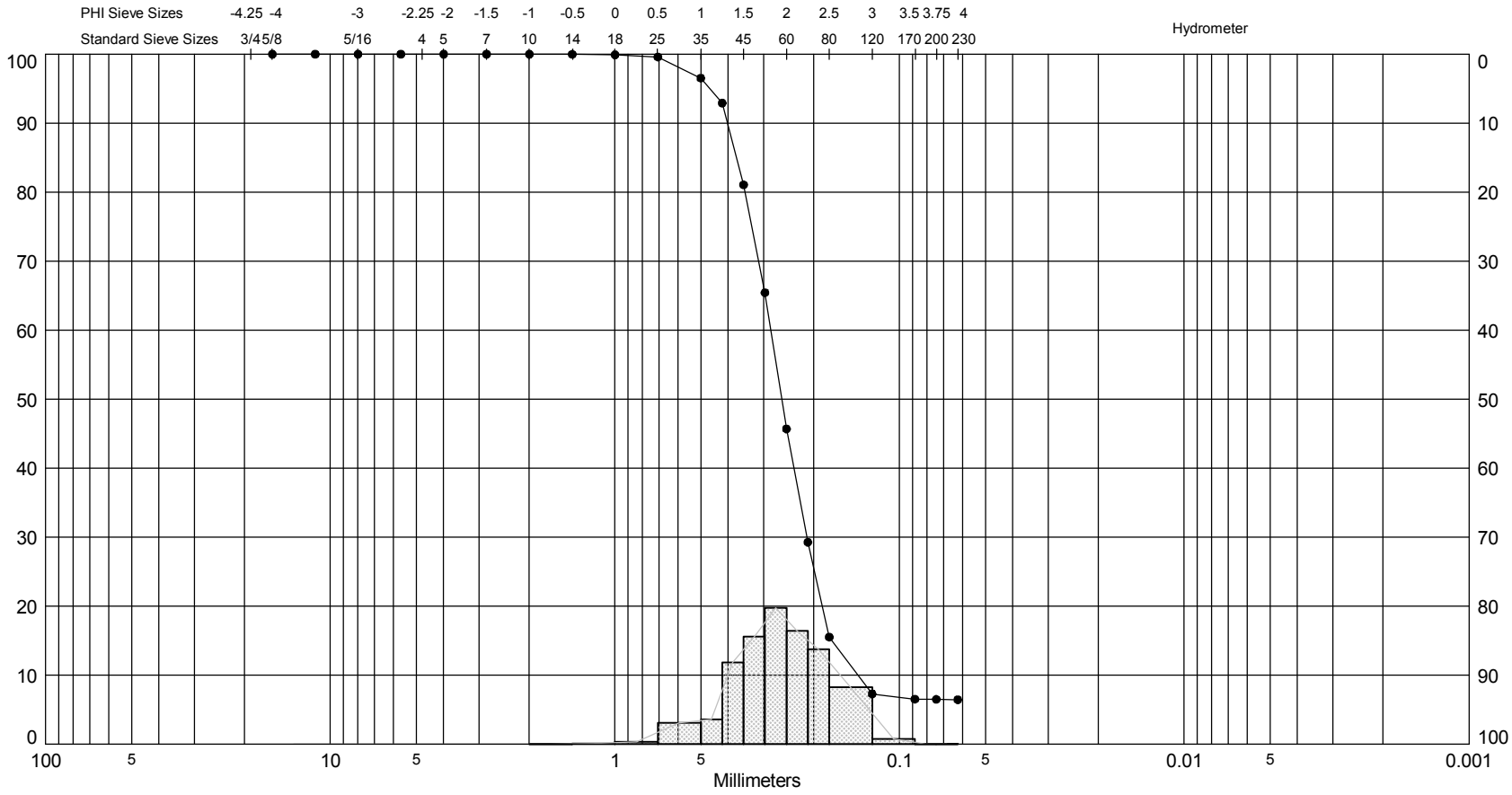
Comments:

Depths and elevations based on measured values

Sample Information	
Project Name:	Dauphin Island Shore Protection
Analysis Date:	01-19-11
Analyzed By:	JR
Easting (X, ft):	1,724,087
Northing (Y, ft):	78,872
Horizontal System:	NAD 1983
Vertical System:	NAVD 88

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SIEVE ANALYSIS DIVC-11.GPJ JPBRAZIL.GDT 5/12/11



Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
DIVC-11-06 #4	—●—	-43.3	SP-SM	#200 - 6.48 #230 - 6.44			1.95	1.9	-0.16	3.52	0.5

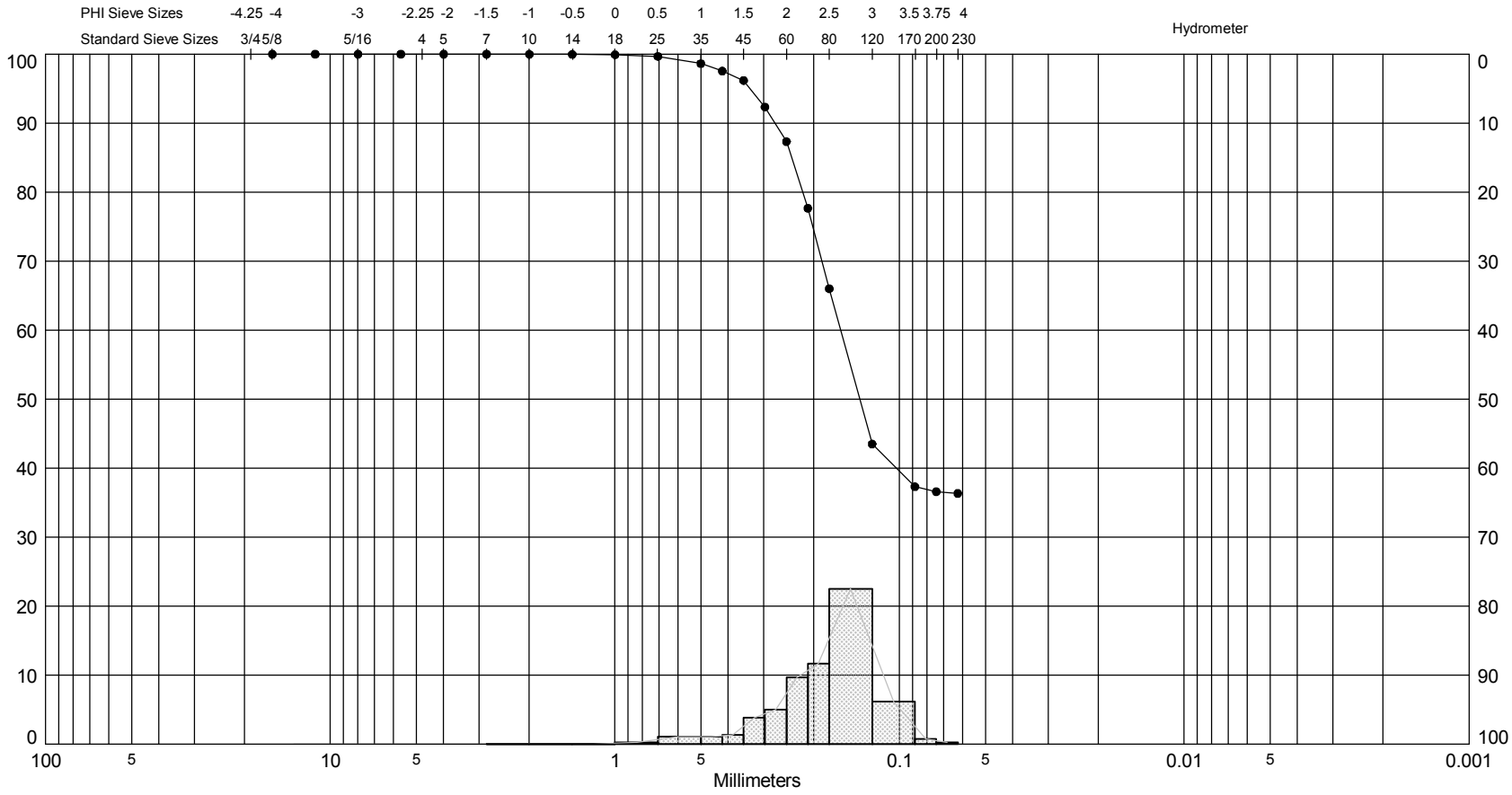
Comments:

Depths and elevations based on measured values

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Sample Information	
Project Name:	Dauphin Island Shore Protection
Analysis Date:	01-19-11
Analyzed By:	JR
Easting (X, ft):	1,724,087
Northing (Y, ft):	78,872
Horizontal System:	NAD 1983
Vertical System:	NAVD 88

SIEVE ANALYSIS DIVC-11.GPJ JPBRAZIL.GDT 5/12/11



Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
DIVC-11-06 #5	—●—	-46.2	SC	#200 - 36.59 #230 - 36.34			2.86	2.41	-0.76	4.57	0.58

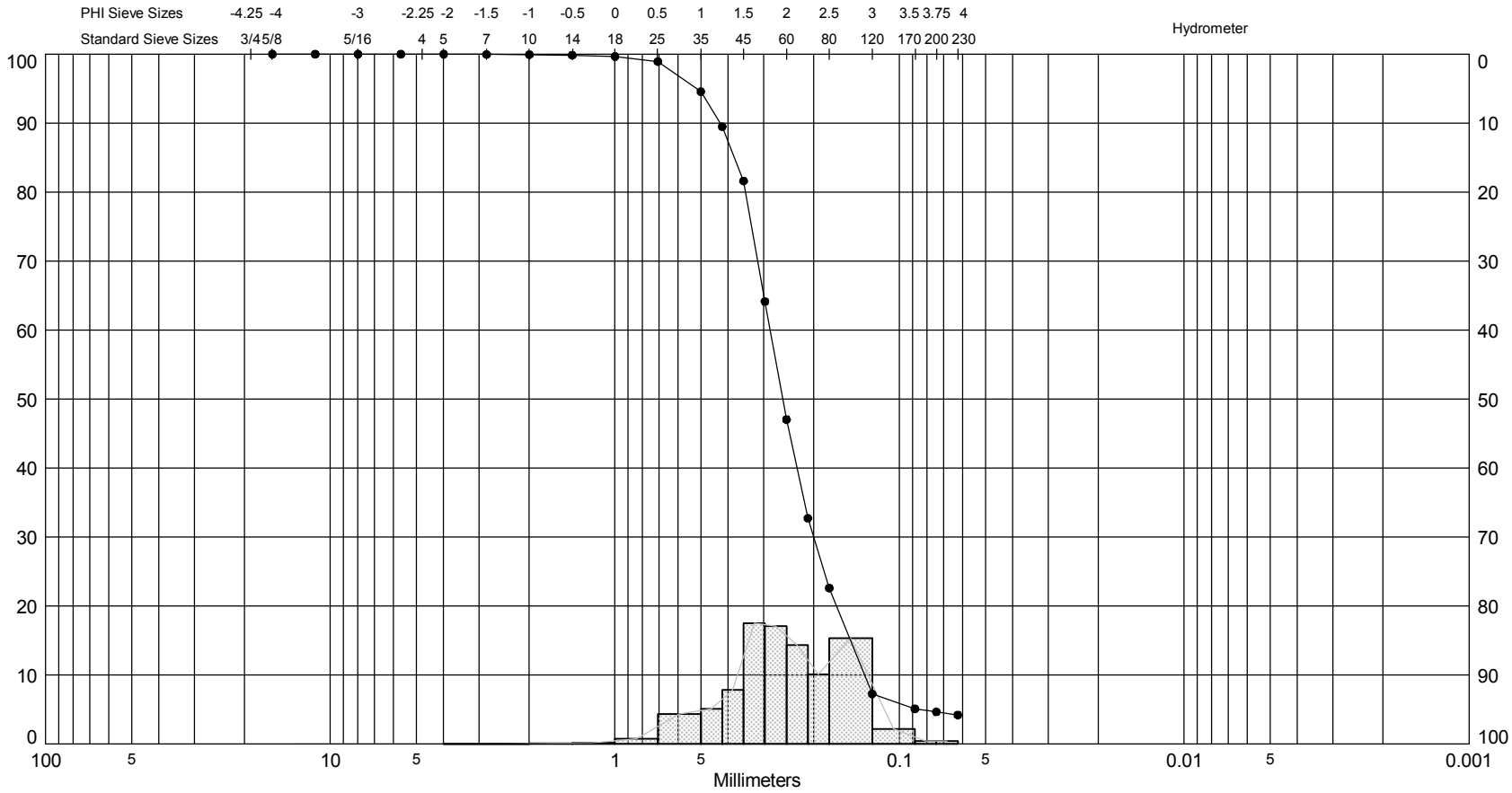
Comments:

Depths and elevations based on measured values

Sample Information	
Project Name:	Dauphin Island Shore Protection
Analysis Date:	01-21-11
Analyzed By:	JR
Easting (X, ft):	1,724,087
Northing (Y, ft):	78,872
Horizontal System:	NAD 1983
Vertical System:	NAVD 88

Coastal Planning & Engineering
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SIEVE ANALYSIS DIVC-11.GPJ JPBRAZIL.GDT 5/12/11



Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
DIVC-11-07 #1	—●—	-39.2	SP	#200 - 4.64 #230 - 4.20			1.96	1.95	-0.19	4.1	0.62

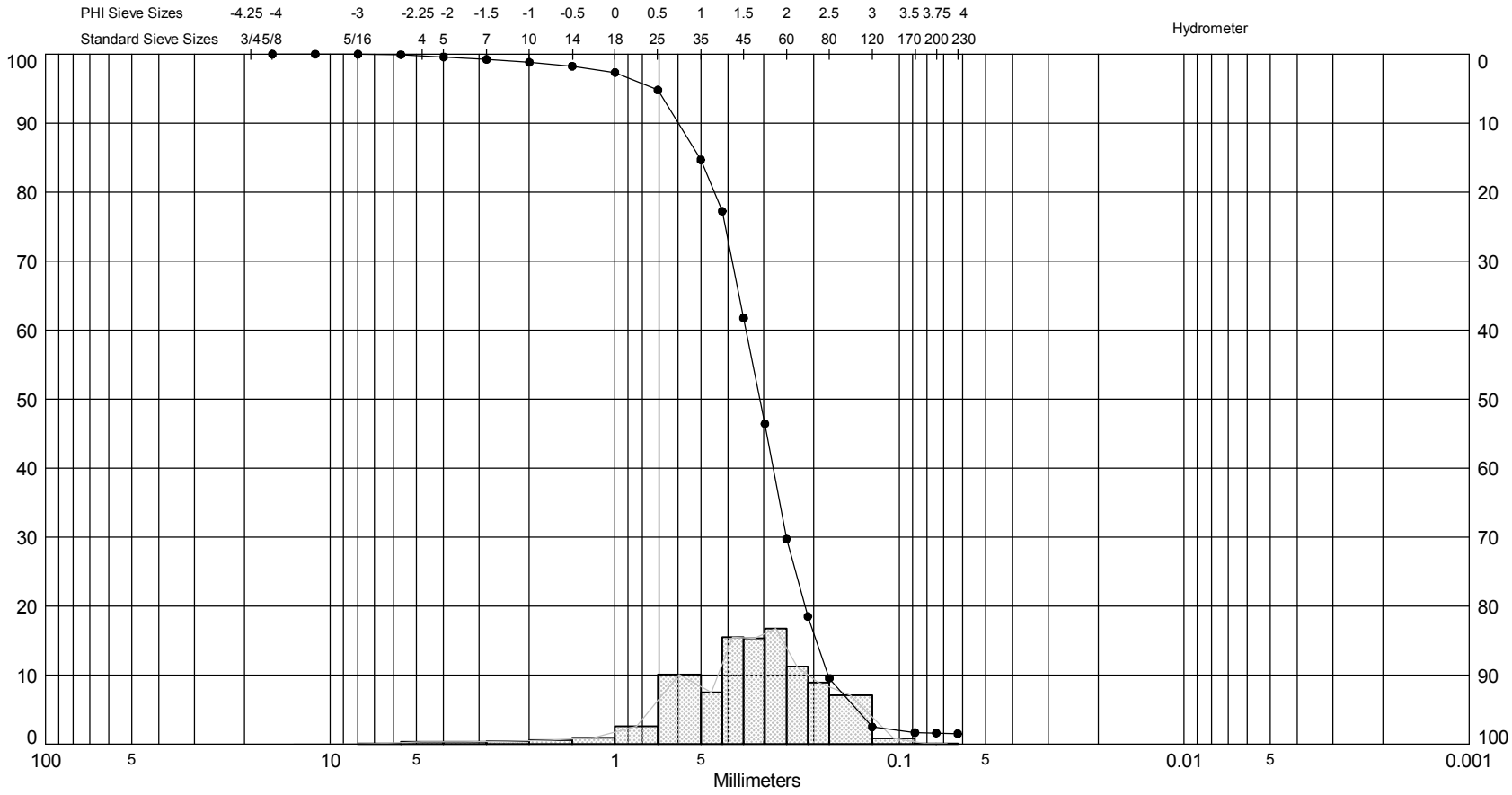
Comments:

Depths and elevations based on measured values

Sample Information	
Project Name:	Dauphin Island Shore Protection
Analysis Date:	01-20-11
Analyzed By:	JR
Easting (X, ft):	1,729,270
Northing (Y, ft):	76,948
Horizontal System:	NAD 1983
Vertical System:	NAVD 88

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fax (561) 391-9116

SIEVE ANALYSIS DIVC-11.GPJ JPBRAZIL.GDT 5/12/11



Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
DIVC-11-07 #2	—●—	-39.9	SP	#200 - 1.60 #230 - 1.51			1.69	1.62	-1.29	7.5	0.76

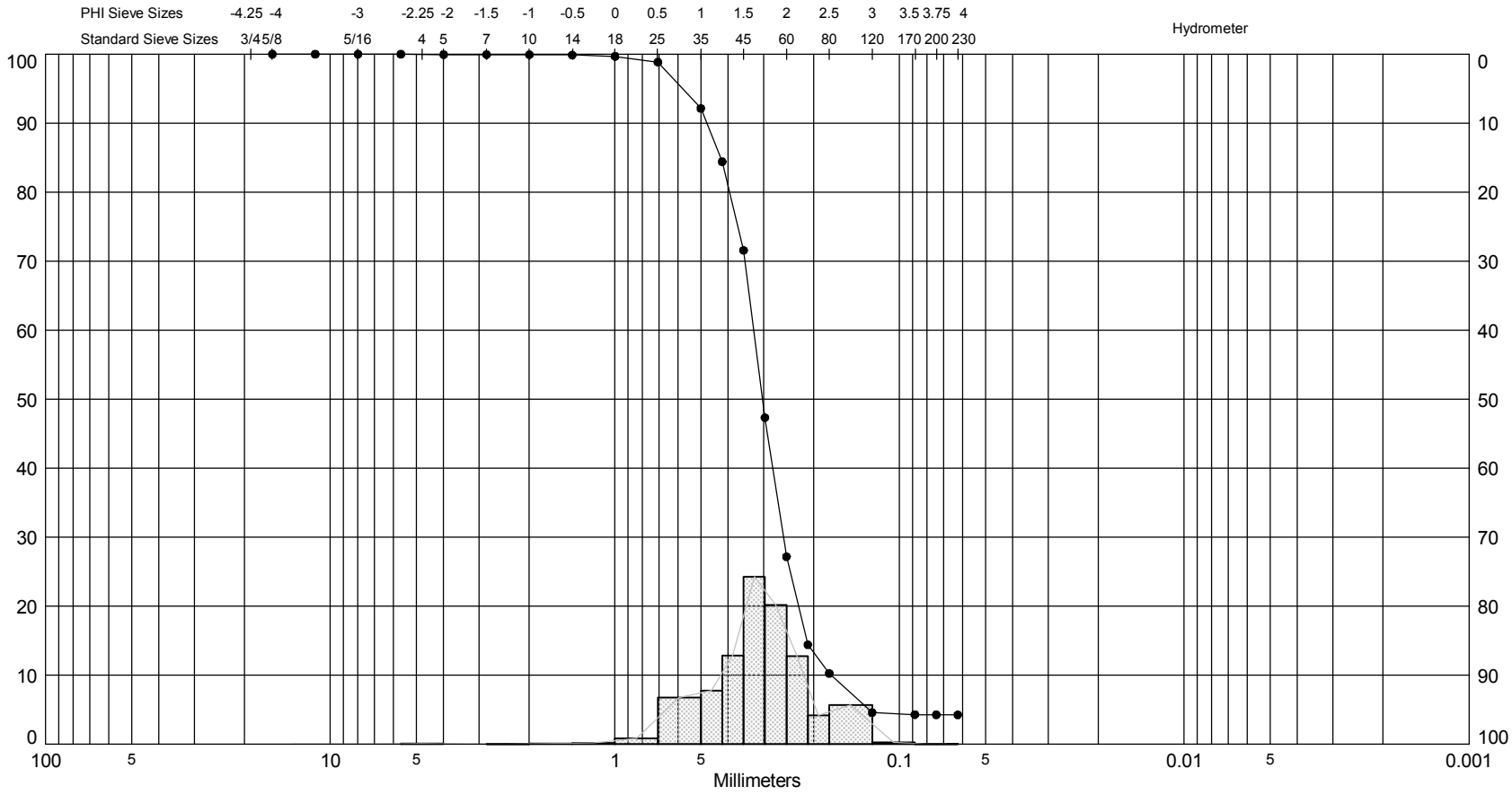
Comments:

Depths and elevations based on measured values

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Sample Information	
Project Name:	Dauphin Island Shore Protection
Analysis Date:	01-20-11
Analyzed By:	JR
Easting (X, ft):	1,729,270
Northing (Y, ft):	76,948
Horizontal System:	NAD 1983
Vertical System:	NAVD 88

SIEVE ANALYSIS DIVC-11.GPJ JPBRAZIL.GDT 5/12/11



Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
DIVC-11-07 #3	—●—	-40.8	SP	#200 - 4.25 #230 - 4.23			1.72	1.69	-0.37	5.5	0.52

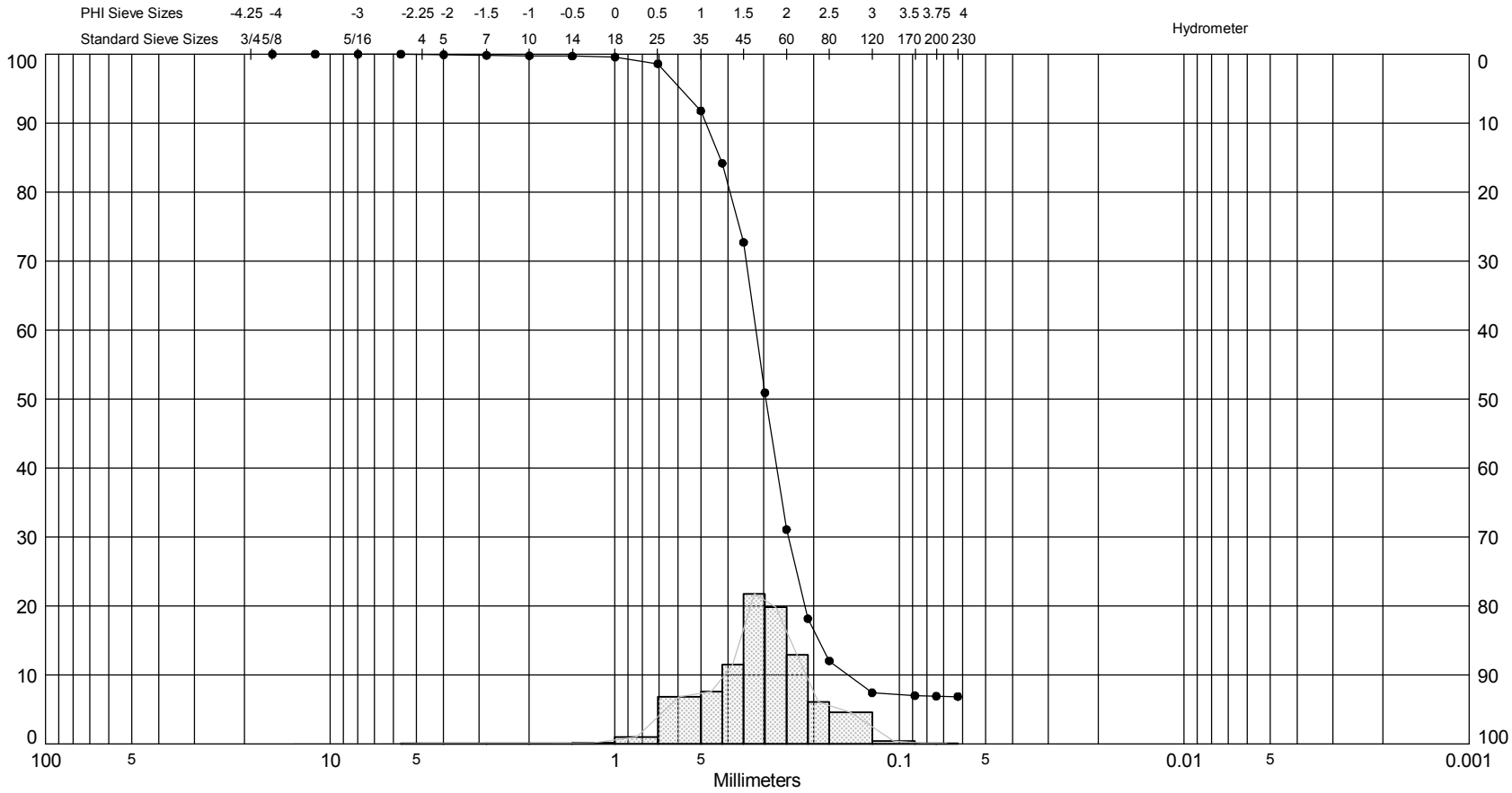
Comments:

Depths and elevations based on measured values

Sample Information	
Project Name:	Dauphin Island Shore Protection
Analysis Date:	01-20-11
Analyzed By:	JR
Easting (X, ft):	1,729,270
Northing (Y, ft):	76,948
Horizontal System:	NAD 1983
Vertical System:	NAVD 88

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fax (561) 391-9116

SIEVE ANALYSIS DIVC-11.GPJ JPBRAZIL.GDT 5/12/11



Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
DIVC-11-07 #4	—●—	-41.9	SP-SC	#200 - 6.92 #230 - 6.87			1.76	1.7	-0.77	7.53	0.55

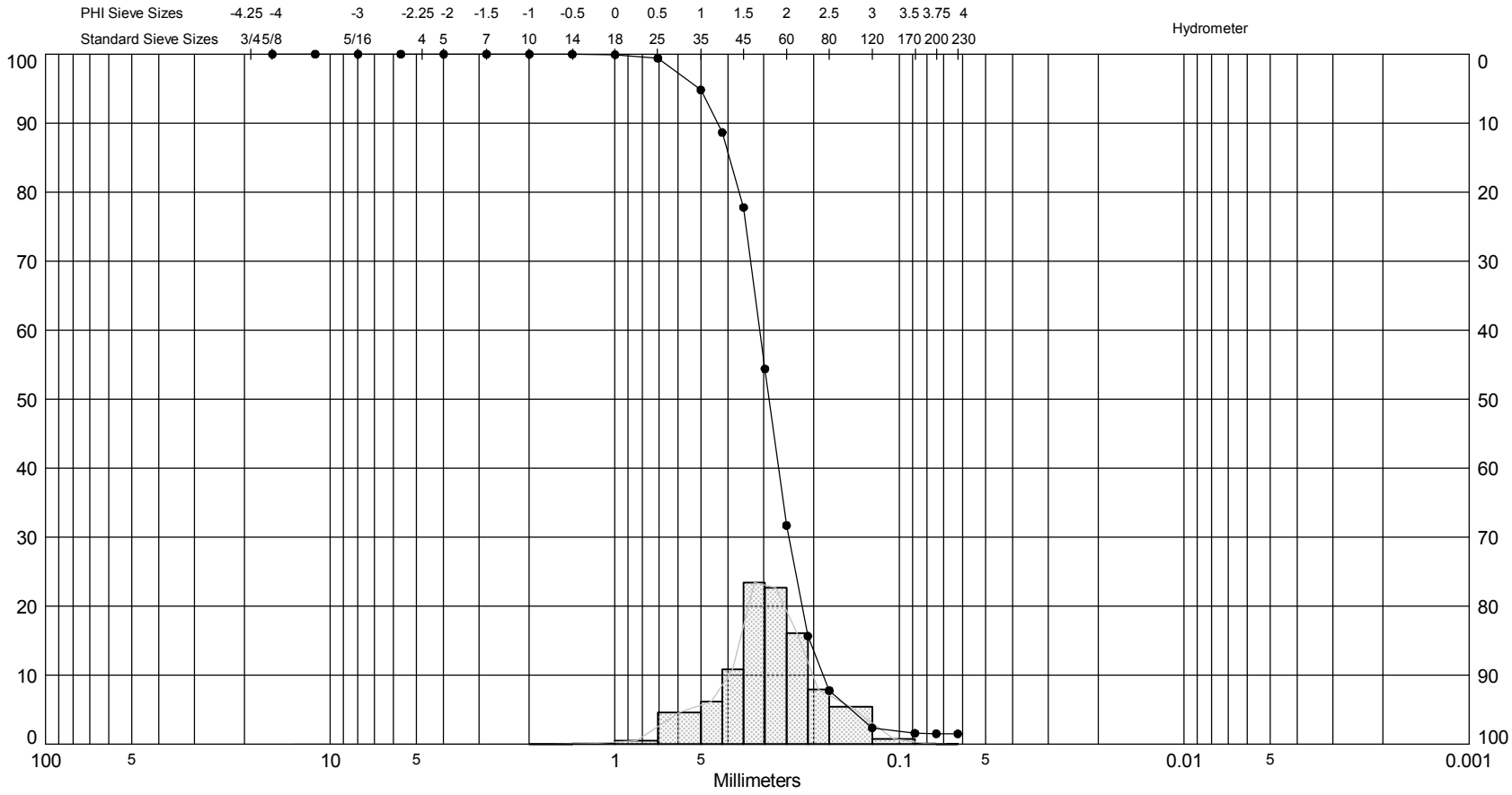
Comments:

Depths and elevations based on measured values

Sample Information	
Project Name:	Dauphin Island Shore Protection
Analysis Date:	01-20-11
Analyzed By:	JR
Easting (X, ft):	1,729,270
Northing (Y, ft):	76,948
Horizontal System:	NAD 1983
Vertical System:	NAVD 88

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fax (561) 391-9116

SIEVE ANALYSIS DIVC-11.GPJ JPBRAZIL.GDT 5/12/11



Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
DIVC-11-07 #5	—●—	-44.7	SP	#200 - 1.50 #230 - 1.48			1.8	1.79	-0.08	4.09	0.49

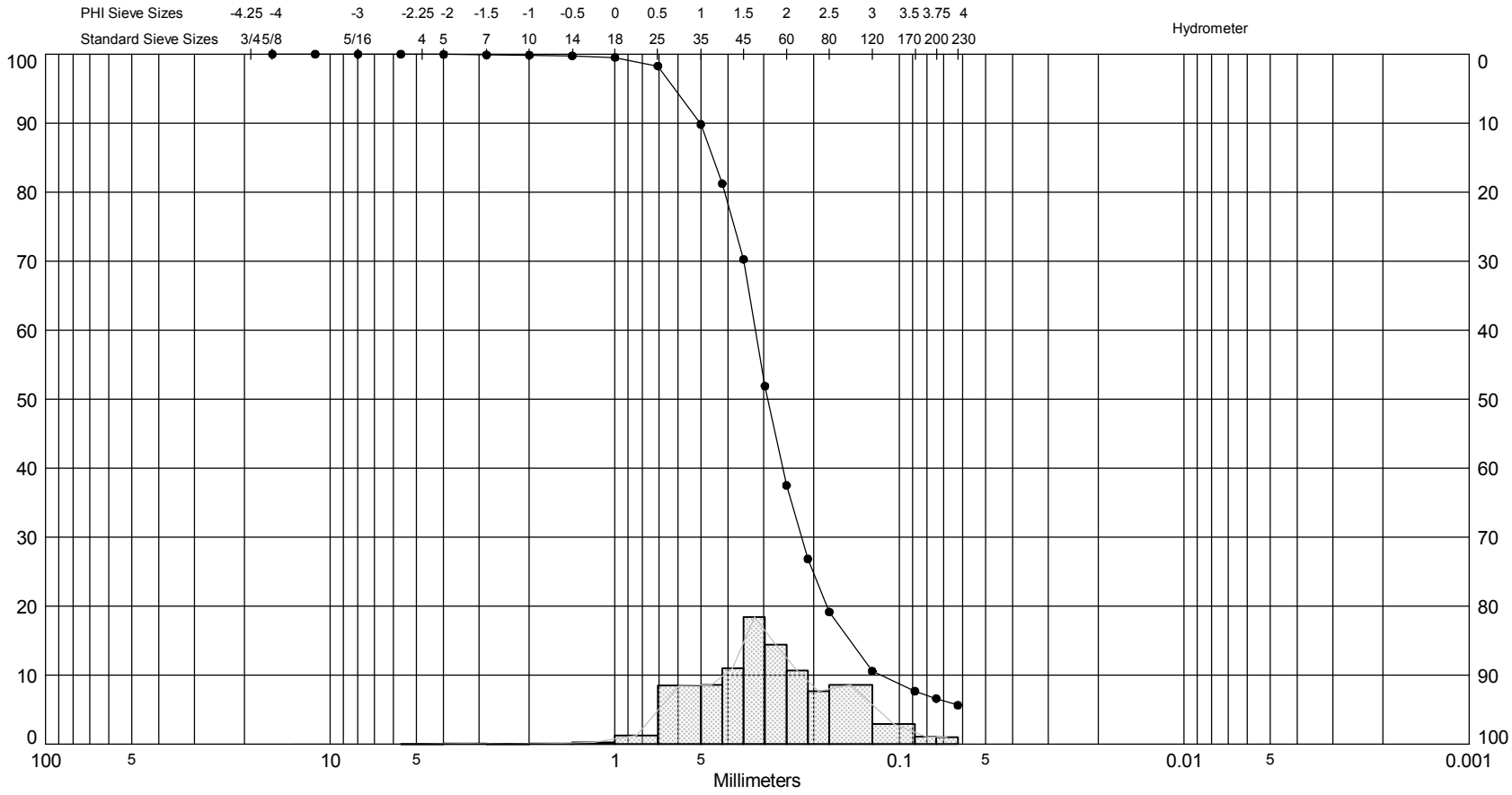
Comments:

Depths and elevations based on measured values

Coastal Planning & Engineering
2481 NW Boca Raton Blvd, Boca Raton
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fax (561) 391-9116

Sample Information	
Project Name:	Dauphin Island Shore Protection
Analysis Date:	01-20-11
Analyzed By:	JR
Easting (X, ft):	1,729,270
Northing (Y, ft):	76,948
Horizontal System:	NAD 1983
Vertical System:	NAVD 88

SIEVE ANALYSIS DIVC-11.GPJ JPBRAZIL.GDT 5/12/11



Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
DIVC-11-09 #1	—●—	-35.8	SP-SM	#200 - 6.60 #230 - 5.63			1.78	1.8	0.17	4.29	0.71

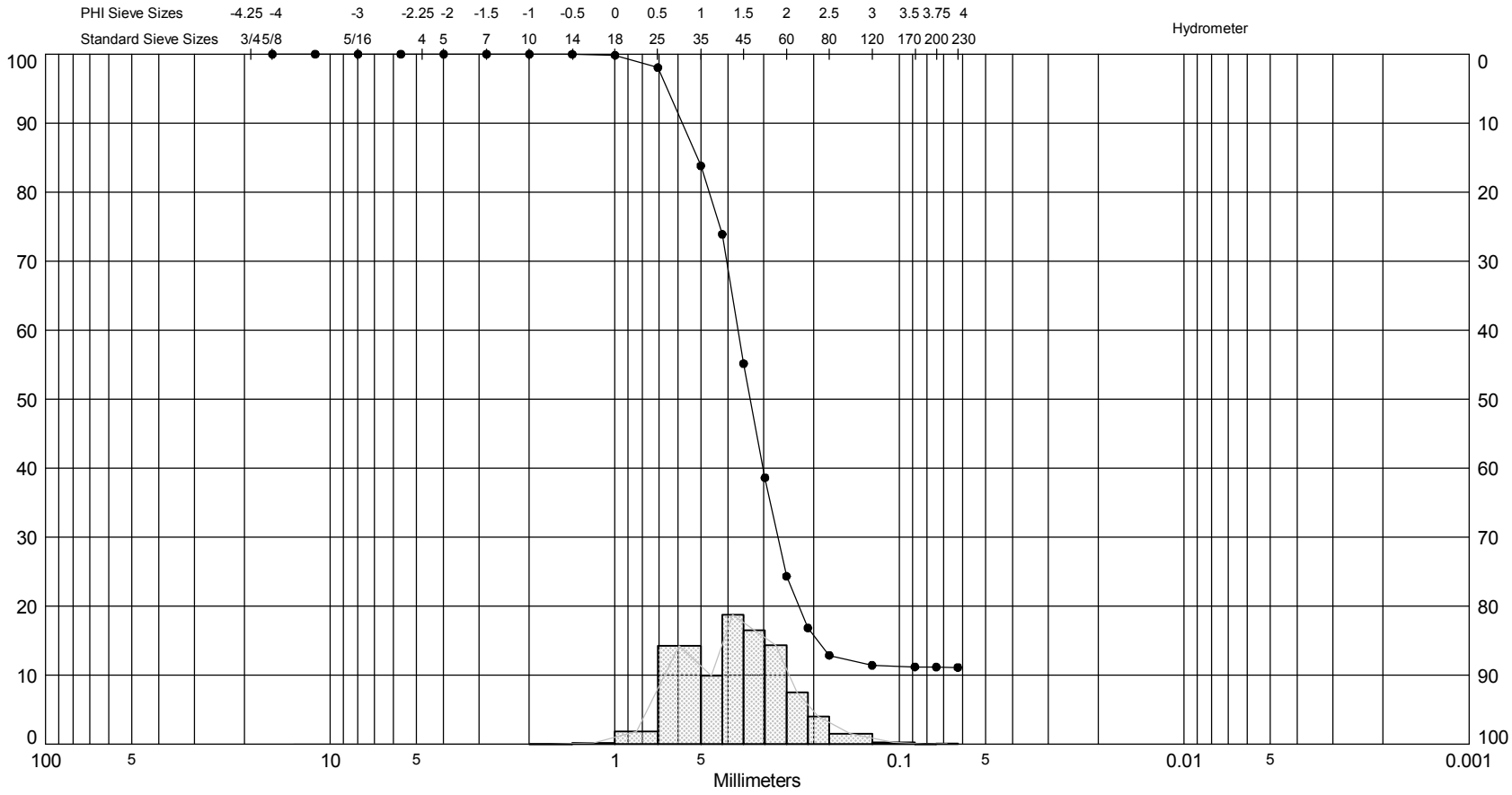
Comments:

Depths and elevations based on measured values

Sample Information	
Project Name:	Dauphin Island Shore Protection
Analysis Date:	01-19-11
Analyzed By:	JR
Easting (X, ft):	1,734,727
Northing (Y, ft):	80,751
Horizontal System:	NAD 1983
Vertical System:	NAVD 88

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SIEVE ANALYSIS DIVC-11.GPJ JPBRAZIL.GDT 5/12/11



Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
DIVC-11-09 #2	—●—	-40.2	SP-SM	#200 - 11.17 #230 - 11.11			1.58	1.49	0.02	3.35	0.53

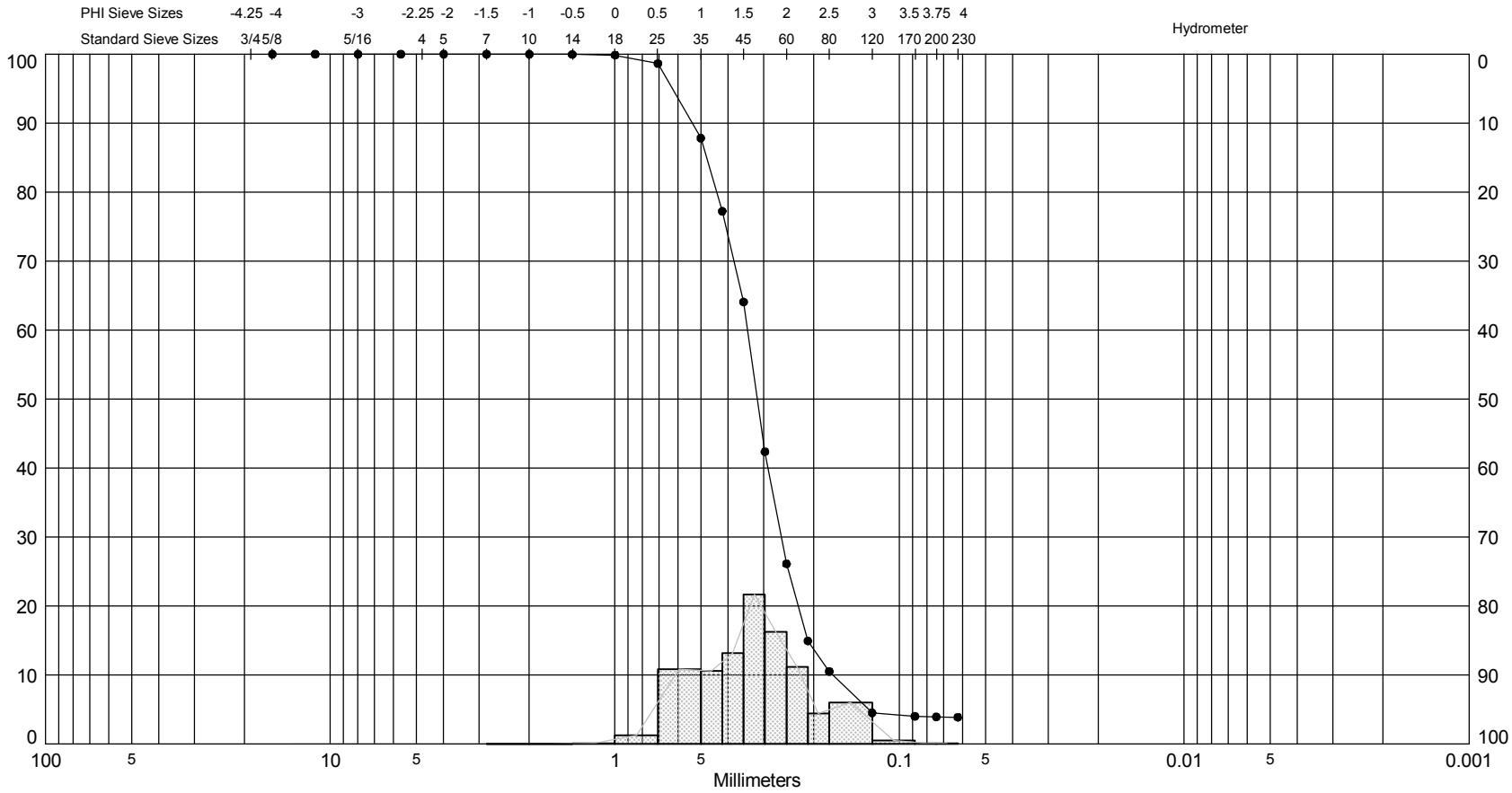
Comments:

Depths and elevations based on measured values

Sample Information	
Project Name:	Dauphin Island Shore Protection
Analysis Date:	01-19-11
Analyzed By:	JR
Easting (X, ft):	1,734,727
Northing (Y, ft):	80,751
Horizontal System:	NAD 1983
Vertical System:	NAVD 88

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SIEVE ANALYSIS DIVC-11.GPJ JPBRAZIL.GDT 5/12/11



Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
DIVC-11-09 #3	—●—	-42.2	SP	#200 - 3.92 #230 - 3.87			1.66	1.63	0.09	3.3	0.56

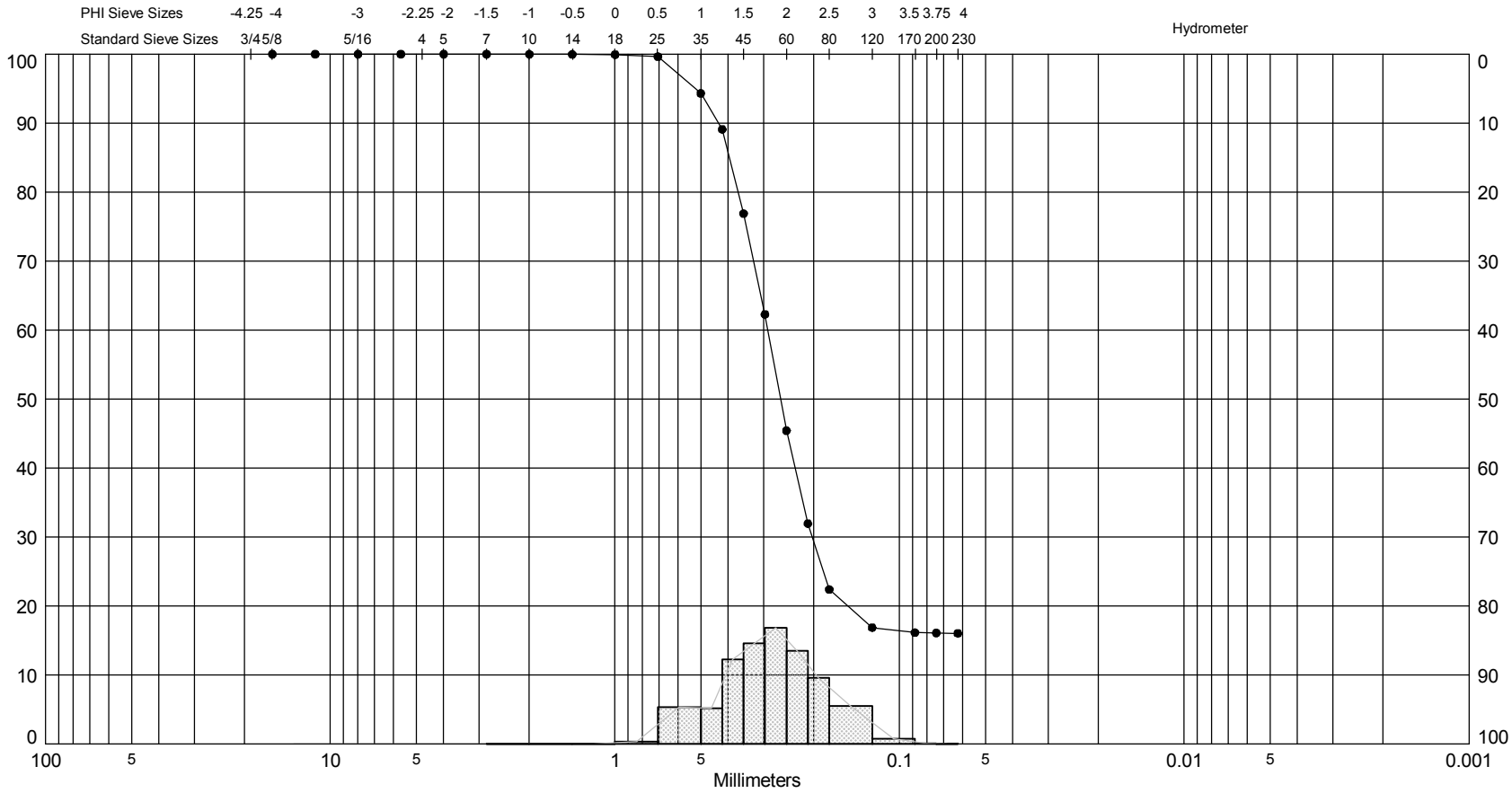
Comments:

Depths and elevations based on measured values

Sample Information	
Project Name:	Dauphin Island Shore Protection
Analysis Date:	01-20-11
Analyzed By:	JR
Easting (X, ft):	1,734,727
Northing (Y, ft):	80,751
Horizontal System:	NAD 1983
Vertical System:	NAVD 88

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SIEVE ANALYSIS DIVC-11.GPJ JPBRAZIL.GDT 5/12/11



Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
DIVC-11-09 #4	—●—	-43.3	SC	#200 - 16.08 #230 - 16.04			1.93	1.8	-0.07	3.36	0.53

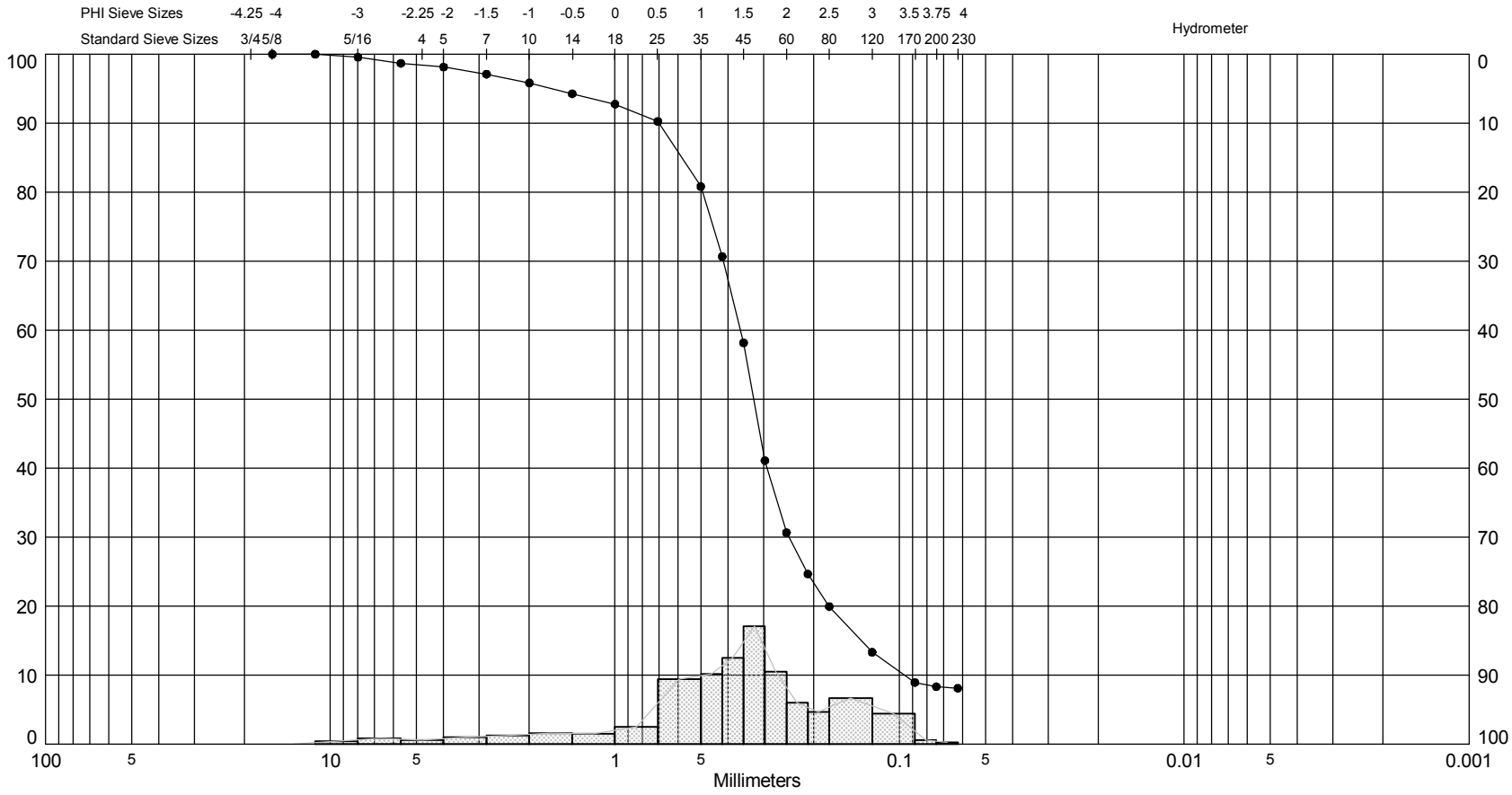
Comments:

Depths and elevations based on measured values

Sample Information	
Project Name:	Dauphin Island Shore Protection
Analysis Date:	01-19-11
Analyzed By:	JR
Easting (X, ft):	1,734,727
Northing (Y, ft):	80,751
Horizontal System:	NAD 1983
Vertical System:	NAVD 88

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fax (561) 391-9116

SIEVE ANALYSIS DIVC-11.GPJ JPBRAZIL.GDT 5/12/11



Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
DIVC-11-11 #1	—●—	-33.0	SW-SC	#200 - 8.32 #230 - 8.10			1.62	1.45	-1.39	6.62	1.11

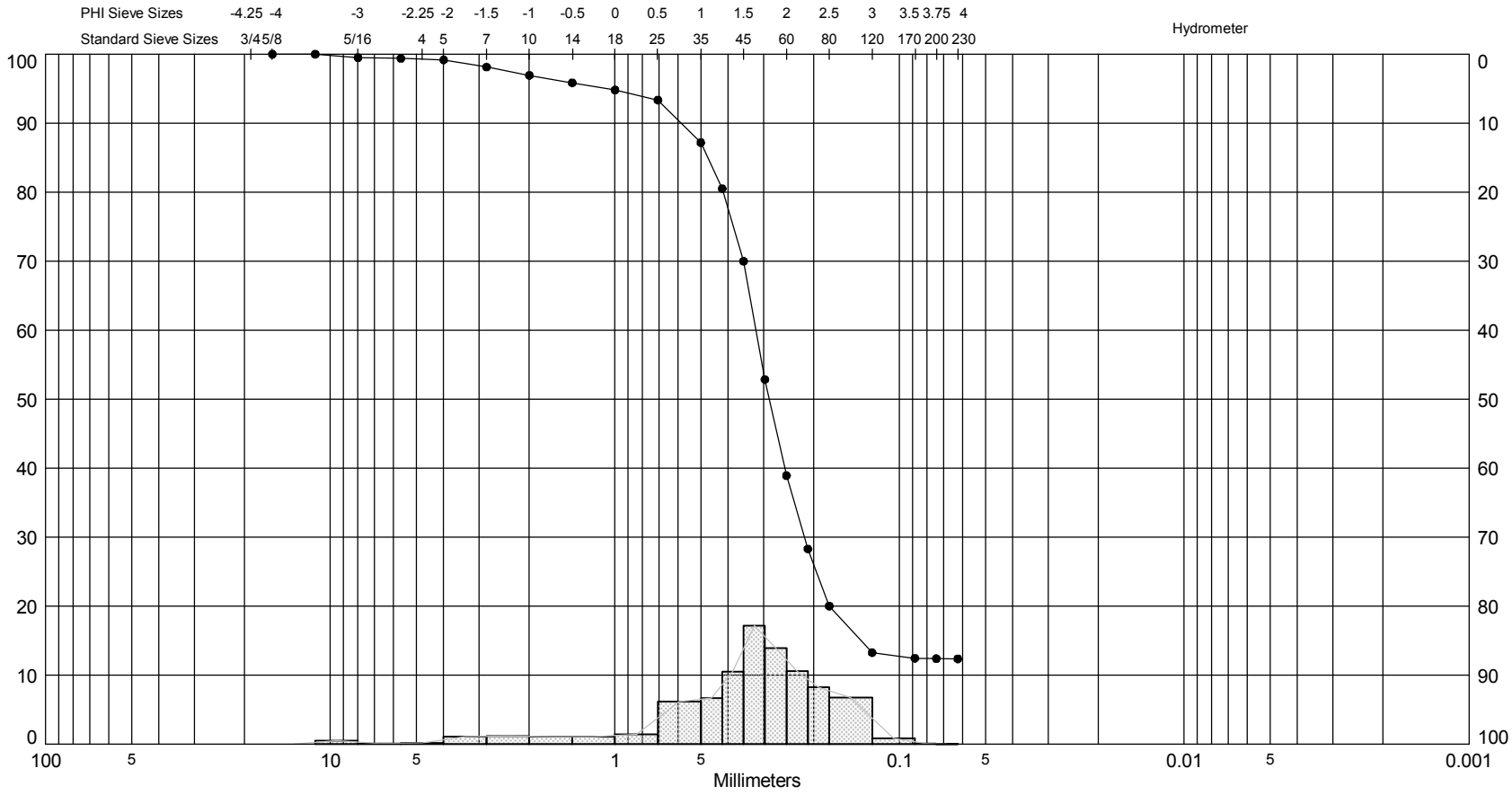
Comments:

Depths and elevations based on measured values

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ph (561) 391-8102
fax (561) 391-9116

Sample Information	
Project Name:	Dauphin Island Shore Protection
Analysis Date:	01-19-11
Analyzed By:	JR
Easting (X, ft):	1,755,321
Northing (Y, ft):	84,381
Horizontal System:	NAD 1983
Vertical System:	NAVD 88

SIEVE ANALYSIS DIVC-11.GPJ JPBRAZIL.GDT 5/12/11



Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
DIVC-11-11 #2	—●—	-36.0	SM-SC	#200 - 12.39 #230 - 12.36			1.8	1.57	-2.02	9.27	0.94

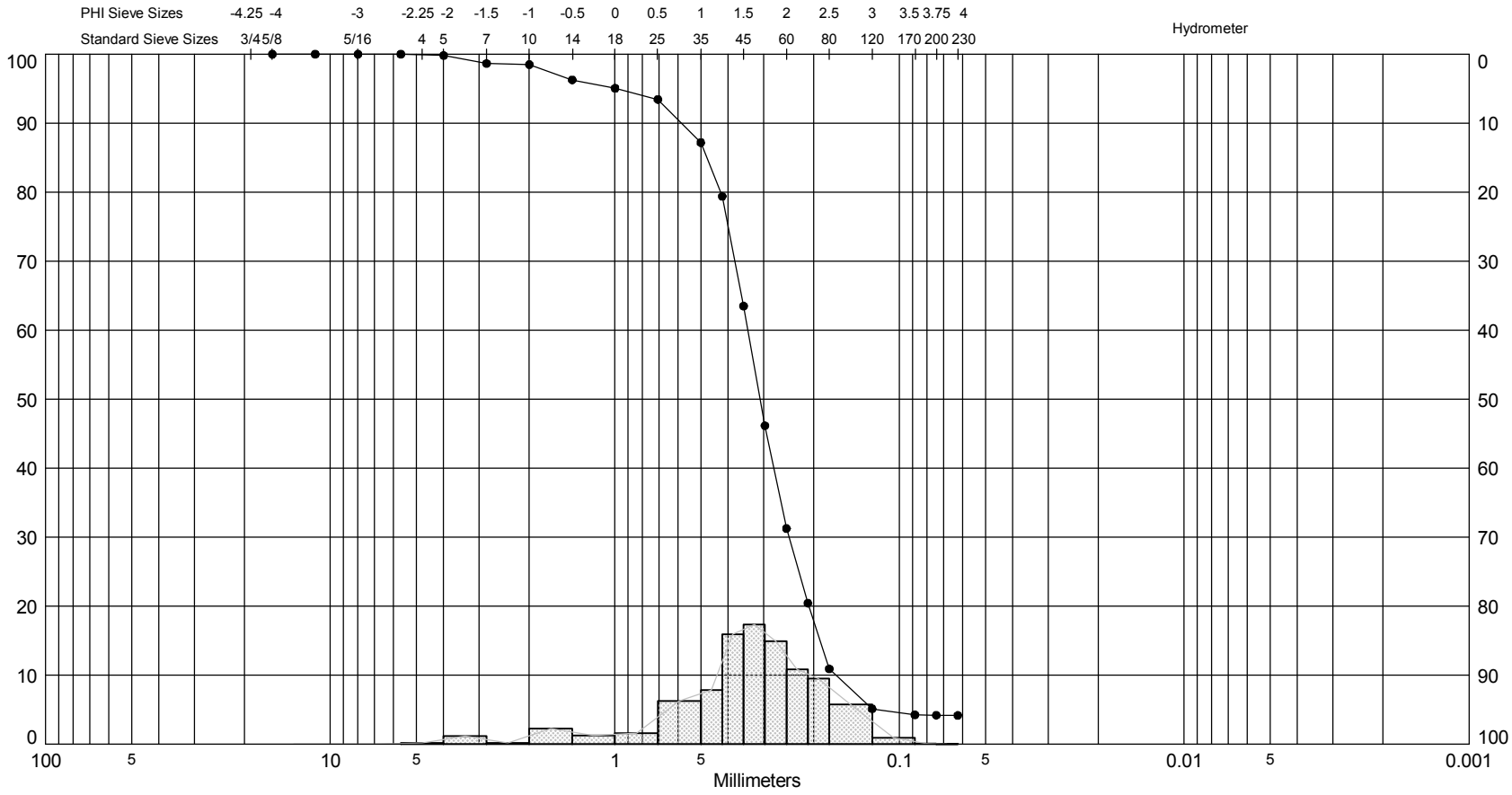
Comments:

Depths and elevations based on measured values

Sample Information	
Project Name:	Dauphin Island Shore Protection
Analysis Date:	01-19-11
Analyzed By:	JR
Easting (X, ft):	1,755,321
Northing (Y, ft):	84,381
Horizontal System:	NAD 1983
Vertical System:	NAVD 88

Coastal Planning & Engineering
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fax (561) 391-9116

SIEVE ANALYSIS DIVC-11.GPJ JPBRAZIL.GDT 5/12/11



Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
DIVC-11-11 #3	—●—	-39.2	SP	#200 - 4.18 #230 - 4.15			1.69	1.59	-1.55	7.23	0.82

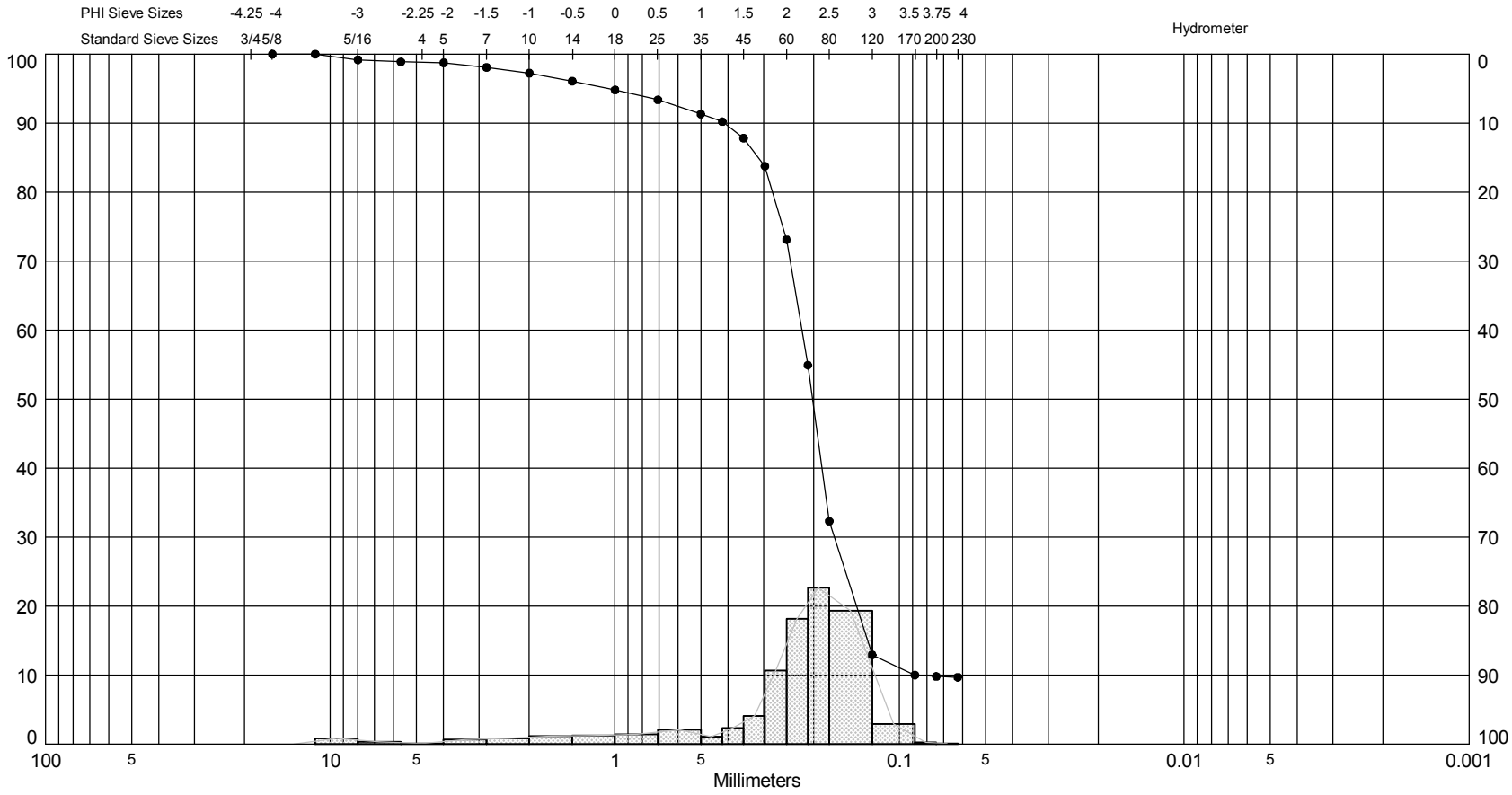
Comments: 1.0" whole shell and 0.75" shell fragment removed prior to sieving

Depths and elevations based on measured values

Sample Information	
Project Name:	Dauphin Island Shore Protection
Analysis Date:	01-21-11
Analyzed By:	JR
Easting (X, ft):	1,755,321
Northing (Y, ft):	84,381
Horizontal System:	NAD 1983
Vertical System:	NAVD 88

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fax (561) 391-9116

SIEVE ANALYSIS DIVC-11.GPJ JPBRAZIL.GDT 5/12/11



Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
DIVC-11-11 #4	—●—	-42.0	SW-SC	#200 - 9.80 #230 - 9.70			2.3	2.02	-2.71	11.91	1.03

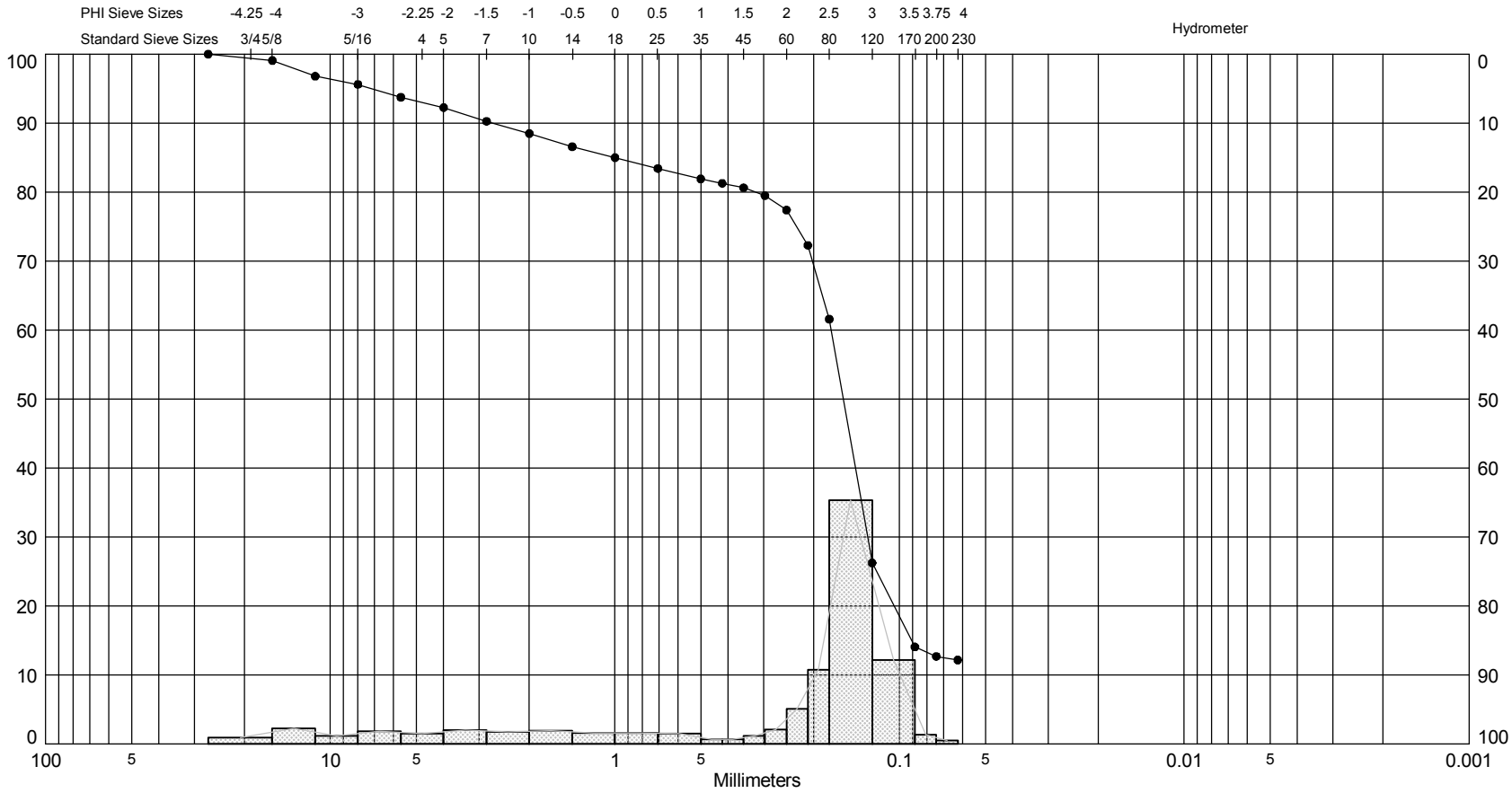
Comments:

Depths and elevations based on measured values

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fax (561) 391-9116

Sample Information	
Project Name:	Dauphin Island Shore Protection
Analysis Date:	01-19-11
Analyzed By:	JR
Easting (X, ft):	1,755,321
Northing (Y, ft):	84,381
Horizontal System:	NAD 1983
Vertical System:	NAVD 88

SIEVE ANALYSIS DIVC-11.GPJ JPBRAZIL.GDT 5/12/11



Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
DIVC-11-11 #5	—●—	-43.9	SC	#200 - 12.69 #230 - 12.17			2.66	1.78	-1.73	4.81	1.95

Comments:

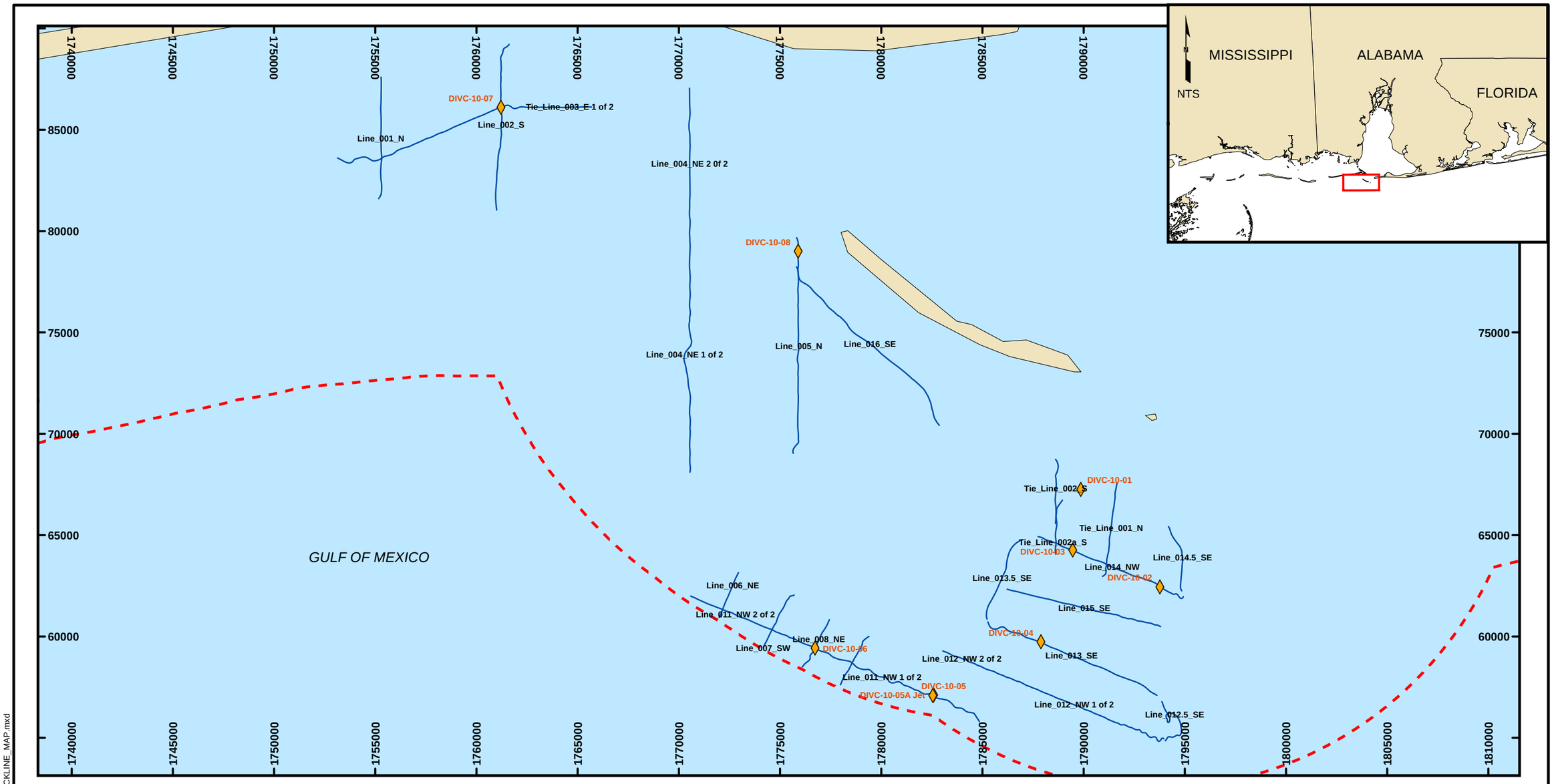
Depths and elevations based on measured values

Sample Information	
Project Name:	Dauphin Island Shore Protection
Analysis Date:	01-20-11
Analyzed By:	JR
Easting (X, ft):	1,755,321
Northing (Y, ft):	84,381
Horizontal System:	NAD 1983
Vertical System:	NAVD 88

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SIEVE ANALYSIS DIVC-11.GPJ JPBRAZIL.GDT 5/12/11

APPENDIX 12
2010 CPE Seismic Data (Digital Copy Only)



NOTES

1. COORDINATES ARE IN FEET BASED ON ALABAMA STATE PLANE COORDINATE SYSTEM, WEST ZONE, NORTH AMERICAN DATUM OF 1983 (NAD83).

LEGEND

- FEDERAL STATE BOUNDARY
- CPE VIBRACORES
- CPE GEOPHYSICAL TRACKLINES

0 2,500 5,000 Feet

1 inch = 5,000 feet

N

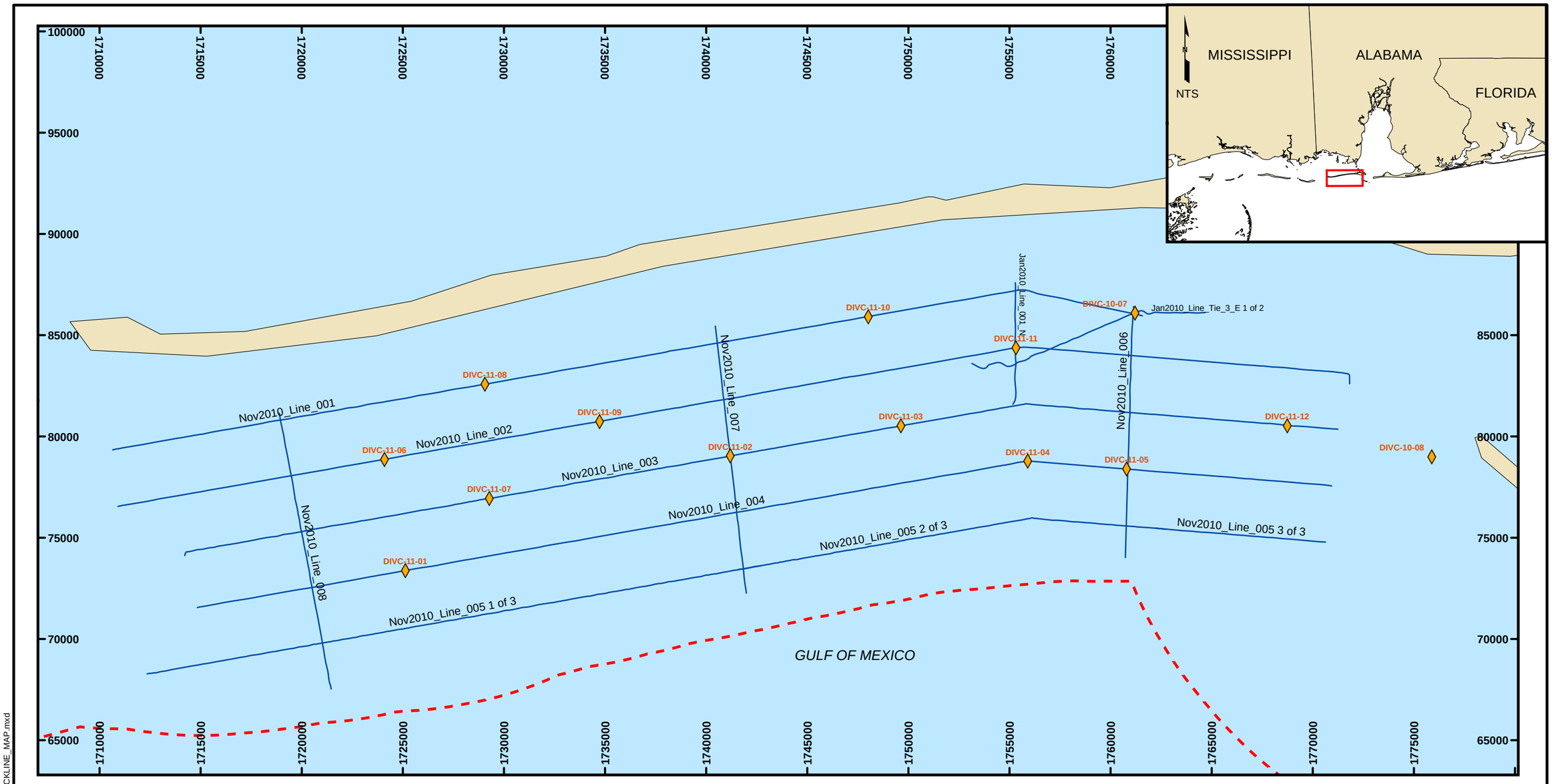
TITLE:

CPE 'FIRST RECONNAISSANCE' GEOPHYSICAL TRACKLINE MAP

COASTAL PLANNING & ENGINEERING, INC
2481 NW BOCA RATON BLVD.
BOCA RATON, FL 33431
PH. (561) 391-8102
FAX.(561) 391-9116

DATE: 05/03/11	BY: TD	COMM NO: 9950.00	

Path: G:\Alabama\995000 Dauphin Island\MXDs\TRACKLINE_MAP.mxd



NOTES

1. COORDINATES ARE IN FEET BASED ON ALABAMA STATE PLANE COORDINATE SYSTEM, WEST ZONE, NORTH AMERICAN DATUM OF 1983 (NAD83).

LEGEND

- FEDERAL STATE BOUNDARY
- CPE VIBRACORES
- CPE GEOPHYSICAL TRACKLINES

0 2,500 5,000 Feet

1 inch = 5,000 feet

N

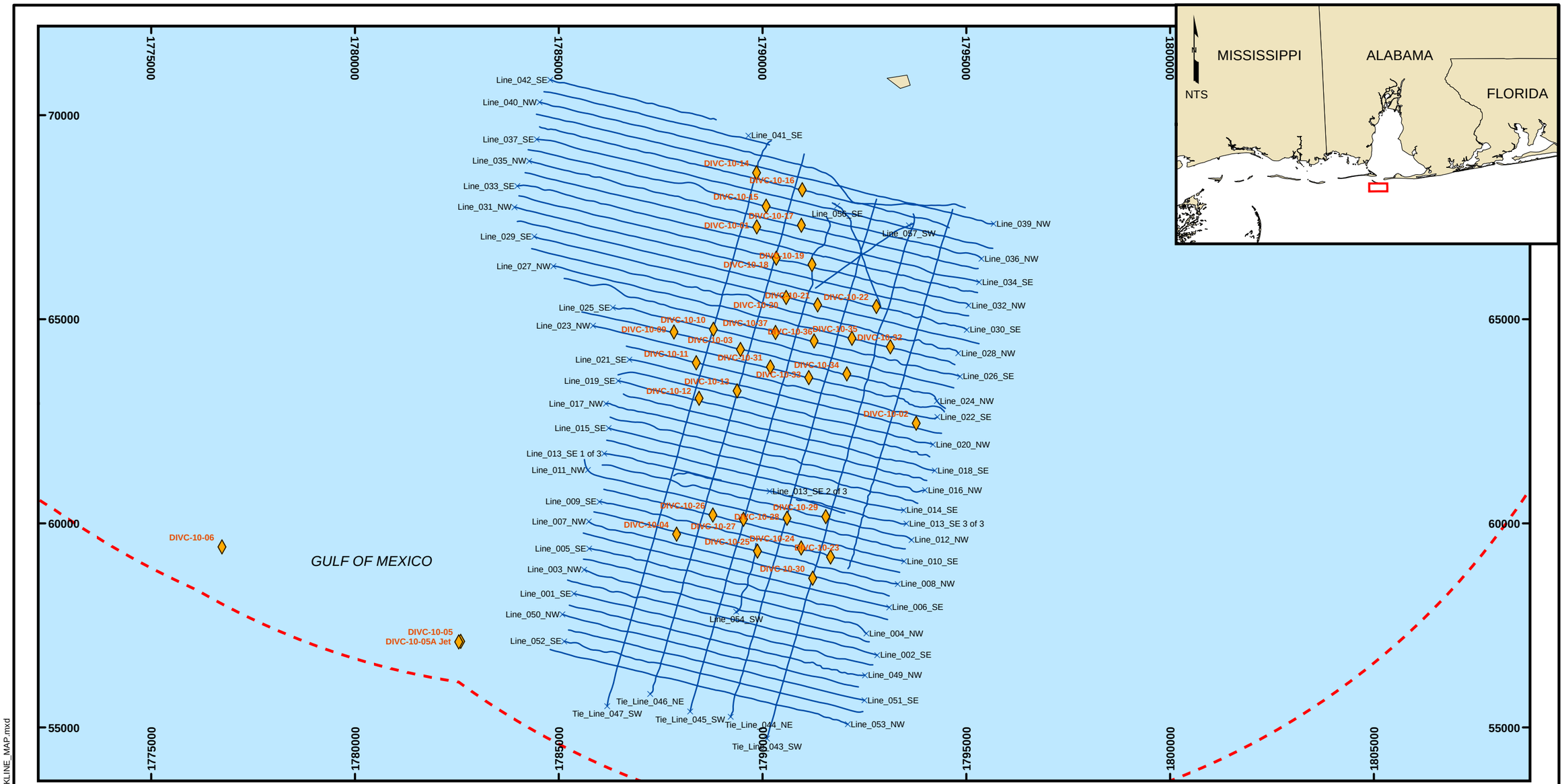
TITLE:

CPE 'SECOND RECONNAISSANCE' GEOPHYSICAL TRACKLINE MAP

COASTAL PLANNING & ENGINEERING, INC
2481 NW BOCA RATON BLVD.
BOCA RATON, FL 33431
PH. (561) 391-8102
FAX.(561) 391-9116

DATE: 05/03/11	BY: TD	COMM NO: 9950.00	

Path: G:\Alabama\995000 Dauphin Island\MXDs\TRACKLINE_MAP.mxd



NOTES

1. COORDINATES ARE IN FEET BASED ON ALABAMA STATE PLANE COORDINATE SYSTEM, WEST ZONE, NORTH AMERICAN DATUM OF 1983 (NAD83).

LEGEND

- FEDERAL STATE BOUNDARY
- CPE VIBRACORES
- CPE GEOPHYSICAL TRACKLINES

0 1,250 2,500 Feet

1 inch = 2,500 feet

N

TITLE:

CPE 'DESIGN LEVEL' GEOPHYSICAL TRACKLINE MAP

COASTAL PLANNING & ENGINEERING, INC
2481 NW BOCA RATON BLVD.
BOCA RATON, FL 33431
PH. (561) 391-8102
FAX.(561) 391-9116

DATE: 05/03/11	BY: TD	COMM NO: 9950.00	

Path: G:\Alabama\995000 Dauphin Island\MXDs\TRACKLINE_MAP.mxd

APPENDIX 13
Cultural Resources Report

Submerged Cultural Resource Survey of Two Borrow Sites Offshore of Dauphin Island Mobile County, Alabama



DRAFT

Coastal Planning & Engineering, Inc.
2481 N.W. Boca Raton Boulevard
Boca Raton, Florida 33431

27 April 2011

Submerged Cultural Resource Survey of Two Borrow Sites Offshore of Dauphin Island Mobile County, Alabama

DRAFT

Submitted to:
Coastal Planning & Engineering, Inc.
2481 N.W. Boca Raton Boulevard
Boca Raton, Florida 33431

Submitted by:

Tidewater Atlantic Research, Inc.
P. O. Box 2494
Washington, North Carolina 27889

Gordon P. Watts, Jr., Ph. D.
Principal Investigator

27 April 2011

Abstract

Coastal Planning and Engineering, Inc. (CPE) is the consulting engineer for a beach nourishment project for Dauphin Island in Mobile County, Alabama. A source material for this nourishment will be two borrow sites offshore of Dauphin Island. In order to determine the project's effects on potentially significant submerged cultural resources, CPE contracted with Tidewater Atlantic Research, Inc. (TAR) of Washington, North Carolina to supervise the conduct of a submerged cultural resource remote-sensing survey of the borrow areas. The survey methodology was designed to provide accurate and reliable identification, assessment and remote-sensing documentation of submerged cultural resources located within the study areas. Analysis of the remote-sensing data generated in the North Borrow Site investigation area identified a total of 129 magnetic anomalies. Forty-nine magnetic anomalies exhibited signature characteristics and spatial associations indicative of potentially significant cultural resources and are recommended for additional investigations and/or avoidance. Analysis of the sonar data identified 19 images of material exposed on the bottom surface. Fourteen of those produced magnetic signatures and are indicative of potentially significant cultural resources and are recommended for avoidance. In the South Borrow Site investigation area, analysis of the remote-sensing data identified 78 magnetic anomalies. Twenty magnetic anomalies exhibited signature characteristics and spatial associations indicative of potentially significant cultural resources and are recommended for additional investigations and/or avoidance. Analysis of the sonar data identified six images of material exposed on the bottom surface. Three of those produced magnetic signatures and are indicative of potentially significant cultural resources and are recommended for avoidance. Analysis of the data generated by the sub-bottom profiler in each survey area identified no relict landforms or other targets that are indicative of association with prehistoric or historic submerged cultural resources.

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Introduction

Coastal Planning and Engineering, Inc. (CPE) is the consulting engineer for a beach nourishment project for Dauphin Island in Mobile County, Alabama. A source material for this nourishment will be two borrow sites offshore of Dauphin Island. In order to determine the project's effects on potentially significant submerged cultural resources, CPE contracted with Tidewater Atlantic Research, Inc. (TAR) of Washington, North Carolina to supervise the conduct of a remote-sensing survey of the borrow areas.

The remote-sensing survey conducted by CPE and TAR personnel was designed to identify magnetic and/or acoustic anomalies that might be generated by shipwreck resources and relict landforms that could be associated with prehistoric habitation. Analysis of the data was designed to identify and assess the potential significance of anomalies and determine the necessity for additional investigation designed to generate data to support a determination of National Register of Historic Places (NRHP) eligibility. The investigation complies with Federal mandates established in Section 106 of the National Historic Preservation Act of 1966, as amended (PL 89-665); Executive Order 11593; Department of the Interior Standards, 36 CFR part 61, 36 CFR part 79; the Archaeological and Historic Preservation Act of 1979, as amended; the Abandoned Shipwreck Act of 1987, and the Advisory Council on Historic Preservation revised 36 CFR, Part 800. The survey was carried out in compliance with Chapter 460-X-9-.03 of the Alabama Historical Commission (AHC) Administrative Code, Archaeological Investigations. The results of the investigation furnish CPE with the archaeological data essential to comply with submerged cultural resource legislation and regulations.

Analysis of the remote-sensing data generated in the North Borrow Site investigation area identified a total of 129 magnetic anomalies. Forty-three magnetic anomalies are located in the proposed borrow area and 86 within a borrow area buffer. Thirty-six magnetic signatures are associated with a pipeline and oil or gas platform outside the proposed borrow area. Thirty are classified as small single anomalies and 14 are classified as moderate single objects; all are suggestive of modern debris and not recommended for avoidance. Forty-nine magnetic anomalies exhibit signature characteristics and spatial associations indicative of potentially significant cultural resources and are recommended for avoidance and/or additional investigation.

Analysis of the sonar data from the North Borrow Site identified 19 images of material exposed on the bottom surface. Four of those signatures are located in the proposed borrow area and produced magnetic signatures. These are indicative of potentially significant cultural material and are recommended for avoidance. Fifteen sonar targets are located outside the North Borrow Area. One is associated with an oil or gas platform. Four are indicative of small single objects and are not recommended for avoidance. The remaining 10 sonar targets produced associated magnetic signatures indicative of potentially significant cultural material and are recommended for avoidance.

In the South Borrow Site investigation area, analysis of the remote-sensing data identified 78 magnetic anomalies. Forty-one are located in the proposed borrow area and 37 are located outside the proposed borrow area. Three magnetic signatures are associated with a pipeline outside the proposed borrow area. Thirty-seven are classified as small single anomalies and 13 are suggestive of moderate single objects. These signatures are indicative of modern debris and are not recommended for avoidance. Five anomalies produced signature characteristics suggestive of a possible small diameter pipe or degraded cable. Twenty magnetic anomalies exhibited signature characteristics and spatial associations indicative of potentially significant cultural material and are recommended for additional investigation and/or avoidance.

Analysis of the sonar data from the South Borrow Site identified six images of material exposed on the bottom surface. Three of those signatures are located in the proposed borrow area. Two located in the proposed borrow area produced magnetic signatures indicative of potentially significant cultural material and are recommended for avoidance. The remaining sonar image in the potential borrow area is indicative of a small single object and is not recommended for avoidance. Three sonar targets are located outside the borrow area. Two are indicative of small single objects and are not recommended for avoidance. The remaining sonar target produced a magnetic signature indicative of potentially significant cultural material and is recommended for avoidance. Analysis of the data generated by the sub-bottom profiler in each of the survey areas identified no relict landforms or other targets that are indicative of association with prehistoric or historic submerged cultural resources.

The fieldwork consisted of a background literature review and a survey of the investigation area employing a cesium-vapor marine magnetometer, sidescan sonar and sub-bottom profiler. Survey planning was carried out by principal investigator Gordon Watts and Matt Andrews from CPE. Fieldwork activities were carried out between 3 and 5 September 2010 and between 22 and 23 February 2011. Project field personnel consisted of Dr. Gordon Watts, TAR archaeological principal investigator and remote-sensing operators from CPE. CPE personnel included navigator Chris Dougherty, marine geophysicist Beau Suthard and surveyor Jared Lambert. Data analysis and illustrations were prepared by Dr. Watts and Joshua Daniel. Historical and cartographical research was carried out by Dr. Watts , Mr. Daniel and historian Ms. Robin Arnold. Dr. Watts, Mr. Daniel and Ms. Arnold prepared this report.

Project Site Locations

The investigation areas for the Dauphin Island beach nourishment project are two borrow areas offshore of Dauphin Island (Figure 1). The North Borrow Site investigation area is located approximately 4 nautical miles south of Dauphin Island and is a polygon measuring 7,569 feet in length, 5,304 feet in width and covers an area of 576.02 acres (Figure 2).

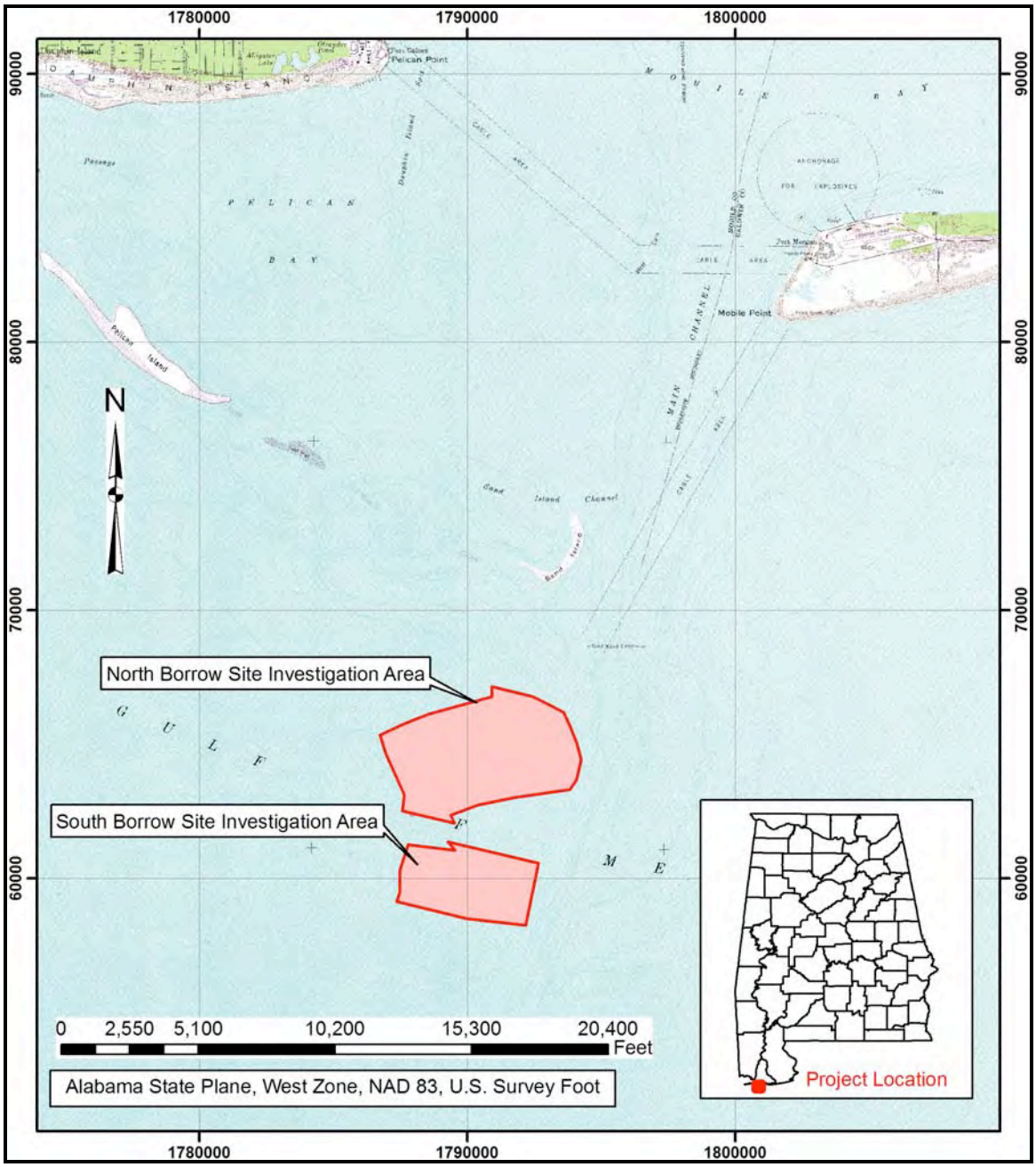


Figure 1. Project Site Locations (USGS. "Fort Morgan quadrangle, Alabama" 1:24,000).

The Alabama State Plane, West Zone, NAD 83, U.S. Survey Foot coordinates for the North Borrow Site investigation area are:

Designation	X	Y
A	1790922.9	67161.9
B	1792442.7	66780.0
C	1793593.9	66207.3
D	1793813.4	65743.5
E	1794071.5	65080.9

Designation	X	Y
F	1794254.5	64420.8
G	1794067.0	63663.9
H	1793818.8	63316.6
I	1791732.4	63009.2
J	1790367.9	62729.8
K	1789384.3	62351.1
L	1789514.4	62047.4
M	1787575.7	62512.2
N	1787634.4	63108.1
O	1786926.9	64699.0
P	1786742.8	65352.0
Q	1787609.9	65753.4
R	1788545.9	66134.1
S	1790911.4	66783.6

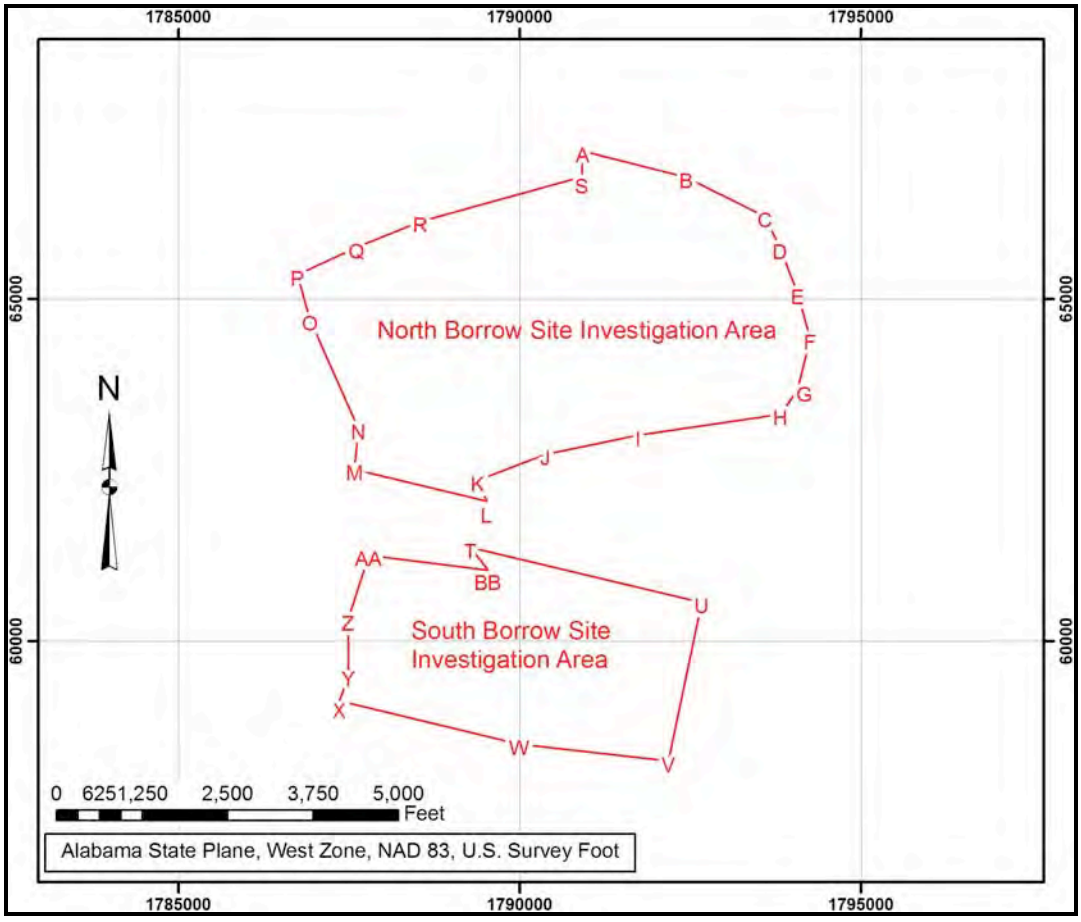


Figure 2. The borrow site investigation areas configuration.

The South Borrow Site investigation area is located approximately 4.7 nautical miles south of Dauphin Island and is a polygon measuring 5,020 feet in length, 2,628 feet in width and covers an area of 277.65 acres (Figure 2).

The Alabama State Plane, West Zone, NAD 83, U.S. Survey Foot coordinates for the South Borrow Site investigation area are:

Designation	X	Y
T	1789276.2	61368.9
U	1792662.8	60567.5
V	1792177.9	58247.5
W	1789983.7	58497.0
X	1787357.6	59131.2
Y	1787490.5	59499.9
Z	1787484.5	60313.5
AA	1787784.8	61257.8
BB	1789534.4	61036.6

Survey Environmental Conditions

During the Dauphin Island survey, weather was cool with temperatures ranging from approximately 58 degrees early in the morning to about 81 degrees by mid-afternoon. Winds ranged from out of the southeast 5 to 15 mph on the first day and 8 to 12 mph on the last day. Sea states ranged from approximately two feet during the first day of operations to nearly three feet on the last day. Visibility exceeded 10 miles during both days.

Historical Background

The Contact and Colonization Period (1500-1715)

Mobile Bay's maritime heritage developed as a consequence of the complex network of rivers and estuaries associated with Mobile Bay and the Gulf of Mexico. Spanish explorers were the first Europeans to discover the bay and by 1507 it appears to be represented on the Waldseemuller map of the Gulf of Mexico area. A 1519 Spanish expedition led by Alonso Alvarez de Pineda explored the area and first identified Mobile Bay as Bahia Espiritu Santo. Although explorers Panfilo de Narvaez and Francisco Maldonado may have passed along the mouth of Bahia Espiritu Santo, it was Guido de las Bazares who provided the first detailed account of the bay in 1558 (Mistovich and Knight 1983:12).

Although discovered by Spaniards, the region that surrounds Mobile Bay was initially settled by French explorers (Griffith 1972:12). In January 1699, Pierre Le Moyne, Sieur d' Iberville sailed by the Spanish fortification at Pensacola Bay and briefly explored Mobile Bay before progressing to the mouth of the Mississippi. On 1 February, the French nobleman reconnoitered the southwest extremity of an island [modern Dauphin] that he called “Massacre” due to the discovery of 60 skeletons there (Higginbotham 1991:30). At Mobile Bay, Iberville took note of the “physiographical features” that were conducive to future settlement sites. The French nobleman undoubtedly observed that:

> The brilliant white sandy beaches of Mobile Point and Dauphin Island created a relatively narrow mouth, deep enough for safe passage only near the tip of the island, which would facilitate defense; and at this island was a good natural harbor. Thirty-four miles from the inlet was the mouth of the Mobile River, the gateway to the interior via its tributaries, the Alabama and Tombigbee rivers, both of which were navigable far above the confluence. Around the bay were the resources of building materials for military as well as civil and naval architecture. On the shores were southern pine and live oak. Near the mouth of the Mobile River and at other places about the bay, banks of shells were plentiful for lime (Robinson 1971:119).

Although Pierre Le Moyne chose to establish a settlement at modern Biloxi, his able younger brother moved French colonists to a high bluff on the Mobile River some three years later. At "Twenty-Seven-Mile Bluff", Jean Baptiste Le Moyne constructed a fortification called Fort Louis de la Mobile (Delaney 1981:15-17). Iberville chose to station the *Renommée* in Pensacola Bay, and therefore needed several vessels to navigate between that place and Massacre Island and between the latter and the Mobile River. On 3 January 1702, Iberville:

> [D]ispatched a Canadian merchant-sailor named François Pillet, commander of the forty-five ton ketch *Dauphine*, to Massacre Island, laden with the bulk of new supplies brought to Louisiana on the *Renommée* and the *Palmier*, including three exceptionally large tents which were to protect the colony's goods until the warehouse could be built (Higginbotham 1991:33).

Over the course of the next two days, Bienville commenced his own move from Biloxi, by sending out all of the stores and equipment at Fort Maurepas on "a freighter and two feluccas" (Higginbotham 1991:33). This final day's work consisted of Bienville actually leaving the fort, with the "majority of the garrison as well as the remainder of the Canadians and a small number of French artisans" (Higginbotham 1991:33). Iberville enlisted the aid of Governor Martínez, who allowed the French to use four vessels from his own fleet, including "a medium-sized launch" (Higginbotham 1991:34).

Perhaps the most significant issue regarding French development at Mobile Bay was the characteristics of the estuary itself. Most of the bay was shallow and there were no readily accessible deep water landing sites for large seagoing vessels (Surrey 1916:40). As a consequence ship traffic employed Pelican Bay off the east end of Dauphin Island as an anchorage to discharge and load cargoes. Smaller shallow draft lighters were employed to transport personnel and cargoes from "Port Dauphine" up the bay to Mobile. In an effort to facilitate transportation and maritime commerce, the French settlement at Fort Louis was moved to the city's present location at Choctaw Point in 1711.

The Expansion Period (1716-1774)

Rivers flowing into Mobile Bay provided avenues of trade and transportation that enabled the early French settlers to market natural resources that ranged from naval stores to furs. Products from the interior areas were shipped downriver on small riverboats and transferred to ocean going ships, such as the French merchant vessel *Bellone* (Griffith 1972:16-18). To protect their interests in the region the French established a fortification on Dauphin Island and a second near the present site of Mobile in 1701.

Mobile Bay provided a convenient and protected harbor and the city of Mobile developed to facilitate the exchange of local products for those of Europe, the West Indies and northeastern America. After a 1717 hurricane rendered the deepwater anchorage in Pelican Bay off Dauphine Island unsuitable and raids by English privateers disrupted trade there, this fortification was abandoned by the French (Hamilton 1910:570). Some of the earliest soundings of Mobile Bay and the entrance channels were conducted in the following year by Le Moyne de Sérigny (Delaney 1981:29-30).

The impact of Queen Anne's War on Mobile proved to be disastrous. The English Royal Navy's destruction of the French Navy left the colony without sufficient protection and trade virtually collapsed. After management of the colony was turned over to Antoine Crozat, matters deteriorated even further. John Law, a Scott financier, took over management authority in 1720 and moved operational headquarters of the colony to Biloxi. After the Company of the Indies took over colonial management, the capital was shifted to New Orleans. Finally in 1731, the colony reverted to the Crown (Delaney 1981:27; Surrey 1916:51).

Although Mobile continued to grow based primarily on the exportation of hides, timber, pitch, tar, rice, cotton and indigo, the balance of trade was decidedly unfavorable (Surrey 1916:166). The French colonial empire in America was almost entirely dependent on France for critical supplies, slaves and colonists for labor, military protection and even food (Figure 3). When warfare broke out between France and Great Britain again in 1756, the British Royal Navy blockaded Mobile Bay isolating Mobile from support. During the Seven Years War Mobile's trade was virtually crippled and settlers were left to their own devices for survival (Delaney 1981:41).

The Treaty of Paris in 1763 ceded Mobile and all of French Louisiana east of the Mississippi to Great Britain. Under British rule Mobile fell within the district of West Florida, which was managed out of Pensacola. The major source of income for both French and British settlers on Mobile Bay continued to be trade with the Indians and exportation of hides, timber, pitch and tar. Plantations initially established during French rule began to expand and increase in number under British authority. In addition to rice and indigo plantations in the vicinity of Mobile Bay began to raise tobacco and cotton. Cotton would ultimately become one of the most important exports of Mobile (Hamilton 1910:290).

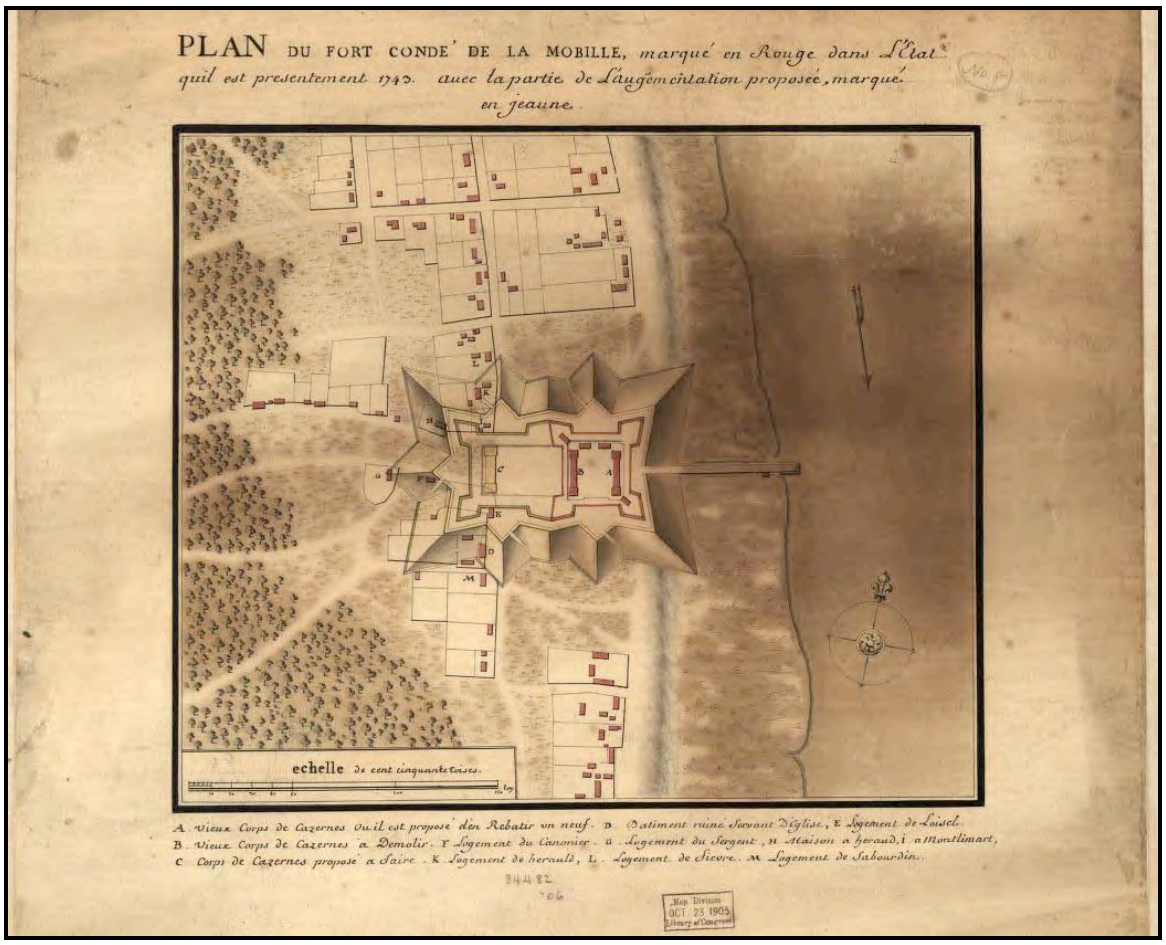


Figure 3. A 1743 plan of French Fort Condé (courtesy Library of Congress).

The Revolution and Federal Period (1775-1830)

British claim to Mobile was soon threatened again as revolution began in the Atlantic seaboard colonies. Tories loyal to Great Britain fled into West Florida seeking sanctuary. After France and Spain joined the revolting Americans as allies, General George Washington convinced the Spanish governor at New Orleans to attach Mobile. With 2,000 men Governor Don Bernardo Galvez captured the city in early 1780 and a year later repeated his success at Pensacola (Griffith 1972:29; Delaney 1981:48).

Under Spanish control land around Mobile Bay was re-granted but agriculture, commerce and trade continued to develop (Delaney 1981:48). Following the United States' purchase of the Louisiana Territory from France in 1803, American President Thomas Jefferson contested Spanish ownership of Mobile. As Americans moved west into the Tombigbee District of the Mississippi Territory, Spanish Mobile became a center for their trade. That reinforced United States interest in gaining control of Mobile.

When Great Britain undertook the overthrow of Napoleon III, Spain allied with the British. The United States declaration of war against Great Britain in 1812 provided the impetus to annex Mobile. Using the Spanish alliance with Britain in the war against Napoleon III as just cause, Congress annexed the district of Mobile in May 1812. The American annexation led to an alliance between the British and Spanish and the Creek Indians. The Creeks were already hostile to American intrusion in their territory and with arms and support of Britain and Spain they launched a campaign against American settlers in the area.

When this Creek-British coalition was defeated by Americans, under the command of General Andrew Jackson, the U.S. claim to Mobile was firmly established. Although the war between Britain and the United States was officially over a Royal Navy fleet attacked fortifications on Mobile Point and Dauphin Island in September 1814. The first attack failed but the second succeeded and Fort Bowyer on Mobile Point was captured and occupied in February 1815 (Figure 4). Within days, news of the peace reached the British and Fort Bowyer was abandoned to the Americans in late February (Palmer 1816:103-105; 311-312).

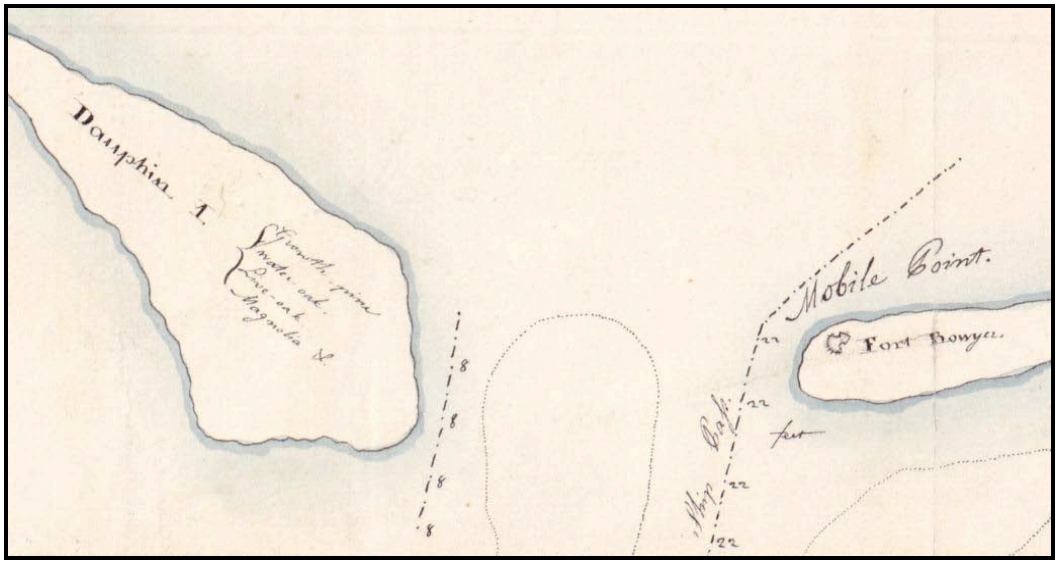


Figure 4. 1813 map of Mobile Point with Fort Bowyer (courtesy Library of Congress).

As the Alabama Territory developed and became a state in 1819, Mobile and the surrounding region became a major supplier of agricultural products; especially cotton. A contemporary journal published numerous articles attesting to the commercial growth there in the postwar period. On 26 September 1818, the *Niles' Register* reported the steamboat *Maid of Orleans* was launched at Philadelphia. The owners of the steamboat intended to navigate from Mobile to New Orleans via Lake Pontchartrain (Niles 1819:80). Later that autumn, the French brig *Minerva* sailed from Havre for Mobile with 50 passengers. Maritime advice from New York suggested that most were "mechanics, who design[ed] to settle in that promising place" (Niles 1819:269).

At this time, *Niles' Register* related that the current population of Mobile was comprised of 604 "white persons, 149 free people of color, and 374 slaves" (Niles 1819:268). With an investment of new settlers and with the thriving commerce at Mobile, the National government realized that the region should be fortified. The U.S. Department of War issued a status report entitled "Army, Fortifications, &c." on 19 December 1818, which provided details about the "Gulf of Mexico frontier". Chief Engineer J. G. Swift's submittal for Secretary of War John C. Calhoun stated that $3,000,000 would be needed to complete seven works that included "No. 6, Mobile Point" and "No. 7, Dauphin Island" (Niles 1819[Supplement:35]).

In addition to two critical works protecting New Orleans, the works commanding the entrance into Mobile Bay also required immediate attention. Engineer Swift commented that in order to mount 118 cannon at *each* Mobile Bay location, the total cost would be some $1,264,000. The war department report also stated that two contractors had "left the Atlantic states, with artisans, and cargoes of materials, to commence the works…under the directions of officers in the corps of engineers" (Niles 1819[Supplement:35]).

In November 1820, President Monroe, in speaking to the Sixteenth Congress, Second Session], remarked that despite the enormous debt incurred during the "late" war:

> Considerable progress has been made, during the present season, in examining the coast and its various bays and other inlets; in the collection of materials, and in the construction of fortifications for the defense of the Union, at several positions at which it has been decided to erect such works. At Mobile Point and Dauphin Island….materials to a considerable amount have been collected, and all the necessary preparations made for the commencement of the works (Benton 1858:657).

On 13 April 1822, the Committee on Military Affairs provided Report *No. 227* to the Seventeenth Congress, [1st Session] to update the body regarding the fortifications on Dauphin Island and Mobile Point. In explaining why construction on the former site was suspended, the committee related that a new marine survey suggested that only 12 feet of water [instead of 18 feet] was found at the entrance of "the anchorage ground under Pelican Island", and that only 8.5 feet was found at the western channel [instead of 10] (U.S House of Representatives [USHR] 1822:388). Therefore:

> From this survey it follows, and is indeed conceded, that one of the main objects of the fort on Dauphin Island, viz: that of covering the passage to the anchorage ground under Pelican Island, where our own or enemies' vessels might take shelter, and from whence they might annoy or protect the coast is wholly lost, as the water is too shallow to float the smallest national vessel of an enemy. If the statement in the new survey be correct…there is not sufficient depth of water for enemies' vessels of war to pass. Other objects are now assigned for

> erecting a fortification on Dauphin Island, to contain 108 guns, requiring, in the estimation of the committee, the expenditure of $1,000.000. First. That it would be important in the defence [sic] of New Orleans, as it would prevent the landing at Mobile bay, and render it dangerous for an invading force to land at any place between the Rigolets and the bay of Mobile, for the purpose of marching to the Mississippi above the city (USHR 1822:388).

While the committee concurred with engineers in the belief that the shallow water prohibited "an enemy of any foresight or calculation" to hazard a landing on Dauphin Island and then march to New Orleans, they were concerned that a floating force was nevertheless needed near the island. Calling to mind the fact that British forces seized control of Dauphin Island and the "channel road" in the "last war", the committee stated:

> It is further evident, because it is well known, and conceded, that vessels of war which can pass the bar may, especially by night, pass the forts, run on out of reach of their fire, and leave them harmless in their rear. Thus anchored, and master of the bay, the defence [sic] of which was the principal objective of the fortifications, what security remains for the shipping, the towns, and the immense property above, against which he may commit his depredations at this own time, and according to the nature and amount of his force? A movable and floating force, as contemplated in the former report of this committee, appears to be the only satisfactory answer (USHR 1822:389).

Within one year, the U.S. Congress solicited the assistance of Secretary of War John C. Calhoun to ascertain whether the Government or the contractors [Richard Harris and Nimrod Farrow] were responsible for the delays in completing the Dauphin Island fortifications. After "a laborious investigation of the subject", Secretary Calhoun issued his findings on 7 February 1825. The nearly two-year study resulted in over 40 depositions, memorials, and affidavits, and countless documents that focused on activities on Dauphin Island commencing on 17 July 1818 (USHR 1825:826-27).

Among these documents, there were considerable references to the unnamed vessels that transported laborers, tools, and materials such as bricks to the island. Secretary Calhoun remarked:

> The testimony unites in proving that, at the time of the abandonment of the contract, on the part of the Government, every thing was in complete preparation for the successful prosecution of the work; in the language of one of the witnesses, 'a very sufficient outfit of tools, implements, laborers, and mechanics, to have completed the work within the stipulated time, with a large stock of provisions and materials of all kinds, including materials of bricks, lime, timber, iron, &c., and a sufficient number of vessels to transport the same to Dauphin Island' (USHR 1825:827).

The Antebellum Period (1831-1860)

On 30 March 1830, when the U.S. Congress debated the importance of the Buffalo and New Orleans Road [via Washington], the vulnerability of Mobile, Alabama was again raised in discussions. Proponents of this national road project argued that the highway would promote military, commercial and communication (postal) interests. A contemporary legislator stated that:

> The mouth of the Mississippi is very important, and may be said to be the key of the whole western country. Suppose a foreign foe should take possession of it, and lock up its mouth, it would strike at the interest of nine of our States and one Territory. Mobile is still more indefensible than New Orleans, and depends upon East Tennessee for succor. Georgia will have to look to her own frontier, and will not be able to assist. It is, therefore, all important to make this road, which runs three hundred miles through Tennessee, and crosses the Tombigbee, in Alabama, below the mouth of the Black Warrior river, where steamboats run, and troops and provisions could be carried on this road to that point, and then sent down to Mobile. Sir, the people of the lower country do not raise provisions to support an army—hardly for themselves; for like all others, they raise that from which they can make most, and it so happens that that is cotton and sugar (Gales and Seaton 1830:710).

In late February 1830, the Twenty-First Congress (First Session) authorized funds for three Gulf of Mexico fortifications. The fort and corresponding appropriation were for: Mobile Point, Alabama-$90,000; Fort Jackson, Louisiana-$85,000; and Pensacola, Florida-$130,000 (Gales and Seaton 1830[Appendix:iii]). Two months later, the body approved the sum of $8,000 to be added to the previously funded amount [authorized 24 May 1828] "for the erection of a Custom and Warehouse at Mobile" (Gales and Seaton 1830[Appendix:xix]).

To support the *President's Message* delivered to the Twenty-First Congress (First Session) handouts related that the "water tract" between Mobile Bay and Lake Pontchartrain had been surveyed "with a view to the erection of lighthouses, and placing buoys" (Gales and Seaton 1830[Appendix:52]). The manuscripts also remarked that dredging had been conducted at three sites. In regard to Mobile Bay, Pass au Heron, and the Pascagoula River:

> The operation for deepening these several channels of navigation are, for want of sufficient of a sufficient number of officers, all placed under the charge of an Engineer who superintends the construction of a Fort at Mobile Point; the last is alone sufficient to occupy him very fully…It is known, however, that a dredging machine has been in operation on each channel for some time past (Gales and Seaton 1830[Appendix:50]).

Within five years, the *American Railroad Journal and Advocate of Internal Improvements* (*ARJ&AII*) published navigational information about Dauphin Island within an article entitled "Steamboat and Stage Route along the Atlantic, and Gulf Coast, connecting the Principal Commercial Depots, from Charleston to

New-Orleans" (Minor 1835a:69). The journal's "informant" provided this contemporary advice about the congressional expenditures near Dauphin Island circa 1835:

> [A] sea steamboat might pass from the mouth of the Appalachicola[*sic*] to Mobile Bay, touching at Pensacola, and unite with the Orleans steamboats at their landing-place, on the rear of Mobile, and opposite Dauphine Island….From Mobile Bay to point of junction with Orleans steam boats, 25 [miles]…In the last distance the boats would have to pass through Pass Heron, a passage between Dauphin Island and the Main, which I do not think is at this time practicable for steam-boats drawing more than three feet of water. It is susceptible, however, of improvement, and an appropriation to that effect by Congress was very advantageously expended the last year, but was inadequate to the accomplishment of the object contemplated. The report of the engineer was favorable, however, and there can be no doubt of an additional sum being granted, provided the object of opening the navigation of that pass should become so important, as it would, in connexion [sic] with the steam-boat route now in agitation (Minor 1835a:69).

In late December 1835, the *ARJ&AII* published an excerpt from a Mobile source, which related: "Our Cotton market is very quiet since the Liverpool accounts of Oct. 30th, and the Message is daily expected. Our rivers are low, and supplies light" (Minor 1835b:797). It may have been during this period that John Sprinkles moved from the city to Dauphin Island. According to *The Dothan Eagle*, Sprinkles was the first permanent settler to live on the remote island *(The Dothan Eagle* 1909).

During late spring or early summer 1837, the schooner *Almanda* was "totally lost on Dauphin Island" while navigating to Mobile from New Orleans (American Seamen's Friend Society [ASFS] 1838a:38). During October 1837, crew aboard the ship *Cassandra* observed "a wreck of a schr., waterlogged, and partly on her beam ends, with the word Trent on her stern, in gilt letters—foremast gone" 50 miles northwest of Mobile Point (ASFS 1838c:102).

To provide for safe navigation near Mobile, Collector of Customs John B. Hogan issued this notice on 6 April 1838:

> For the information of all concerned, it is hereby made known, that a new lighthouse has been erected on Sand Island, and will be lighted on the evening of the 20th inst. The weather for a week or ten days has been so hazy that the correct bearing of both light-houses, viz; Mobile Point and Sand Island could not be taken in time for this publication; this will be done, however, as soon as the weather will admit of it; in the mean time it is proper to state that Mobile light is revolving, and Sand Island stationary; they are near enough to be seen by any vessel approaching our bay, and are on the opposite sides of the main channel (ASFS 1838b:393).

Unfortunately the shallow waters of Mobile Bay remained a problem. Lightering was still necessary to get cargoes from Mobile down the bay to deep draft ocean-going vessels. To encourage commerce, channels were dredged through Choctaw Spit, the Dog River Bar and Grants Pass in the period between 1826 and 1857. In addition a railroad line was constructed from Mobile across the Mississippi cotton belt and into Kentucky prior in the antebellum (Delaney 1981:87-89).

By 1859, 440.5 million pounds of cotton were annually exported out of Mobile, making it one of the most important cotton ports in the South (Griffith 1972:150). In addition to cotton, Alabama plantations produced tar, turpentine, and other naval stores, sugar, corn, and many various crops for export to both international and national markets (Griffith 1972:187). That economy prospered until Alabama declared its intention to secede from the United States in 1861.

The Civil War Period (1861-1865)

Serving as Alabama's commercial center, the City of Mobile (pop. 30,000) "was one of the most advantageous of Southern ports for blockade-runners, and the importance of wrestling it from the rebels [sic] was early recognized by the United States authorities; on the other hand, the rebels [sic] proceeded to fortify it in a manner commensurate with its importance to themselves" (Allen 1887:55).

As an active participant in the ensuing conflict, German engineer Viktor Ernst Karl Rudolf von Scheliha described some Gulf of Mexico [ca. 1860] defenses as such:

> [N]ot only was the South at the outbreak of hostilities without the arms, war-stores, and manufacturing establishments necessary for carrying on a struggle of such length as the North American War was destined to reach, but, moreover, she found herself without a single man-of-war, and without sufficient defences [sic] for her navigable streams and for a sea-coast that extends from Chesapeak [sic] Bay to the mouth of the Rio Grande. Forts St. Philip and Jackson on the Mississippi River below New Orleans, Fort Pike on the Rigolets, Forts Morgan and Gaines (Figure 5) at the entrance of Mobile Bay….were the fortifications seized from the Federal Government. They had been built at a period when the 8-inch columbiad was yet the heaviest piece of ordnance in use. Neither their location, nor the plan according to which they had been built, could in all instances be considered free from fundamental errors (von Scheliha 1868:xvi-xvii).

Serving as a lieutenant colonel and chief engineer for the Confederate States Army-Department of the Gulf of Mexico, von Scheliha remarked of his jurisdiction at Mobile Bay:

> Fort Morgan is situated on Mobile Point, the extreme western end of a narrow and low strip of land projecting from the eastern shore of Mobile Bay for several miles in an almost due westerly direction. The fort, a brick structure, was built in 1833. Its object

> is the protection of the entrance to Mobile Bay from the Gulf of Mexico. Although the main ship channel passes between Mobile Point and the eastern bank (a shoal changing in width and depth, and extending in a southerly direction for over a mile, commencing 4000 feet from Fort Morgan), the United States' engineers had entirely neglected this most eligible point for a fortification, and had preferred to establish, in 1857, another permanent work, Fort Gaines, on the extreme eastern end of Big Dauphine Island, 31/2 miles west of Mobile Point. The distance is too great for the works to second each other (von Scheliha 1868:17-18).

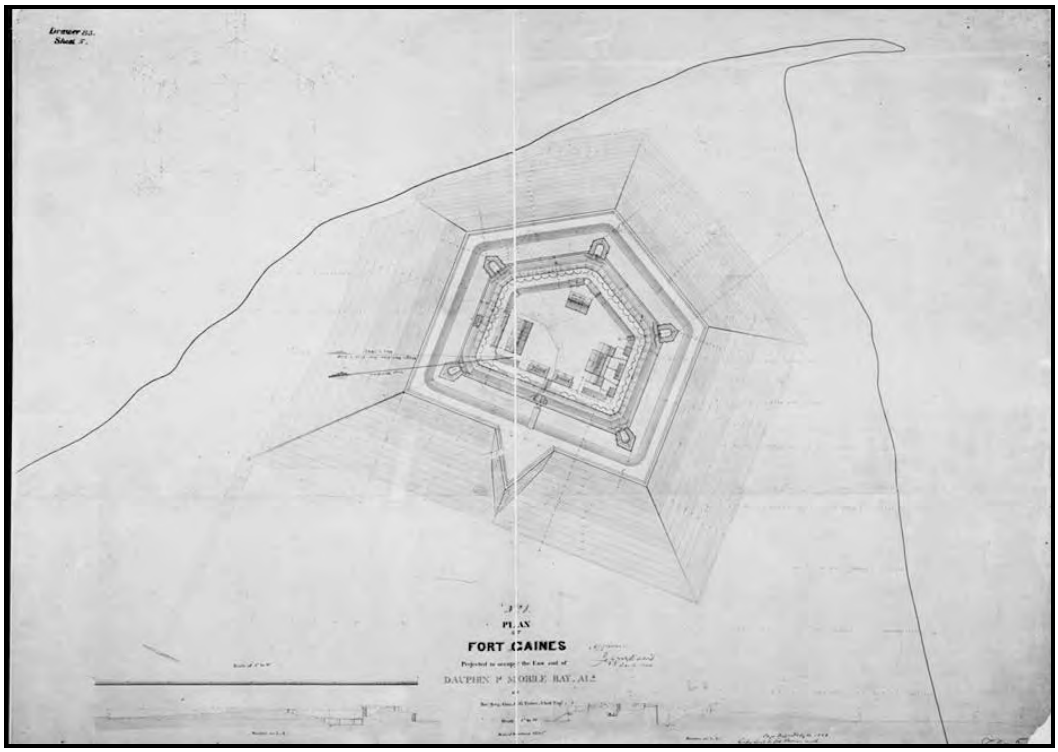


Figure 5. Plan of Fort Gaines drawn by Brigadier General Joseph G. Totten ca. 1854. (Courtesy Library of Congress).

The Confederate engineer's critical assessment of defenses at Mobile Bay mirrored the general consensus among his compatriots, as the conflict escalated in April 1861. At the outbreak of the Civil War, all Southern ports were blockaded "or observed" by the Union Navy. After numerous adjustments in the Gulf squadron, Flag-Officer David Farragut was eventually promoted to command the critical district extending from the Mexican border to a point east of Pensacola (Allen 1887:56). Due to extenuating circumstances, the capture of Mobile could not be facilitated until 1864.

Following Abraham Lincoln's proclamation of a blockade of Southern ports, Alabama began a hurried shipbuilding program to protect the vital bay from Union invasion. Local shipbuilders were employed to build several Confederate

warships. They produced ironclads, partially armored vessels such as the CSS *Gaines* and other types of smaller gunboats to defend Mobile Bay.

The CSS *Gaines* was built in Mobile and launched in 1862. The vessel appears to have been constructed by the Mobile shipbuilder Harry D. Bassett. Dimensions of the vessel were 202 feet in length, 38 feet in beam, and 7 feet 3 inches in draft (Figure 6). Machinery aboard the CSS *Gaines* included sidewheels powered by two non-condensing engines. Armament on board incorporated one VII-inch and one VI-inch double-banded Brooke guns, two 32-pounder rifled and banded guns, and two long 32-pounder smoothbores (Silverstone 1989:219). For protection from Union artillery, the vessel's engineering space was partially sheathed with two-inch iron armor. To make the vessel more versatile iron armor was also wrapped around the bow to enable the *Gaines* to act as a ram (The National Historical Society [TNHS] 1987:722).

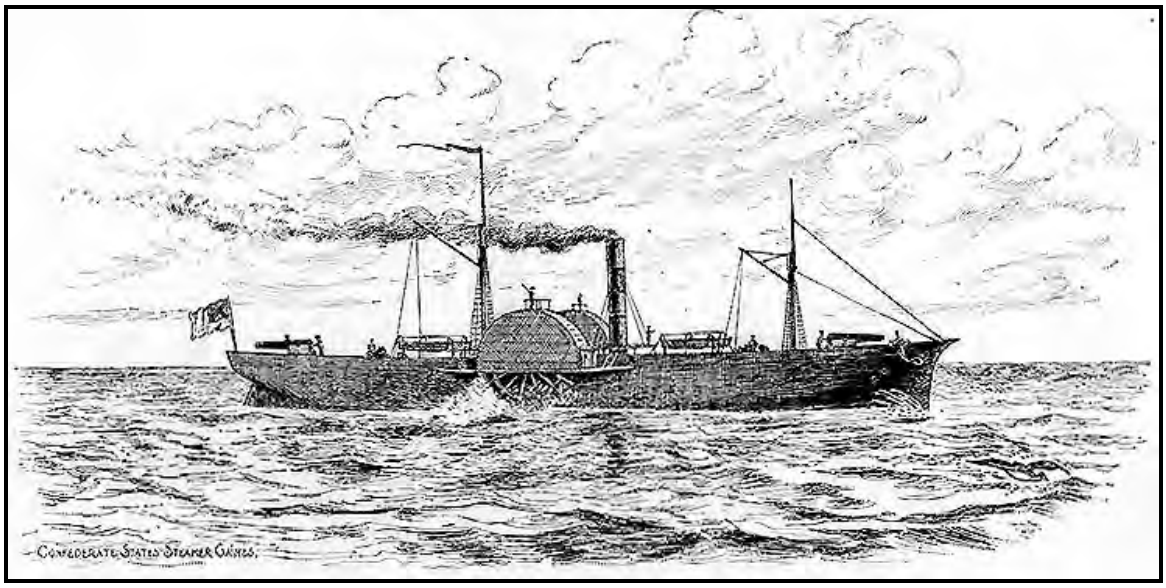


Figure 6. Contemporary illustration of the CSS *Gaines* (courtesy Naval History & Heritage Command).

Controlling the bay ensured the safety of Mobile and the rich agricultural lands that helped support the Confederacy. It also permitted clandestine trade carried on by blockade runners, which maintained Mobile's maritime commerce in spite of the U.S. Navy (Fowler 1990:232-235). While many steam-powered blockade runners successfully made voyages to Havana and Nassau, the newly built *Ivanhoe* was chased aground off the city by a Union blockading force. Built by John Scott at Glasgow, Scotland in 1864, the iron hull, sidewheel steamer was 201-feet long, 20 feet in beam, and 9.5 feet in draft (Wise 1988:306).

The *Ivanhoe* attempted to elude the blockade on 30 June 1864. Union blockaders spotted the blockade runner and gave chase. Under heavy fire the vessel was forced ashore about a mile east of Fort Morgan. Confederate forces dispatched from Fort Morgan recovered much of the valuable cargo from the stricken ship in

spite of constant cannon fire from Union vessels. After the Confederates completed their dangerous salvage operation and retreated, a Union boat crew torched the *Ivanhoe* (Wise 1988:178-179).

Previously, while stationed at Nashville in April, Union general William Tecumseh Sherman wrote to General Nathaniel P. Banks at the latter's Red River camp, and said: "All is well in this quarter, and I hope by the time you turn against Mobile our forces will again act towards the same end, though from distant points" (Sherman quoted in: Allen 1887:56). The spring land offensive envisioned by Sherman would not occur, due to the devastating defeat of Union forces at Red River (Allen 1887:56).

Because of Union strategic priorities on the upper Mississippi River and the presence of Confederate warships and fortifications along the Alabama coast, Mobile remained in Confederate control until the summer of 1864. For some time, Admiral Farragut had strongly desired to breach the maritime defenses of Mobile "in order to prevent the completion of rebel [sic] ironclads under construction there" (Allen 1887:56-57).

This aspiration became viable as the situation improved for a U.S. naval offense to succeed in Mobile Bay. As the Union Navy mobilized in late July, Major Charles J. Allen (U.S. Army Engineers) suggested the City of Mobile "was protected on its land-front by three nearly parallel lines of massive works, connected by strong infantry parapets, the left flanks resting on Mobile Bay and the right of Mobile River" (Allen 1887:57).

However, the antebellum works that defended the main entrance into the bay that were once "excellent" were now "not calculated to withstand the artillery of 1864" (Figure 7) (Allen 1887:57). At this time, there were some 50 heavy guns at Fort Morgan and 36 guns:

> [B]ore upon the channel, and the land approaches were swept by the guns of two fronts. On the opposite side of the entrance, and three and one-eighth miles distant, on the eastern end of Dauphin Island, was Fort Gaines, also a masonry bastioned wok, mounting sixteen barbette guns ranging from the 10-inch Columbiad down to the 18-pounder smooth-bore. The fort mounted, in addition, several siege and flank casemate howitzers. It was too distant from Morgan for its artillery to play any important part in resisting a fleet passing close to the latter, it having been designed to command the shoaler [sic] approaches to the bay to the east of Dauphin Island. The entrance to Mobile Bay through Grant's Pass from Mississippi Sound….was defended by Fort Powell (Figure 8), a small but strong earthwork, constructed by the Confederates upon an oyster-bank between Little Dauphin Island and Cedar Point on the mainland. This work was provided with strong traverses and magazines, and also with an exterior infantry parapet at the water-edge, to serve as defence [sic] against attacks from small boats, and mounted six guns bearing upon the pass, but none upon the bay. Grant's Pass was only navigable for light-draught boats (Allen 1887:57-58).

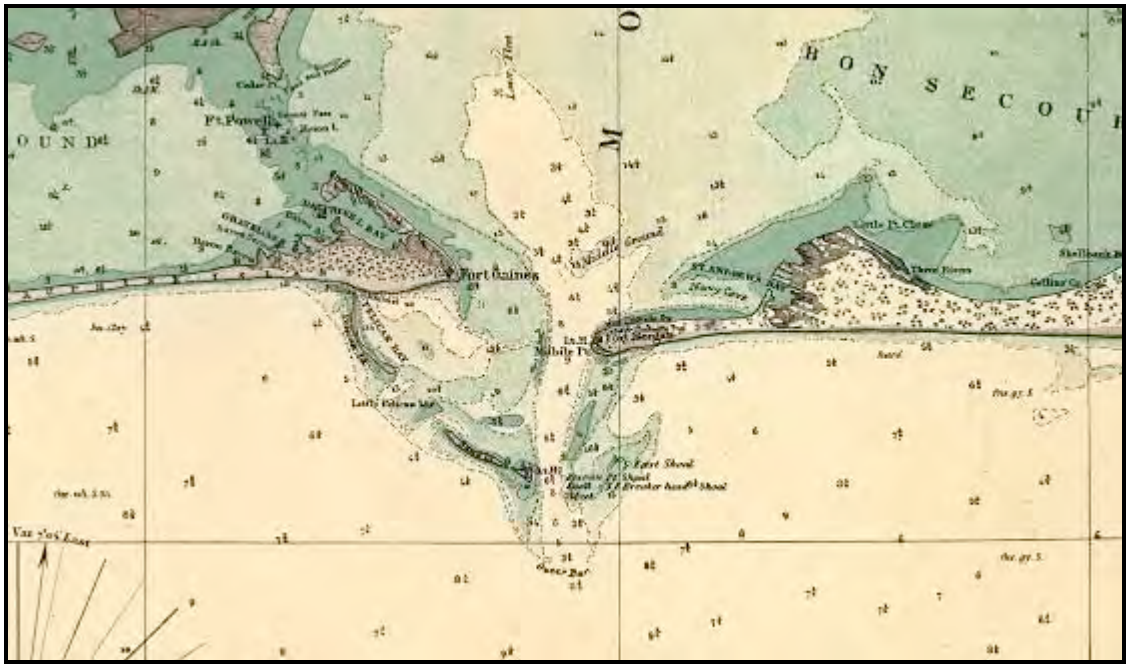


Figure 7. An 1864 map of the entrance to Mobile Bay (courtesy Library of Congress).



Figure 8. Bombardment of Fort Powell (Harper's Weekly 1864).

On 5 August 1864, Admiral Farragut led a Union fleet of 30 warships into Mobile Bay (Figure 9). Several Union vessels including the monitor USS *Tecumseh* and the gunboat USS *Philippi* were lost during the battle. The USS *Tecumseh* was one of the second-generation monitors designed and constructed by Swedish-American engineer John Ericsson. The *Philippi* was constructed in Brooklyn, New York in 1863 by George Bushby and began its career as the *Ella*. Stephen Wise's *Lifeline of the Confederacy* gives the *Ella*'s dimensions as 150 feet in length, 23 feet in beam, and 8 feet 5 inches in draft (Wise 1988: 297).



Figure 9. An illustrated map of the Battle of Mobile Bay (courtesy Library of Congress).

Silverstone's *Warships of the Civil War Navies* gives the length of the vessel at 140 feet, breadth at 24 feet, and depth at 9 feet, 10 inches (Silverstone 1989: 86). In appearance the vessel reportedly resembled the USS *Nansemond*, which had one gaff-rigged mast and a walking beam engine (U.S. Coast Guard n.d.). The owner of the vessel may have been an unknown Alabama man, which suggests the possibility that the *Ella* may have been built for the Confederacy (Boston Prize Court 1864).

Although constructed in New York during the Civil War, the *Ella* reportedly was built to serve the Confederacy as a blockade runner. After completion, the vessel was sent to Wilmington, North Carolina, apparently by way of Bermuda, where it was to be purchased by the Confederacy (Wise 1988:297). While enroute to Wilmington from Bermuda, on 10 November 1863, the *Ella* was fired upon by the USS *Howquah* and was captured by that Union blockader off New Inlet, North Carolina (Wise 1988:280).

From that location the vessel was escorted to the Boston Prize Court, where it was purchased and renamed by the U.S. Navy in February 1864. The Navy equipped the ship with one 20-pounder rifle gun, one 24-pounder boat howitzer, and two 12-pounder rifle guns. Once outfitted with armament, crew, and supplies, the vessel was ordered, on 11 April 1864, to report to New Orleans for duty on the West Gulf Blockading Squadron. There the *Philippi* served the squadron as a picket, patrol, and dispatch vessel (Naval Historical Center n.d.).

During the Union assault on the Confederate defenses of Mobile Bay, Admiral Farragut ordered the *Philippi* to remain with the auxiliary fleet stationed off the entrance to Mobile Bay. The captain of the *Philippi*, however, ignored his orders and brought the vessel into the ship channel. Coming under fire from Fort Morgan caused the helmsman to steer to port and onto a sandbar. Once the vessel was aground on the sandbar, gunners from Fort Morgan forced the Union crew to abandon ship. Later a Confederate boat crew from the CSS *Morgan* set the vessel on fire (TNHS 1987: 505-6).

During the Battle of Mobile Bay the CSS *Gaines* was also destroyed. Unlike the *Tecumseh* and *Philippi*, the *Gaines* was destroyed by Confederates when they realized the U.S. Navy was in control of the bay. Recognizing that the warship could be captured and used against Mobile, Lieutenant J. W. Bennett ordered the vessel run aground under the protection of Fort Morgan. Once aground, the vessel's powder and shot were removed and the steamer was scuttled and burned by the departing crew (U.S. Navy Department 1971:95).

Farragut's fleet subsequently captured the forts that protected the pass and ended Confederate control of Mobile Bay (Jones 1962:260; Fowler 1990:232-235). Immediately after the victory, the Union commander ordered salvage surveys of the *Tecumseh, Philippi, Ivanhoe*, and *Gaines*. Assessment of the machinery onboard the wrecked *Ivanhoe* confirmed that it could be recovered and rebuilt (TNHS 1987:620). Union work crews quickly salvaged the machinery and sent it to Pensacola (TNHS 1987:724-725). Farragut also ordered the machinery and guns of the *Gaines* salvaged (TNHS 1987:695-6).

As in the case of the items recovered from the *Ivanhoe*, material from the *Gaines* was also sent to Pensacola to determine its usefulness to the U.S. Navy (TNHS 1987:695-6). U.S. seamen also immediately recovered the machinery of the *Philippi*. A New Orleans newspaper report stated: "Much work has been done in overhauling the wreck of the gunboat *Philippi*" (*The New Orleans Times* 1864). A marine boiler remained visible in the general area of the *Philippi* until the storm of 1906 caused the boiler to vanish from view (Whiting 1906). The *Tecumseh* settled rapidly into the bottom sediments and remains largely intact (West 1973:2-3).

The Reconstruction and Recovery Period (1865-1889)

After the Civil War, maritime activity recovered slowly at Mobile. One of the first issues to be addressed was clearing a channel through the Confederate obstructions. Under the supervision of General Braxton Bragg a channel was cleared and jetties were constructed across Pinto Pass and at Garrows Bend. The jetties were constructed to channel the Mobile River and prevent silting (Simpson 1872:582). In 1873 the jetties were destroyed. Colonel J. H. Simpson of the U.S. Army Corps of Engineers felt that Bragg's jetties would increase shoaling in the upper bay. His plan included dredging the Dog River, and by 1877 oceangoing vessels could reach the docks in Mobile.

During mid-June 1887, a group of engineers employed by the Dauphin Island Railroad and Harbor Company (DIR&HC) commenced construction of a 35-mile road that would connect Mobile with a deepwater site in lower Mobile Bay. George Leighton, former engineer of the New York Harlem Bridge, was placed in the supervisory role that would join three trunk lines. In addition to connecting the Louisville and Nashville, Mobile and Ohio, and the Richmond Terminal systems, the railroad would extend a spur to deepwater. The railway would commence in Mobile and be laid down the west shore of Mobile Bay and would cross Grant's Pass to Dauphin Island.

According to *The New York Times*, DIR&HC was also committed to place a line of steamers there. Robert Staats was under contract to provide docks, bulkheads and trestling [sic], which were comprised of:

> Bulkheads 2,100 feet long and 750 feet wide will be constructed. From there bulkheads will extend into deepwater in the bay. Four piers, each 450 feet long, will be supplied with appliances for loading coal, iron, cotton, and naval stores (*The New York Times* 1887).

The Progressive and First World War Period (1890-1925)

A national handbook published during 1891 described the contemporary "Cotton Plantation State" of Alabama in glowing terms. According to the editor, the *Census of 1890* estimated the overall population as 1,513,017, with a subtotal of 662,185 "White" citizens and 662,185 "Colored" citizens (Sweetser 1891:27). Of this total number, 31,076 citizens lived in the largest city of Mobile [*Census of 1890*] (Sweetser 1891:27). The region surrounding Mobile was described as such:

> Within the celebrated Piney-Woods region that extends to the Gulf of Mexico, long-leaf and yellow pine, magnolia, sweet bay, "gigantic" water oaks, live oaks, black gums and "venerable cypress" flourished during this period, and turpentine, rosin, and "vast quantities of lumber" were shipped from the area (Sweetser 1891:30).

The intrinsic value of these products was augmented by low-priced real estate where the natural resources grew, and by the ease with which naval stores could be shipped on the navigable bays and entrances along the coast. Circa 1891, the artificial channel in Mobile could accommodate vessels drawing 19 feet of water (Sweetser 1891:30). Other nautical information related that the pentagonal work of Fort Gaines on Dauphin Island, "three miles from Fort Morgan, across the channel" was not garrisoned (Sweetser 1891:33-34).

In relation to local lights, lighthouses were on Sand Island, Mobile Point (Fort Morgan), Dog-River Bar, Choctaw Pass and Battery Gladden (Sweetser 1891:34). The handbook referenced the U.S. Marine hospital located at Fort Bowyer (b. 1819); and suggested that health-seekers could visit the foremost salt-water resort of Point Clear (Sweetser 1891:32-33).

The U.S. Hydrographic Office conducted a survey of Mobile Bay during a 1902 reconnaissance of the Gulf coastline between Pensacola and Rio Grande del Norte. At that time, the mouth of the bay was described as "extensive but shallow" with depths averaging from "10 to 12 feet". With a current dredged depth of 23 feet, a shipping channel reached the City of Mobile (U.S. Hydrographic Office [USHO] 1902:105). Navigational advice and maritime commerce related to Mobile was described as such:

> [L]ying on the western bank of the Mobile river just above its mouth, is one of the important commercial cities of the gulf. Its population in 1900 was nearly 63,000. It has a large trade in cotton, timber, lumber, rosin, staves, shingles, and cotton-seed meal. There is ample wharfage along the river front, the depths ranging from 12 to 23 feet, and facilities for handling cargo are good. The maximum draft take out is 23 feet. Besides the steamers plying on the bay and its tributaries, there are steamers running to Tampa, Habana, Apalachicola, to Mexican and Central American ports, and, during the cotton season, to Liverpool. The entrance to Mobile bay lies between Mobile point on the east and Dauphin island on the west. It is 2 ¾ miles wide, but is obstructed by a number of islands and by extensive shoals that extend 4 miles to the southward of Mobile point and about 2 miles to the southward and to the westward of the eastern end of Dauphin island. Between these islands and shoals several channels lead into the bay. Of these channels one only, the Main ship channel, is of importance. The deepest draft taken over the bar is 24 ¾ feet. Inside the bar and up to the lower anchorage, known as the Lower Fleet, the depth ranges from 5 to 11 fathoms. Fronting Mobile bay, and inclosing it from the sea, is a narrow neck of land which projects from the eastern shore and runs in a due west direction about 15 miles; at the extremity of

> this neck of land are Fort Morgan and a lighthouse. Opposite the western end of the peninsula is Dauphin Island, on the eastern extremity of which is Fort Gaines. In approaching from the southward or southeastward, Sand Island lighthouse will be the first object sighted. Approaching from the westward, the woods on Dauphin island will be first seen (USHO 1902:106-107).

In regard to Dauphin Island, the 1902 report only mentioned that the 9.4-mile long land mass was "very narrow" except for the eastern end. A shallow passage, accessible to only small vessel, was identified between Dauphin and Petit Bois islands. The latter island was described as 11 miles long with two clumps of trees and large sand hills (USHO 1902:114).

By 1914 the channel in the Upper Bay was much improved and straightened to eliminate the dogleg required to pass the Confederate obstructions (Mistovich and Knight 1983:21). World War I resulted in a slump in Mobile's trade and a marked decline in the city's workforce. However, the entrance of the United States into the European conflict brought new employment opportunities and the creation of five major shipyards at Mobile.

In January 1917, Alabama Dry Dock & Shipbuilding Company (ADDSCO) was organized as four Mobile industries merged into one larger maritime interest. Before the union, the businesses were known as Alabama Iron Works, Ollinger & Bruce Dry Dock, Gulf Dry Dock, and Gulf City Boiler Works (Project Liberty Ship n.d.a). Two of the earliest documented vessels built by ADDSCO were the sternwheeler *Ruth*, and the 483-ton *Rena A. Murphy*. The original owner of this schooner was a "Captain J. G. Murphy". The *Rena* would later be stranded on Cape Corrientes, Cuba (Project Liberty Ship n.d.a).

During 1919, a floating dry dock was built for the company's own use, and nine 315-ton barges were contracted by Tennessee Coal Iron & RR Company. Three other barges were built during 1919 for R. W. Hillcoat & Company by ADDSCO. The following table identifies some vessels built for the United States government and for a concern involved in the construction of the Panama Canal.

NAME	OWNER	TYPE	GROSS TONS	COMMISSIONED
Banago	U.S. Shipping Board	Cargo ship (wooden)	2,551	18 Sep 1919
Alta	U.S. Shipping Board	Cargo ship (wooden)	2,551	19 Jun 1919
Swan (AM 34)	U.S. Navy	Minesweeper	950d	19 Jan 1919
Whipporwill (AM 35)	U.S. Navy	Minesweeper	950d	19 April 1919
Bittern (AM 36)	U.S. Navy	Minesweeper	950d	19 May 1919
Darien	Panama Canal Company	Coal barge`	3,916	20 Mar 1919
Mamei	Panama Canal Company	Coal barge	3,916	20 Jul 1919

Table 1. Partial listing of vessels built by ADDSCO 1917-1919. (Project Liberty Ship n.d.a).

Described as a Lapwing Class minesweeper, the *Swan* was laid down on 10 December 1917, and was launched on 4 July 1918. The 187-foot long minesweeper was commissioned as the USS *Swan, Minesweeper No. 34* (Figure 10) in early January 1919. After being decommissioned in May 1922, the *Swan* was re-commissioned on 23 June 1923 and served as a minesweeper with aircraft duty. During World War II, the *Swan* (re-classified as AVP-22) served as a small seaplane tender and was on station during the historic attack at Pearl Harbor. The *Swan* was "struck from the Navy Register" in January 1946 (Radigan 2006).

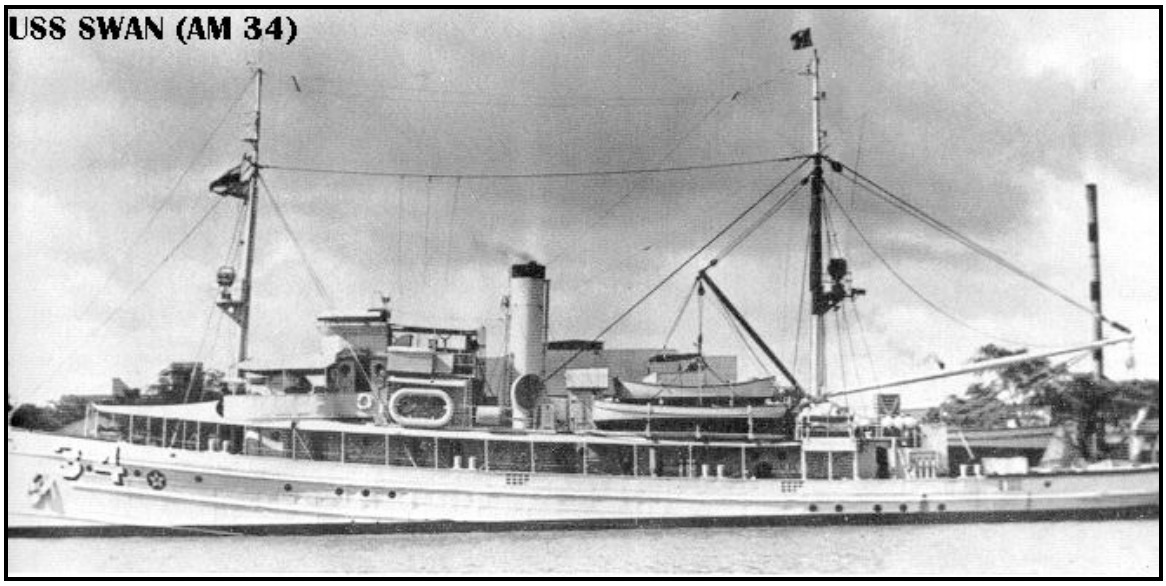


Figure 10 . USS *Swan* (AM 34) built at Mobile 1917. (Courtesy U.S. Navy).

The Waterman Steamship Corporation was established in 1919 and developed into one of the largest shipping companies in the region. The corporation's principals, John B. Waterman, C. W. Hempstead and Walter D. Bellingrath, used their considerable influence to promote expansion of port facilities at Mobile. The headquarters for the transportation line commenced operations in Mobile during January 1922. Due in large part to the findings of a 1922 Federal study, "modern" Alabama State Docks would open at Mobile in 1923 (Mistovich and Knight 1983:21-22).

A comprehensive and collaborative investigation of the Port of Mobile was conducted by the U.S. War Department, U.S. Board of Engineers for Rivers and Harbors, Bureau of Research, and the U.S. Shipping Board during 1921/1922. The general description of the port and harbor conditions was related as such:

> The approach to the city is through Mobile Bay, an arm of the Gulf of Mexico, about 30 miles long and 8 miles wide. The main entrance into Mobile Bay is through a dredged channel across Mobile Bar between Mobile Point on the east side and Dauphin Island on the west side. This entrance is about 40 miles from Mobile, 46 miles west of Pensacola Bar, and 104 east of the Mississippi River. The Swash Channel leads from eastward close inshore and is used only by small craft. On the western side of

> the entrance, between Dauphin Island and West Sand Island, are two channels known as Pelican Channel and Middle Channel. They are sometimes navigated by small vessels, but local knowledge is necessary for their use. From deep water in lower Mobile Bay a dredged channel extends in a northerly direction to the mouth of Mobile River, thence up the river and along the city front for a further distance of 5 miles to Chickasaw Creek. The bar channel is exposed to heavy seas, while the channel through Mobile Bay is better protected, but exposed to the storms that visit the locality. The river channel is well protected (USWD 1922:1).

According to the study, the "northers" that commonly occurred during the winter months sometimes depressed the water surface to 1.4 feet below mean low water, while hurricanes [June to November] have on occasion raised the level at Mobile to nearly nine feet (USWD 1922:2). West Indian hurricanes usually entered the east Gulf, and became much stronger as they moved west and then northward. From 1872 to 1922, seven storms of this type had caused significant damage to shipping and property at Mobile. Southeast gales, which occurred at any time during the calendar year, were viewed as very "dangerous" to shipping at this coastline (USWD 1922:2-3).

In the discussion of Mobile's contemporary anchorage sites, the government agencies remarked:

> The usual anchorage is known as Lower Fleet, just off the southern end of the bay channel. The dept ranges from 19 to 24 feet and the bottom is soft mud. The best anchorage for deeper draft vessels is found northward and northwestward from Fort Morgan, and southward from the Middle Ground, where the depth ranges from 30 to 40 feet and the holding ground is excellent. The latter is the quarantine anchorage. These anchorages are secure, but in a norther [sic] a short, choppy sea is raised which makes small vessels none too comfortable. There is also an anchorage area in Mobile River, extending up the river a distance of 3 miles and southward a distance of 1¾ miles into Mobile Bay. This forms the harbor proper with a depth of 25 feet, almost completely landlocked, wherein vessels may safely anchor and shelter, except during tropical hurricanes. There is also an anchorage for lighter draft vessels with a depth of about 15 feet, extending from Chickasaw Creek for a distance of 7 miles up Mobile River. Anchorage in Mobile Bay is forbidden within 600 yards of a line drawn from the Old Engineer Wharf, at the northwestern corner of Mobile Point, to the southern side of the old work at Fort Gaines. Anchorage is also forbidden where there are four cable crossings abreast the city in Mobile River (USWD 1922:2).

During this period, the existing Federal improvement projects for Mobile Bay and the Mobile River channel [commenced 1826], and the dredging of the bar channel [commenced 1902] were approximately twenty-five percent complete. Expenditures for these improvements amounted to $8,876,677.89 (USWD 1922:5). The improvements certified by the USWD follow:

> In the outer bar channel a depth of 30 feet had been obtained over about one-half the project width; the full project depth of 30 feet over a width of 220 feet had been obtained in the Mobile Bay Channel throughout its entire length, from the mouth of Mobile River to deep water in lower Mobile Bay, a distance of 28.2 miles; the full project depth of 30 feet, over a width of 250 feet had been obtained in the river channel for a distance of 17,594 feet, extending downstream from a point 1,800 feet from the mouth of Coffee Bayou; and the full project depth of 30 feet and width of 300 feet had been obtained in the section 1,800 feet long below the mouth of Coffee Bayou. The controlling depth in the outer bar channel, ascertained April 22, 1922, was 31 feet; and in the bay and river channels, ascertained June 13, 1922, 27 feet (USWD 1922:5).

In late May 1921, a convention of "Hotel men of Alabama" converged in Mobile to discuss its agenda of attracting tourists to the state. According to *The Anniston Star*, a "feature of the entertainment for the visitors" was "a trip to Dauphin Island with a seafood dinner, fishing and surf bathing" (*The Anniston Star* 23 May 1921:1).

The Great Depression and World War II Period (1926-1949)

The Alabama state docks opened in 1928, but it would take several years of negotiation to entice the Aluminum Ore Company to lease a site there. When this subsidiary of Aluminum Company of America finally commenced business operations, the plant valued at some four million dollars emerged as one of the United States top three aluminum concerns (Cronenberg 2003:2).

Another industry that boosted the local economy was the popular fishing tournament that commenced in August 1929 off Dauphin Island. In addition to Alabama anglers, fishermen traveled to Mobile from seven other states for the "first deep sea fishing rodeo" (*The Anniston Star* 1929:1). Over 200 individuals attended the three-day competition that also attracted politicians and industry leaders. Governor Bibb Graves arrived by boat with a large party of state officials from Mobile on 26 August to fraternize with "[j]udges, lawyers, businessmen and sportsmen" (*The Anniston Star* 1929:5).

During the Great Depression Mobile's economy was supported by cotton and timber exports. Those commodities helped Mobile survive the economic crisis that followed the Stock Market collapse in 1929. Dauphin Island was a favorite destination for thrifty-minded vacationers with a view to sunbathe, while the waters of Mobile Bay provided Depression Era fishermen with teeming supply of finfish for food or for sport.

The Dixie Stage Lines (DSL) advised readers of *The Anniston Star* in mid-August 1930 of its special excursion fares to Dauphin Island via Mobile. Patrons were promised "A Health Giving Ride" by the DSL bus at 14 pickup sites that would then travel to Mobile. At Mobile, passengers would board the steamer *St. Jose* to complete their excursion to Dauphin Island. The cost of fares ranged from a high of $22 for the Anniston to Dauphin Island route to the lowest of $8.50 for the Brewton to Dauphin Island route (*The Anniston Star* 1930).

An editorial published by *The Anniston Star* in March 1931 promoted Dauphin Island, by way of its endorsement for a bridge to that location. Quoting *The Mobile Register*, the editor remarked that:

> There is a lure about the Alabama Gulf Coast which brings every visitor under its spell….'New highways' says The Register, '[are] about to make the Gulf shores much more easily accessible than they have ever been…On the Baldwin County side of the bay a highway from Foley is soon to bring the coast beach within a few minutes of that community, while on the Mobile County side the legislature has passed enabling legislation to permit the construction of a bridge from Cedar Point across to Dauphin Island. The south side of Dauphin Island contains one of the finest beaches on the whole Gulf extending for several miles and this will be made easy and convenient of access by a bridge connecting the island with the mainland. At present the only way to get to the island is by a boat trip which starts either at Mobile or Bayou la Batre and requires several hours (*The Anniston Star* 1931).

During early summer 1932, over 60 eager sportfishermen registered to enter the Fourth Annual Deep Sea Rodeo to be staged off Dauphin Island. While most participants desired to catch the revered "Silver King" [tarpon], prizes were also awarded for "the largest king mackerel, ling [lemon fish] black fish, Spanish mackerel, cavalla, and other species that abound[ed] in Mobile Bay" (*The Dothan Eagle* 1932a).

In late December 1932, *The Dothan Eagle* reported that Mobile real estate executive Frank Boykin proposed to develop part of remote Dauphin Island. Boykin and his partners contemplated the construction of a casino, a beachfront hotel, and racetrack there. Boykin related to the newspaper "that government statistics show[ed] 14,000,000 people reside[d] within 'automobile radius' of the island" (Boykin quoted in: *The Dothan Eagle* 1932b). The developers based their plans on recent state legislation that authorized the construction of "five miles of bridge and causeway to connect the island with the mainland at Cedar point" (*The Dothan Eagle* 1932b).

Alabama governor Miller signed the City of Mobile's application with the Reconstruction Finance Corporation in late May 1933 to receive a private loan to construct a toll bridge that would extend from "the west line of Mobile Bay to Dauphin Island" (*The Anniston Star* 1933). This first step to fund the self-supporting bridge was enthusiastically supported by "Prominent citizens of Alabama" (*The Anniston Star* 1933).

These leaders recognized the benefits of national advertising that occurred as a consequence of the fishing rodeos held near Dauphin Island each year. The event, organized by the Alabama Department of Game and Fisheries, contributed greatly to local business interests. Many hoped that the proposed

bridge would open the island for construction of paved roads, hotels, and restaurants. This expansion would create a "Gulf Coast Rivera" (*The Anniston Star* 1933).

By 1938, the Works Progress Administration began to employ Alabamians to construct the Bankhead Tunnel on Highway 90. The four million dollar tunnel opened in February 1941, and made the City of Mobile accessible to a new labor force and "shoppers from the eastern shore" (Cronenberg 2003:2). As the tunnel opened to the additional source of workers, the economic and military demands associated with World War II were concurrently resurrecting activity at Mobile's shipyards. Chemical and forest-product based firms also thrived during this period, "and together represented some $32 million in industrial developments" (Cronenberg 2003:2).

Alabama's female population served the World War II effort in historic numbers, as they represented nearly half of the 17,000 individuals employed to work at a new Mobile facility to modify bombers. This aircraft concern selected the City of Mobile over a Tampa site due to the "efforts of the flamboyant and jovial millionaire congressman Frank Boykin" (Cronenberg 2003:2).

Despite the pre-occupation with the global conflict, Alabamians and other U.S. fishermen continued to enjoy fishing off Dauphin Island. In early August 1941, over 800 fishermen registered to take part in the 13th annual deep-sea rodeo off Dauphin Island. By this date, the fishing tournament was "the largest of its kind in the Gulf of Mexico" (*The Anniston Star* 1941).

One local source related that "finding enough boats to accommodate the entrants from a dozen or more states" was "solved by securing vessels all along the coast" (*The Anniston Star* 1941). Alabama State Guard units camped on Dauphin Island later that year and engaged in military maneuvers. A local rotary club viewed some of the guard's public activities in November 1941 in "a moving picture" that was filmed at the island (*The Alabama Courier* 1941).

A large group attached to the Third Regiment of the Alabama State Guard motored over to Dauphin Island in early September 1943. The unit joined other guardsmen who were already encamped on the island. Under the command of First Lieutenant Alto V. Lee, III, the entire company was posed to learn and qualify in numerous combat readiness skills. The scheduled programs included "exercises, military customs and courtesies, formal guard mount, gas mask instruction, grenade practice, rifle marksmanship, Thompson sub-machine gun, battalion parade and special instruction" (*The Dothan Eagle* 1943).

Other military training included riot control, demolition, first aid, and the use of rifles, shotguns, and "-Pay Day" (*The Dothan Eagle* 1943). At the conclusion of the camp, Governor Chauncey Sparks inspected the troops to evaluate their performance in the event they were called for duty in Alabama or abroad (*The Dothan Eagle* 1943).

By 1943, almost 90,000 workers had moved into greater Mobile to work in ship construction and other war industries. Brookley Field (b. 1941) provided an air supply depot that expanded during the conflict, and naturally supported non-defense and military industries. Southeast Army Air Depot, situated on marshland adjacent to Mobile Bay, "stocked supplies and aircraft parts for the entire southeastern United States, Puerto Rico, and the Caribbean" (Cronenberg 2003:41).

Most importantly, it was the only depot in America with direct access to an ocean terminal. As such, B-24 and B-29 bombers were flown to Brookley Field from all around the world (Cronenberg 2003:41). By this date, the U.S. Office of Production Management reported that "Alabama ranked seventeenth in the nation in defense spending with $600 million in contracts and orders" (Cronenberg 2003:2).

Expenditures were not limited to just national forces. The State of Alabama increased spending to modernize its militias, which included military training for domestic [and potentially foreign] service during the mid-1940s. The Alabama State Guard initiated an intensive training course in October 1944 on Dauphin Island. An Athens newspaper reported that more than 100 officers and guardsmen attended the three-day camp on the island to engage in machine gun drills. U.S. Army officers supervised the operation to train the Alabamians with 30 caliber Browning machine guns. The drill was organized to prepare the state guard "to cope with any unruly element that might take advantage of war conditions" (*Limestone Democrat* 1944). Dauphin Island continued to frequently serve as the staging ground to drill Alabama guardsmen during the postwar period (*The Dothan Eagle* 1946).

By 1945, Alabama's state docks and the Port of Mobile were ranked as fifteenth in the United States. As the harbor grew in importance, support industries thrived such as new stevedore companies and ship chandlers. The competing firms of newcomer Angus Cooper and local T. Smith (started 1840s) flourished during the war. Crescent Towing and Salvage was established in 1942, and this company frequently moved the "huge derricks" owned by T. Smith. Another "homegrown" Mobile concern was Waterman Steamship Line, which also prospered during World War II. Waterman's steamers principally navigated to Latin America (Cronenberg 2003:54).

ADDSCO was awarded lucrative wartime contracts for 20 Liberty ships and for 102 22,400-ton T-2 tankers. ADDSCO also "repaired or converted 2,800 vessels for the Army, Navy, [and] War Shipping Administration" as well as providing services to private companies (Cronenberg 2003:53). The steam turbine tanker (T-2) *Touchet* (Figure 11) that was launched during November 1943 was purchased by American Petroleum Transport of New York City. Constructed of steel, the 159.6 m *Touchet* was armed with one three-inch gun, one five-inch gun, and eight 20 mm guns (Helgason 2011; The Wreck Site 2011).

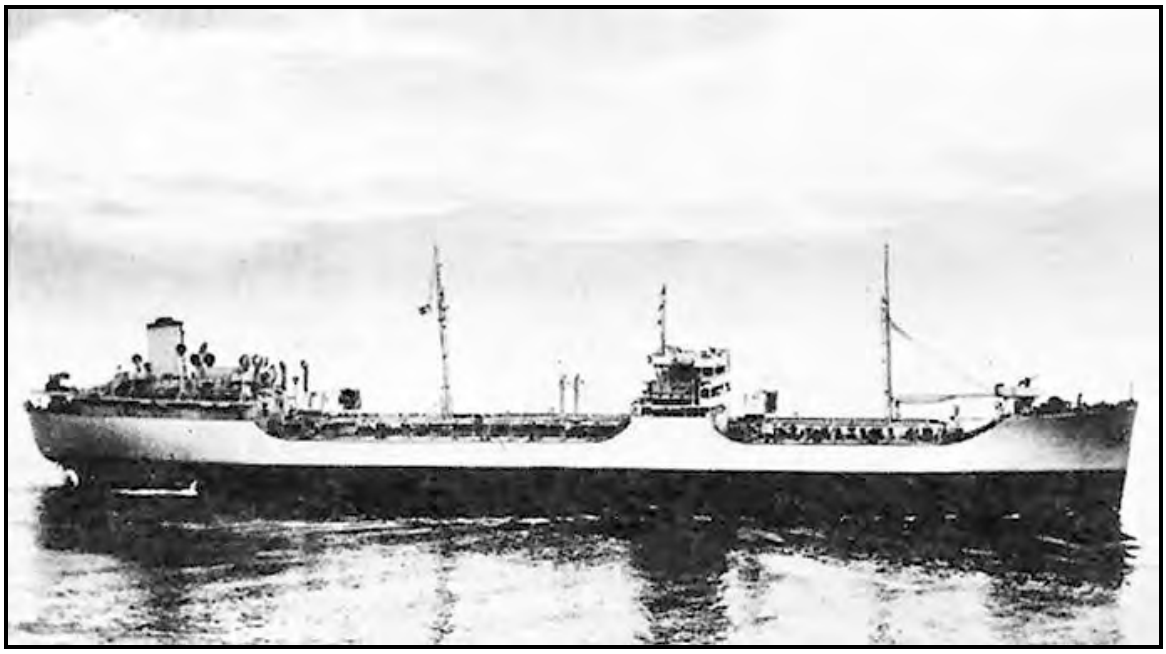


Figure 11. Image of sistership of tanker *Touchet*. (The Wreck Site 2011).

Steaming out of Galveston, Texas on 1 December 1943, the 10,172-ton tanker carried 120,000 barrels of heating oil and was bound for New York. On 3 December (7:47 AM), the unescorted *Touchet*:

> [W]as hit on the port side by a torpedo from U-193 in the Gulf of Mexico while steaming at 16.5 knots. The torpedo struck the bow ten feet aft of the stern and opened a 20 feet long hole. The tanker was equipped with a torpedo indicator that warned the crew but the turn to port was too late, after the hit the engine was first secured while turning to the opposite direction and then ordered full ahead in an attempt to escape. Due to the flooding, the bow settled and forced the ship to stop, when another torpedo warning sounded but this was apparently a dud hitting the port side amidships... At 08.22 hours, a coup de grâce hit the engineer room on the starboard side and caused the ship to sink stern first at 11.00 hours. The men still on board had to jump overboard and swam to a raft but the suction of the sinking ship was so strong that all except one armed guard drowned. On 5 December, the 43 survivors in four boats were picked up by the Norwegian steam merchant Lillemor (Master Bernt Belland) and landed them the next day at Pensacola. The same day, USS Falgout (DE324) picked up eleven survivors from another boat and on 6 December, the remaining 16 survivors in the last boat were picked up by USS Raven (AM 55) and landed in Galveston on 8 December (Helgason 2011).

The loss of the *Touchet* marked the last documented U-boat attack in the Gulf of Mexico. After *U-193* torpedoed the American tanker, German Admiral Dönitz chose not to send more submarines to the Gulf, as the "cost-benefit ratio had become too unbalanced (Mort 2009:221).

Due to the volume of World War II commerce, the firm opened an auxiliary yard on Pinto Island that allowed an "easy layout" with "ample water frontage" (Project Liberty Ship n.d.b). At this location:

> The four slipways were well-spaced and the assembly platforms, instead of being in the customary position at the head of each slip, were placed between the ways. This shortened the distance over which the pre-assembled units were transported by crane. Owing to the heavy losses of tankers by enemy action, eight more ways, for tanker construction, were later added to the layout. So this yard, originally planned for Liberty ship production, was developed for the multiple production of tankers (Project Liberty Ship n.d.b).

Located just above Mobile, Gulf Shipbuilding "launched 7 Fletcher class destroyers, 29 minesweepers, 30 tankers, and one landing-ship dock as well as cargo vessels" (Cronenberg 2003:53). One source related that at "the peak of activity during the war, ADDSCO and Gulf Shipbuilding's 40,000 welders, machinists, electricians, and other workers were producing a ship a week" (Cronenberg 2003:53).

At the conclusion of World War II, Congressman Frank Boykin announced his plans to seek Federal funding for the development of Dauphin Island. The Mobile businessman had lobbied for infrastructure improvements there since the early 1930s. Boykin believed that the semi-tropical environment of the Gulf coast island would appeal to weary soldiers looking to relax, and for tourists in general (*The Dothan Eagle* 1945).

The Early Modern Period (1950-1990)

A spokesman for the U.S. Army Corps of Engineers released a statement on 12 August 1950 that recommended improvements for the "Bay waters at Dauphin Island" (*The Anniston Star* 13 August 1950). Federal engineers related that: "an entrance channel and an anchorage basin at Dauphin Island [were] urgently needed and would be economically justified" (*The Anniston Star* 13 August 1950). In addition to these obvious navigational requirements, the corps of engineers suggested that $56,000 be authorized for "various other improvements" (*The Anniston Star* 1950).

For decades Brookley Field remained Mobile's largest postwar employer. Closure of the Brookley Field base in the 1960s was a major factor in the destabilization of Mobile's economy for more than a decade. At this time, several oil and gas interests emerged on the scene due to the submerged resources in the Gulf. In mid-1970, Mobile Oil Company of New Orleans applied for a permit to drill on its lease sites located off the eastern end of Dauphin Island. Approximately 20,000 acres of submerged lands in Mobile Bay were leased by the industrial giant during 1969. The request to drill in 1970 was tabled due to an executive moratorium that was placed on all leasing and drilling activities in Alabama's offshore bottomlands. During August 1972, the issue was revived when the oil company asked permission to drill a 21,500-foot test hole in its leased sites near Mobile Bay (*The Anniston Star* 1972; *The Anniston Star* 1973).

Due to opposition by conservationists to their building plans, developers Robert and Donald Anderson sold 2,500 acres on Dauphin Island to Shell Oil Company in November 1971. The New Mexico residents were paid an estimated $2.5 million dollars for their interest in the island property. A spokesperson for Shell Oil stated that the real estate was "strictly" an investment and that the company had no intentions to explore or drill for oil and gas (*The Anniston Star* 1971).

In 1971, funding for the Dauphin Island Sea Lab (DISL) was authorized by the Alabama state legislature. The facility is Alabama's premier marine education and research center. The impressive lab is the home for the Marine Environmental Sciences Consortium. The association serves DISL members, and 22 public and private Alabama colleges and universities. Over the years, the lab's programs have expanded to a great degree. Building on its educational agenda, and by broadening research objectives, the Dauphin Island center provides a public aquarium that focuses solely on native ecosystems of the Mobile Bay estuary. The onsite Coastal Policy Center also offers local governments, regional industries and related agency decision makers several coastal management services (Gulf Base 2011). At the Dauphin Island Estuarium, there are:

> [E]xciting visual displays and engaging interactive exhibits presenting an unforgettable educational experience to visitors. Focusing on the four main ecosystems of the Mobile estuary system (the Delta, Mobile Bay, the Barrier Islands and the Gulf of Mexico), the Estuarium includes the Living Marsh Boardwalk, a 10,000 sq. ft. Exhibit Hall and much more (Gulf Base 2011).

The 130-mph winds created by Hurricane Frederick during 1979 decimated the original bridge that connected Dauphin Island to the mainland. In the short term, the Alabama Department of Transportation provided costly ferry service to commuters. Due to the critical need for a timely solution, the replacement bridge was constructed within 34 months. The new 17,814-foot long bridge consisted of three spans, the main one soaring to a height of 400 feet (Figg Bridge Company 2010). This section of Figg Bridge Company's design was the first span of this length on a pre-cast concrete segmental bridge. The Figg Bridge design featured a "twin wall I-shaped piers and an integral riding surface" (Figg Bridge Company 2010). The bridge was recognized with three prestigious awards, including the "1983 Precast Concrete Institute's Award of Excellence" (Figg Bridge Company 2010).

The Contemporary Period (1991-2011)

During October/November 1996 and April/May 1997, the Friends of the Dauphin Island Audubon Bird Sanctuary and the Alabama Ornithological Society conducted surveys regarding birdwatcher demographics. The results of the collaboration confirmed the positive economic impact of birding ecotourism at Dauphin Island. The island and the surrounding Alabama coastal area are prime destinations for eastern North American birdwatchers (Dauphin Island Foundation n.d.).

Modern Mobile remains one of the most important ports on the Gulf of Mexico coast. In addition to extensive container based shipping the port facilities serve cruise ships that accommodate tens of thousands of passengers annually. Area beaches on the Gulf of Mexico south of the city and historical attractions in Mobile and along the bay brought additional visitors to the Mobile Bay area. The rise of the gas and oil industry in the Gulf of Mexico has also contributed significantly to Mobile's economic development. The combination of agriculture, marine construction, maritime commerce, tourism and business has brought Mobile into the 21st century.

Remote-Sensing Survey Methodology

While the survey vessel R/V *Aqua Quest* (Figure 12) was loaded and the remote-sensing equipment rigged, the RTK GPS base station was set up to transmit corrections. Once on site, the speed of sound through water was established and the fathometer calibrated. Magnetometer, side scan sonar and sub-bottom profiler sensors were deployed and the layback of each recorded.



Figure 12. Project survey vessel R/V *Aqua Quest*.

With all equipment running and data quality confirmed, the R/V *Aqua Quest* was systematically navigated down each of the survey lines. Navigation down each survey line was controlled by a computer monitor on the helm that displayed a HYPACK navigation screen (Figure 13). The screen provided the helmsman with a visual projection of the current line, vessel position on line and a right and left of line indicator. Vessel speed was maintained at approximately four knots. Operators continuously monitored the magnetometer, side scan sonar and sub-bottom profiler computers to identify anomalies and maintain

record quality (Figure 14). Data was filed based on each of the survey lines identified in HYPACK. Periodic inspections of data files were made to ensure that all magnetic and acoustic records were stored.



Figure 13. Computer navigation system located at the research vessel helm.



Figure 14. Remote-sensing operator monitoring data collection on board R/V *Aqua Quest*.

Remote-Sensing Survey Equipment

Archaeologists utilize a variety of geophysical remote-sensing instruments to locate and identify submerged cultural resources. The most useful instruments have proved to be magnetometers, sonars, sub-bottom profilers and, more recently, multibeam echo sounders. Operated in conjunction with a real time kinematic global positioning system (RTK GPS) and an onboard computer equipped with precision survey software, this array of instruments represents the currently accepted standard for submerged cultural resource remote-sensing survey operations (Michel et al. 2004).

With the exception of a multibeam echo sounder, the submerged cultural resource remote-sensing survey of the Dauphin Island investigation areas was designed to employ that array of instrumentation. The survey objective was to identify potentially significant submerged cultural resources that could be impacted by proposed dredging activity. The survey methodology and equipment was based on submerged cultural resource survey standards identified by the AHC. The combination of state-of-the-art magnetic, acoustic and seismic remote-sensing equipment was employed to generate sufficient data to reliably identify submerged cultural resources such as shipwreck sites and relict landforms that could be associated with prehistoric human activity.

Remote-sensing data collection was controlled by an onboard computer running HYPACK® precision survey software and connected to a Real Time Kinematic (RTK) Global Positioning System (GPS). Sonar data were generated by a dual frequency EdgeTech 4200-HFL side scan sonar system. A Geometrics G-882 cesium-vapor marine magnetometer was employed to identify anomalies in the earth's magnetic field that could represent shipwrecks or other potentially significant cultural material. Seismic data were generated by an EdgeTech Full Spectrum Sub-bottom System with a 512i towfish. The sub-bottom profiler data was used to identify relict landforms that could be associated with prehistoric archaeological sites. The 100-foot (30 meter) line spacing was designed to provide overlapping coverage with the sonar system and an AHC acceptable representative sampling with the seismic and magnetometer systems. Thirty-seven survey tie lines were run to verify the accuracy of collected data. All data quality was determined to be more than adequate for geological and archaeological interpretation.

Magnetometers

Magnetometers measure the earth's magnetic field in gammas and identify anomalies that represent both geological features and cultural material associated with human activity. Because of the association of ferrous material and material having thermoremnant magnetism with shipwrecks and other submerged cultural resources, magnetometers have been adopted by archaeologists as one of the principal tools employed in submerged cultural resource surveys.

State-of-the-art magnetometers use cesium vapor or hydrogen to measure the magnetic field and virtually all have processing components in the sensor for high sensitivity and very low noise (Geometrics 2003; Marine Magnetics 2003). All utilize digital technology, even the low-end proton precession magnetometers that remain on the market (Geometrics 2003). Both the cesium vapor and Overhauser sensor instruments are advertised to have much greater sensitivity than proton precession instruments (Marine Magnetics 2003). Multiple sensor instruments have been developed to operate as gradiometers, providing amplified data that include target direction, size, and distance (Geometrics 2003; Marine Magnetics 2003; Michel et al. 2004).

Although all of the new generation magnetometers can be connected via a computer to a printer, data are almost universally computer displayed in real time. Data display can be achieved by a computer dedicated to the magnetometer, or the magnetometer can be connected directly to the navigation computer for both real time display and data storage. Targets can be filed and represented on the navigation display by a keystroke. All magnetometers can be fitted with depth and/or altitude sensors to facilitate maintaining survey altitude requirements (Geometrics 2003; Marine Magnetics 2003; Michel et al. 2004).

To identify anomalies associated with submerged cultural resources in the survey area, a Geometrics G-882 cesium-vapor marine magnetometer was employed to collect magnetic data in the survey areas. The Geometrics G-882 magnetometer is capable of plus or minus 0.001 gamma resolution (Figure 15). The cesium-vapor magnetometer provides a scalar measurement of the earth's magnetic field intensity expressed in gammas. Magnetic data were monitored on a chart as they were recorded as a HYPACK *.RAW file on the navigation computer system.

Side Scan Sonars

Side scan sonars utilize sound to generate images of bottom surface geological features and cultural material such as shipwrecks. Transducers located on the sides of a towfish generate sound that travels through the water column at a known speed. The towfish transducers also record sound returning from the bottom surface and other exposed material. By processing the strength and variable time of returning sound, a highly detailed image of the bottom and any other exposed material can be generated. Today high-resolution sonar can produce images that are almost photographic in quality and detail (Mazel 1985).

While most side scan sonar systems are equipped to interface with recorders that generate paper records, they are designed to present and store data electronically. Virtually all sonar units available today operate on computer-based systems. Computer-based systems have advanced high-speed signal processing and most sensors are equipped with much improved transducers that provide better control over beam transmission and reception. In addition, computer-based systems are programmed to connect record processing with real



Figure 15. Geometrics G-882 magnetometer sensor.

world geographical coordinates, permitting the computer to correct for speed and eliminate slant range error in real time by program functions (Michel et. al. 2004). Computer-generated resolution is higher and tow speeds can be significantly increased. Most new systems are designed to operate at dual frequencies such as 100kHz/500 kHz or 500kHz/900kHz (Klein Associates 2003; EdgeTech 2003; Benthos 2003). All of those improvements contribute to higher resolution images. The higher the resolution of the sonar data, the more diagnostic the image.

During the Dauphin Island survey, an EdgeTech 4200-HFL side scan sonar system was employed to collect acoustic data in the investigation area (Figure 16). The 4200-HFL uses full-spectrum CHIRP technology to deliver wideband, high-energy pulses coupled with high-resolution and superb signal to noise ratio echo data. The sonar package included a portable laptop configuration running DISCOVER acquisition software and a 300/600 kHz dual frequency, dual channel towfish running in high definition mode. Dual frequency provided a differential aid to interpretation. The side scan sonar transducer was deployed from the bow of the survey vessel and maintained between 8 and 10 feet below the water surface. Acoustic data were collected using a range scale of 246 feet (75 meters). The survey line spacing was designed to achieve total bottom coverage with



Figure 16. Launching the EdgeTech 4200-HFL side scan sonar.

more than 300% overlap. The digital side scan data were merged with positioning data via the computer navigation system and logged to disk for post-processing using EdgeTech's DISCOVER® software.

Sub-bottom Profilers

Sub-bottom profilers also use sound to generate images. Unlike high resolution side scan sonars, sub-bottom profilers employ low frequency sound to penetrate and identify bottom sediments. CHIRP systems generally operate in frequencies between 3.5 to 40 kHz and are capable of resolution on the order of 10 cm (6 in.). While penetration and resolution depend on sediment type, data can identify relict landforms that could be associated with prehistoric human activity and, under the right circumstances, contribute to assessment of shipwreck or other buried submerged cultural resources (Kongsberg Simrad AS 2003; Benthos 2003; Ocean Data Equipment Corporation 2003).

A variety of sub-bottom profilers can be used to map the subsurface of the ocean floor. These include sparkers, boomers, pingers, and chirp systems (Technical Committee 1 2005:22-23). A range of frequencies with differing penetration depths and resolutions characterizes each. Sparkers emit the lowest frequencies, between 800 Hz to 200 Hz, and can penetrate soils and rocks to over 1000m, but provide the lowest resolution and have unstable waveforms. Boomers generally operate between 500 Hz to 5 kHz and can typically penetrate the seabed between

30m and 100m, with resolutions between 0.3 m to 1.0 m. Pingers operate in frequencies between 3.5 kHz and 7 kHz and can penetrate the bottom to more than 50m, depending on sediment consolidation. Chirp systems are designed to sweep across a range of frequencies (i.e. chirp). These systems can operate between 3 kHz and 40 kHz and, depending on sediment type, can attain vertical resolutions of 10cm and is the most useful for defining sediment features, such as relict channels. Because of the resolution and frequency, this system was chosen for the survey.

Digital technology also has improved sub-bottom profilers. Like side scan sonars, virtually all of today's high-resolution sub-bottom profilers operate on computer-based systems. Computer data processing has improved resolution greatly. Advances in the design of transducers have also contributed to improved stratigraphic definition. New transducers produce narrower beam widths with reduced side lobes and have a higher frequency range. Most produce a short sound pulse without ringing and have higher pulse rates. Many systems are compatible with heave, pitch, and roll compensators for much improved record detail. Positioning can be integrated with the data to facilitate feature location and three-dimensional projection. The primary result of these improvements is better stratigraphic definition (Kongsberg Simrad AS 2003; Benthos 2003; Ocean Data Equipment Corporation 2003; Michel et al. 2004).

An EdgeTech 512i towfish (Figure 17) was employed with a Full Spectrum Sub-bottom Topside Unit to collect seismic data. The sub-bottom profiler sends an acoustic signal through the ocean bottom to record surface and subsurface geological features. Each distinct layer in the bottom sediment is indicated as a surficial trace, which is recorded in an electronic format onboard the survey vessel. The chart shows the presence of the sediment surface and other distinct layers or features within the sediment, such as buried river channels. The topside unit was utilized to control the 512i towfish and to display and archive the data, which was merged with positioning data via the computer navigation system and logged to disk for post-processing using EdgeTech's DISCOVER® software. The area was surveyed using the 0.7 KHz to 12 KHz 20ms FM pulse setting. The transducer was deployed between 8 and 12 feet below the water surface. The pulse repetition rate was typically twelve pulses per second.

Fathometers

Fathometers employ sound to determine and record water depths. While the depth recorder or precision survey fathometer is perhaps the most elementary of the acoustic remote-sensing instruments, it can present an accurate profile of the water depth and bottom surface under the survey vessel. Highly sensitive survey depth recorders can provide insight into bottom surface sediments, surface geological features, and exposed cultural resources (Ocean Data Equipment Corporation 2003; Kongsberg Simrad AS 2003; Reson 2003).



Figure 17. Launching the EdgeTech 512i Sub-bottom profiler.

For the Dauphin Island project an Odom Hydrographic Systems Hydrotrac was used to perform the bathymetric survey. The Hydrotrac is a digital, survey-grade, single frequency portable hydrographic echo sounder which operates at frequencies of 24, 33, 40, 200, 210 or 340 kHz. A 210 kHz transducer was used for the bathymetric survey and was maintained at 2.9 feet below the water surface. Sounder calibration was performed twice daily via bar-checks and a sound velocity probe. A Digibar Pro sound velocity meter offered a quick, additional calibration for sound velocity as compared to the traditional bar-check. Bar-checks were also performed at 5-foot intervals (Figure 18). A TSS model DMS-25 Motion Compensator, interfaced to HYPACK, was used onboard the survey vessel to provide heave corrections. All bathymetric data were recorded in HYPACK as *.RAW file on the navigation computer system at 10 samples per second.



Figure 18. Preparing the bar check disk for deployment.

Limitations of Magnetic and Acoustic Remote-Sensing

Magnetic Remote-Sensing

The magnetometer represents one of the most valuable tools available for locating submerged cultural material. One distinct advantage associated with magnetic detection is that material can be buried and still generate an identifiable signature. However, magnetic remote-sensing has limitations that should be acknowledged. Since disturbances in the earth's magnetic field are relative to both the mass and physical characteristics of ferrous and thermoremnant material, a number of factors influence detectable signatures. One of the most critical is survey lane spacing. Acceptable lane spacing must be determined based on the anticipated nature of submerged cultural resources in the survey area. For example the signature of a large iron ship would be detectable over a considerably longer distance than a small wooden vessel. Thus the lane spacing adopted to reliably locate a large ship could be considerably greater than that employed for a small wooden vessel.

The proximity of the sensor to material generating the anomaly is another important factor. As the magnetometer is not range specific, the size and composition of material generating an anomaly in the earth's magnetic field combine to establish the distance at which magnetic material creates the

detectable disturbance. For example a small anchor will be detectable for a much more limited distance than the iron hull of a vessel. Therefore, sensor elevation in the water column and line spacing have a great deal to do with the size and characteristics of an anomaly that will be identifiable. Vessel speed and the cyclical rate of data collection will also have a bearing on the detectable characteristics of an anomaly. Higher speed and/or a slower cyclical rate can turn the subtle characteristics of a multi-component signature into one of the other three signature types; negative monopolar, positive monopolar or dipolar.

Currently, 100-foot (30m) lane spacing is considered acceptable for most offshore areas. In inshore areas or offshore areas where historical sources confirm that vessel traffic and losses have been high, 50-foot (15m) lane spacing is considered acceptable. However, neither of those line spacings will ensure 100% likelihood of identification. Vessel signatures vary significantly. Even at a 50-foot (15m) lane spacing, identifying the remains of small vessels could be a factor of the chance position of a single survey line in relationship to the wreck. Several examples of detectable limitations can be found in a report on "State-of-the-Art Remote-sensing Equipment, Software and Survey Methodology in Submerged Cultural Resource Identification, Protection and Management" incorporated in a Minerals Management Service publication titled: *Archaeological Damage from Offshore Dredging: Recommendations for Pre-Operational Surveys and Mitigation During Dredging to Avoid Adverse Impacts* (OCS Report MMS2004-005) (Michel et al. 2004).

In addition to lane spacing, background noise also plays a role in isolating small signatures. When small vessel remains and other cultural resources create limited disturbances in the earth's magnetic field, background noise can obscure the signature. Fortunately modern magnetometer systems are highly stable and background noise is limited unless there are significant geological features, solar activity and vessel-generated noise. In addition to background noise, modern debris, cables, pipelines and structures such as offshore rigs, bridges, docks and bulkheads can mask subtle signatures. An excellent example can be found in the remains of two vessels located adjacent to the Jordan Point Bridge on the Southern Branch of the Elizabeth River in Chesapeake, Virginia. Neither vessel, both large wooden ships over 150 feet in length (Figure 19), was magnetically detectable (Figure 20) due to the massive magnetic disturbance created by adjacent bridge and pier structures, cables and bulkheads (Watts 2009).

Unfortunately, shipwreck sites have been demonstrated to produce each signature type under certain circumstances. Some shipwreck signatures are more apparent than others. Large vessels, whether iron or wood produce signatures that can be reliably identified. Smaller vessels, or disarticulated vessel remains, are more difficult to identify. Their signatures are frequently difficult, if not impossible, to distinguish from single objects and/or modern debris. In fact, some small vessels produce little or no magnetic signature. Unless ordnance, ground tackle or cargo associated with the hull produces a detectable signature, some sites are impossible to identify magnetically. For example, the remains of the Mepkin Abby vessel in the Cooper River near Charleston, South Carolina

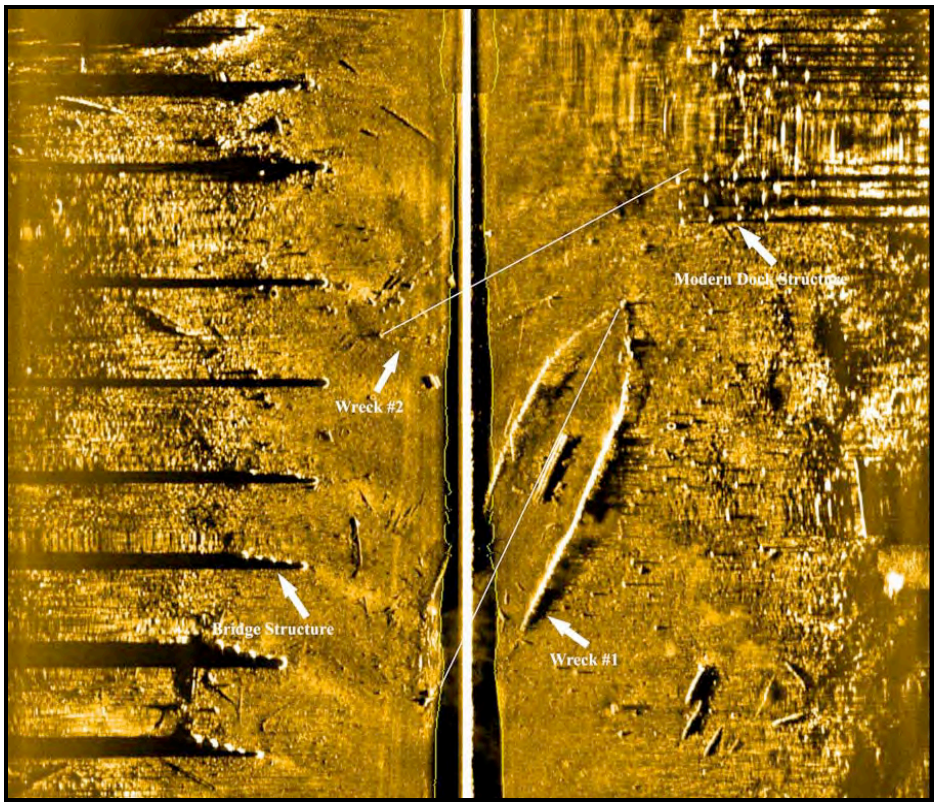


Figure 19. Sonar image of the Jordan Bridge shipwrecks.

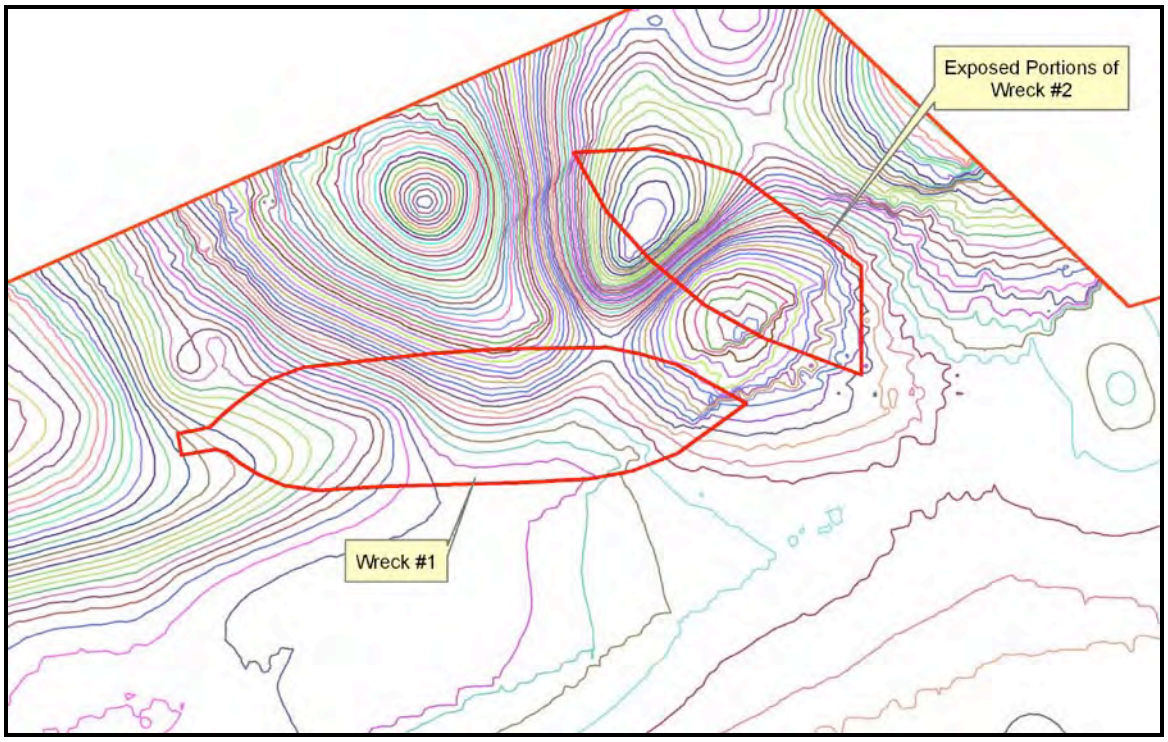


Figure 20. Magnetic contour map illustrating the masking of vessel signatures by bridge and pier structures, cables and bulkheads.

produced no magnetic signature. Instead the site was identified solely by sonar (Figure 21). It is also difficult to magnetically distinguish some small wrecks from modern debris. As a consequence, magnetic targets must be subjectively assessed according to intensity, duration and signature.

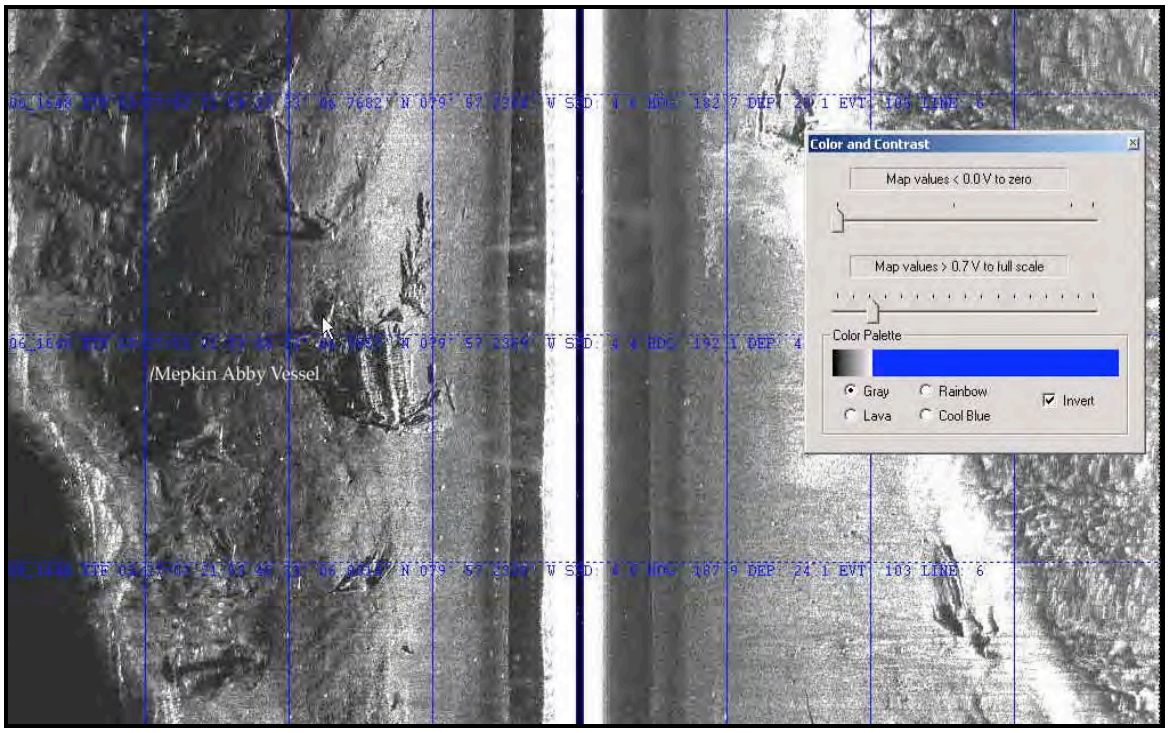


Figure 21. High resolution sonar image of the Mepkin Abby wreck in the Cooper River near Charleston, South Carolina (image courtesy of Ralph Wilbanks).

characteristics. The final decision concerning potential significance must be made on the basis of anomaly attributes, historical patterns of navigation in the project area and a responsible balance between historical and economic priorities.

Sonar Remote-Sensing

Used in conjunction with magnetometers, side scan sonars can generate valuable diagnostic insight into the nature of material generating magnetic anomalies. In addition, sonar can identify the exposed remains of vessels and other cultural material that does not create a ferrous or thermoremnant magnetic signature. Because sonar generates highly valuable diagnostic data, side scan sonars have also been adopted by archaeologists and submerged cultural resource managers to locate and identify shipwrecks and other submerged cultural resources.

Unfortunately, shipwreck sites have been demonstrated to produce a variety of signature characteristics under different circumstances. Like magnetic signatures, some acoustic shipwreck signatures are more apparent than others. Large vessels, whether iron or wood, produce signatures that can be reliably identified. Smaller vessels, or disarticulated vessel remains are inevitably more

difficult. Their signatures are frequently difficult, if not impossible, to distinguish from concentrations of snags and/or modern debris. In fact, some small vessels produce little or no acoustic signature. As a consequence, acoustic targets must be subjectively assessed according to intensity of return over background, elevation above bottom and geometric image characteristics. The final decision concerning potential significance of less readily identifiable targets must be made on the basis of anomaly attributes, historical patterns of navigation in the project area and a responsible balance between historical and economic priorities.

Like magnetic remote-sensing, side scan sonar also has limitations to be considered. For different reasons, sensor to target distance is also critical. Again, the size of anticipated vessel remains or other submerged cultural material is a significant issue in survey line spacing. For targets such as the remains of large vessels, a broad survey pattern may generate acceptable results. For smaller and less distinctive targets such as the remains of small, disarticulated or partially exposed vessels, much closer line spacing may be required to produce acceptable results.

Another consideration associated with line spacing is operational frequency and range selection. The lower the frequency the more extended the range but the lower the resolution. The higher the frequency the better the resolution but the more limited the range. Where larger targets are anticipated the lower frequency and higher range will produce reliable results. Where more subtle targets are anticipated, and that must generally be the case with submerged cultural resource surveys, a higher frequency and closer line spacing is essential. The 100-foot (30m) and 50-foot (15m) line spacing generally adopted for magnetometer surveys produces excellent high frequency sonar images on a 50 meter (164-foot) range scale. That range scale and line spacing also provides excellent overlap in coverage and multiple images of each target.

High quality diagnostic sonar image production can also be impacted by both environmental and survey conditions. Under certain conditions the water surface can produce a deceptive return that could be construed to represent real targets. Rough water conditions, particularly in shallower water where the transducer cannot be lowered sufficiently, can distort images. Biological and marine animal activity can also impact record quality as floating vegetation, shrimp, fish, dolphin and other marine organisms can create deceptive imagery. On more than one occasion schools of fish have been identified as ballast piles in submerged cultural resource reports (Figure 22). Vessel course and speed can also have an impact on sonar record quality. With the exception of side scan sonars designed for high speed operations, vessel speed over ground has a direct bearing on target resolution as the number of pings on a target relates directly to resolution. Finally, noise generated by vessel power sources and other acoustic equipment can also degrade record quality.

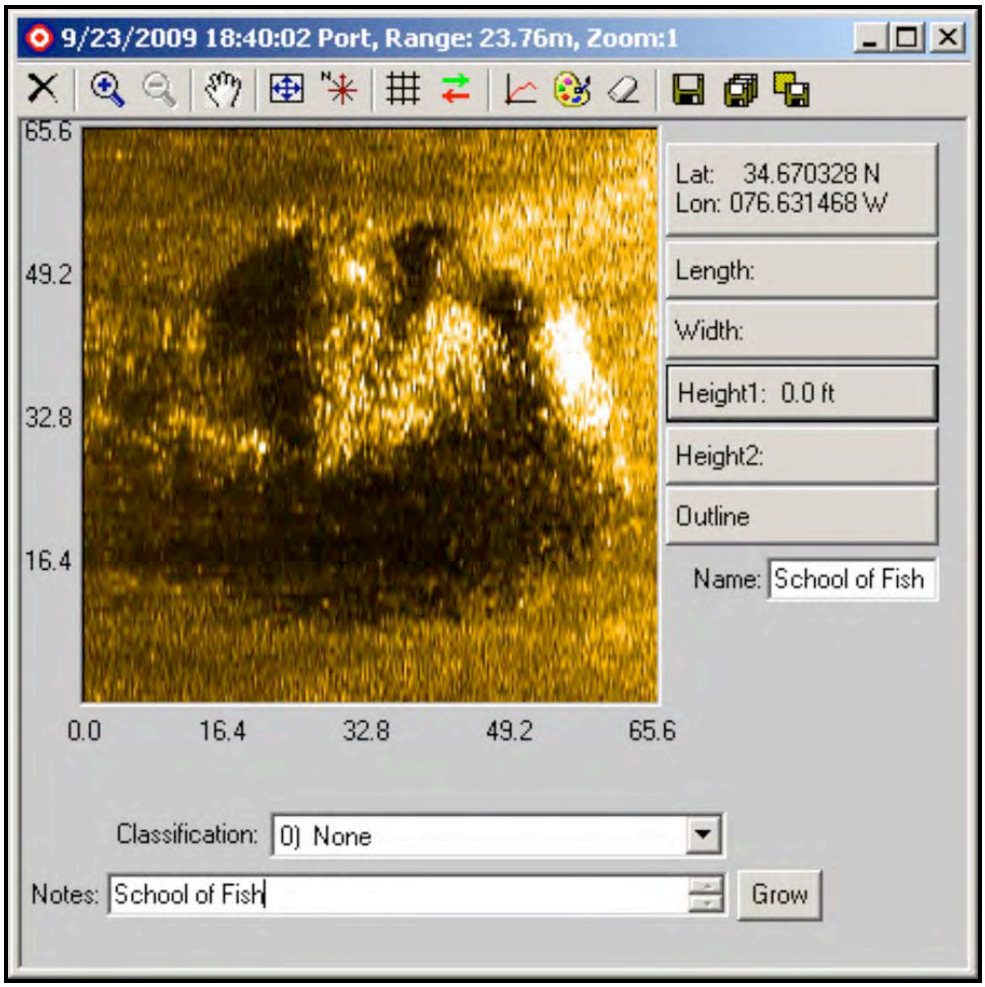


Figure 22. A school of fish generating the appearance of a ballast pile.

Several examples of detectable limitations can be found in a report on "State-of-the-Art Remote-sensing Equipment, Software and Survey Methodology in Submerged Cultural Resource Identification, Protection and Management" incorporated in a Minerals Management Service publication titled *Archaeological Damage from Offshore Dredging: Recommendations for Pre-Operational Surveys and Mitigation During Dredging to Avoid Adverse Impacts* (OCS Report MMS2004-005) (Michel et al. 2004).

Sub-bottom Profiler Remote-Sensing

On most submerged cultural resource surveys, sub-bottom profilers are an integral part of the remote-sensing array. Like side scan sonars, virtually all high-resolution sub-bottom profilers operate on computer-based systems. Computer data processing has improved resolution greatly. Advances in the design of transducers have also contributed to improved stratigraphic definition. New transducers produce narrower beam widths with reduced side lobes and have a higher frequency range. Most produce a short sound pulse without ringing and have higher pulse rates. Many systems are compatible with heave, pitch, and roll compensators for much improved record detail (Michel et al. 2004).

Used in conjunction with magnetometers and side scan sonars, sub-bottom profilers can generate insight into the nature of sub-bottom stratigraphy. On occasion, sub-bottom profiler data can provide insight into the location and nature of buried material such as shipwrecks, cables and pipelines generating magnetic anomalies. While sub-bottom data has, on occasion, been useful in characterizing and evaluating sub-bottom anomalies, it has rarely been useful in identifying vessel remains without magnetic anomalies on which to focus. The sub-bottom image associated with the remains of the Civil War steamer CSS *Waterwitch* (Figure 23) confirms the marginal diagnostic value of the data even under virtually ideal conditions. The CSS *Waterwitch* wreck site is located in the upper reaches of the Vernon River near Savannah, Georgia and is completely covered by the type of mud and light sediment that is conducive to excellent low frequency penetration (Watts 2008).

On occasion data can reflect the influence of external elements that produce spurious images. There are five different types of false signal returns that must be identified during analysis: direct arrival, reflection multiple, water surface reflection, side echoes, and point source reflections (Applied Acoustic Engineering Limited 1998:8-11). Side echoes can be clearly seen in sub-bottom records generated during a survey in Naples Bay, Collier County, Florida (Figure 24).

Although sub-bottom profilers have not generally produced a high degree of diagnostic insight into submerged cultural resources such as shipwrecks, the data they produce is extremely beneficial in locating, identifying and mapping relict landforms. Karst features like sink holes (Figure 25) and Paleo river channels (Figure 26) previously identified off Cape Romano, Florida provide excellent examples.

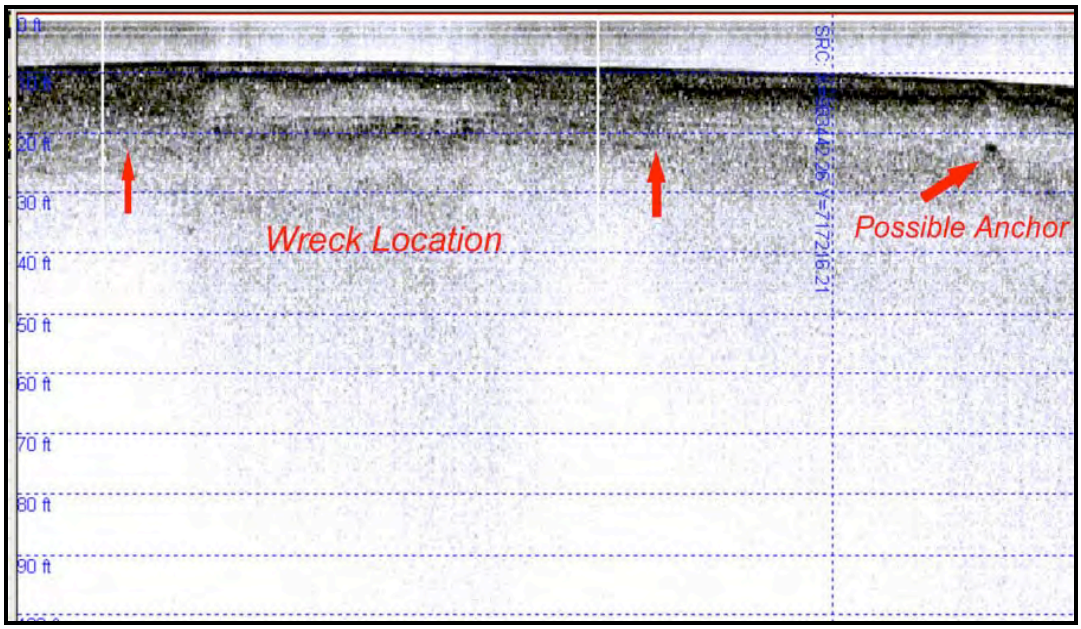


Figure 23. Sub-bottom profiler image of the CSS *Waterwitch* in the Vernon River near Savannah, Georgia.

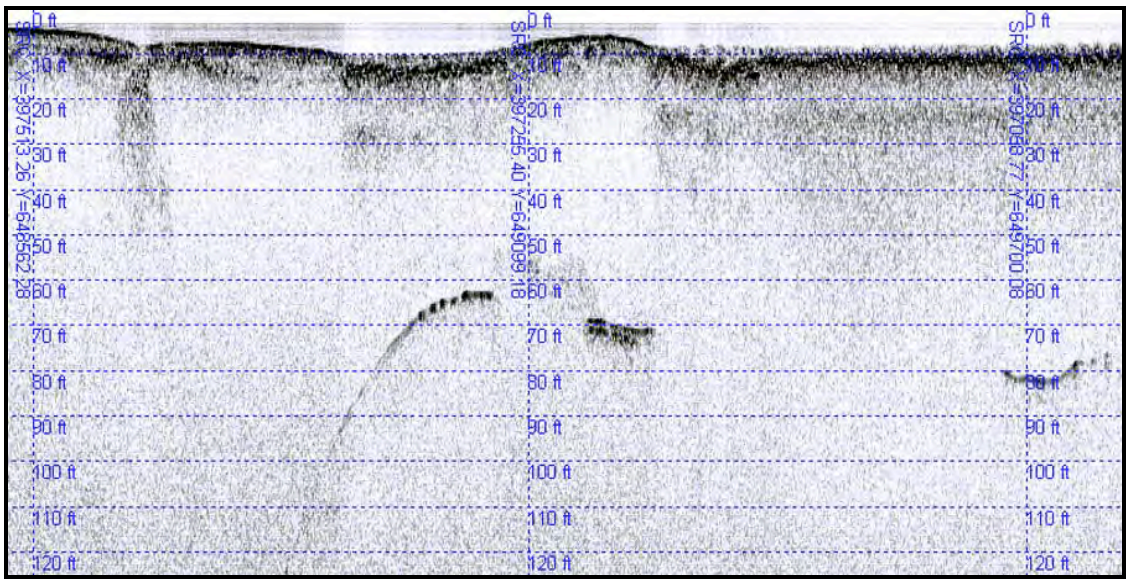


Figure 24. Example of side echoes created by an adjacent bulkhead in Naples Bay, Collier County, Florida.

However like all forms of remote-sensing, sub-bottom profilers have limitations that must be considered. Unlike sonar, the sub-bottom profiler provides insight into bottom sediments along each survey line. Large geological features can be extrapolated between lines, however smaller localized features that lie between lines may not be detected. For example, a shell midden or small karst feature could lie entirely between survey lines on 100-foot (30m) or greater centers.

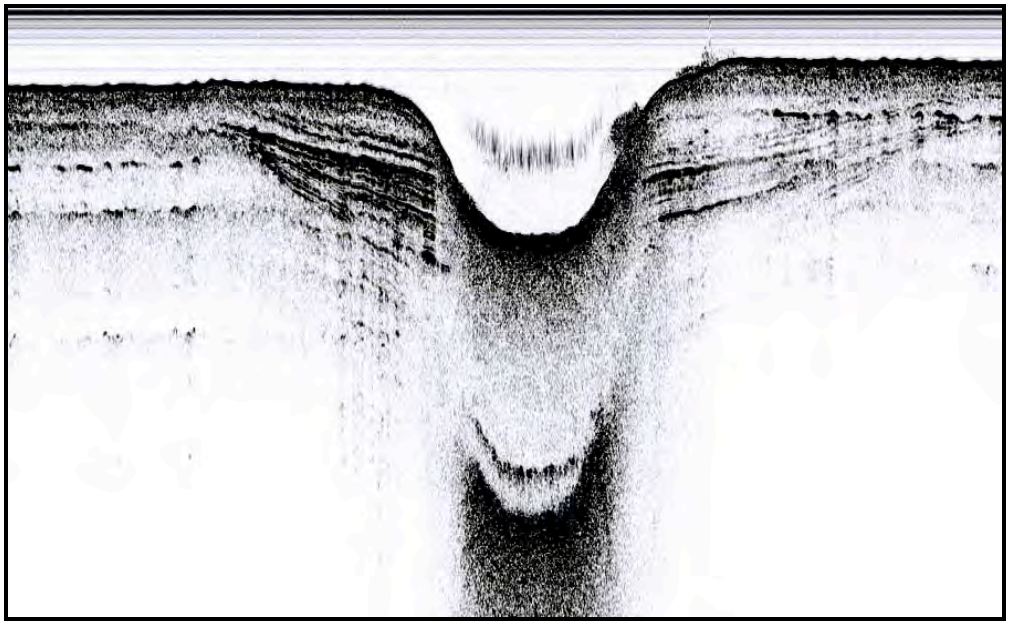


Figure 25. Sub-bottom profile of a sink hole off Cape Romano, Collier County, Florida (Courtesy Coastal Planning and Engineering, Boca Raton, Florida).

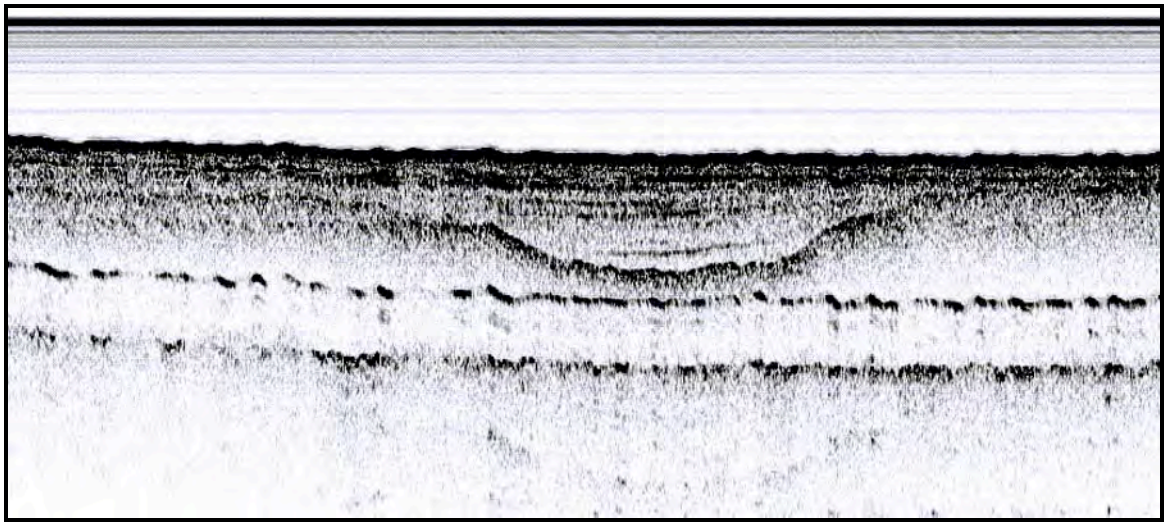


Figure 26. Sub-bottom profile of a relict channel off Cape Romano, Collier County, Florida (Courtesy Coastal Planning and Engineering, Boca Raton, Florida).

As the analytical potential of data generated is relative to line spacing, decreasing the line spacing increases the likelihood of identifying and characterizing both localized features such as relict landforms, shell middens, or buried non-magnetic shipwreck remains. To effectively characterize a localized buried geological feature or wreck using a sub-bottom profiler would require an exercise similar to that employed to generate a high-resolution sonar image. Additional lines run across all anomalies recommended for additional investigation or avoidance would generate more diagnostic data (Michel et al. 2004).

Where there are salt and fresh water inversions or mixing, such as associated with offshore springs, record quality can be compromised. Gas generated by biological activity can also degrade record quality and obscure features. While consolidated sand and even rock can be penetrated by high power systems, too much power can obscure more subtle targets in the less consolidated sediments that preserve evidence of the type of features that are accepted to be associated with prehistoric habitation. In the vicinity of objects such as bulkheads, passing vessels, vertical channel shoulders cut into hard sediments, sound bouncing laterally back from such an object can create a spurious anomaly that appears well below the actual depth of penetration. Like side scan sonar, water depth, surface conditions and vessel speed can also degrade data.

Fathometers

Survey fathometers also have operational limitations to consider. As accurate sounding is based on the speed of sound, the composition of water in the survey area must be checked for sound speed. That can be established with instruments like the Odom Digibar Pro®. The Digibar Pro® is a velocimeter that profiles water column sound velocity and generates speed of sound data that can be used to

calibrate acoustic systems. The speed of sound established in this manner is corrected for pressure, salinity and temperature (Odom 2010). Calibration can also be made using the traditional "bar check" method of systematically lowering a target under the fathometer transducer and correcting for known depths.

Fathometer data can also be degraded by salt and fresh water inversions or mixing, such as associated with offshore springs. Vessel wake and gas generated by biological activity can also degrade record quality and obscure bottom features. Like sonar, fathometer data can also be compromised by both environmental and survey conditions. Rough water conditions, particularly in shallower water, can distort soundings. Without heave, pitch and roll compensation surface motion can produce distorted bottom surface records. Biological and marine mammal activity can also impact record quality as floating vegetation, shrimp, fish, dolphin and other marine organisms can create spurious data.

Positioning and Data Collection

The navigation and positioning systems employed during survey activities were a TRIMBLE RTK Global Positioning System (GPS) interfaced with HYPACK hydrographic survey software. RTK GPS relies on a base station/transmitter placed on a survey point of known elevation and horizontal position. The receiver on the survey vessel applies carrier phase and Doppler shift corrections received from the transmitter to the position of the vessel resulting in a determination of vessel position within several centimeters, both vertically and horizontally. The TRIMBLE RTK GPS base station transmits data once per second to a receiver up to 25 kilometers away.

HYPACK is a state-of-the-art navigation and hydrographic surveying system. On-line screen graphic displays include the pre-plotted survey lines (Figure 27), the updated boat track across the survey area, adjustable left/right indicator, as well as other positioning information such as boat speed, quality of fix and line bearing (Figure 28). Position fixes were digitally recorded five times a second (approximately 1 position fix every two feet) along all survey lanes and were annotated on all records every 100 feet. An as-run line plot illustrates the vessel track along the survey lines. All data obtained is recorded on the computer's hard disk and is transferred to an external hard drive to provide a backup of the raw survey data. Generated data was correlated to remote-sensing records by RTK GPS to facilitate target location and anomaly analysis.

While the RTK GPS data was geographically formatted in latitude/longitude, the Dauphin Island Hypack project was created in Alabama State Plane, West Zone, U.S. Survey Foot, NAD 83 coordinates. HYPACK converted the latitude/longitude coordinates to Alabama State Plane, West Zone, U.S. Survey Foot, NAD 83 coordinates during survey operations. Magnetic and fathometer data were recorded in HYPACK; the sonar and sub-bottom profiler data were tied directly to the RTK GPS and stored with geographic coordinates. Those files

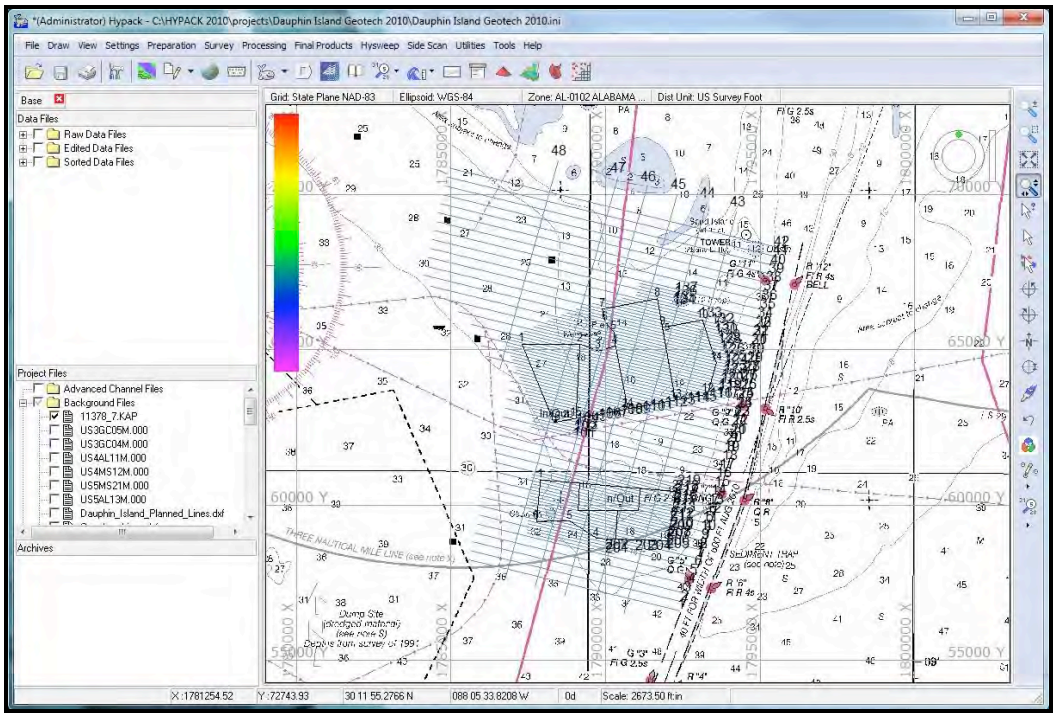


Figure 27. Pre-plotted survey lines created in HYPACK.

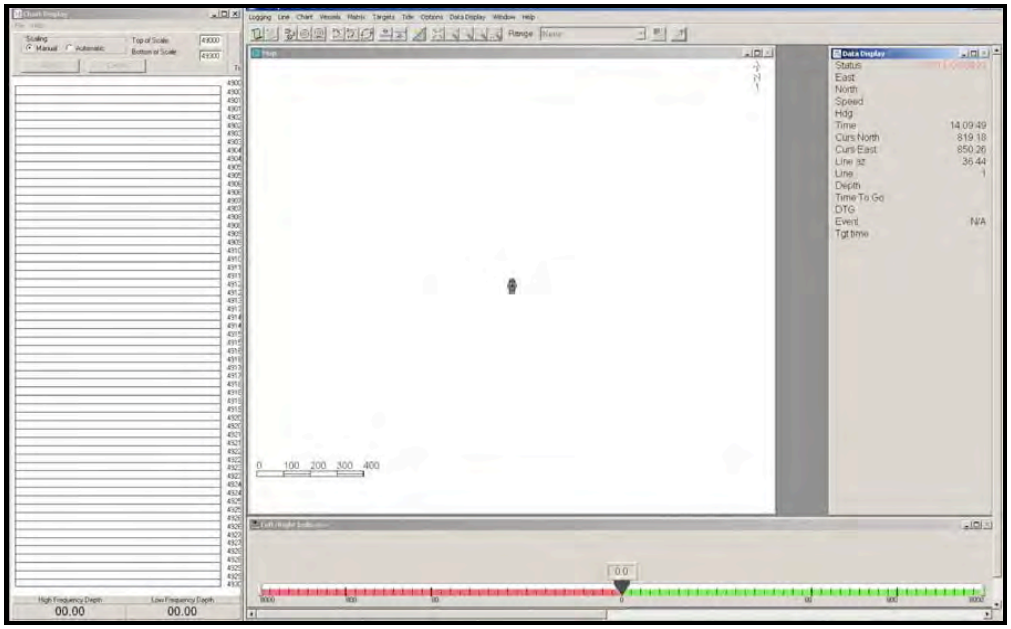


Figure 28. HYPACK helm navigation screen arrangements.

were converted to Alabama State Plane, West Zone, U.S. Survey Foot, NAD 83 in post-processing. Post-processing positioning coordinates for each survey instrument were based on the sensor location in relation to the RTK GPS antenna.

Data Analysis

To ensure reliable target identification and assessment, analysis of the magnetic and acoustic data was carried out as it was generated. No problems were encountered during data collection. Using QUANTUM GIS contouring software, magnetic data generated during the survey was contour plotted at 5-gamma intervals for analysis and accurate location of the material generating each magnetic anomaly. Magnetic targets were isolated and analyzed in accordance with intensity, duration, areal extent and other signature characteristics. Sonogram signatures associated with magnetic targets were analyzed on the basis of configuration, areal extent, elevation, target intensity and contrast with background and shadow image.

Data generated by the remote-sensing equipment were developed to support an assessment of each magnetic and acoustic signature. Analysis of each target signature included consideration of magnetic and sonar signature characteristics previously demonstrated to be reliable indicators of historically significant submerged cultural resources. Sub-bottom data were also assessed for relict channels and the potential for prehistoric resources. Assessment of each target included recommendations for additional investigation to determine the exact nature of the cultural material generating the signature and its potential NRHP significance. Historical evidence was developed into a background context and an inventory of shipwreck sites (Appendix A). These data were then used to identify possible correlations with magnetic targets. A magnetic contour map of the survey area was produced to aid in the analysis of each target.

Signature Analysis and Target Assessment

No absolute criteria for identification of potentially significant magnetic and/or acoustic target signatures exist. However, available literature confirms that reliable analysis must be made on the basis of certain characteristics. The most reliable signature analysis can be made by comparative analysis of both magnetic and acoustic data. Data analysis should also be carried out with consideration of the limitations of each instrument and the environment in which survey operations are conducted.

Magnetometer Data Collection and Analysis

Data from the magnetometer is collected using HYPACK and stored as *.RAW files by line, time, and day. RAW data files are opened and reviewed in HYPACK Single Beam Editor and layback parameters are set (Figure 29). The location, strength, duration, and type of anomaly are then transcribed to a spreadsheet along with comments. Contour maps of the magnetic data are produced with QUANTUM GIS, an open source geographic information system, and saved as shapefiles. Those shapefiles are imported to an ArcMap project to create the report maps. The contour maps provide a graphic illustration of anomaly locations, spatial extent, and association with other anomalies.

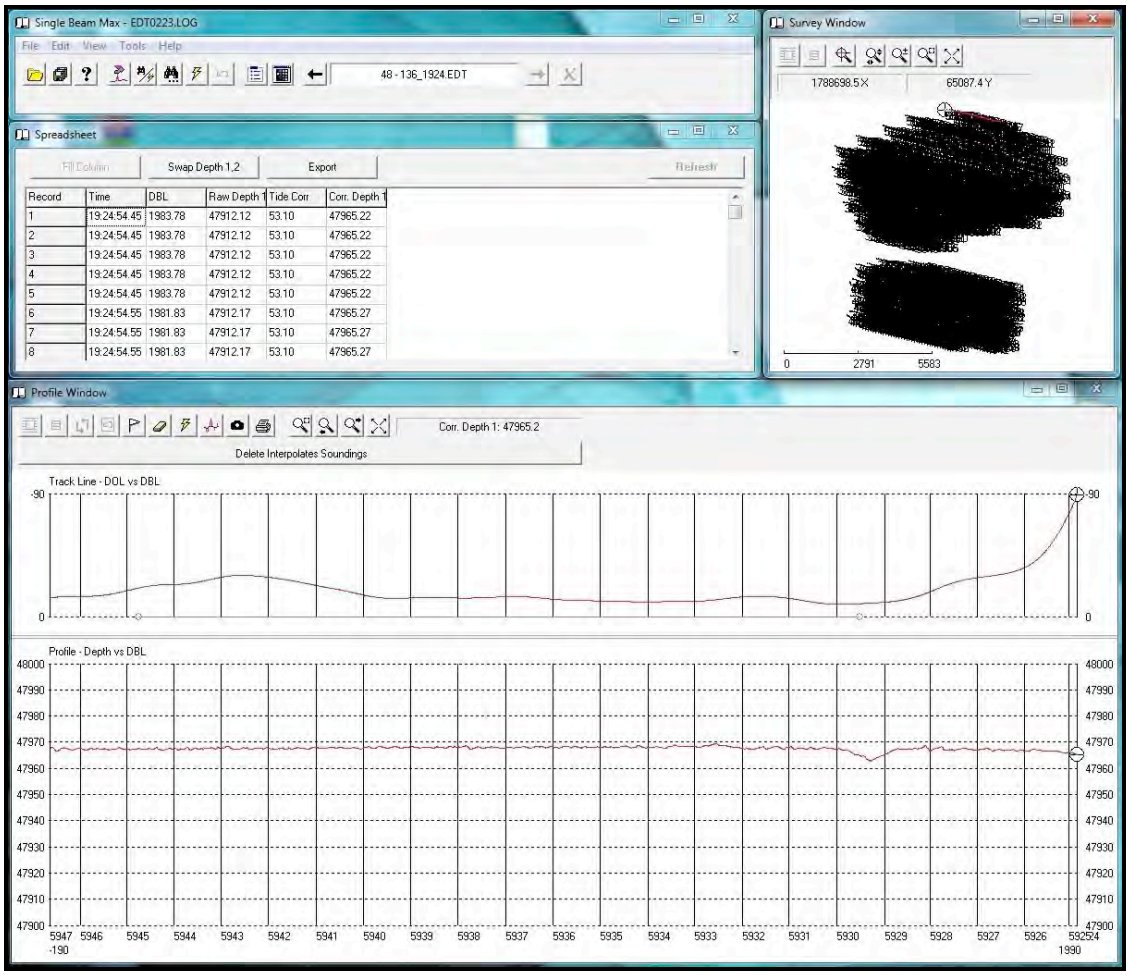


Figure 29. HYPACK's Single Beam Editor with the magnetometer data from lane 136.

Magnetic signatures are evaluated on the basis of three basic factors. The first factor is intensity and the second is duration. The third consideration is the nature of the signature; e.g., positive monopolar, negative monopolar, dipolar or multi-component. In conjunction with signature intensity in gammas and duration in feet, those four signature configurations are used to characterize virtually all magnetic anomalies.

Side Scan Sonar Data Collection and Analysis

Side scan sonar data was collected using EdgeTech's Discover data acquisition software. Data correlated with RTK GPS positioning coordinates were recorded as *.JSF files and stored by project, area designation, line and line direction. The dual frequency system recorded data at both 300 and 600 kHz frequencies. The sonar towfish was towed approximately 20 to 30 feet off the bottom, depending on water depth, and operated at a range scale of 75 meters per channel. On 100-foot (30m) line spacing that range scale generated over 300 percent overlapping data.

Post-processing of side scan sonar is accomplished using SonarWiz.MAP, a product that enables the user to view the side scan data in digitizer waterfall format, record targets and enter target parameters including length, width, height, material and other characterizations into a database of contacts (Figure 30). In addition, SonarWiz.MAP mosaics the side scan data by associating each pixel (equivalent to about .3 feet) of the side scan image with its geographic location determined from the distance from the RTK GPS position. SonarWiz.MAP is the industry standard for creating sonar mosaics, and the results are exported as geo-referenced TIFFs and imported into the GIS project. SonarWiz.MAP also generates target reports in PDF, Word, or Excel format. TAR utilizes the Word format for reports (Figure 31).

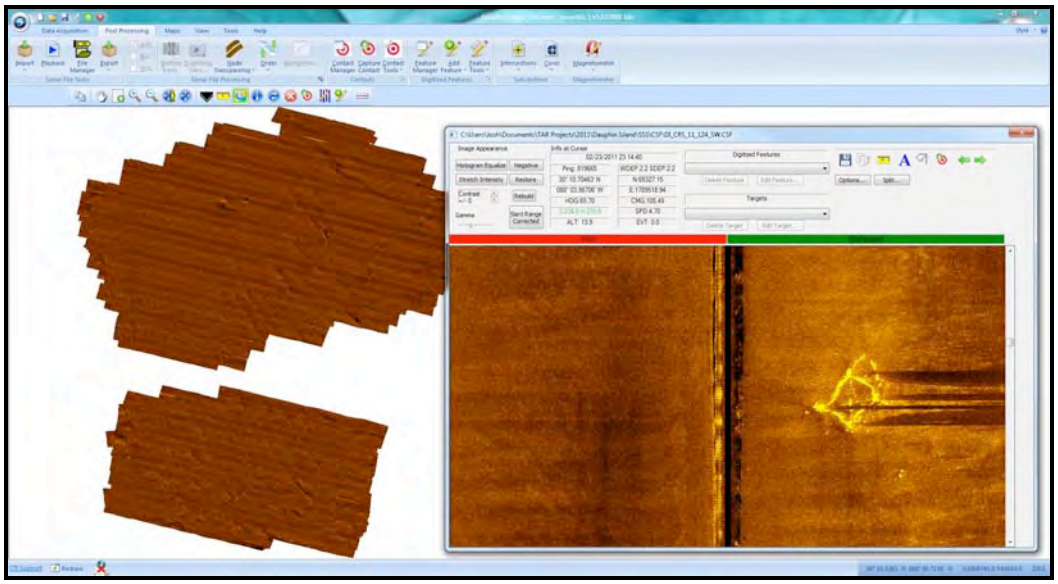


Figure 30. SonarWiz.MAP project with a side scan sonar mosaic in the background and a waterfall image of a platform.

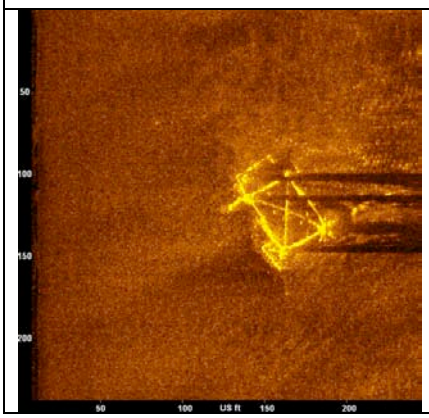
Contact Image	Contact Info	User Entered Info
	**Platform** • Sonar Time at Target: 02/23/2011 23:04:47 • Click Position (Lat/Lon Coordinates) 30.1786861420 -88.0661697388 (WGS84) • Click Position (Projected Coordinates) (X) 1789609.13 (Y) 65426.89 • Map Proj: • Acoustic Source File: Dauphin Island\SSS\XTF\DI_CRS_11_122_NW.jsf • Ping Number: 808443 • Range to Target: 49.80 US Feet • Fish Height: 3.37 US Feet • Event Number: 0 • Line Name: DI_CRS_11_122_NW	**Dimensions** Target Height >= 0.0 US Feet Target Length:42.0 US Feet Target Shadow:0.0 US Feet Target Width:29.0 US Feet Mag Anomaly: Avoidance Area: Yes Classification 1: Platform Classification 2: Area: North Borrow Area Block: Description: An oil or gas platform.

Figure 31. Example of a SonarWIZ.MAP sonar contact report.

Acoustic signatures must be assessed on the basis of several basic characteristics. Perhaps the most important factor in acoustic analysis is the configuration of the signature. As the acoustic record represents a reflection of specific target features, wreck signatures are often a highly detailed and accurate image of architectural and construction features (Figure 32). On sites with less structural integrity, signatures often reflect more of a geometric pattern that can be identified as structural material (Figure 33). Where hull remains are disarticulated the pattern can be little more than a texture on the bottom surface representing structure, ballast or shell hash associated with submerged deposits (Figure 34).

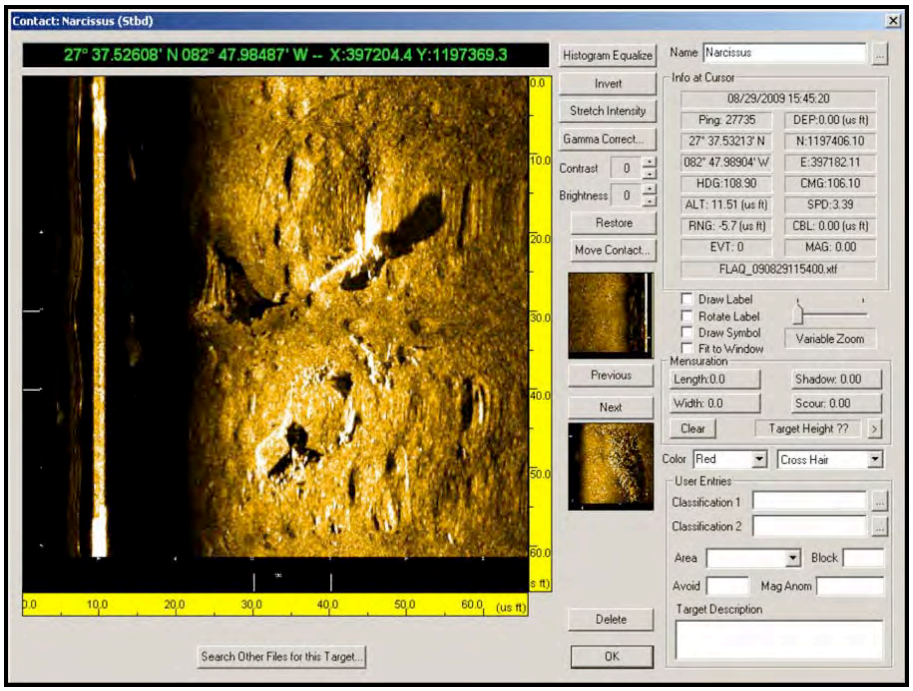


Figure 32. A sonar image of the USS *Narcissus* showing the exposed engine, propeller, boiler, and hull debris.

Sub-bottom Data Collection and Analysis

Sub-bottom profilers record subsurface strata by emitting a pulse of acoustic energy. This energy travels through water and sediment and is reflected as an echo to a receiver. As sediment and its acoustical properties change (acoustic impedence), some energy is reflected. The delay between when a sound is transmitted until it is received is converted into distance. The energy reflected by different sediment beds is used to create sub-bottom cross-section profiles, which are displayed as light and dark areas. While it is possible to detect and preliminarily map shipwrecks with this type of system (Quinn et al. 1998, Quinn et al. 2002, Plets et al. 2008), it is more useful for detecting sub-bottom buried paleo-landforms such as relict river and stream channels, estuary complexes, berms, dunes and hammocks, that are associated with prehistoric sites (Michel et al. 2004:10).

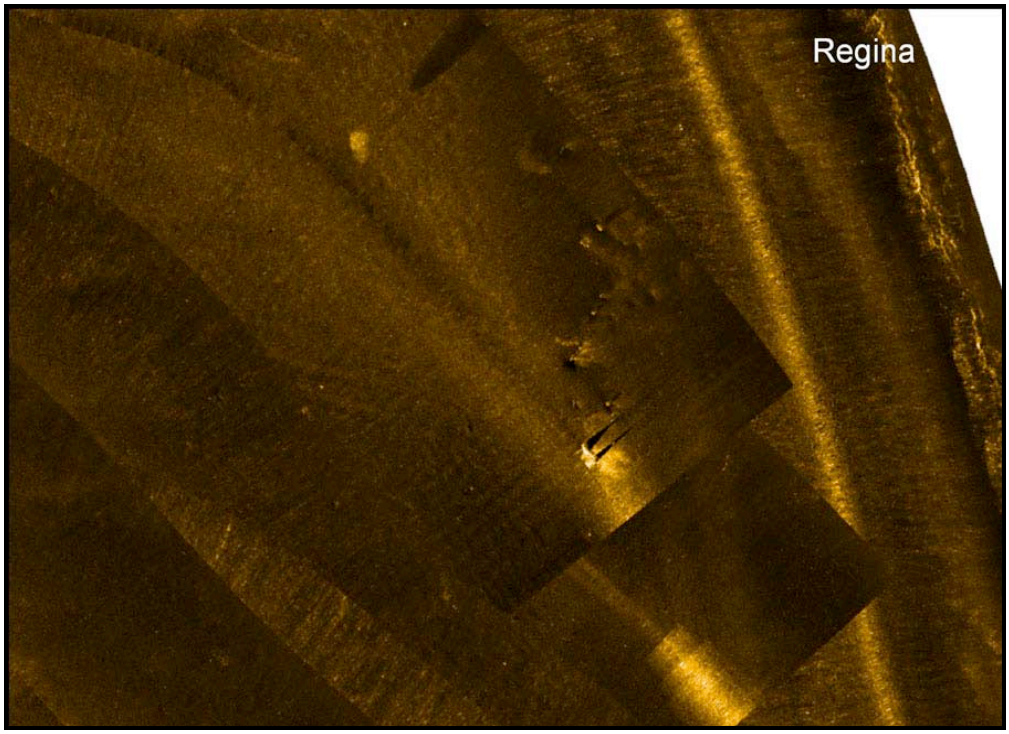


Figure 33. A sonar mosaic of the barge *Regina*.

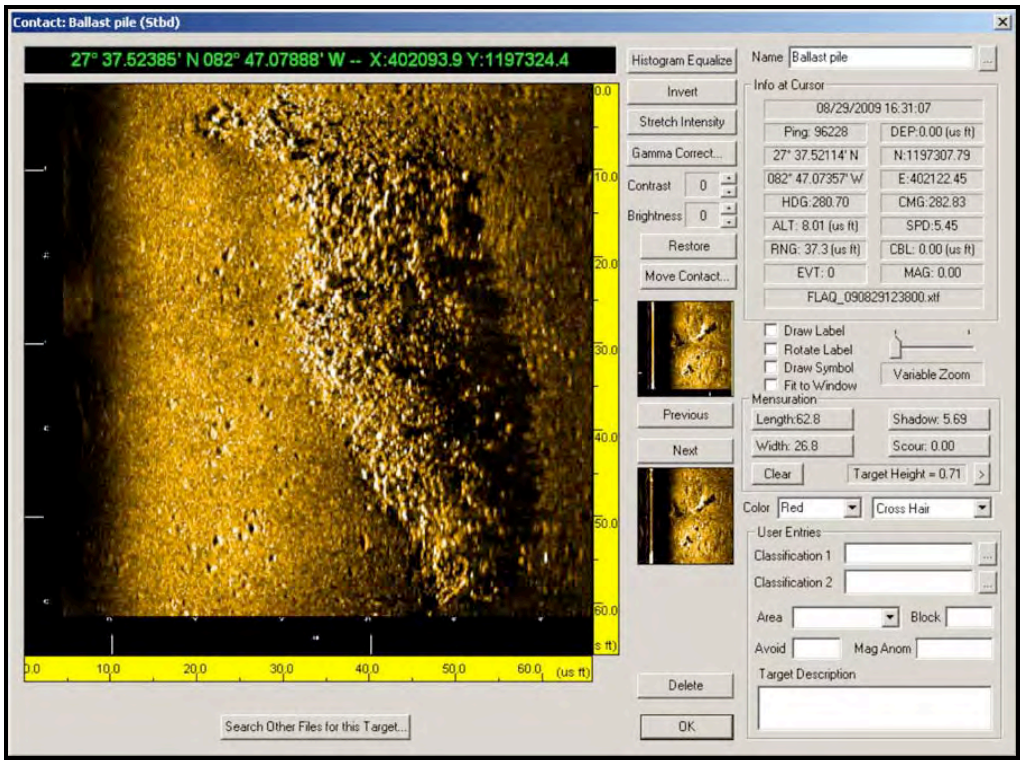


Figure 34. A sonar image of the ballast pile east of the USS *Narcissus*.

Sub-bottom profiler data was collected using EdgeTech's Discover software. Data correlated with RTK GPS positioning coordinates were recorded as *.JSF files and stored by project, area designation, lane and lane direction. The EdgeTech system recorded data using the 0.7 KHz to 12 KHz 20ms FM pulse setting. The sonar towfish was towed approximately between 8 and 12 feet below the water surface. The pulse repetition rate was set at twelve pulses per second.

Like the sidescan sonar data, post processing of sub-bottom profiler data is accomplished using SonarWiz.MAP (Figure 35). For this application, the user views the data in a planar, trackline format. This program allows the digitization and classification of sub-bottom features and calculates linear extent and depth. The processed images can be exported to *.JPG format for inclusion as figures in the report.

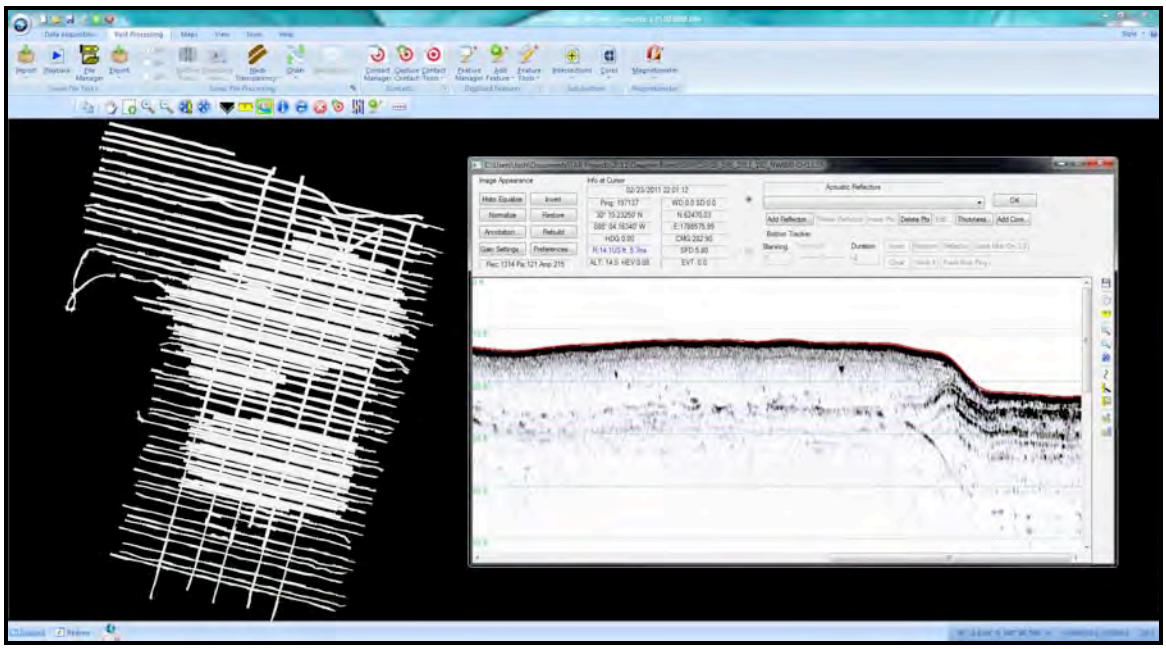


Figure 35. SonarWiz.MAP sub-bottom project with the digitizer window open.

Survey Results

North Borrow Site

Survey lines for the North Borrow Site were spaced at 100 feet (30 meters) (Figure 36). Water depths ranged between 13 and 33 feet, based on NAVD 88 (Figure 37). Analysis of the remote-sensing data generated in the North Borrow Site investigation area identified a total of 129 magnetic anomalies (Figure 38; Appendix B). Forty-three magnetic anomalies are located in the proposed borrow area. Four are associated with a platform located outside the project area. Thirteen produced signature characteristics suggestive of small single anomalies and six produced signature characteristics indicative of moderate single objects. These signatures are suggestive of modern debris such as fish and

crab traps, pipes, small diameter rods, cable, wire rope, chain or small boat anchors and are not recommended for avoidance. Twenty magnetic anomalies produced signature characteristics and spatial associations suggestive of potentially significant cultural material and are recommended for avoidance and/or additional investigation.

Eighty-six magnetic anomalies are located within a borrow area buffer. Sixteen magnetic signatures are associated with a pipeline that runs to the west of the borrow area. Sixteen are associated with an oil or gas platform outside the proposed borrow area. Seventeen are classified as small single anomalies and 8 are classified as moderate single objects. These 25 anomalies are suggestive of modern debris such as fish and crab traps, pipes, small diameter rods, cable, wire rope, chain or small boat anchors and are not recommended for avoidance. Twenty-nine magnetic anomalies exhibit signature characteristics and spatial associations indicative of potentially significant cultural resources and are recommended for avoidance and/or additional investigation.

Analysis of the sonar data from the North Borrow Site identified 19 images of material exposed on the bottom surface (Figure 39; Appendix C). Four of those targets are located in the proposed borrow area and produced magnetic signatures. These are indicative of potentially significant cultural material and are recommended for avoidance. Fifteen sonar targets are located outside the North Borrow Area. One is associated with an oil or gas platform. Four are small single objects and are not recommended for avoidance. The remaining 10 sonar targets produced associated magnetic signatures indicative of potentially significant cultural material and are recommended for avoidance.

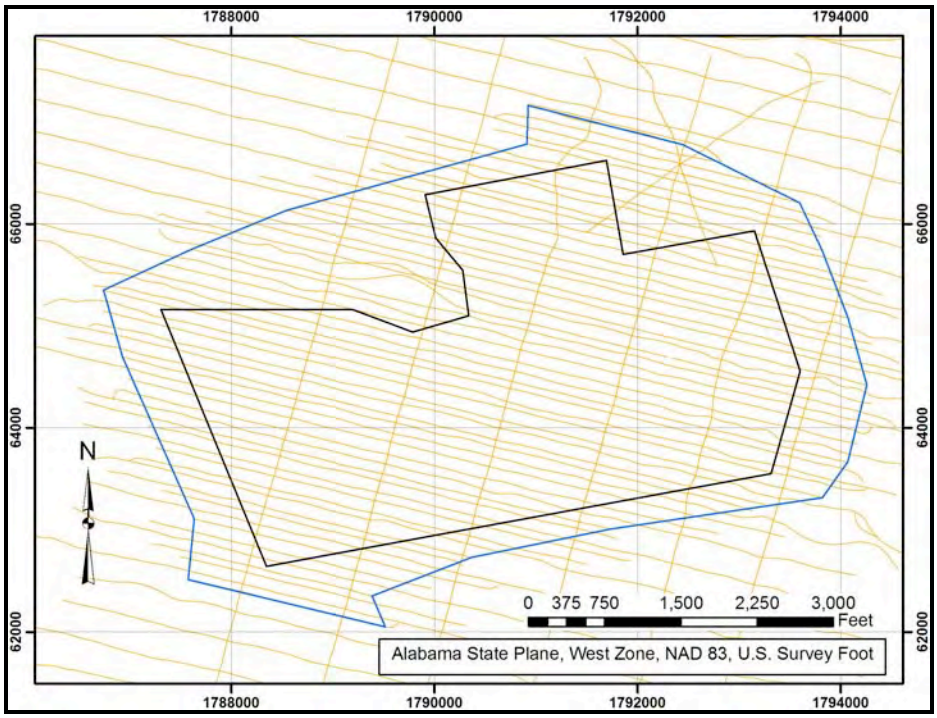


Figure 36. The North Borrow Site investigation area survey trackline map.

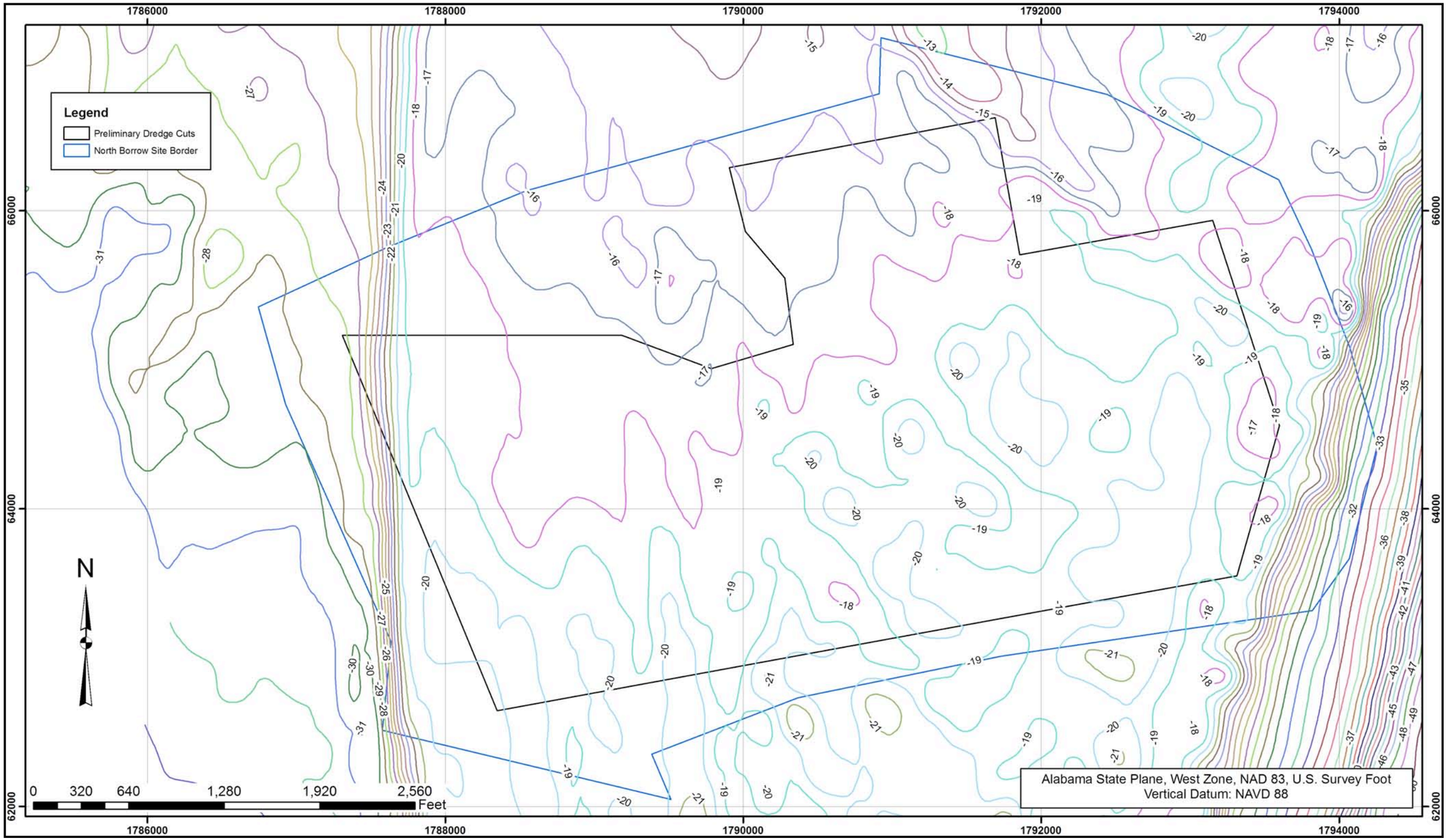


Figure 37. The North Borrow Site investigation area survey bathymetric map.

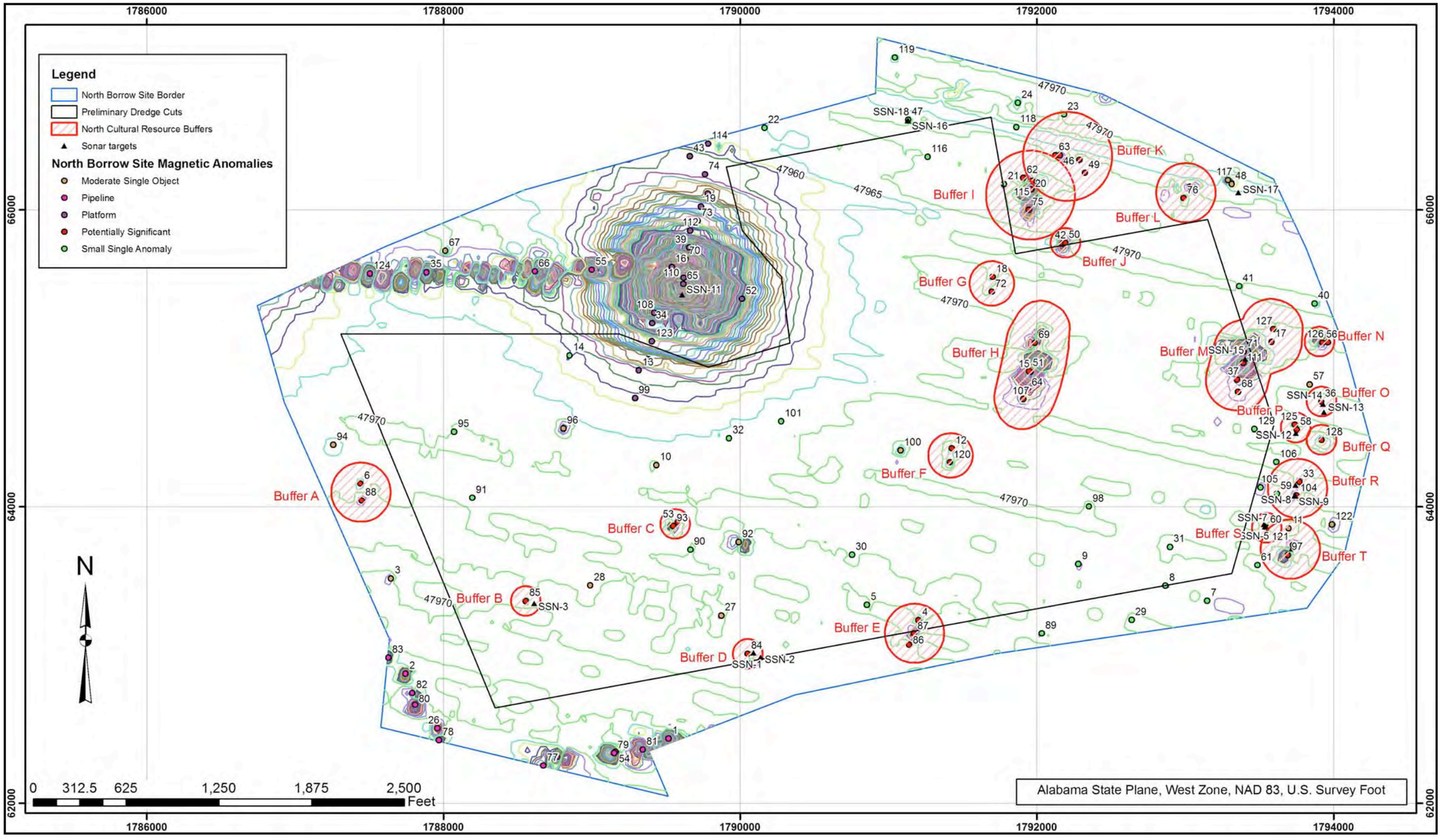


Figure 38. Magnetic contour map of the North Borrow Site investigation area with anomalies and sonar targets.

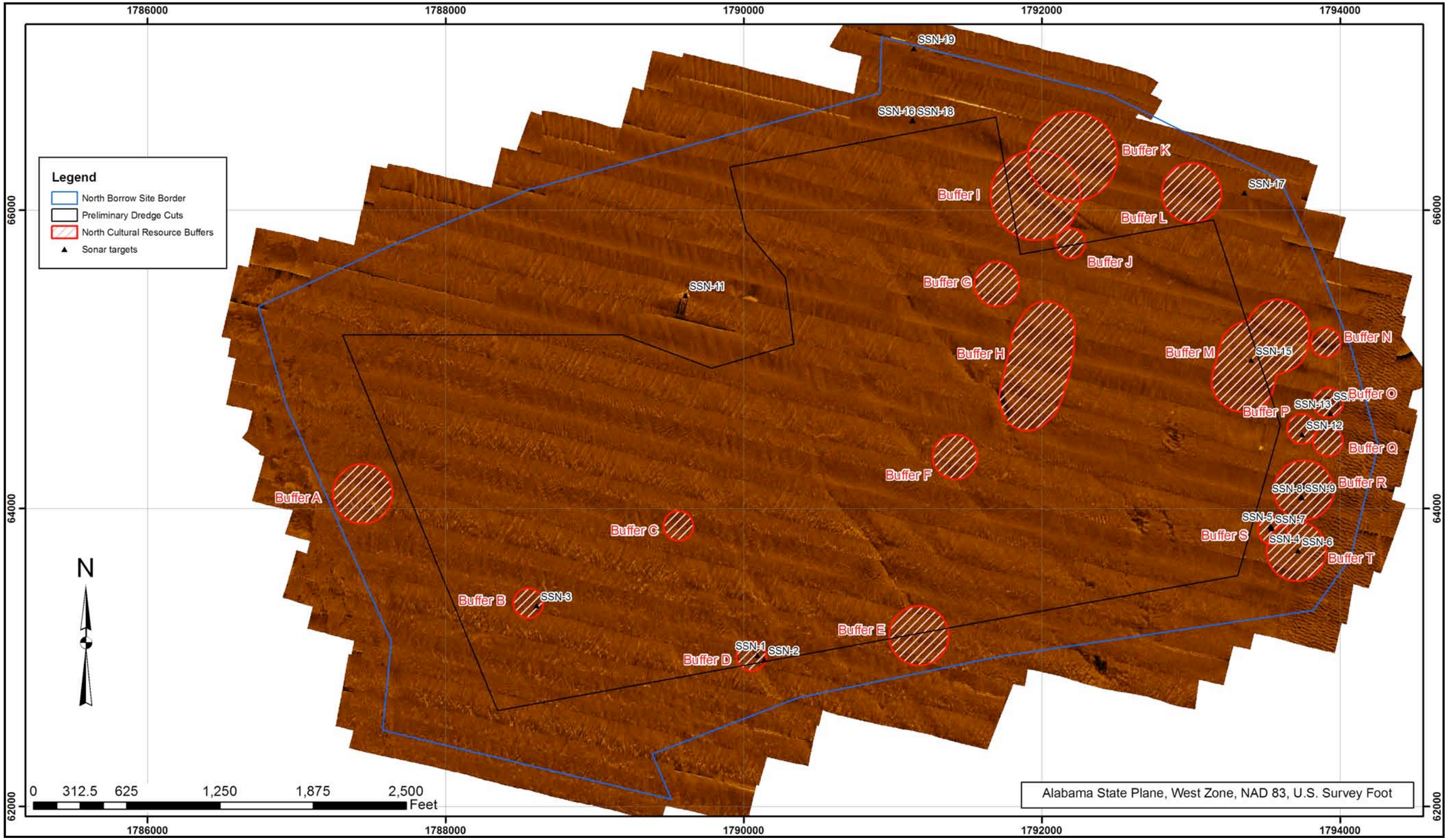


Figure 39. Sonar coverage mosaic of the North Borrow Site investigation area with sonar target locations.

To protect material generating potentially significant magnetic anomalies and sonar targets, 20 buffers have been established. Anomalies in Buffers B, C, D, J, N, O, P, Q, and S should be protected by 100-foot radius buffers. Anomalies in Buffers F and G should be protected by 150-foot radius buffers. Anomalies in Buffers A, E, H, L, M, R, and T should be protected by 200-foot radius buffers. Anomalies in Buffers I and K could be associated with a charted wreck, identified in AWOIS as the *Terry Lee*, and should be protected by 300-foot radius buffers.

Analysis of the data generated by the sub-bottom profiler in the North Borrow Site identified no relict landforms or other targets that are indicative of association with prehistoric or historic submerged cultural resources (Figure 40).

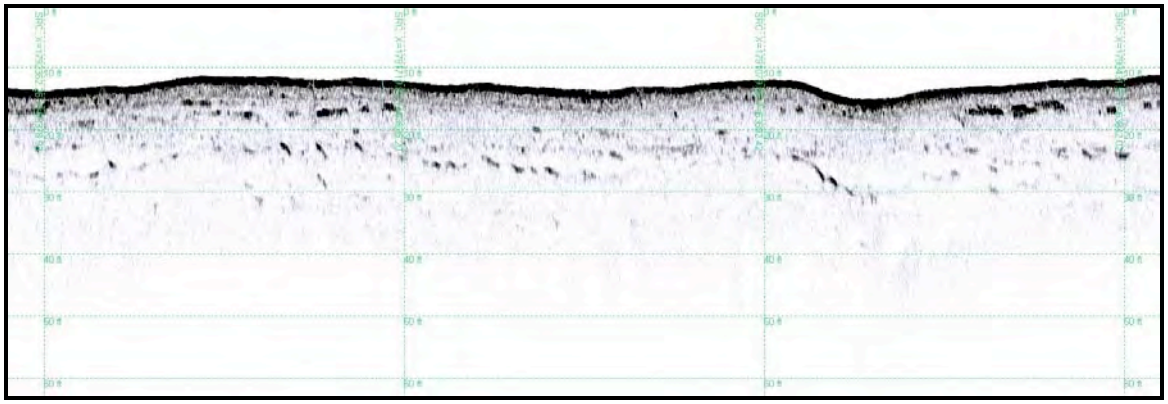


Figure 40. Sample sub-bottom profile from the North Borrow Site.

South Borrow Site

Survey lines for the South Borrow Site were spaced at 100 feet (30 meters) (Figure 41). Water depths ranged between 18 and 33 feet, based on NAVD 88 (Figure 42). Analysis of the remote-sensing data generated in the South Borrow Site investigation area identified a total of 78 magnetic anomalies (Figure 43; Appendix D). Forty-one magnetic anomalies are located in the proposed borrow area. Eighteen produced signature characteristics suggestive of small single anomalies and five produced signature characteristics indicative of moderate single objects. These signatures are suggestive of modern debris such as fish and crab traps, pipes, small diameter rods, cable, wire rope, chain or small boat anchors and are not recommended for avoidance. Five additional anomalies produced signature characteristics suggestive of a possible small diameter pipe or degraded cable. Thirteen magnetic anomalies produced signature characteristics and spatial associations that are suggestive of potentially significant cultural material and are recommended for avoidance and/or additional investigation.

Thirty-seven magnetic anomalies are located within a borrow area buffer. Three magnetic signatures are associated with a pipeline that runs through the north of the borrow area buffer. Nineteen are classified as small single anomalies and eight are indicative of moderate single objects. These 27 anomalies are suggestive of modern debris such as fish and crab traps, pipes, small diameter

rods, cable, wire rope, chain or small boat anchors and are not recommended for avoidance. Seven magnetic anomalies exhibit signature characteristics and spatial associations indicative of potentially significant cultural resources and are recommended for avoidance and/or additional investigation.

Analysis of the sonar data from the South Borrow Site identified six images of material exposed on the bottom surface (Figure 44; Appendix E). Two of those targets are located in the proposed borrow area and produced magnetic signatures. These are indicative of potentially significant cultural material and are recommended for avoidance. One target is located in the proposed borrow area and is indicative of a single piece of debris. Three sonar targets are located outside the South Borrow Area. Two are suggestive of small single objects and are not recommended for avoidance. The remaining sonar target produced an associated magnetic signature and is indicative of potentially significant cultural material and is recommended for avoidance.

To protect material generating potentially significant magnetic anomalies and sonar targets, eight buffers have been established. The anomaly in Buffer V should be protected by 100-foot radius buffer. Anomalies in Buffers U, Y, Z, and BB should be protected by 150-foot radius buffers. Anomalies in Buffers X and AA should be protected by 200-foot radius buffers. Anomalies in Buffer W should be protected by a 250-foot radius buffer.

Analysis of the data generated by the sub-bottom profiler in South Borrow Site identified no relict landforms or other targets that are indicative of association with prehistoric or historic submerged cultural resources (Figure 45).

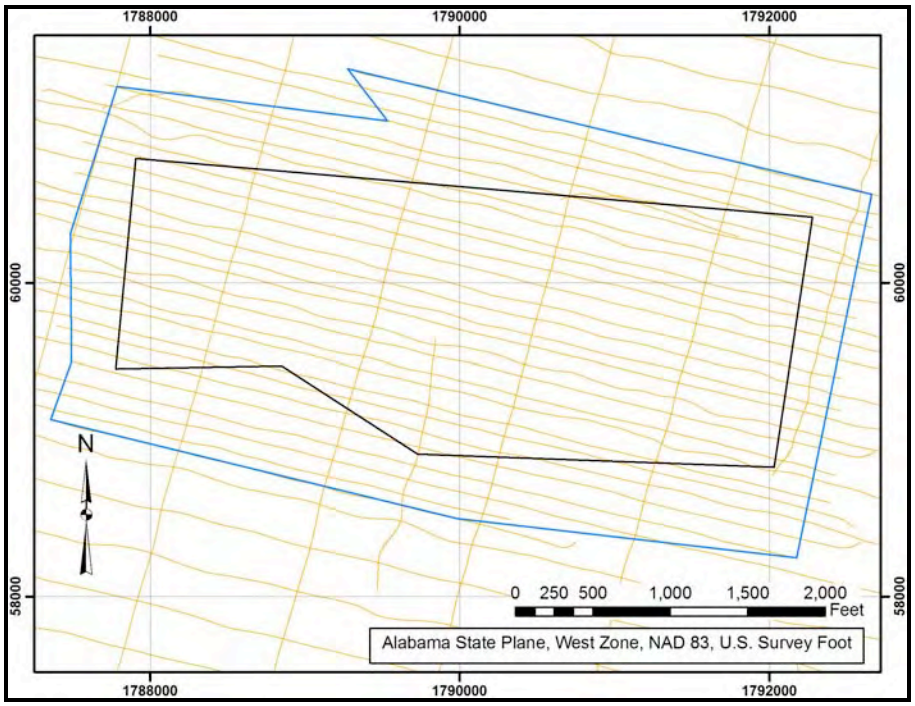


Figure 41. The South Borrow Site investigation area survey trackline map.

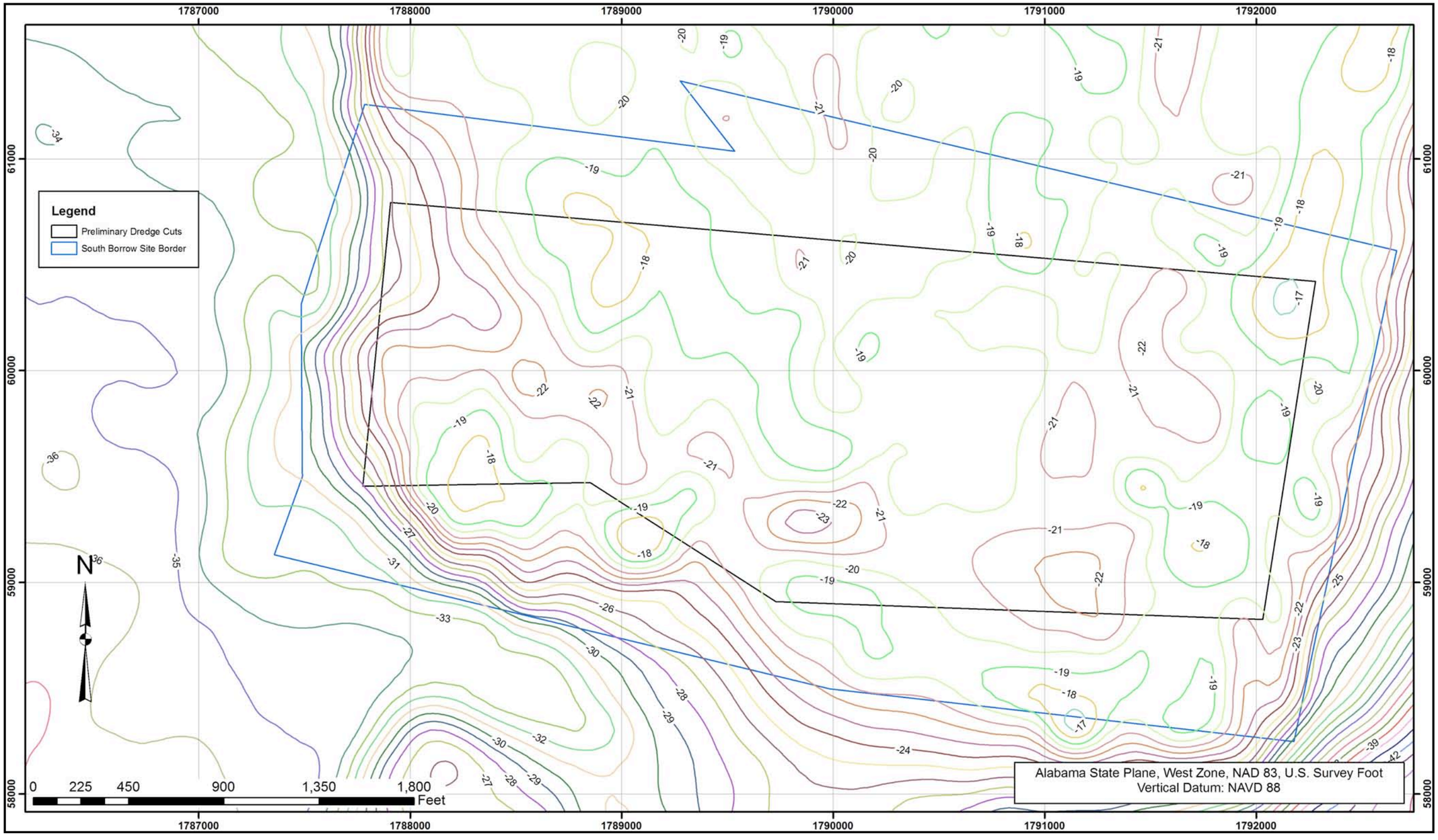


Figure 42. The South Borrow Site investigation area survey bathymetric map.

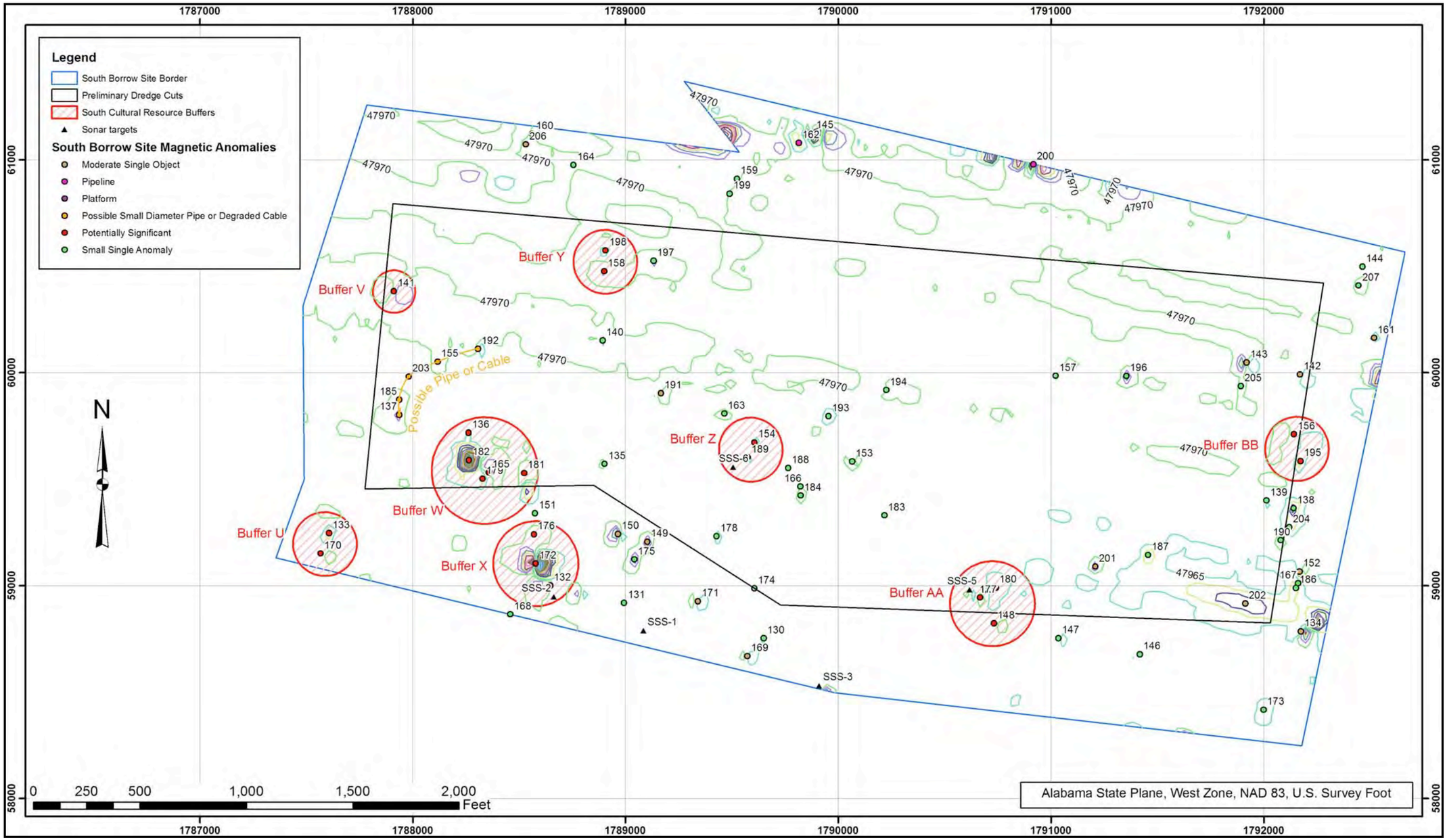


Figure 43. Magnetic contour map of the South Borrow Site investigation area with anomalies.

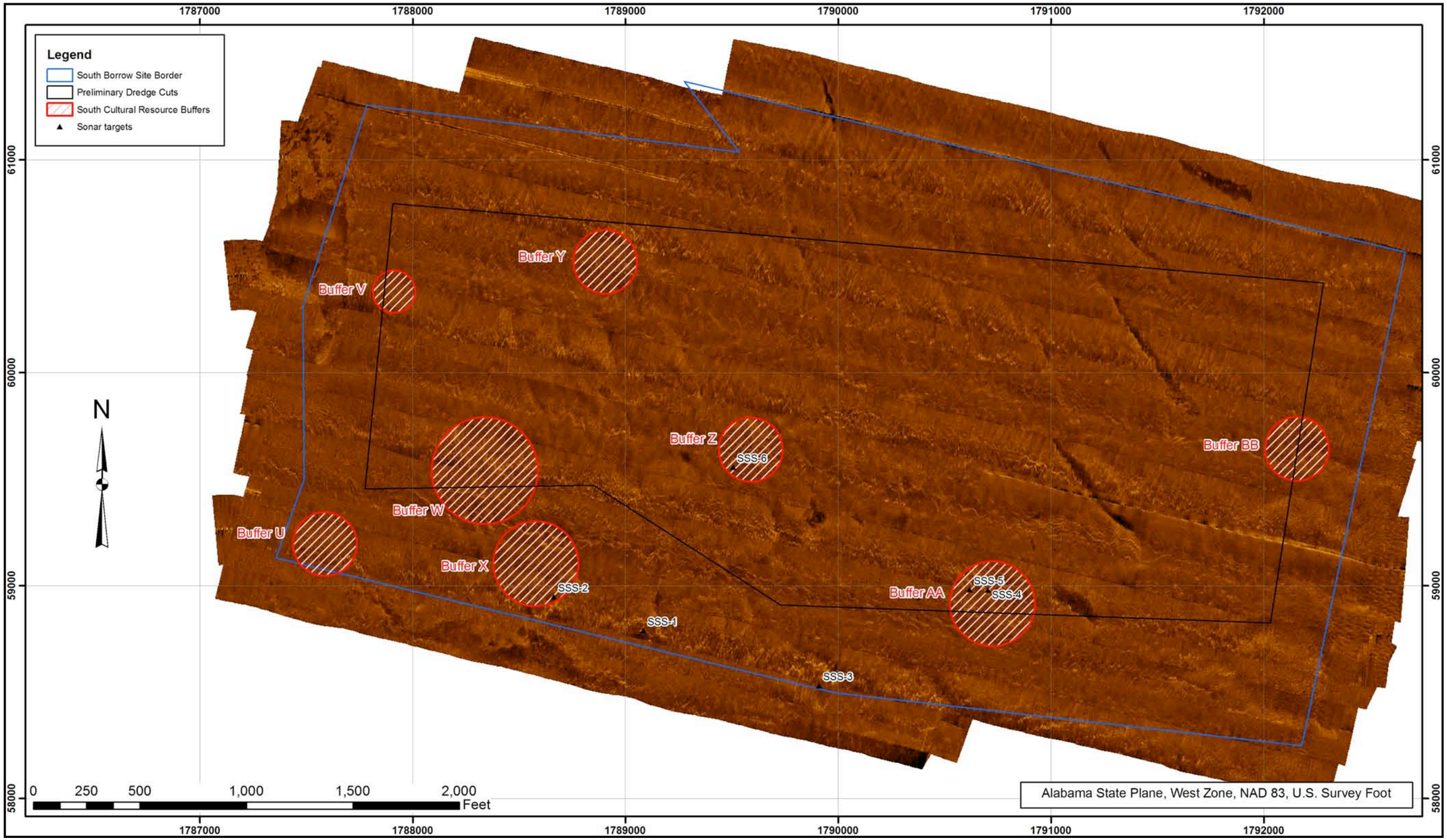


Figure 44. Sonar coverage mosaic of the South Borrow Site investigation area.

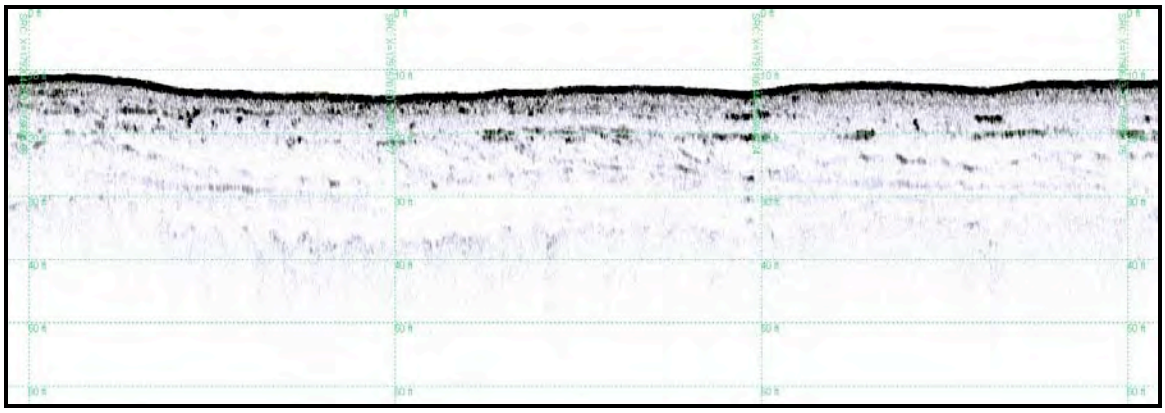


Figure 45. Sample sub-bottom image from the South Borrow Site.

Conclusions and Recommendations

Analysis of the remote-sensing data generated in the North Borrow Site investigation area identified a total of 129 magnetic anomalies. Forty-three magnetic anomalies are located in the proposed borrow area and 86 within a borrow area buffer. Thirty-six magnetic signatures are associated with a pipeline and oil or gas platform outside the proposed borrow area. Thirty are classified as small single anomalies and 14 are classified as moderate single objects; all are suggestive of modern debris and not recommended for avoidance. Forty-nine magnetic anomalies exhibit signature characteristics and spatial associations indicative of potentially significant cultural resources and are recommended for avoidance and/or additional investigation.

Analysis of the sonar data from the North Borrow Site identified 19 images of material exposed on the bottom surface. Four of those signatures are located in the proposed borrow area and produced magnetic signatures. These are indicative of potentially significant cultural material and are recommended for avoidance. Fifteen sonar targets are located outside the North Borrow Area. One is associated with an oil or gas platform. Four are indicative of small single objects and are not recommended for avoidance. The remaining 10 sonar targets produced associated magnetic signatures and are indicative of potentially significant cultural material and are recommended for avoidance and/or additional investigation.

In the South Borrow Site investigation area, analysis of the remote-sensing data identified 78 magnetic anomalies. Forty-one are located in the proposed borrow area and 37 are located outside the proposed borrow area. Three magnetic signatures are associated with a pipeline outside the proposed borrow area. Thirty-seven are classified as small single anomalies and 13 are classified as moderate single objects. These signatures are indicative of modern debris and are not recommended for avoidance. Five anomalies produced signature characteristics suggestive of a possible small diameter pipe or degraded cable.

Twenty magnetic anomalies exhibited signature characteristics and spatial associations indicative of potentially significant cultural material and are recommended for additional investigation and/or avoidance.

Analysis of the sonar data from the South Borrow Site identified six images of material exposed on the bottom surface. Three of those signatures are located in the proposed borrow area. Two located in the proposed borrow area produced magnetic signatures and are indicative of potentially significant cultural material and are recommended for avoidance. The remaining sonar image in the potential borrow area is indicative of a small single object and is not recommended for avoidance. Three sonar targets are located outside the borrow area. Two are indicative of small single objects and are not recommended for avoidance. The remaining sonar target produced a magnetic signature indicative of potentially significant cultural material and is recommended for avoidance. Analysis of the data generated by the sub-bottom profiler in each of the survey areas identified no relict landforms or other targets that are indicative of association with prehistoric or historic submerged cultural resources.

In order to protect material generating potentially significant magnetic anomalies and sonar targets, 28 buffers have been established. The anomalies in Buffers B, C, D, J, N, O, P, Q, S, and V should be protected by 100-foot radius buffer. Anomalies in Buffers F, G, U, Y, Z, and BB should be protected by 150-foot radius buffers. Anomalies in Buffers A, E, H, L, M, R, T, X and AA should be protected by 200-foot radius buffers. Anomalies in Buffer W should be protected by a 250-foot radius buffer. Anomalies in Buffers I and K could be associated with a charted wreck, identified in AWOIS as the *Terry Lee*, should be protected by 300-foot radius buffers. Should avoidance of these magnetic anomalies and sonar targets prove impossible, additional investigation should be conducted, designed to identify the material generating the anomalies and assess their significance in terms of National Register of Historic Places eligibility.

Finally, in the event that dredging and material transfer activity exposes prehistoric or historical cultural material not identified during the remote-sensing survey, the dredging company under contract to perform that work should be required to notify the contract administrator, CPE and the Alabama SHPO. Notification should address the location, where possible, the nature of material exposed by project activities, and options for archaeological inspection and assessment of the site.

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Appendix A

Known Shipwrecks Located in the Gulf of Mexico Vicinity of Dauphin Island, Alabama

NAME	DATE LOST	CAUSE	TYPE	LENGTH	BEAM	DEPTH	DRAFT	TONNAGE	YEAR BUILT	REFERENCE	PLACE AND REMARKS
A.G.T. No. 34	2/3/1959	Collided	Steel Barge	Unknown	Unknown	Unknown	Unknown	265	1937	Berman 1972:155	Collided "[w]ith Dolphin Island Bridge, Ala."
Almanda	0/0/1837	Lost	Schooner	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	American Seamen's Friend Society 1838:38	"[T]otally lost on Dauphin Island"
Anglesea	2/0/1880	Missing	Ship	171.8'	36.4'	Unknown	21'	918	1855	Northern Maritime Research	Built in Saint John, NB. Missing after departing Mobile Bay.
Athena	9/26/1906	Hurricane-stranded	Barquentine	164.4'	36.5'	Unknown	16.1'	706.1	1888	Northern Maritime Research	Stranded during hurricane and wrecked on Mobile Bay.
Ava	1/4/1899	Stranded	Schooner	Unknown	Unknown	Unknown	Unknown	99	1893?	Northern Maritime Research	Stranded on Sand Island. Total loss.
Boa Esperanca	8/20/1913	Wrecked	Schooner	156'	35.2'	Unknown	12.8'	461.8	1904	Northern Maritime Research	Lost in Mobile Bay.
CGC *Magnolia*	8/0/1945	Sank	Coast Guard Cutter	173'	30' 6"	Unknown	9' 6"	916	Unknown	Lonsdale and Kaplan 1964:92	Mobile Point
CSS *Gaines*	8/5/1864	Scuttled and burned	Wooden side-wheel steamer	202'	38'	13'	6' or 7'3"	863	1861-62	Northern Maritime Research; Gaines 2008:2	Grounded within 500 yards of Fort Morgan during Battle of Mobile Bay. Scuttled and burned by crew after salvage
CSS *Nelms*	Unknown	Lost	Steamer	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Gaines 2008:5	Confederate Steamer. Outfitted in Pensacola, FL in 1861. May have been lost in Mobile Bay.
CSS *Pioneer II* (*American Diver*)	2/14/1863	Sank	Submarine	36'	3'	Unknown	4'	Unknown	1863	Gaines 2008:5	Sunk off Fort Morgan while being towed in rough weather
Enoch Train	4/24/1862	Destroyed	Screw Steamer	Unknown	Unknown	Unknown	Unknown	384	1855	Northern Maritime Research	Built in Medford, MA. Captured by Confederates on 8/21/1861. Attacked by U.S. fleet.
E. V. Olive	2/18/1885	Sunk	Schooner	Unknown	Unknown	Unknown	Unknown	Unknown	1880	The New York Times 1885	Sank with a loss of all hands off Dixie Island off Mobile Bay
Express No. 2	7/25/1840	Explosion	Sidewheel Steamer	Unknown	Unknown	Unknown	Unknown	59	1837	Northern Maritime Research	Built in New Albany, In. Lost in Mobile Bay
Florence Harvey	3/3/1922	Stranded	Schooner	Unknown	Unknown	Unknown	Unknown	340	1918	Berman 1972:168	Fort Morgan, AL
Gussie	9/27/1906	Stranded	Iron Sidewheel Steamer	Unknown	Unknown	Unknown	Unknown	998	1872	Berman 1972:171	Dauphin Island, AL
Harry Morse	7/5/1916	Collided	Schooner	Unknown	Unknown	Unknown	Unknown	1,365	1871	Berman 1972:172	Mobile Bay. Collided with schooner Emma Lord. All lives (8) lost.
HMS *Hermes*	9/15/1814	Sunk	Warship	Unknown	Unknown	Unknown	Unknown	511	Unknown	Marx 1975:186; Northern Maritime Research	20-gun warship sunk while attacking the batteries in Mobile Bay
Hobson	1/22/1906	Capsized	Schooner	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	The New York Times 1906	Horn Island Pass
Isabel	5/18/1863	Burned	Blockade runner, steamer	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Northern Maritime Research; Gaines 2008:3	Grounded 200 yards from Fort Morgan. Boarded by USS *R.R. Cuyler*. Set afire.
Josephine	3/5/1863	Burned	Sloop	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Northern Maritime Research; Gaines 2008:3	Chased ashore by USS *Aroostoook* and burned near Fort Morgan.
Live Oak	9/2/1932	Sank	Schooner	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Cowan n.d.	Mobile Bay
Mandarin	12/0/1853	Lost at Sea	Bark	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Eaton 1865:171	Last spoken to in a gale off Mobile on 12/10/1853 with 6 feet water in the hold.
Margaret Ann	9/25/1822	Wrecked	Merchant ship	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Marx 1975:186	Wrecked at Mobile Point, crew and some cargo saved
Mary	6/17/1910	Fire	Gas screw	Unknown	Unknown	Unknown	Unknown	9	1907	Northern Maritime Research	Caught fire and was lost in Mobile Bay.

NAME	DATE LOST	CAUSE	TYPE	LENGTH	BEAM	DEPTH	DRAFT	TONNAGE	YEAR BUILT	REFERENCE	PLACE AND REMARKS
Millville	1/7/1913	Stranded	Schooner	Unknown	Unknown	Unknown	Unknown	365	1887	Berman 1972:181	Near Fort Morgan, AL
Mississippi	6/20/1821	Wrecked	Merchant ship	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Marx 1975:186	Lost at the entrance to Mobile Bay.
Natchez	3/10/1866	Foundered	Sidewheel Steamer	Unknown	Unknown	Unknown	Unknown	388	1849	Berman 1972:183; Northern Maritime Research	Built in Cincinnati, OH. Lost in Mobile Bay, AL
Norma	6/1/1849	Snagged	Sidewheel Steamer	Unknown	Unknown	Unknown	Unknown	188	1839	Berman 1972:184	Mobile Bay, AL
Nueces	3/8/1956	Foundered	Oil Screw	Unknown	Unknown	Unknown	Unknown	83	1927	Berman 1972:184	Mobile Bay, AL
Peggy G	4/19/1969	Unknown	Fishing	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Northern Maritime Research	Fishing vessel lost off Fort Morgan
R.B. Hamilon	5/12/1865	Torpedo	Army transport	Unknown	Unknown	Unknown	Unknown	175	1858	Gaines 2008:5	Built at Symmes Creek, OH. Sunk by Confederate torpedo in Mobile Bay.
Salmon	0/0/1873	Snagged	Steam Screw	Unknown	Unknown	Unknown	Unknown	63	1867	Berman 1972:189	Mobile Bay, AL
Sea Horse	5/30/1934	Grounded	Motorboat	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Cowan n.d.	Sand Island
South Carolina	1/15/1859	Wrecked	Packet	Unknown	Unknown	Unknown	Unknown	580	1845	Berman 1972:191	On Mobile Bar. Sailing packet with auxilliary steam power.
Stranger	4/22/1923	Burned	Schooner	Unknown	Unknown	Unknown	Unknown	640	1893	Berman 1972:192	South-southwest of Mobile Bar Buoy, AL
T.C.I.S.G. No. 1	12/14/1927	Foundered	Barge	Unknown	Unknown	Unknown	Unknown	428	1927	Berman 1972:193	Mobile Bar, AL
Temple	9/24/1956	Burned	Dredge	Unknown	Unknown	Unknown	Unknown	168	1935	Berman 1972:193	In Drury Bay near Dauphin Island, AL
Terry Lee	10/3/1957	Sank	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Northern Maritime Research	Reported sunk on 10/3/1957 at 30º 10' 54"N, 88º 03' 26"W
Thomas Sparks	1/12/1866	Stranded	Sidewheel Steamer	Unknown	Unknown	Unknown	Unknown	373	1854	Berman 1972:194	Mobile Bay, AL. Steel vessel.
Tulsa	3/11/1943	Sank	Freighter	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Northern Maritime Research	Off Fort Morgan, AL
Unknown	1/23/1990	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Northern Maritime Research	Reported on 1/23/1990 at 30º 10' 19"N, 88º 01' 30"W
Unknown	8/2/1975	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Northern Maritime Research	Reported on 8/2/1975 at 30º 07' 36"N, 88º 04' 07"W
Unknown	8/2/1975	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Northern Maritime Research	Reported on 8/2/1975 at 30º 08' 18"N, 88º 05' 07"W
Unknown	8/9/1975	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Northern Maritime Research	Reported on 8/9/1975 at 30º ?' ?"N, 88º 06' 45"W near Fort Morgan
Unknown	10/4/1978	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Northern Maritime Research	Reported on 10/14/1978 at 30º 11' ?"N, 88º 12' 30"W near Dauphin Island
Unnamed Schooner	12/15/1862	Destroyed	Schooner	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Gaines 2008:8	Confederate schooner ran aground on a shoal northeast of Sand Island.
USS *Philippi*	4/5/1864	Burned	Wooden side-wheel gunboat	140' or 150'	23' or 24'	8'6" or 9'10"	Unknown	368	1863	Northern Maritime Research; Gaines 2008:5	Disabled during Battle of Mobile Bay. Burned by a boat from CSS *Morgan* on West Bank Shoals
USS *Pink*	9/23/1865	Aground	Wooden screw steamer	110'4"	24'6"	Unknown	Unknown	184	1863	Northern Maritime Research; Gaines 2008:5	Either Total Loss (NMR) or raised and sold (Gaines)
USS *Tecumseh*	8/5/1864	Torpedoed	Monitor	223'	43'4"	13'4"	13.3'	1034	1863	Northern Maritime Research; Gaines 2008:6	Sunk by Confederate torpedo during Battle of Mobile Bay

Appendix B

North Borrow Site Investigation Area Magnetic Anomalies

Magnetic Anomalies in the Potential Borrow Area

Map Designation	Lane	Number	Characteristics	Intensity (gammas)	Duration (feet)	X	Y	Assessment	Buffer
4	**22**	**4**	**Negative Monopolar**	**25**	**67**	**1791200.4**	**63234.3**	**Potentially Significant**	**E**
5	22	5	Dipolar	11	94	1790853.8	63339.0	Small Single Anomaly	
9	24	4	Positive Monopolar	9	72	1792277.8	63613.7	Small Single Anomaly	
10	24	5	Dipolar	9	148	1789435.1	64281.0	Moderate Single Object	
12	26	3	Negative Monopolar	11	136	1791425.2	64392.1	Potentially Significant	F
13	26	4	Negative Monopolar	21	2717	1789316.1	64916.9	Platform	
14	26	5	Negative Monopolar	9	57	1788849.2	65018.7	Small Single Anomaly	
15	**28**	**2**	**Positive Monopolar**	**431**	**251**	**1791955.0**	**64904.3**	**Potentially Significant**	**H**
18	**30**	**4**	**Dipolar**	**14**	**122**	**1791700.2**	**65547.1**	**Potentially Significant**	**G**
27	21	3	Dipolar	15	150	1789872.8	63267.0	Moderate Single Object	
28	21	4	Positive Monopolar	5	158	1788989.7	63469.4	Moderate Single Object	
30	23	3	Positive Monopolar	7	89	1790753.2	63676.2	Small Single Anomaly	
31	25	1	Negative Monopolar	6	100	1792895.8	63729.4	Small Single Anomaly	
32	25	2	Multicomponent	8	113	1789924.7	64460.8	Small Single Anomaly	
37	**29**	**3**	**Multicomponent**	**12**	**656**	**1793348.7**	**64854.2**	**Potentially Significant**	**M**
38	**29**	**4**	**Dipolar**	**51**	**536**	**1792026.8**	**65169.2**	**Potentially Significant**	**H**
51	**44**	**4**	**Multicomponent**	**669**	**813**	**1791946.0**	**64912.4**	**Potentially Significant**	**H**
53	**46**	**2**	**Dipolar**	**12**	**189**	**1789579.1**	**63895.0**	**Potentially Significant**	**C**
64	**123**	**1**	**Positive Monopolar**	**24**	**413**	**1791941.2**	**64781.2**	**Potentially Significant**	**H**
68	**125**	**1**	**Positive Monopolar**	**7**	**579**	**1793354.9**	**64772.2**	**Potentially Significant**	**M**
69	**125**	**2**	**Dipolar**	**93**	**285**	**1791985.3**	**65101.6**	**Potentially Significant**	**H**
71	**127**	**1**	**Multicomponent**	**363**	**756**	**1793393.0**	**65043.2**	**Potentially Significant**	**M**
72	**127**	**2**	**Dipolar**	**7**	**142**	**1791695.5**	**65447.0**	**Potentially Significant**	**G**
84	**108**	**2**	**Dipolar**	**8**	**96**	**1790050.0**	**63008.1**	**Potentially Significant**	**D**
85	**108**	**3**	**Dipolar**	**11**	**96**	**1788553.9**	**63364.6**	**Potentially Significant**	**B**

Map Designation	Lane	Number	Characteristics	Intensity (gammas)	Duration (feet)	X	Y	Assessment	Buffer
90	112	3	Positive Monopolar	10	58	1789664.1	63710.2	Small Single Anomaly	
91	112	4	Dipolar	6	59	1788194.2	64059.6	Small Single Anomaly	
92	113	2	Multicomponent	94	259	1789989.3	63762.0	Moderate Single Object	
93	**113**	**3**	**Dipolar**	**46**	**170**	**1789547.3**	**63870.0**	**Potentially Significant**	**C**
95	115	1	Dipolar	7	123	1788071.4	64503.4	Small Single Anomaly	
96	116	1	Positive Monopolar	21	194	1788807.7	64526.2	Moderate Single Object	
98	118	2	Negative Monopolar	7	94	1792350.6	64001.1	Small Single Anomaly	
99	118	3	Negative Monopolar	13	2162	1789291.6	64729.4	Platform	
100	119	1	Negative Monopolar	20	132	1791079.5	64380.2	Moderate Single Object	
101	119	2	Negative Monopolar	6	64	1790276.1	64574.4	Small Single Anomaly	
102	119	3	Negative Monopolar	16	2172	1789363.8	64795.2	Platform	
103	120	1	Multicomponent	48	2783	1789379.8	64992.6	Platform	
107	**122**	**2**	**Positive Monopolar**	**10**	**486**	**1791907.4**	**64723.1**	**Potentially Significant**	**H**
109	**124**	**1**	**Negative Monopolar**	**216**	**0**	**1791991.3**	**64968.0**	**Potentially Significant**	**H**
111	**126**	**3**	**Multicomponent**	**1050**	**658**	**1793389.3**	**64967.9**	**Potentially Significant**	**M**
116	132	2	Positive Monopolar	8	68	1791262.6	66356.0	Small Single Anomaly	
120	**119**	**1**	**Dipolar**	**29**	**140**	**1791413.2**	**64299.4**	**Potentially Significant**	**F**
129	28	1	Dipolar	7	51	1793465.1	64521.1	Small Single Anomaly	

Magnetic Anomalies in the Survey Buffer

Map Designation	Lane	Number	Characteristics	Intensity (gammas)	Duration (feet)	X	Y	Assessment	Buffer
1	18	3	Multicomponent	569	889	1789516.7	62436.7	Pipeline	
2	18	4	Negative Monopolar	105	194	1787743.2	62874.0	Pipeline	
3	20	6	Dipolar	14	135	1787646.3	63516.9	Moderate Single Object	
6	**22**	**6**	**Negative Monopolar**	**8**	**112**	**1787439.8**	**64154.8**	**Potentially Significant**	**A**
7	24	2	Positive Monopolar	6	42	1793146.1	63366.3	Small Single Anomaly	
8	24	3	Dipolar	6	114	1792864.8	63467.4	Small Single Anomaly	
11	26	1	Negative Monopolar	6	153	1793696.4	63853.8	Moderate Single Object	
16	28	3	Multicomponent	2455	3253	1789539.8	65614.2	Platform	
17	**30**	**3**	**Multicomponent**	**26**	**741**	**1793580.8**	**65110.4**	**Potentially Significant**	**M**

Map Designation	Lane	Number	Characteristics	Intensity (gammas)	Duration (feet)	X	Y	Assessment	Buffer
19	30	5	Negative Monopolar	66	2804	1789735.1	66021.6	Platform	
20	**32**	**1**	**Dipolar**	**674**	**197**	**1791963.1**	**66136.8**	**Potentially Significant**	**I**
21	32	2	Dipolar	11	109	1791778.9	66173.5	Small Single Anomaly	
22	32	3	Dipolar	6	80	1790164.2	66553.0	Small Single Anomaly	
23	34	1	Dipolar	5	54	1792182.7	66642.1	Small Single Anomaly	
24	34	2	Negative Monopolar	24	92	1791871.1	66721.5	Small Single Anomaly	
25	17	1	Multicomponent	333	891	1788765.6	62312.7	Pipeline	
26	17	2	Multicomponent	93	432	1787958.4	62505.8	Pipeline	
29	23	2	Negative Monopolar	7	87	1792637.2	63237.1	Small Single Anomaly	
33	**27**	**1**	**Dipolar**	**31**	**140**	**1793769.7**	**64167.1**	**Potentially Significant**	**R**
34	27	2	Multicomponent	217	2391	1789405.9	65234.6	Platform	
35	27	3	Multicomponent	523	1248	1787886.0	65578.4	Pipeline	
36	**29**	**2**	**Multicomponent**	**5**	**285**	**1793917.9**	**64706.1**	**Potentially Significant**	**O**
39	29	5	Negative Monopolar	490	3016	1789654.8	65743.7	Platform	
40	31	2	Dipolar	7	109	1793870.6	65367.9	Small Single Anomaly	
41	31	3	Positive Monopolar	6	80	1793363.9	65484.5	Small Single Anomaly	
42	**31**	**4**	**Dipolar**	**91**	**264**	**1792173.2**	**65772.7**	**Potentially Significant**	**J**
43	31	5	Negative Monopolar	20	3097	1789658.9	66360.9	Platform	
44	**33**	**2**	**Multicomponent**	**53**	**328**	**1793028.9**	**66154.4**	**Potentially Significant**	**L**
45	**33**	**3**	**Multicomponent**	**14**	**101**	**1792287.0**	**66336.2**	**Potentially Significant**	**K**
46	**33**	**4**	**Dipolar**	**37**	**118**	**1792151.8**	**66366.5**	**Potentially Significant**	**K**
47	33	5	Dipolar	6	82	1791131.4	66606.9	Small Single Anomaly	
48	43	2	Positive Monopolar	32	87	1793312.1	66173.2	Moderate Single Object	
49	**44**	**2**	**Multicomponent**	**17**	**182**	**1792323.5**	**66247.7**	**Potentially Significant**	**K**
50	**44**	**3**	**Multicomponent**	**129**	**238**	**1792190.9**	**65776.9**	**Potentially Significant**	**J**
52	46	1	Multicomponent	114	3197	1790011.0	65398.5	Platform	
54	46	3	Multicomponent	51	421	1789157.8	62346.9	Pipeline	
55	47	1	Multicomponent	510	3165	1788998.7	65595.3	Pipeline	
56	**55**	**5**	**Dipolar**	**18**	**198**	**1793925.7**	**65103.7**	**Potentially Significant**	**N**
57	55	6	Dipolar	46	120	1793837.6	64822.5	Moderate Single Object	

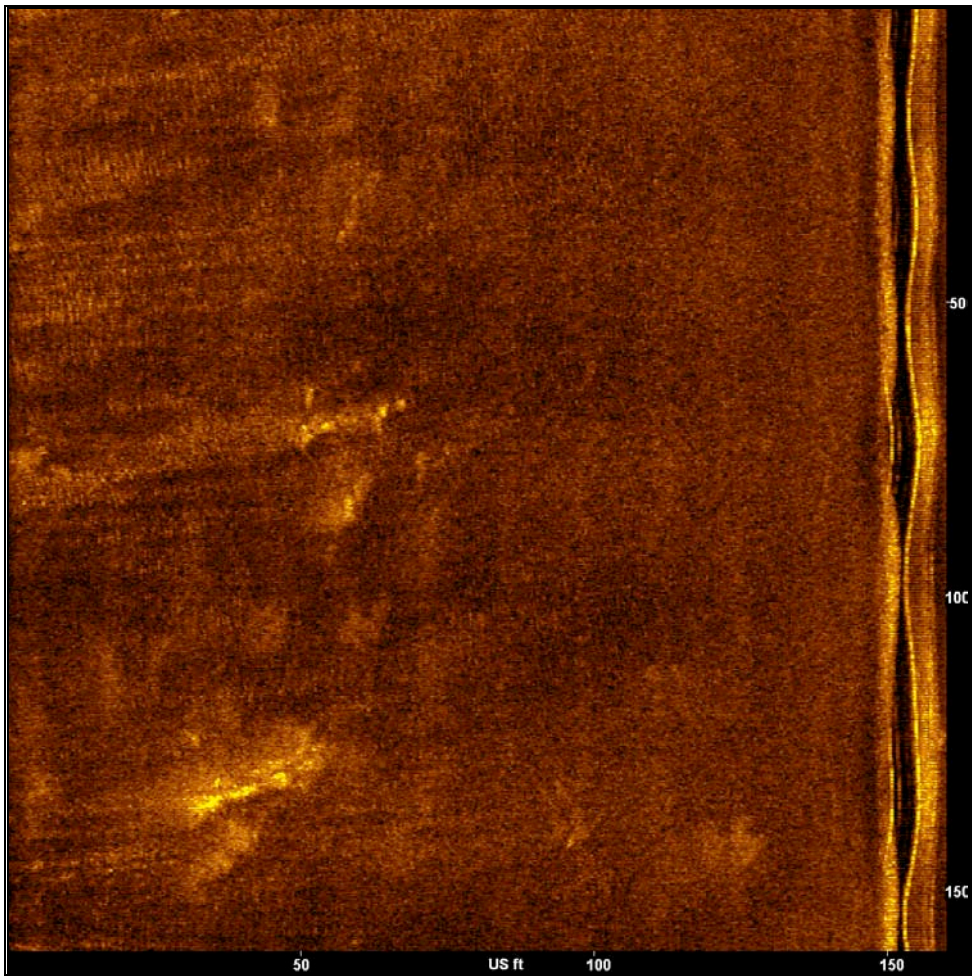
Map Designation	Lane	Number	Characteristics	Intensity (gammas)	Duration (feet)	X	Y	Assessment	Buffer
58	**55**	**7**	**Multicomponent**	**5**	**85**	**1793749.5**	**64517.7**	**Potentially Significant**	**P**
59	55	8	Negative Monopolar	7	78	1793618.0	64085.8	Small Single Anomaly	
60	**55**	**9**	**Dipolar**	**12**	**89**	**1793548.1**	**63858.5**	**Potentially Significant**	**S**
61	55	10	Dipolar	7	78	1793485.8	63604.9	Small Single Anomaly	
62	**57**	**1**	**Negative Monopolar**	**14**	**68**	**1791906.5**	**66215.0**	**Potentially Significant**	**I**
63	**57**	**2**	**Negative Monopolar**	**19**	**104**	**1792123.5**	**66368.3**	**Potentially Significant**	**K**
65	123	2	Multicomponent	12097	2550	1789616.4	65499.4	Platform	
66	123	3	Multicomponent	1589	653	1788615.1	65583.4	Pipeline	
67	123	4	Negative Monopolar	23	168	1788012.3	65723.4	Moderate Single Object	
70	125	3	Multicomponent	754	2832	1789630.8	65668.6	Platform	
73	127	3	Multicomponent	100	2488	1789712.9	65925.9	Platform	
74	129	2	Negative Monopolar	26	2388	1789761.3	66239.3	Platform	
75	**131**	**2**	**Multicomponent**	**365**	**275**	**1791945.3**	**65998.2**	**Potentially Significant**	**I**
76	**133**	**1**	**Multicomponent**	**19**	**528**	**1792988.4**	**66078.0**	**Potentially Significant**	**L**
77	101	1	Multicomponent	76	701	1788671.4	62253.6	Pipeline	
78	101	2	Dipolar	71	190	1787967.9	62426.8	Pipeline	
79	102	1	Multicomponent	191	580	1789149.0	62339.0	Pipeline	
80	102	2	Positive Monopolar	129	189	1787808.3	62665.0	Pipeline	
81	103	1	Multicomponent	836	0	1789343.6	62361.5	Pipeline	
82	103	2	Multicomponent	83	230	1787790.2	62743.7	Pipeline	
83	104	2	Multicomponent	39	200	1787629.4	62982.7	Pipeline	
86	**110**	**1**	**Negative Monopolar**	**6**	**97**	**1791139.2**	**63071.0**	**Potentially Significant**	**E**
87	**111**	**1**	**Dipolar**	**70**	**134**	**1791169.7**	**63145.0**	**Potentially Significant**	**E**
88	**111**	**2**	**Positive Monopolar**	**12**	**123**	**1787447.0**	**64041.8**	**Potentially Significant**	**A**
89	112	2	Multicomponent	11	146	1792031.4	63145.0	Small Single Anomaly	
94	113	4	Negative Monopolar	7	162	1787255.4	64417.9	Moderate Single Object	
97	**118**	**1**	**Multicomponent**	**46**	**296**	**1793691.6**	**63674.9**	**Potentially Significant**	**T**
104	**121**	**1**	**Dipolar**	**23**	**107**	**1793748.8**	**64076.0**	**Potentially Significant**	**R**
105	121	2	Positive Monopolar	9	103	1793507.1	64129.8	Small Single Anomaly	
106	122	1	Positive Monopolar	6	48	1793612.1	64301.2	Small Single Anomaly	

Map Designation	Lane	Number	Characteristics	Intensity (gammas)	Duration (feet)	X	Y	Assessment	Buffer
108	122	3	Multicomponent	473	3094	1789419.6	65304.3	Platform	
110	124	2	Multicomponent	3721	2283	1789618.1	65540.0	Platform	
112	126	4	Multicomponent	151	2681	1789660.8	65860.0	Platform	
113	128	1	Multicomponent	51	2848	1789780.1	66109.1	Platform	
114	130	2	Multicomponent	40	1896	1789781.8	66444.9	Platform	
115	**132**	**1**	**Multicomponent**	**31**	**215**	**1791969.2**	**66194.6**	**Potentially Significant**	**I**
117	134	1	Dipolar	51	162	1793288.7	66199.6	Moderate Single Object	
118	134	2	Dipolar	6	79	1791862.0	66557.7	Small Single Anomaly	
119	136	1	Negative Monopolar	5	122	1791043.1	67025.0	Small Single Anomaly	
121	**119**	**2**	**Positive Monopolar**	**8**	**223**	**1793726.4**	**63741.6**	**Potentially Significant**	**T**
122	120	1	Dipolar	18	198	1793988.1	63880.1	Moderate Single Object	
123	121	3	Negative Monopolar	105	2957	1789404.4	65112.8	Platform	
124	121	4	Multicomponent	633	989	1787503.7	65569.4	Pipeline	
125	**124**	**3**	**Negative Monopolar**	**8**	**32**	**1793738.4**	**64550.6**	**Potentially Significant**	**P**
126	**128**	**2**	**Multicomponent**	**188**	**297**	**1793960.3**	**65106.1**	**Potentially Significant**	**N**
127	**128**	**3**	**Multicomponent**	**8**	**137**	**1793591.5**	**65194.5**	**Potentially Significant**	**M**
128	**28**	**1**	**Multicomponent**	**18**	**300**	**1793919.8**	**64448.3**	**Potentially Significant**	**Q**

Appendix C

North Borrow Site Investigation Area Sonar Targets

SSN-1



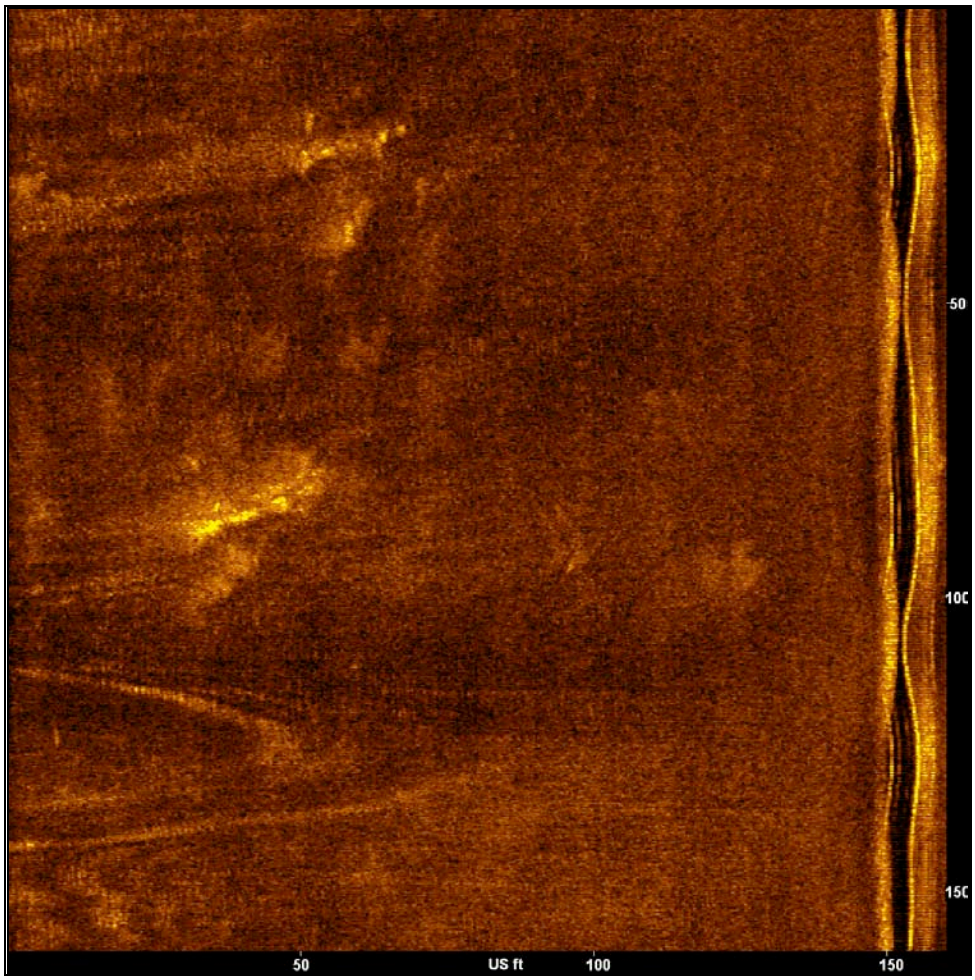
Contact Info: SSN-1

- Sonar Time at Target: 02/23/2011 15:57:11
- Click Position (Lat/Lon Coordinates)
  30.1720581055 -88.0644057129 (WGS84)
- Click Position (Projected Coordinates)
  (X) 1790090.75 (Y) 63014.14
- Map Proj:
- Acoustic Source File: \Dauphin Island\SSS\XTF\DI_CRS_11_109_NW.jsf
- Ping Number: 230133
- Range to Target: 31.53 US Feet
- Fish Height: 3.90 US Feet
- Event Number: 0
- Line Name: DI_CRS_11_109_NW

User Entered Info

Target Height >= 0.0 US Feet
Target Length0.0 US Feet
Target Shadow:0.0 US Feet
Target Width:0.0 US Feet
Mag Anomaly:
Avoidance Area:
Classification 1:
Classification 2:
Area:
Block:
Description:

SSN-2



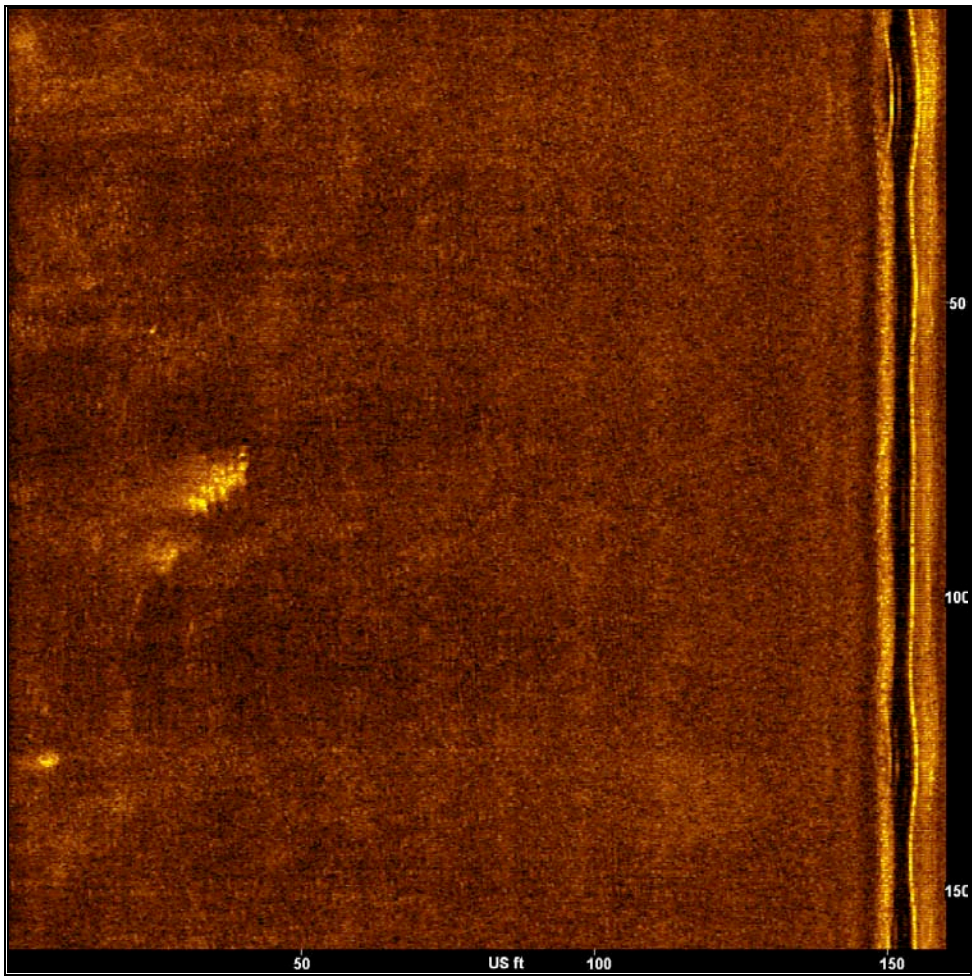
Contact Info: SSN-2

- Sonar Time at Target: 02/23/2011 15:57:04
- Click Position (Lat/Lon Coordinates)
  30.1719760895 -88.0644531250 (WGS84)
- Click Position (Projected Coordinates)
  (X) 1790138.38 (Y) 62984.25
- Map Proj:
- Acoustic Source File: \Dauphin Island\SSS\XTF\DI_CRS_11_109_NW.jsf
- Ping Number: 229934
- Range to Target: 35.72 US Feet
- Fish Height: 3.90 US Feet
- Event Number: 0
- Line Name: DI_CRS_11_109_NW

User Entered Info

Target Height >= 0.0 US Feet
Target Length0.0 US Feet
Target Shadow:0.0 US Feet
Target Width:0.0 US Feet
Mag Anomaly:
Avoidance Area:
Classification 1:
Classification 2:
Area:
Block:
Description:

SSN-3



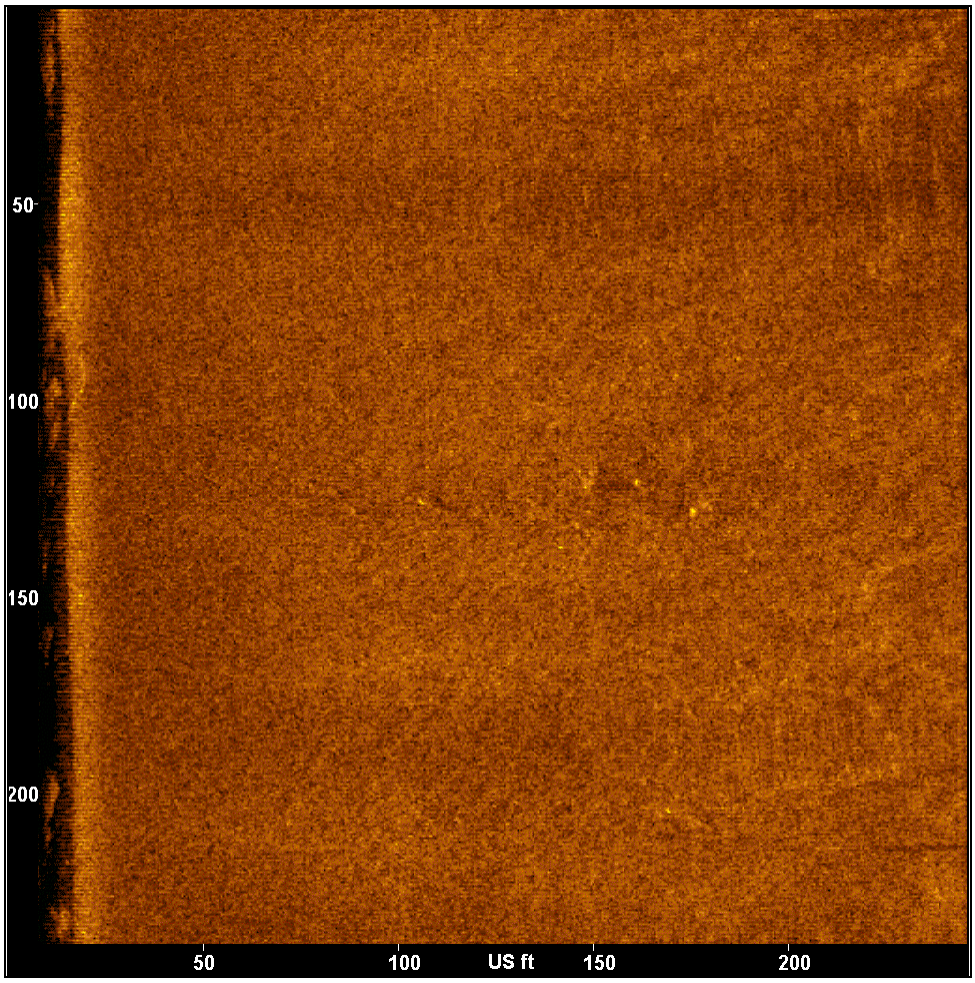
Contact Info: SSN-3

- Sonar Time at Target: 02/23/2011 16:00:43
- Click Position (Lat/Lon Coordinates)
  30.1729526520 -88.0692901611 (WGS84)
- Click Position (Projected Coordinates)
  (X) 1788611.88 (Y) 63346.67
- Map Proj:
- Acoustic Source File: \Dauphin Island\SSS\XTF\DI_CRS_11_109_NW.jsf
- Ping Number: 236074
- Range to Target: 38.75 US Feet
- Fish Height: 4.00 US Feet
- Event Number: 0
- Line Name: DI_CRS_11_109_NW

User Entered Info

Target Height >= 0.0 US Feet
Target Length0.0 US Feet
Target Shadow:0.0 US Feet
Target Width:0.0 US Feet
Mag Anomaly:
Avoidance Area:
Classification 1:
Classification 2:
Area:
Block:
Description:

SSN-4



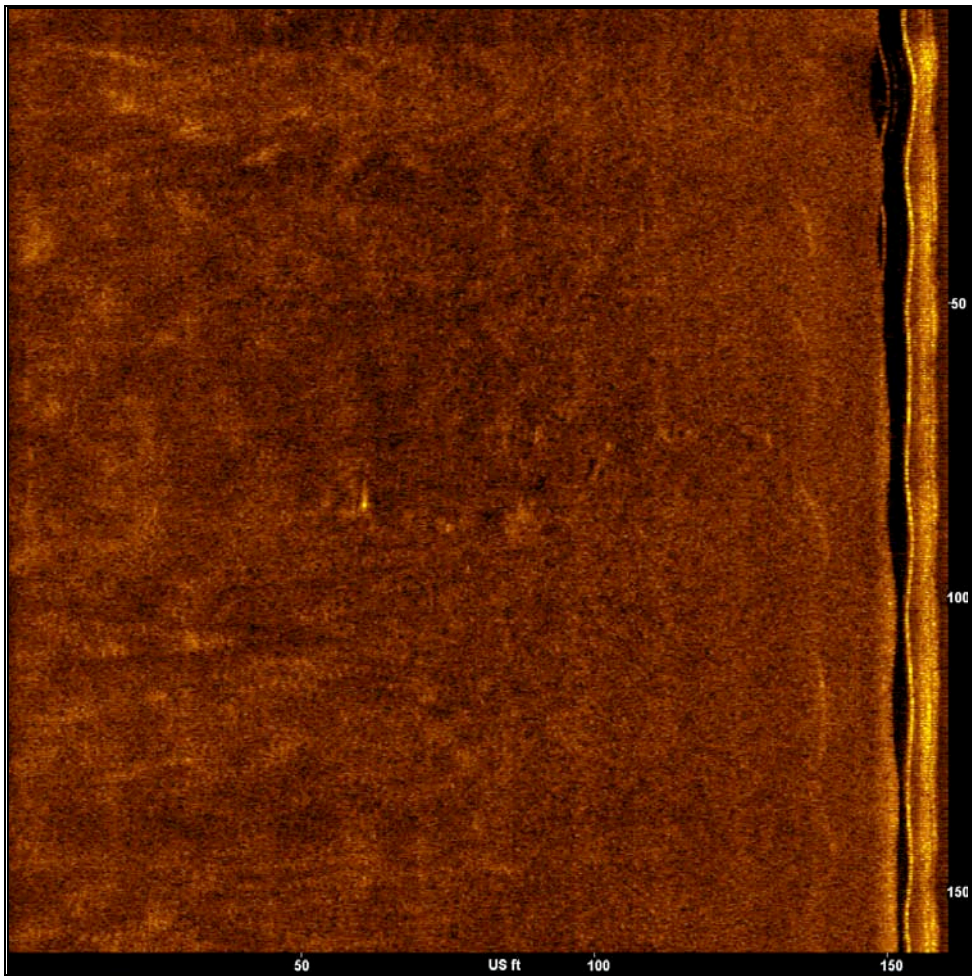
Contact Info: SSN-4

- Sonar Time at Target: 02/23/2011 22:24:54
- Click Position (Lat/Lon Coordinates)
  30.1744613647 -88.0536956787 (WGS84)
- Click Position (Projected Coordinates)
  (X) 1793542.88 (Y) 63871.36
- Map Proj:
- Acoustic Source File: \Dauphin Island\SSS\XTF\DI_CRS_11_118_NW.jsf
- Ping Number: 763169
- Range to Target: 47.02 US Feet
- Fish Height: 4.54 US Feet
- Event Number: 0
- Line Name: DI_CRS_11_118_NW

User Entered Info

Target Height >= 0.0 US Feet
Target Length0.0 US Feet
Target Shadow:0.0 US Feet
Target Width:0.0 US Feet
Mag Anomaly:
Avoidance Area:
Classification 1:
Classification 2:
Area:
Block:
Description:

SSN-5



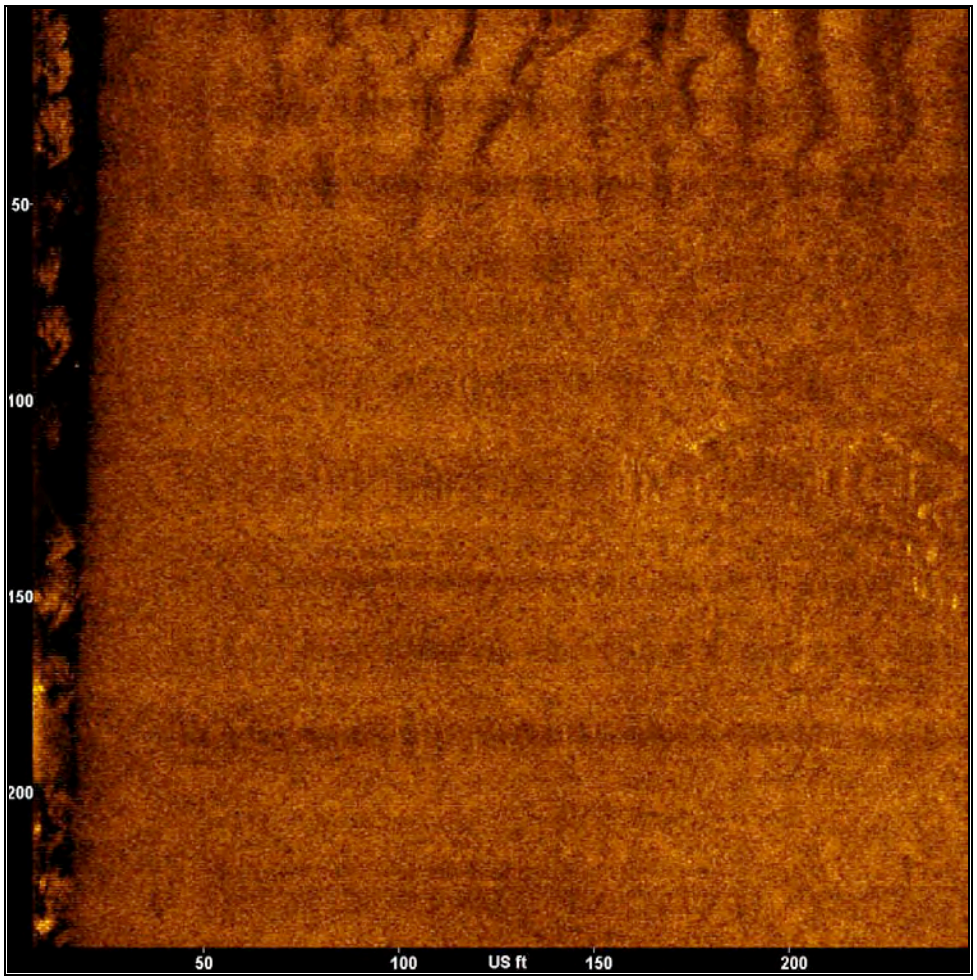
Contact Info: SSN-5

- Sonar Time at Target: 02/23/2011 14:39:21
- Click Position (Lat/Lon Coordinates)
  30.1744880676 -88.0537261963 (WGS84)
- Click Position (Projected Coordinates)
  (X) 1793531.75 (Y) 63881.17
- Map Proj:
- Acoustic Source File: \Dauphin Island\SSS\XTF\DI_CRS_11_119_SE.jsf
- Ping Number: 98903
- Range to Target: 24.89 US Feet
- Fish Height: 4.10 US Feet
- Event Number: 0
- Line Name: DI_CRS_11_119_SE

User Entered Info

Target Height >= 0.0 US Feet
Target Length0.0 US Feet
Target Shadow:0.0 US Feet
Target Width:0.0 US Feet
Mag Anomaly:
Avoidance Area:
Classification 1:
Classification 2:
Area:
Block:
Description:

SSN-6



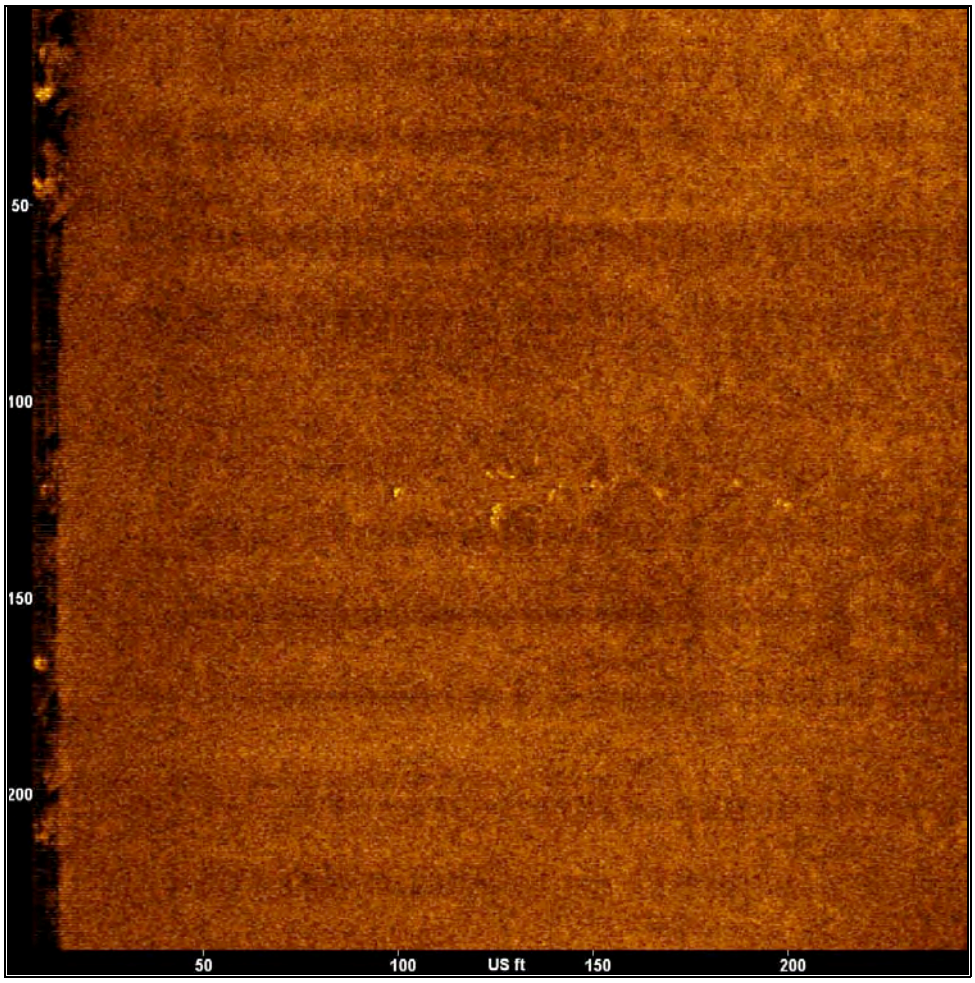
Contact Info: SSN-6

- Sonar Time at Target: 02/23/2011 22:54:03
- Click Position (Lat/Lon Coordinates)
  30.1740341187 -88.0531387329 (WGS84)
- Click Position (Projected Coordinates)
  (X) 1793718.75 (Y) 63715.00
- Map Proj:
- Acoustic Source File: \Dauphin Island\SSS\XTF\DI_CRS_11_120_SE.jsf
- Ping Number: 796252
- Range to Target: 69.87 US Feet
- Fish Height: 6.01 US Feet
- Event Number: 0
- Line Name: DI_CRS_11_120_SE

User Entered Info

Target Height >= 0.0 US Feet
Target Length0.0 US Feet
Target Shadow:0.0 US Feet
Target Width:0.0 US Feet
Mag Anomaly:
Avoidance Area:
Classification 1:
Classification 2:
Area:
Block:
Description:

SSN-7



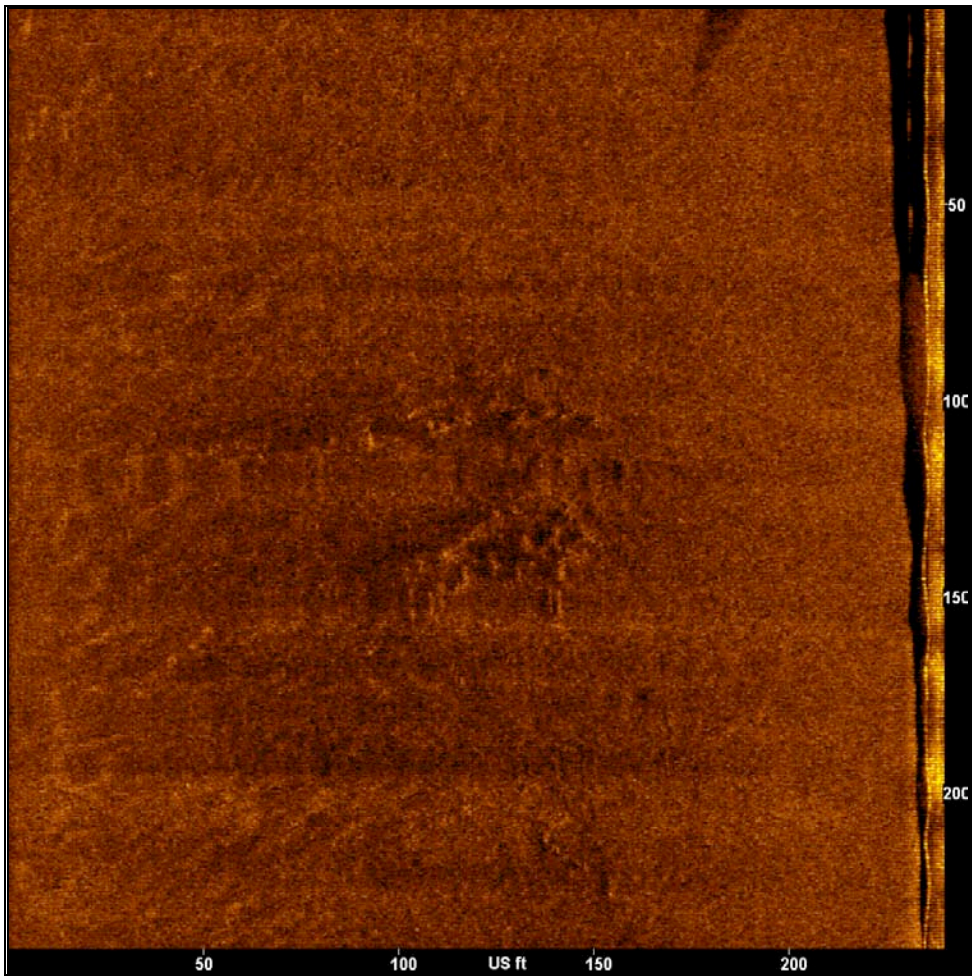
Contact Info: SSN-7

- Sonar Time at Target: 02/23/2011 22:53:36
- Click Position (Lat/Lon Coordinates)
  30.1744422913 -88.0537109375 (WGS84)
- Click Position (Projected Coordinates)
  (X) 1793537.50 (Y) 63864.54
- Map Proj:
- Acoustic Source File: \Dauphin Island\SSS\XTF\DI_CRS_11_120_SE.jsf
- Ping Number: 795741
- Range to Target: 41.75 US Feet
- Fish Height: 3.81 US Feet
- Event Number: 0
- Line Name: DI_CRS_11_120_SE

User Entered Info

Target Height >= 0.0 US Feet
Target Length0.0 US Feet
Target Shadow:0.0 US Feet
Target Width:0.0 US Feet
Mag Anomaly:
Avoidance Area:
Classification 1:
Classification 2:
Area:
Block:
Description:

SSN-8



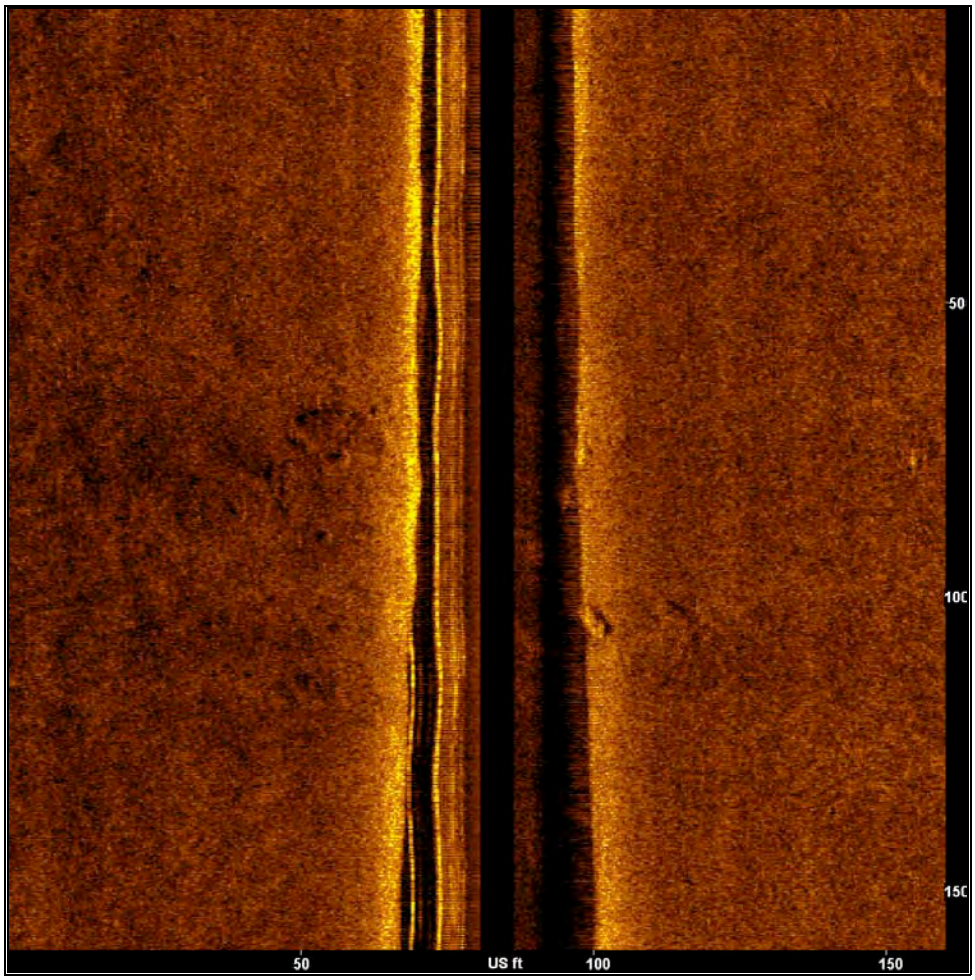
Contact Info: SSN-8

- Sonar Time at Target: 02/23/2011 22:53:54
- Click Position (Lat/Lon Coordinates)
  30.1750164032 -88.0530624390 (WGS84)
- Click Position (Projected Coordinates)
  (X) 1793743.25 (Y) 64071.91
- Map Proj:
- Acoustic Source File: \Dauphin Island\SSS\XTF\DI_CRS_11_120_SE.jsf
- Ping Number: 796082
- Range to Target: 37.50 US Feet
- Fish Height: 5.13 US Feet
- Event Number: 0
- Line Name: DI_CRS_11_120_SE

User Entered Info

Target Height >= 0.0 US Feet
Target Length0.0 US Feet
Target Shadow:0.0 US Feet
Target Width:0.0 US Feet
Mag Anomaly:
Avoidance Area:
Classification 1:
Classification 2:
Area:
Block:
Description:

SSN-9



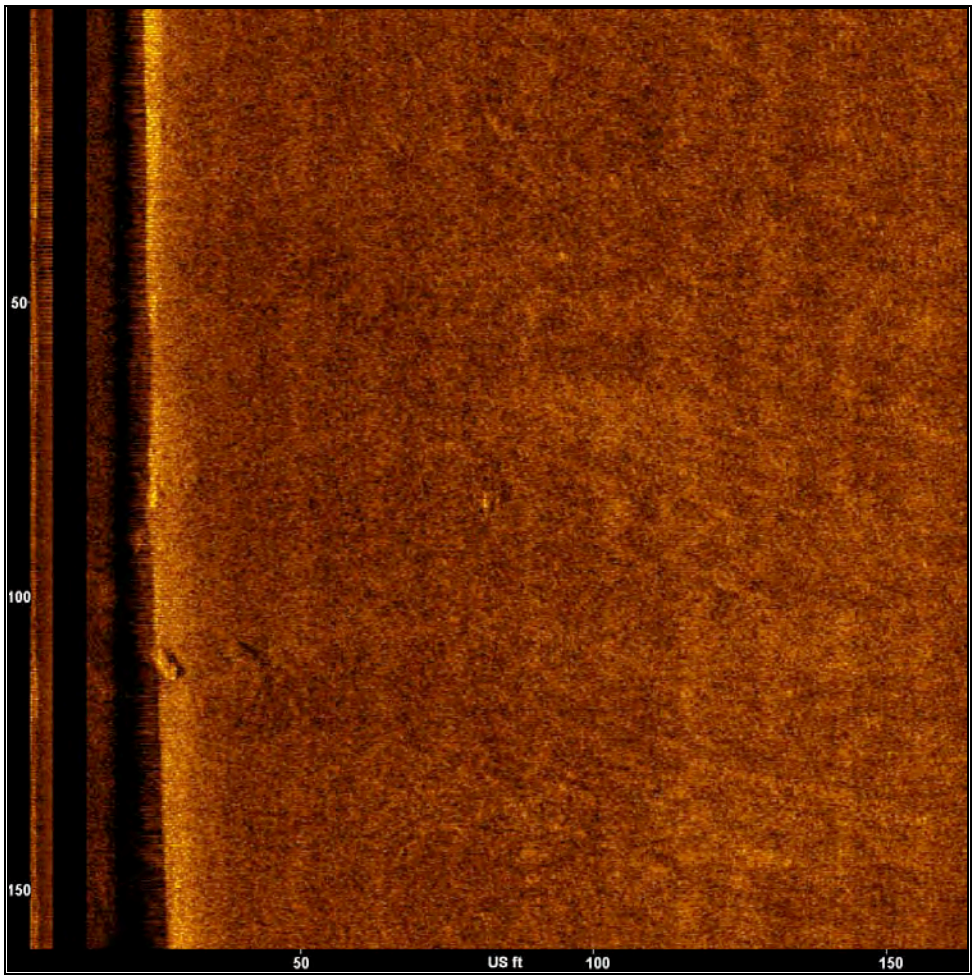
Contact Info: SSN-9

- Sonar Time at Target: 02/23/2011 14:03:42
- Click Position (Lat/Lon Coordinates)
  30.1750221252 -88.0530776978 (WGS84)
- Click Position (Projected Coordinates)
  (X) 1793737.50 (Y) 64074.14
- Map Proj:
- Acoustic Source File: \Dauphin Island\SSS\XTF\DI_CRS_11_121_NW.jsf
- Ping Number: 38797
- Range to Target: 0.49 US Feet
- Fish Height: 4.39 US Feet
- Event Number: 0
- Line Name: DI_CRS_11_121_NW

User Entered Info

Target Height >= 0.0 US Feet
Target Length0.0 US Feet
Target Shadow:0.0 US Feet
Target Width:0.0 US Feet
Mag Anomaly:
Avoidance Area:
Classification 1:
Classification 2:
Area:
Block:
Description:

SSN-10



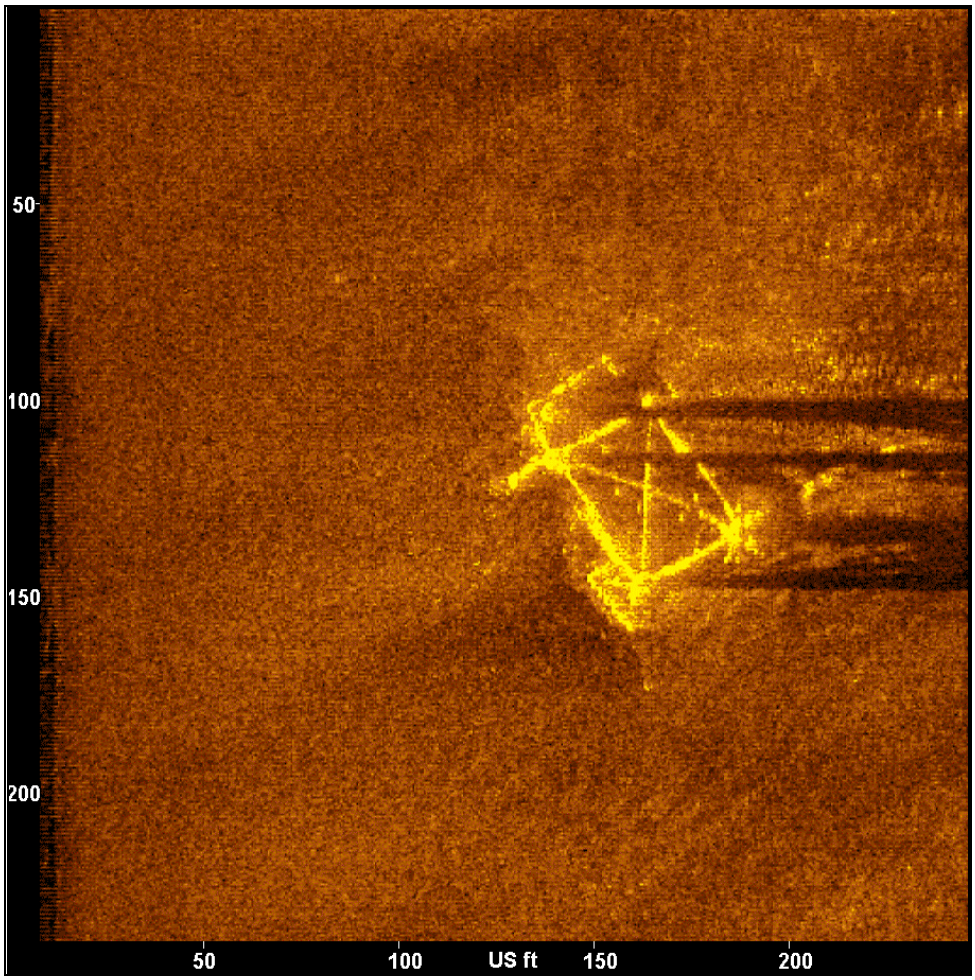
Contact Info: SSN-10

- Sonar Time at Target: 02/23/2011 14:03:43
- Click Position (Lat/Lon Coordinates)
  30.1752147675 -88.0530624390 (WGS84)
- Click Position (Projected Coordinates)
  (X) 1793743.25 (Y) 64144.38
- Map Proj:
- Acoustic Source File: \Dauphin Island\SSS\XTF\DI_CRS_11_121_NW.jsf
- Ping Number: 38827
- Range to Target: 21.77 US Feet
- Fish Height: 4.20 US Feet
- Event Number: 0
- Line Name: DI_CRS_11_121_NW

User Entered Info

Target Height >= 0.0 US Feet
Target Length0.0 US Feet
Target Shadow:0.0 US Feet
Target Width:0.0 US Feet
Mag Anomaly:
Avoidance Area:
Classification 1:
Classification 2:
Area:
Block:
Description:

SSN-11



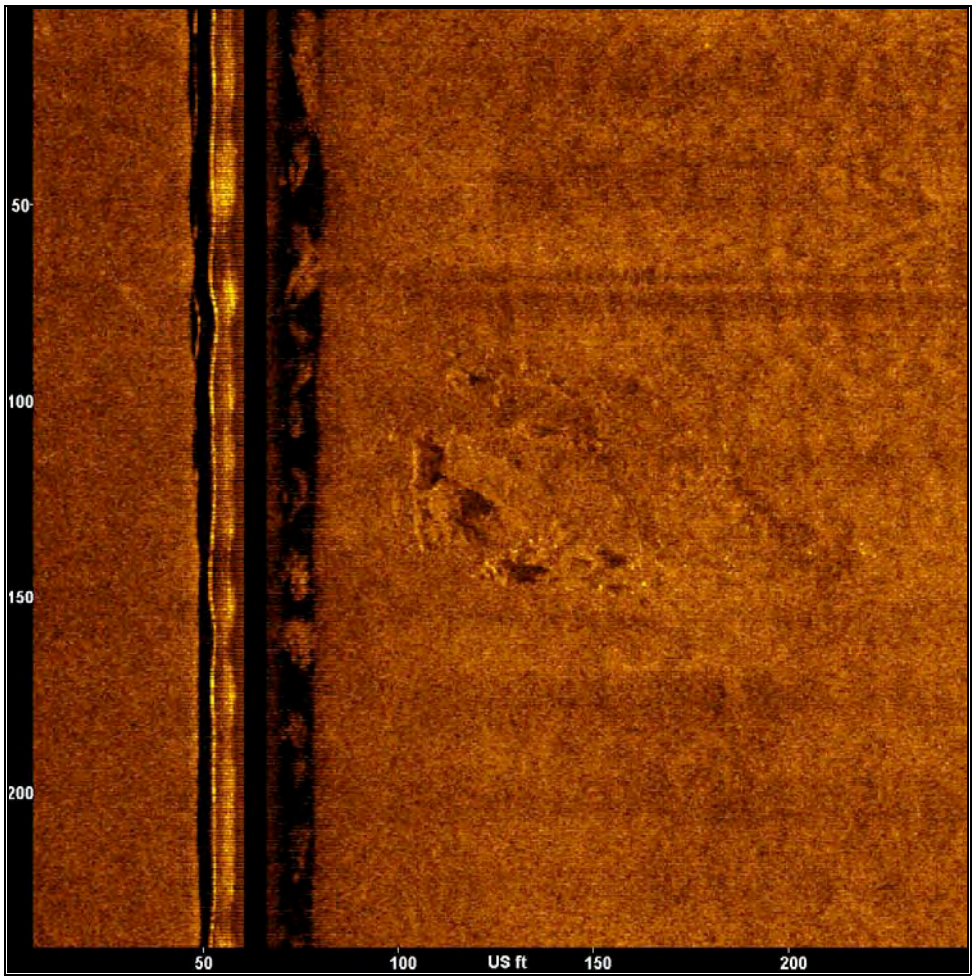
Contact Info: SSN-11

- Sonar Time at Target: 02/23/2011 23:04:47
- Click Position (Lat/Lon Coordinates)
  30.1786861420 -88.0661697388 (WGS84)
- Click Position (Projected Coordinates)
  (X) 1789609.13 (Y) 65426.89
- Map Proj:
- Acoustic Source File: \Dauphin Island\SSS\XTF\DI_CRS_11_122_NW.jsf
- Ping Number: 808443
- Range to Target: 49.80 US Feet
- Fish Height: 3.37 US Feet
- Event Number: 0
- Line Name: DI_CRS_11_122_NW

User Entered Info

Target Height >= 0.0 US Feet
Target Length42.0 US Feet
Target Shadow:0.0 US Feet
Target Width:29.0 US Feet
Mag Anomaly:
Avoidance Area: Yes
Classification 1: Platform
Classification 2:
Area: North Borrow
Block:
Description: A platform.

SSN-12



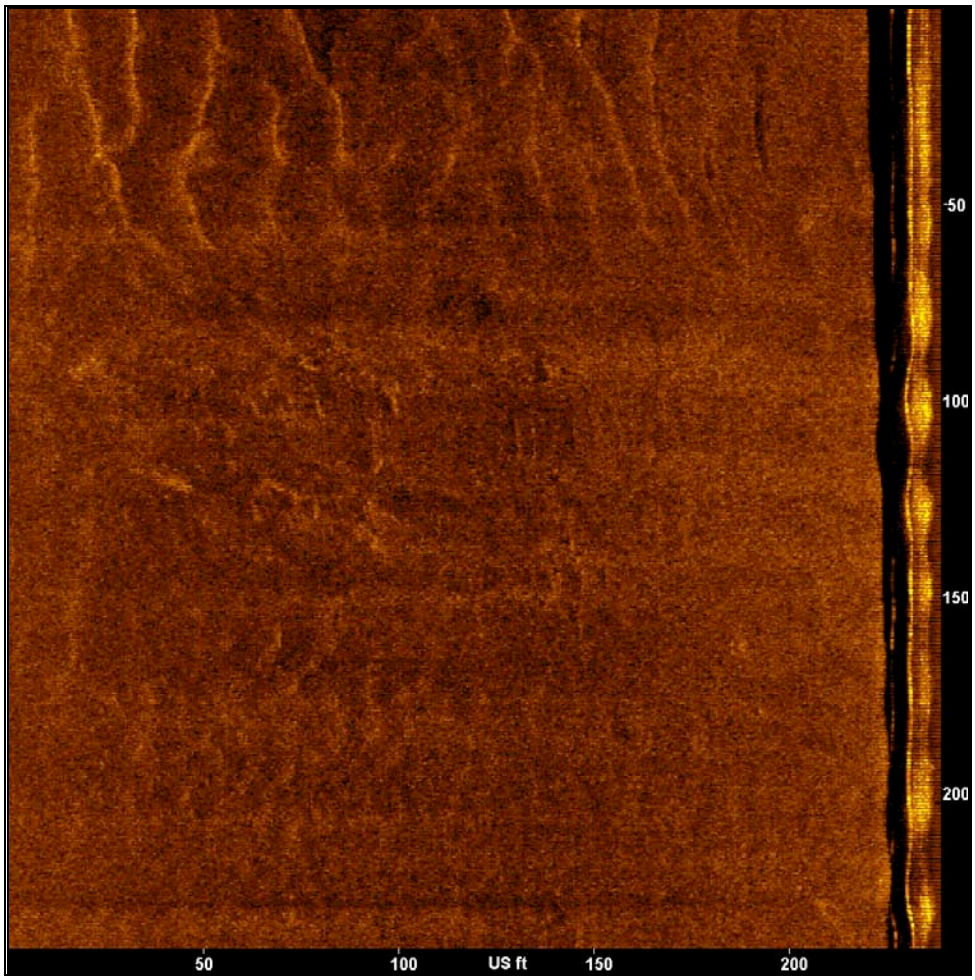
Contact Info: SSN-12

- Sonar Time at Target: 02/23/2011 23:23:57
- Click Position (Lat/Lon Coordinates)
  30.1761779785 -88.0530624390 (WGS84)
- Click Position (Projected Coordinates)
  (X) 1793745.88 (Y) 64494.61
- Map Proj:
- Acoustic Source File: \Dauphin Island\SSS\XTF\DI_CRS_11_124_SW.jsf
- Ping Number: 830198
- Range to Target: 18.16 US Feet
- Fish Height: 4.69 US Feet
- Event Number: 0
- Line Name: DI_CRS_11_124_SW

User Entered Info

Target Height >= 0.0 US Feet
Target Length0.0 US Feet
Target Shadow:0.0 US Feet
Target Width:0.0 US Feet
Mag Anomaly:
Avoidance Area:
Classification 1:
Classification 2:
Area:
Block:
Description:

SSN-13



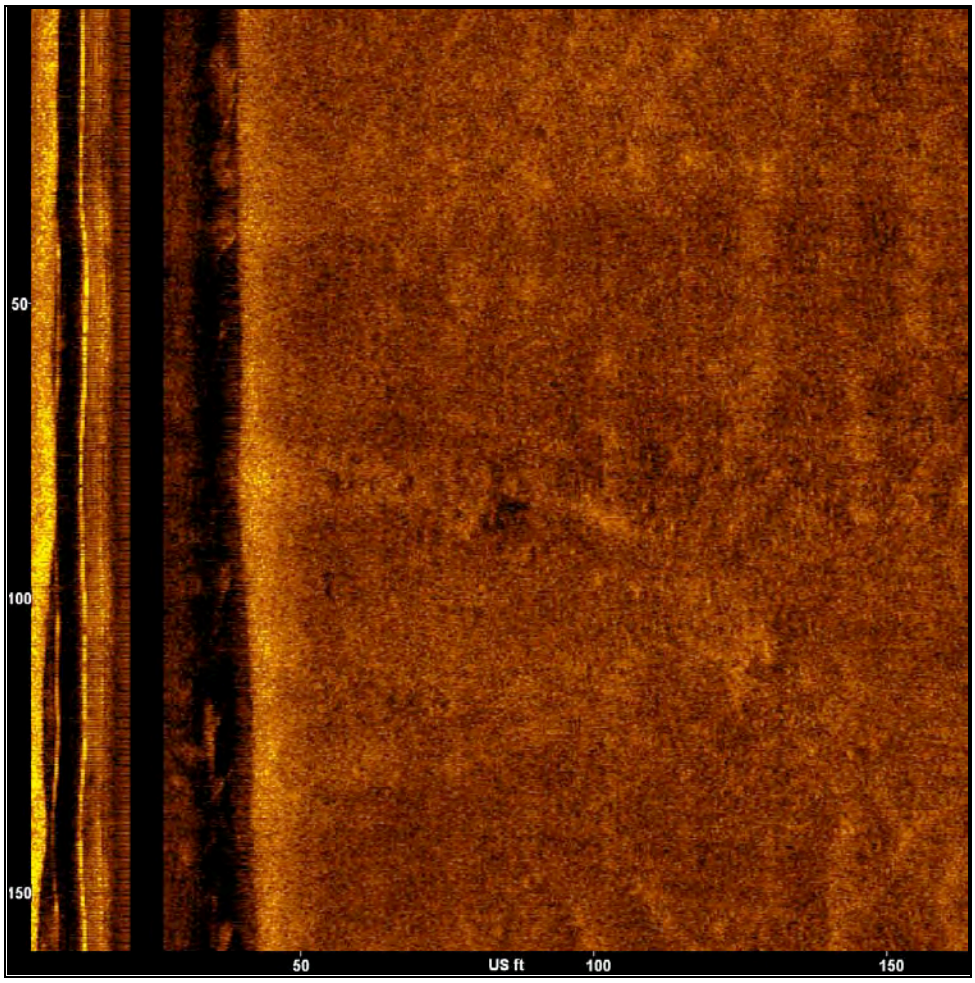
Contact Info: SSN-13

- Sonar Time at Target: 02/23/2011 23:24:16
- Click Position (Lat/Lon Coordinates)
  30.1765670776 -88.0524597168 (WGS84)
- Click Position (Projected Coordinates)
  (X) 1793935.63 (Y) 64635.27
- Map Proj:
- Acoustic Source File: \Dauphin Island\SSS\XTF\DI_CRS_11_124_SW.jsf
- Ping Number: 830560
- Range to Target: 36.18 US Feet
- Fish Height: 5.57 US Feet
- Event Number: 0
- Line Name: DI_CRS_11_124_SW

User Entered Info

Target Height >= 0.0 US Feet
Target Length0.0 US Feet
Target Shadow:0.0 US Feet
Target Width:0.0 US Feet
Mag Anomaly:
Avoidance Area:
Classification 1:
Classification 2:
Area:
Block:
Description:

SSN-14



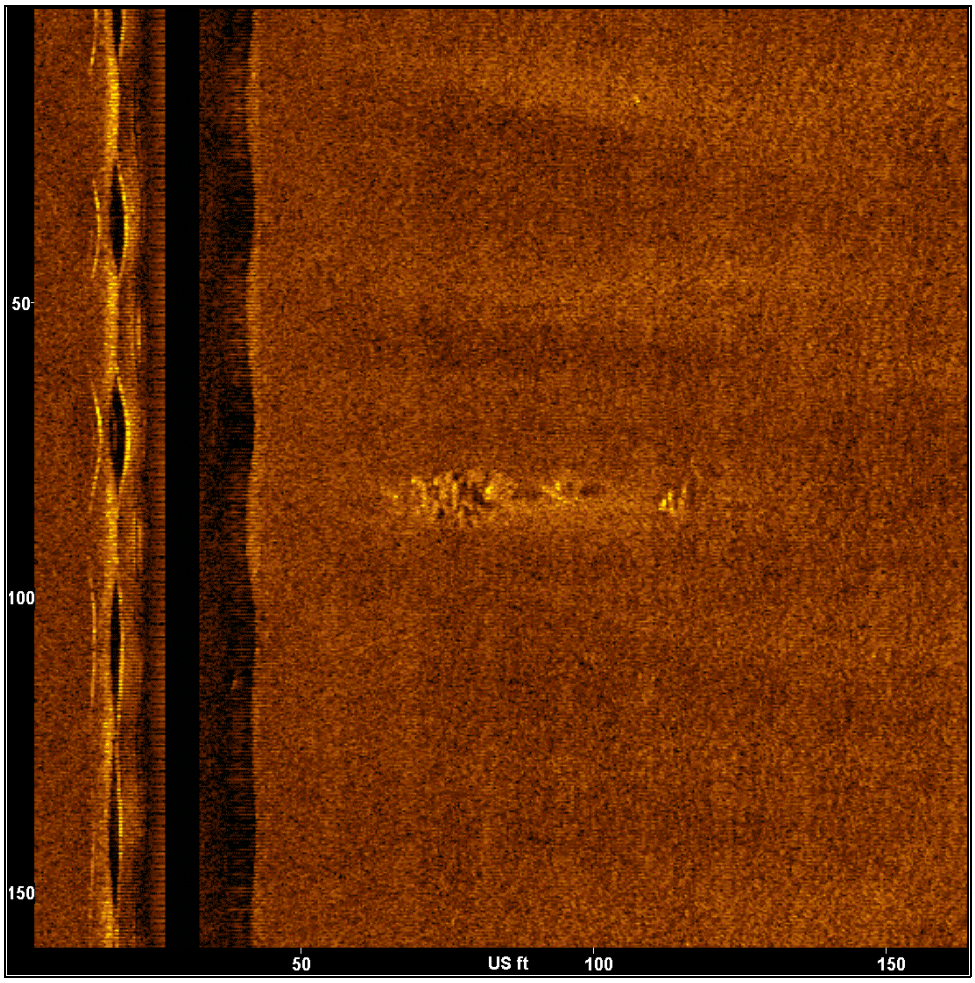
Contact Info: SSN-14

- Sonar Time at Target: 02/22/2011 19:05:45
- Click Position (Lat/Lon Coordinates)
  30.1767120361 -88.0524826050 (WGS84)
- Click Position (Projected Coordinates)
  (X) 1793928.88 (Y) 64687.93
- Map Proj:
- Acoustic Source File: \Dauphin Island\SSS\XTF\DI_CRS_11_125_NW.jsf
- Ping Number: 214323
- Range to Target: 17.76 US Feet
- Fish Height: 4.78 US Feet
- Event Number: 0
- Line Name: DI_CRS_11_125_NW

User Entered Info

Target Height >= 0.0 US Feet
Target Length0.0 US Feet
Target Shadow:0.0 US Feet
Target Width:0.0 US Feet
Mag Anomaly:
Avoidance Area:
Classification 1:
Classification 2:
Area:
Block:
Description:

SSN-15



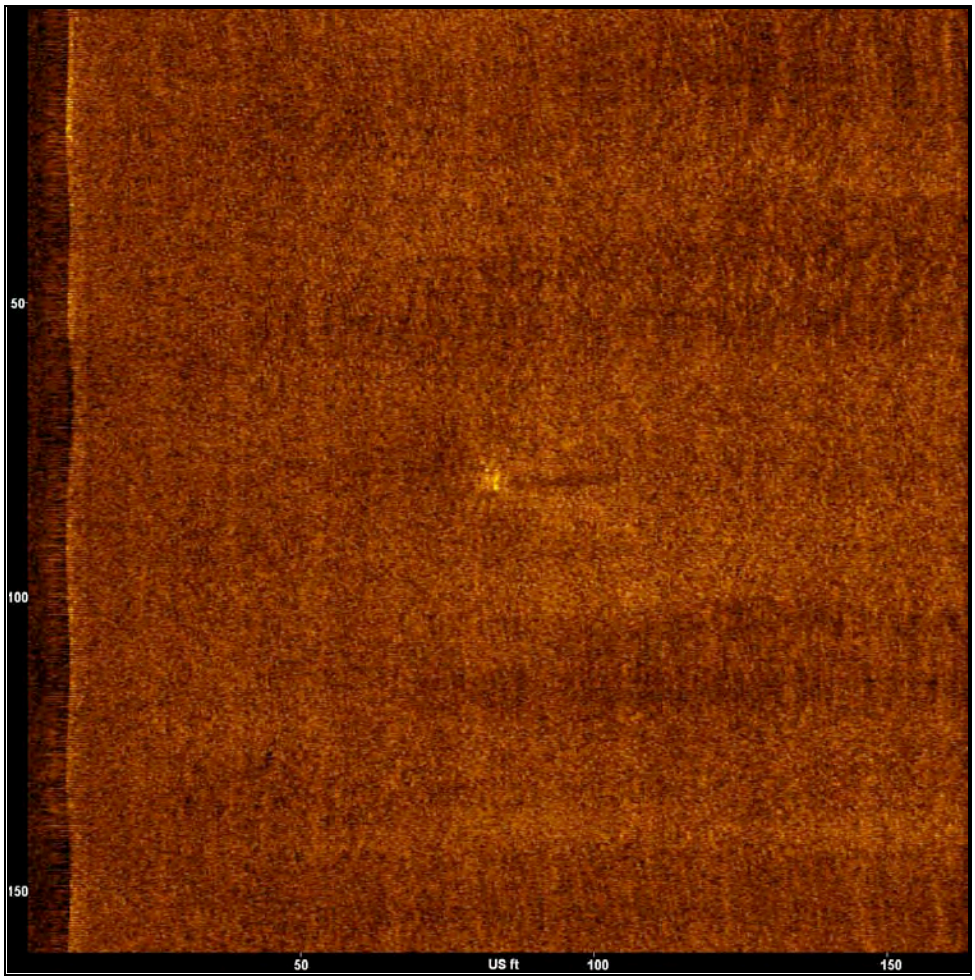
Contact Info: SSN-15

- Sonar Time at Target: 02/22/2011 19:00:39
- Click Position (Lat/Lon Coordinates)
  30.1775417328 -88.0541458130 (WGS84)
- Click Position (Projected Coordinates)
  (X) 1793405.63 (Y) 64991.75
- Map Proj:
- Acoustic Source File: \Dauphin Island\SSS\XTF\DI_CRS_11_127_SE.jsf
- Ping Number: 205728
- Range to Target: 15.91 US Feet
- Fish Height: 3.32 US Feet
- Event Number: 0
- Line Name: DI_CRS_11_127_SE

User Entered Info

Target Height >= 0.0 US Feet
Target Length0.0 US Feet
Target Shadow:0.0 US Feet
Target Width:0.0 US Feet
Mag Anomaly:
Avoidance Area:
Classification 1:
Classification 2:
Area:
Block:
Description:

SSN-16



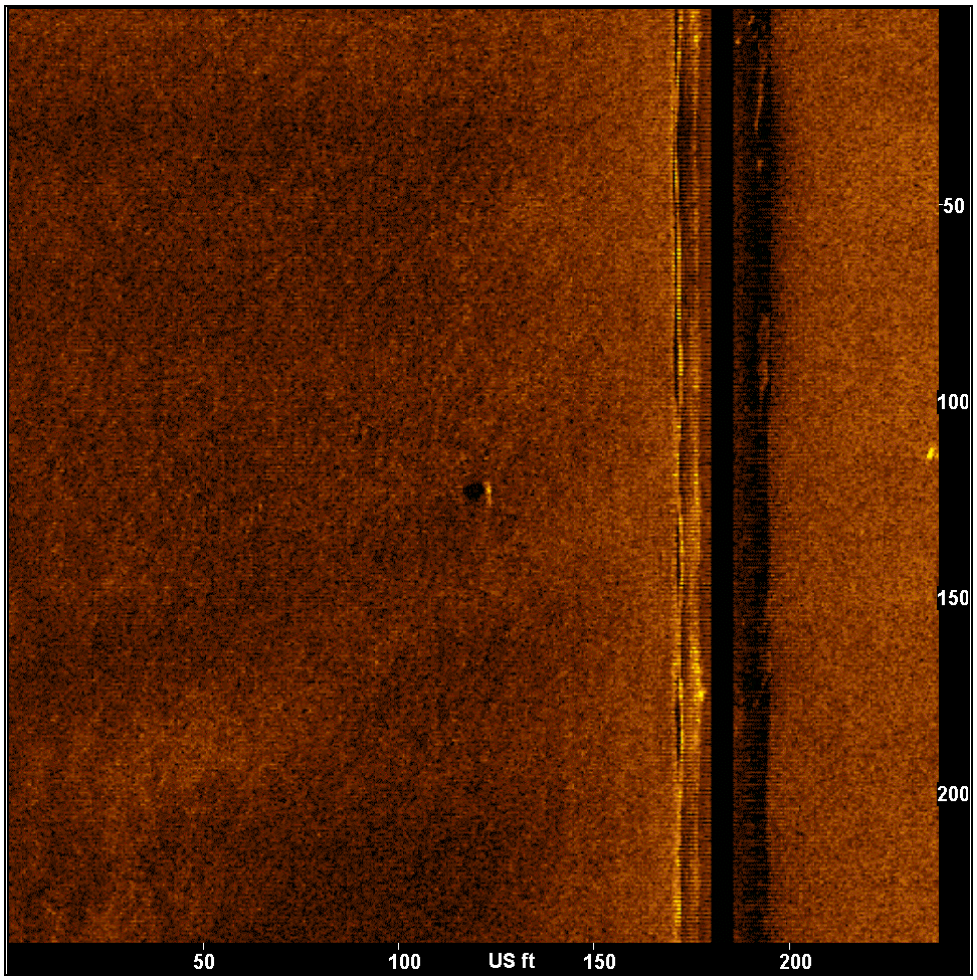
Contact Info: SSN-16

- Sonar Time at Target: 02/22/2011 18:14:08
- Click Position (Lat/Lon Coordinates)
  30.1819343567 -88.0613708496 (WGS84)
- Click Position (Projected Coordinates)
  (X) 1791129.38 (Y) 66601.10
- Map Proj:
- Acoustic Source File: \Dauphin Island\SSS\XTF\DI_CRS_11_133_NW.jsf
- Ping Number: 127291
- Range to Target: 25.28 US Feet
- Fish Height: 3.12 US Feet
- Event Number: 0
- Line Name: DI_CRS_11_133_NW

User Entered Info

Target Height >= 0.0 US Feet
Target Length0.0 US Feet
Target Shadow:0.0 US Feet
Target Width:0.0 US Feet
Mag Anomaly:
Avoidance Area:
Classification 1:
Classification 2:
Area:
Block:
Description:

SSN-17



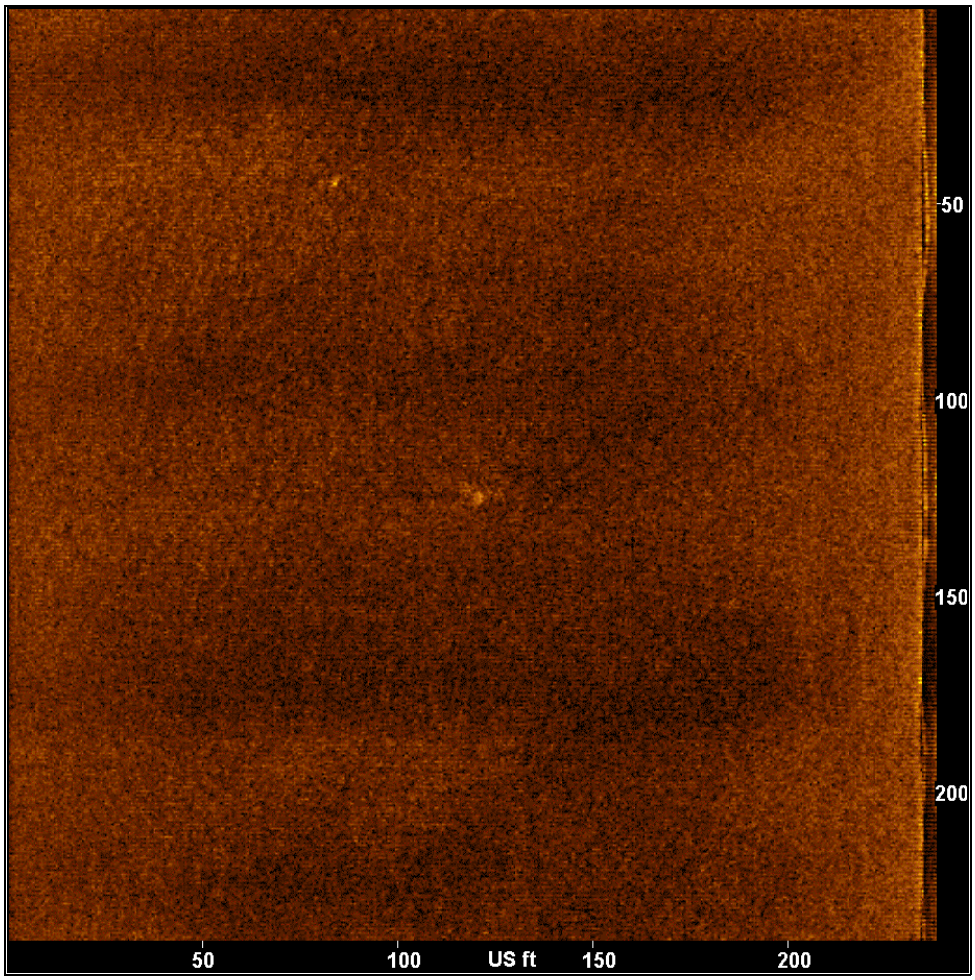
Contact Info: SSN-17

- Sonar Time at Target: 02/24/2011 00:16:31
- Click Position (Lat/Lon Coordinates)
  30.1806297302 -88.0543060303 (WGS84)
- Click Position (Projected Coordinates)
  (X) 1793359.38 (Y) 66114.95
- Map Proj:
- Acoustic Source File: \Dauphin Island\SSS\XTF\DI_CRS_11_134_NW.jsf
- Ping Number: 889875
- Range to Target: 18.31 US Feet
- Fish Height: 3.37 US Feet
- Event Number: 0
- Line Name: DI_CRS_11_134_NW

User Entered Info

Target Height >= 0.0 US Feet
Target Length0.0 US Feet
Target Shadow:0.0 US Feet
Target Width:0.0 US Feet
Mag Anomaly:
Avoidance Area:
Classification 1:
Classification 2:
Area:
Block:
Description:

SSN-18



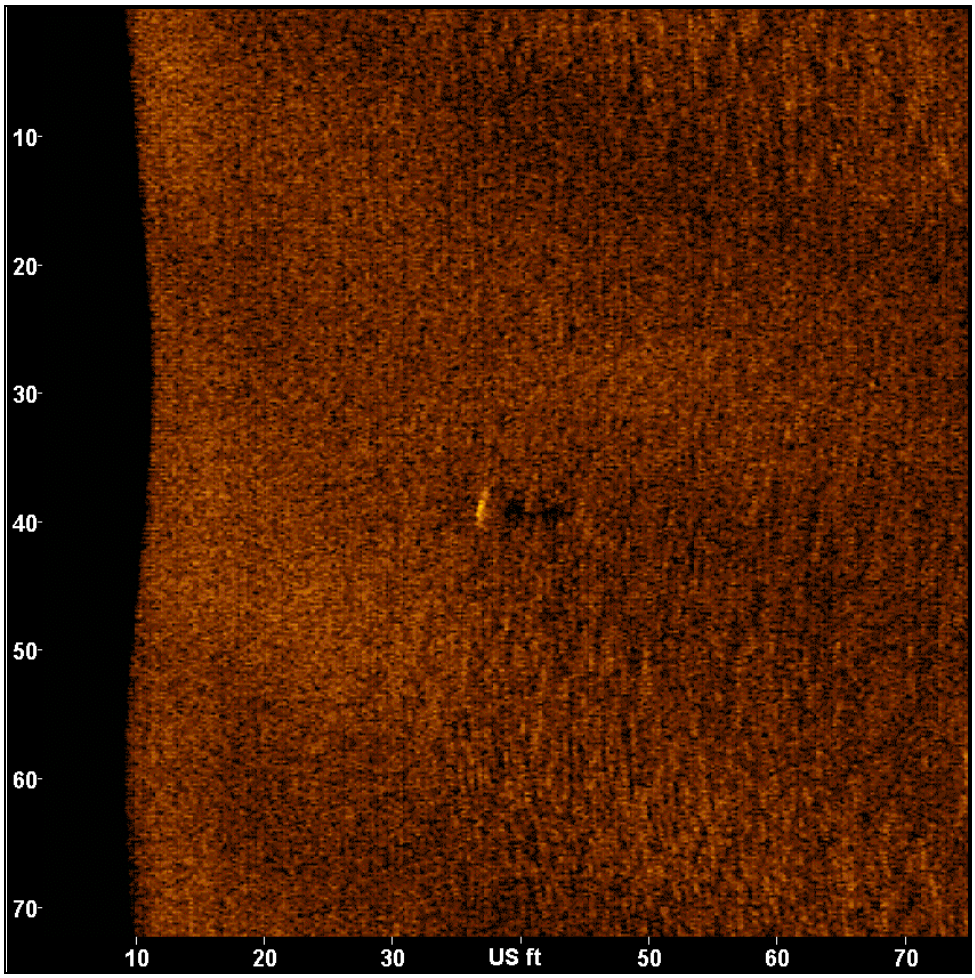
Contact Info: SSN-18

- Sonar Time at Target: 02/24/2011 00:20:22
- Click Position (Lat/Lon Coordinates)
  30.1819305420 -88.0613555908 (WGS84)
- Click Position (Projected Coordinates)
  (X) 1791135.00 (Y) 66599.25
- Map Proj:
- Acoustic Source File: \Dauphin Island\SSS\XTF\DI_CRS_11_134_NW.jsf
- Ping Number: 894253
- Range to Target: 38.38 US Feet
- Fish Height: 3.37 US Feet
- Event Number: 0
- Line Name: DI_CRS_11_134_NW

User Entered Info

Target Height >= 0.0 US Feet
Target Length0.0 US Feet
Target Shadow:0.0 US Feet
Target Width:0.0 US Feet
Mag Anomaly:
Avoidance Area:
Classification 1:
Classification 2:
Area:
Block:
Description:

SSN-19



Contact Info: SSN-19

- Sonar Time at Target: 02/22/2011 17:28:59
- Click Position (Lat/Lon Coordinates)
  30.1832618713 -88.0613403320 (WGS84)
- Click Position (Projected Coordinates)
  (X) 1791141.25 (Y) 67083.16
- Map Proj:
- Acoustic Source File: \Dauphin Island\SSS\XTF\DI_CRS_11_137_NW.jsf
- Ping Number: 45021
- Range to Target: 9.95 US Feet
- Fish Height: 2.50 US Feet
- Event Number: 0
- Line Name: DI_CRS_11_137_NW

User Entered Info

Target Height >= 0.0 US Feet
Target Length0.0 US Feet
Target Shadow:0.0 US Feet
Target Width:0.0 US Feet
Mag Anomaly:
Avoidance Area:
Classification 1:
Classification 2:
Area:
Block:
Description:

Appendix D

South Borrow Site Investigation Area Magnetic Anomalies

Magnetic Anomalies in the Potential Borrow Area

Map Designation	Lane	Number	Characteristics	Intensity (gammas)	Duration (feet)	X	Y	Assessment	Buffer
135	8	4	Dipolar	5	103	1788902.1	59572.6	Small Single Anomaly	
136	**8**	**5**	**Negative Monopolar**	**6**	**144**	**1788263.4**	**59718.0**	**Potentially Significant**	**W**
137	8	6	Multicomponent	12	232	1787936.9	59802.1	Possible Small Diameter Pipe or Degraded Cable	
139	10	2	Dipolar	9	98	1792012.4	59400.9	Small Single Anomaly	
140	10	3	Positive Monopolar	12	57	1788892.9	60151.8	Small Single Anomaly	
141	**10**	**4**	**Dipolar**	**16**	**316**	**1787912.3**	**60383.5**	**Potentially Significant**	**V**
142	12	2	Dipolar	15	117	1792169.8	59991.9	Moderate Single Object	
143	12	3	Dipolar	37	194	1791918.9	60047.9	Moderate Single Object	
153	9	3	Multicomponent	17	89	1790065.2	59584.2	Small Single Anomaly	
154	**9**	**4**	**Multicomponent**	**6**	**54**	**1789606.5**	**59674.1**	**Potentially Significant**	**Z**
155	9	5	Positive Monopolar	10	128	1788117.0	60051.7	Possible Small Diameter Pipe or Degraded Cable	
156	**11**	**1**	**Multicomponent**	**17**	**369**	**1792141.9**	**59711.5**	**Potentially Significant**	**BB**
157	11	2	Multicomponent	5	52	1791021.9	59985.2	Small Single Anomaly	
158	**11**	**3**	**Positive Monopolar**	**7**	**224**	**1788900.1**	**60477.0**	**Potentially Significant**	**Y**
163	45	4	Positive Monopolar	6	70	1789464.6	59807.6	Small Single Anomaly	
165	**46**	**6**	**Multicomponent**	**13**	**309**	**1788357.2**	**59532.7**	**Potentially Significant**	**W**
166	54	1	Negative Monopolar	6	75	1789821.7	59466.2	Small Single Anomaly	
177	**205**	**1**	**Multicomponent**	**21**	**252**	**1790665.6**	**58944.5**	**Potentially Significant**	**AA**
178	205	2	Negative Monopolar	5	80	1789428.6	59232.6	Small Single Anomaly	
179	**205**	**3**	**Multicomponent**	**23**	**559**	**1788328.8**	**59502.5**	**Potentially Significant**	**W**
180	**206**	**1**	**Dipolar**	**13**	**93**	**1790739.7**	**58991.5**	**Potentially Significant**	**AA**

Map Designation	Lane	Number	Characteristics	Intensity (gammas)	Duration (feet)	X	Y	Assessment	Buffer
181	**206**	**2**	**Positive Monopolar**	**5**	**91**	**1788524.4**	**59529.4**	**Potentially Significant**	**W**
182	**206**	**3**	**Dipolar**	**92**	**328**	**1788264.7**	**59591.0**	**Potentially Significant**	**W**
183	207	1	Positive Monopolar	5	70	1790216.3	59330.4	Small Single Anomaly	
184	207	2	Positive Monopolar	8	71	1789822.5	59423.9	Small Single Anomaly	
185	207	3	Positive Monopolar	9	85	1787937.2	59873.4	Possible Small Diameter Pipe or Degraded Cable	
187	208	2	Negative Monopolar	11	117	1791456.2	59144.5	Small Single Anomaly	
188	208	3	Dipolar	6	75	1789765.1	59553.4	Small Single Anomaly	
189	**208**	**4**	**Dipolar**	**7**	**105**	**1789574.3**	**59602.9**	**Potentially Significant**	**Z**
190	209	1	Positive Monopolar	5	129	1792078.5	59213.9	Small Single Anomaly	
191	209	2	Multicomponent	17	149	1789166.5	59903.3	Moderate Single Object	
192	209	3	Dipolar	16	134	1788306.8	60111.9	Possible Small Diameter Pipe or Degraded Cable	
193	210	1	Negative Monopolar	15	96	1789953.8	59796.0	Small Single Anomaly	
194	211	1	Positive Monopolar	9	50	1790225.9	59918.3	Small Single Anomaly	
196	213	1	Dipolar	18	103	1791353.9	59984.6	Small Single Anomaly	
197	213	2	Positive Monopolar	7	87	1789132.2	60525.7	Small Single Anomaly	
198	**213**	**3**	**Negative Monopolar**	**6**	**202**	**1788906.5**	**60575.1**	**Potentially Significant**	**Y**
201	207	4	Positive Monopolar	13	142	1791207.7	59090.3	Moderate Single Object	
202	207	5	Negative Monopolar	12	1043	1791912.7	58916.0	Moderate Single Object	
203	208	5	Negative Monopolar	5	141	1787982.0	59981.8	Possible Small Diameter Pipe or Degraded Cable	
205	214	1	Positive Monopolar	5	115	1791892.3	59936.9	Small Single Anomaly	

Magnetic Anomalies in the Survey Buffer

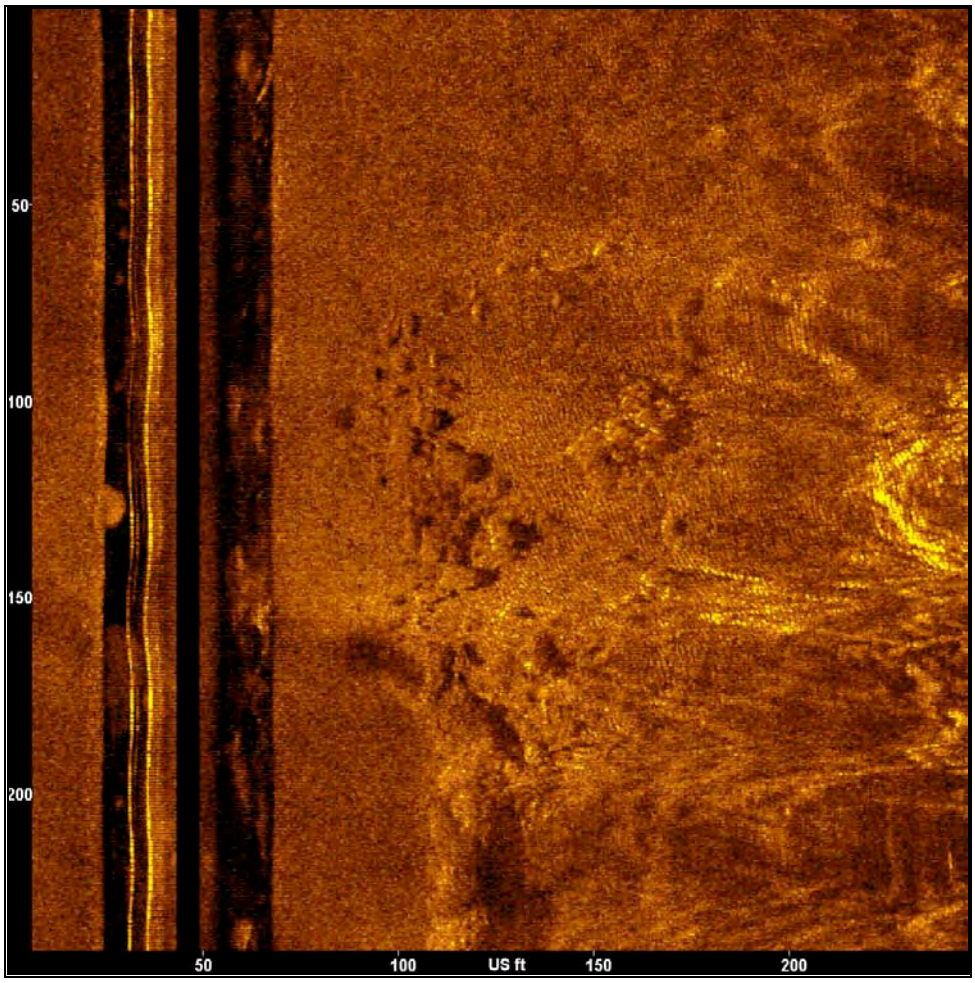
Map Designation	Lane	Number	Characteristics	Intensity (gammas)	Duration (feet)	X	Y	Assessment	Buffer
130	6	2	Negative Monopolar	5	64	1789649.2	58753.4	Small Single Anomaly	
131	6	3	Dipolar	5	118	1788994.0	58919.1	Small Single Anomaly	
132	**6**	**4**	**Multicomponent**	**17**	**350**	**1788646.3**	**59000.6**	**Potentially Significant**	**X**
133	**6**	**5**	**Dipolar**	**15**	**153**	**1787607.1**	**59247.0**	**Potentially Significant**	**U**
134	8	3	Dipolar	42	198	1792173.7	58786.1	Moderate Single Object	
138	10	1	Negative Monopolar	23	84	1792139.3	59363.8	Small Single Anomaly	
144	14	1	Dipolar	10	82	1792463.6	60498.6	Small Single Anomaly	
145	14	2	Multicomponent	110	544	1789879.9	61126.4	Pipeline	
146	7	1	Dipolar	5	131	1791416.5	58678.0	Small Single Anomaly	
147	7	2	Dipolar	5	108	1791034.6	58754.0	Small Single Anomaly	
148	**7**	**3**	**Multicomponent**	**6**	**249**	**1790731.4**	**58823.0**	**Potentially Significant**	**AA**
149	7	4	Dipolar	20	116	1789103.2	59207.4	Moderate Single Object	
150	7	5	Dipolar	33	139	1788964.8	59243.6	Moderate Single Object	
151	7	6	Negative Monopolar	5	138	1788575.8	59340.3	Small Single Anomaly	
152	9	2	Dipolar	31	167	1792167.0	59067.2	Moderate Single Object	
159	13	1	Dipolar	7	88	1789524.5	60911.6	Small Single Anomaly	
160	13	2	Positive Monopolar	5	74	1788562.4	61122.5	Small Single Anomaly	
161	13	3	Negative Monopolar	6	198	1792517.6	60163.0	Moderate Single Object	
162	45	3	Multicomponent	11	177	1789814.0	61079.8	Pipeline	
164	46	5	Negative Monopolar	5	117	1788756.6	60977.1	Small Single Anomaly	
167	55	16	Dipolar	19	102	1792159.9	59010.8	Small Single Anomaly	
168	201	2	Negative Monopolar	6	66	1788458.9	58865.8	Small Single Anomaly	
169	202	1	Dipolar	11	128	1789573.0	58669.5	Moderate Single Object	
170	**202**	**2**	**Dipolar**	**7**	**192**	**1787567.2**	**59151.3**	**Potentially Significant**	**U**
171	203	1	Dipolar	17	121	1789341.2	58927.5	Moderate Single Object	
172	**203**	**2**	**Dipolar**	**188**	**346**	**1788577.6**	**59104.9**	**Potentially Significant**	**X**
173	204	1	Negative Monopolar	11	113	1791998.7	58417.0	Small Single Anomaly	
174	204	2	Dipolar	6	67	1789605.5	58988.1	Small Single Anomaly	
175	204	3	Positive Monopolar	22	89	1789041.1	59124.0	Small Single Anomaly	

Map Designation	Lane	Number	Characteristics	Intensity (gammas)	Duration (feet)	X	Y	Assessment	Buffer
176	**204**	**4**	**Positive Monopolar**	**8**	**199**	**1788570.9**	**59242.5**	**Potentially Significant**	**X**
186	208	1	Dipolar	19	104	1792150.1	58990.2	Small Single Anomaly	
195	**212**	**1**	**Negative Monopolar**	**17**	**124**	**1792171.8**	**59586.5**	**Potentially Significant**	**BB**
199	216	1	Dipolar	5	97	1789489.7	60841.6	Small Single Anomaly	
200	219	2	Multicomponent	72	1020	1790916.3	60980.0	Pipeline	
204	210	1	Negative Monopolar	23	110	1792119.6	59275.5	Small Single Anomaly	
206	216	2	Dipolar	4	144	1788531.6	61072.9	Moderate Single Object	
207	218	3	Dipolar	8	136	1792445.4	60409.9	Small Single Anomaly	

Appendix E

South Borrow Site Investigation Area Sonar Targets

SSS-1



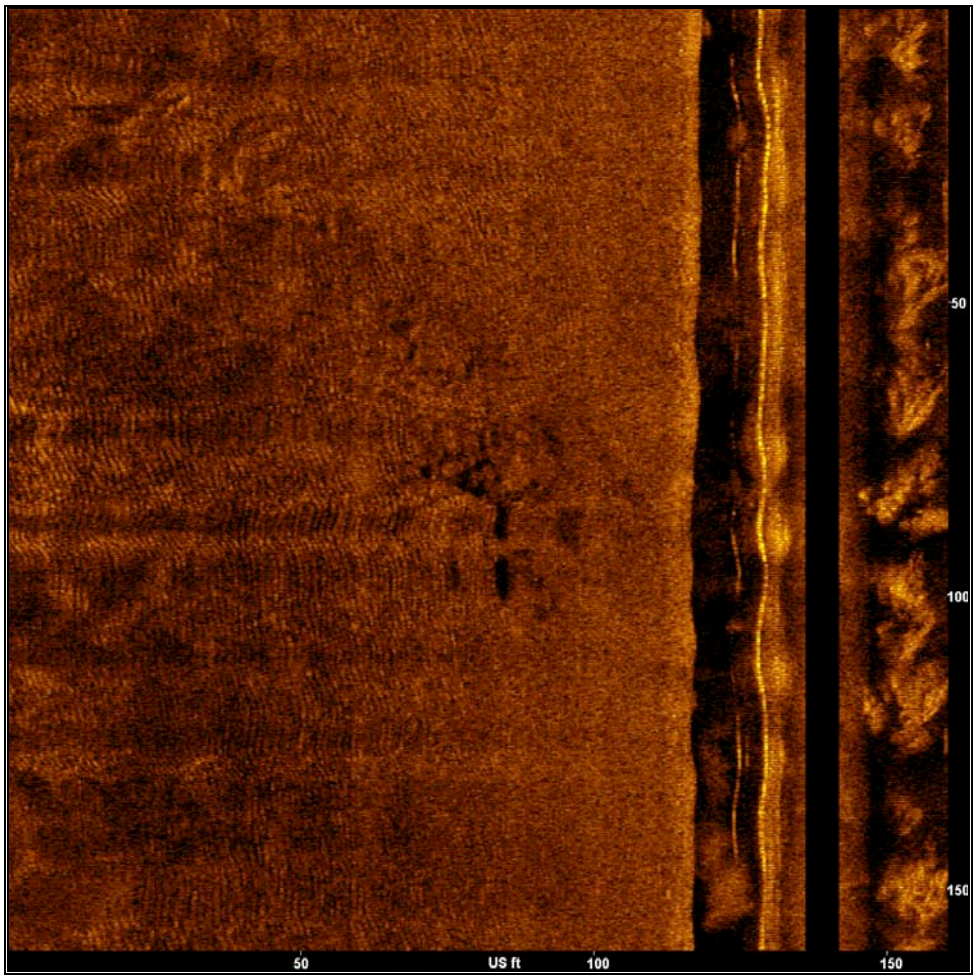
Contact Info: SSS-1

- Sonar Time at Target: 02/23/2011 18:49:11
- Click Position (Lat/Lon Coordinates)
  30.1604232788 -88.0677185059 (WGS84)
- Click Position (Projected Coordinates)
  (X) 1789085.25 (Y) 58787.85
- Map Proj:
- Acoustic Source File: \Dauphin Island\SSS\XTF\DI_CRS_11_201_NW.jsf
- Ping Number: 518274
- Range to Target: 23.44 US Feet
- Fish Height: 6.50 US Feet
- Event Number: 0
- Line Name: DI_CRS_11_201_NW

User Entered Info

Target Height >= 0.0 US Feet
Target Length0.0 US Feet
Target Shadow:0.0 US Feet
Target Width:0.0 US Feet
Mag Anomaly:
Avoidance Area:
Classification 1:
Classification 2:
Area:
Block:
Description:

SSS-2



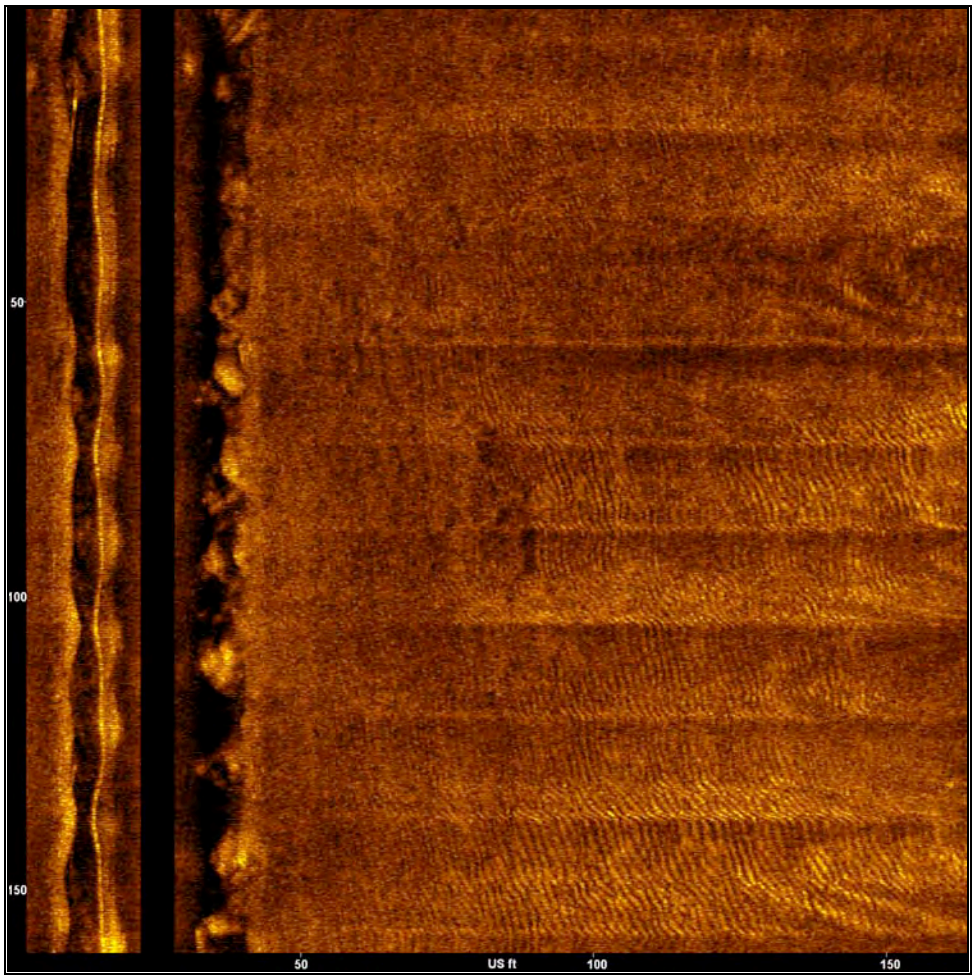
Contact Info: SSS-2

- Sonar Time at Target: 02/23/2011 18:39:06
- Click Position (Lat/Lon Coordinates)
  30.1608562469 -88.0690536499 (WGS84)
- Click Position (Projected Coordinates)
  (X) 1788664.50 (Y) 58947.01
- Map Proj:
- Acoustic Source File: \Dauphin Island\SSS\XTF\DI_CRS_11_202_SE.jsf
- Ping Number: 503015
- Range to Target: 17.37 US Feet
- Fish Height: 6.83 US Feet
- Event Number: 0
- Line Name: DI_CRS_11_202_SE

User Entered Info

Target Height >= 0.0 US Feet
Target Length0.0 US Feet
Target Shadow:0.0 US Feet
Target Width:0.0 US Feet
Mag Anomaly:
Avoidance Area:
Classification 1:
Classification 2:
Area:
Block:
Description:

SSS-3



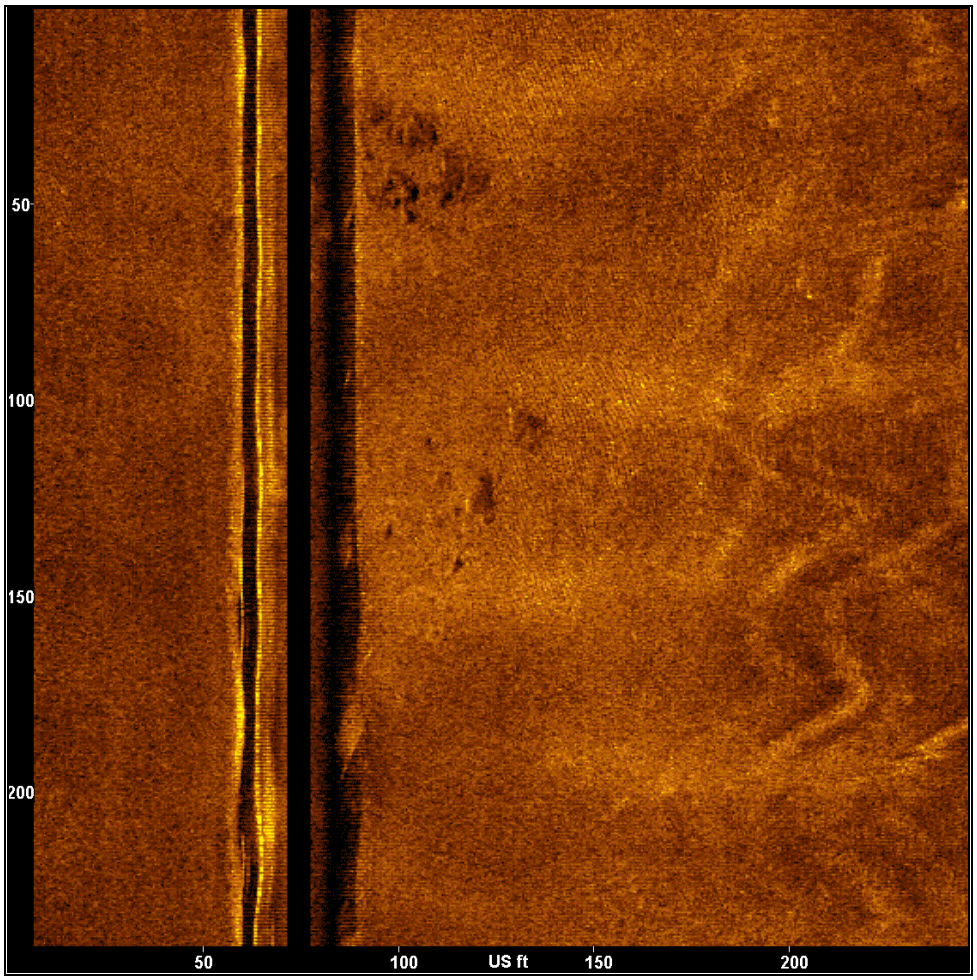
Contact Info: SSS-3

- Sonar Time at Target: 02/23/2011 18:42:22
- Click Position (Lat/Lon Coordinates)
  30.1597232819 -88.0651016235 (WGS84)
- Click Position (Projected Coordinates)
  (X) 1789910.63 (Y) 58529.08
- Map Proj:
- Acoustic Source File: \Dauphin Island\SSS\XTF\DI_CRS_11_202_SE.jsf
- Ping Number: 508510
- Range to Target: 17.18 US Feet
- Fish Height: 4.49 US Feet
- Event Number: 0
- Line Name: DI_CRS_11_202_SE

User Entered Info

Target Height >= 0.0 US Feet
Target Length0.0 US Feet
Target Shadow:0.0 US Feet
Target Width:0.0 US Feet
Mag Anomaly:
Avoidance Area:
Classification 1:
Classification 2:
Area:
Block:
Description:

SSS-4



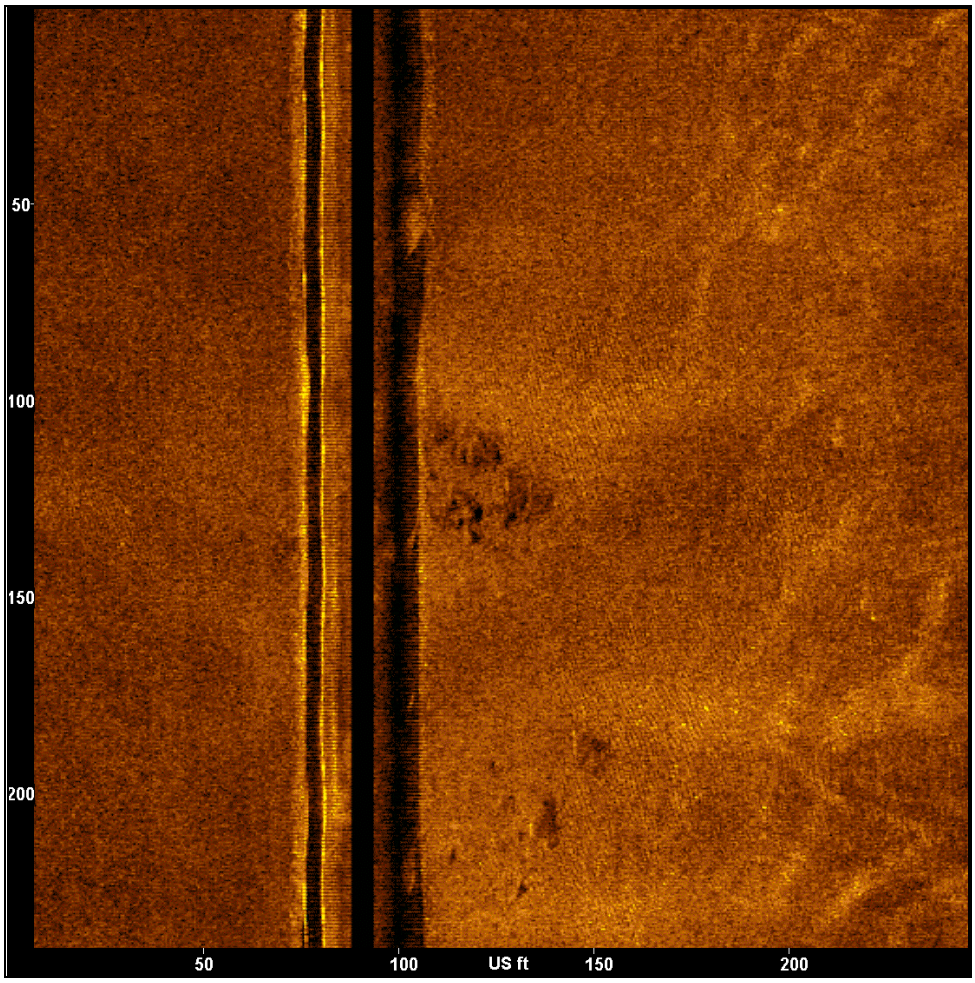
Contact Info: SSS-4

- Sonar Time at Target: 02/23/2011 19:14:29
- Click Position (Lat/Lon Coordinates)
  30.1609725952 -88.0625991821 (WGS84)
- Click Position (Projected Coordinates)
  (X) 1790703.75 (Y) 58979.25
- Map Proj:
- Acoustic Source File: \Dauphin Island\SSS\XTF\DI_CRS_11_205_NW.jsf
- Ping Number: 546993
- Range to Target: 14.79 US Feet
- Fish Height: 4.39 US Feet
- Event Number: 0
- Line Name: DI_CRS_11_205_NW

User Entered Info

Target Height >= 0.0 US Feet
Target Length0.0 US Feet
Target Shadow:0.0 US Feet
Target Width:0.0 US Feet
Mag Anomaly:
Avoidance Area:
Classification 1:
Classification 2:
Area:
Block:
Description:

SSS-5



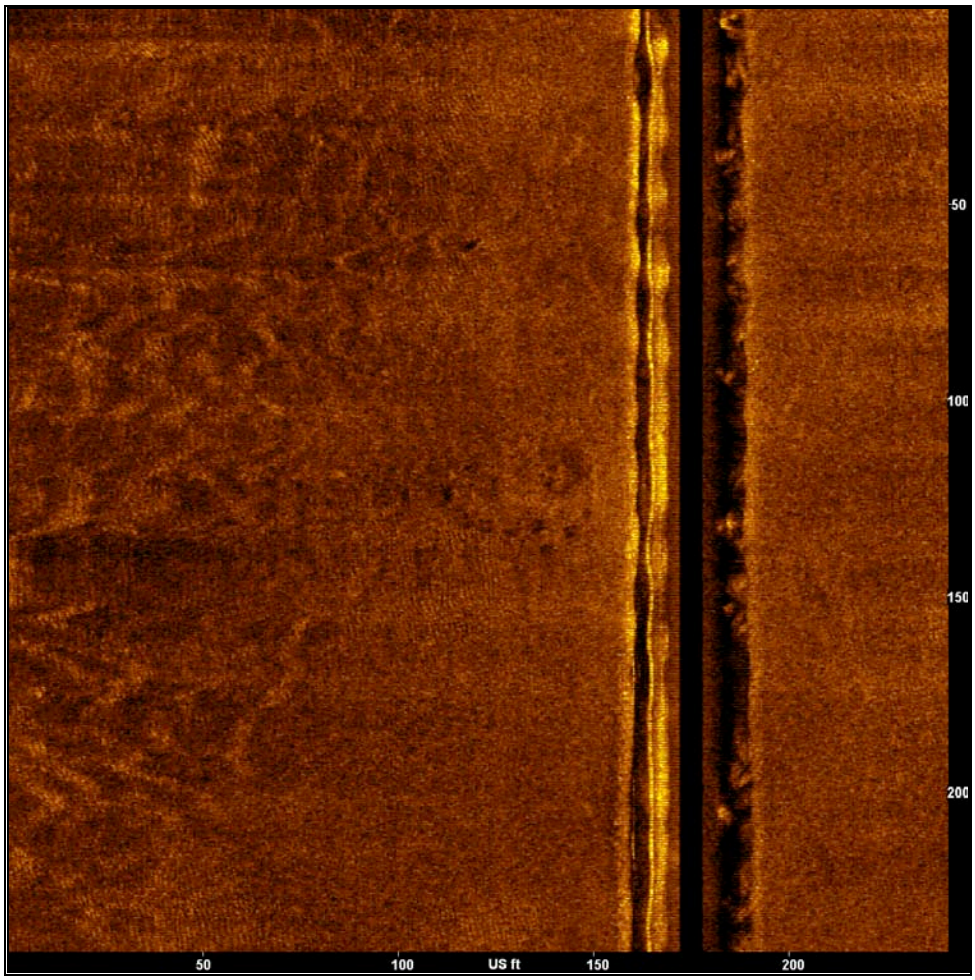
Contact Info: SSS-5

- Sonar Time at Target: 02/23/2011 19:14:39
- Click Position (Lat/Lon Coordinates)
  30.1609745026 -88.0628738403 (WGS84)
- Click Position (Projected Coordinates)
  (X) 1790618.38 (Y) 58980.35
- Map Proj:
- Acoustic Source File: \Dauphin Island\SSS\XTF\DI_CRS_11_205_NW.jsf
- Ping Number: 547182
- Range to Target: 9.81 US Feet
- Fish Height: 4.54 US Feet
- Event Number: 0
- Line Name: DI_CRS_11_205_NW

User Entered Info

Target Height >= 0.0 US Feet
Target Length0.0 US Feet
Target Shadow:0.0 US Feet
Target Width:0.0 US Feet
Mag Anomaly:
Avoidance Area:
Classification 1:
Classification 2:
Area:
Block:
Description:

SSS-6



Contact Info: SSS-6

- Sonar Time at Target: 02/23/2011 19:29:10
- Click Position (Lat/Lon Coordinates)
  30.1625423431 -88.0663986206 (WGS84)
- Click Position (Projected Coordinates)
  (X) 1789506.50 (Y) 59556.19
- Map Proj:
- Acoustic Source File: \Dauphin Island\SSS\XTF\DI_CRS_11_207_SE.jsf
- Ping Number: 563674
- Range to Target: 15.82 US Feet
- Fish Height: 4.39 US Feet
- Event Number: 0
- Line Name: DI_CRS_11_207_SE

User Entered Info

Target Height >= 0.0 US Feet
Target Length0.0 US Feet
Target Shadow:0.0 US Feet
Target Width:0.0 US Feet
Mag Anomaly:
Avoidance Area:
Classification 1:
Classification 2:
Area:
Block:
Description:

APPENDIX 14
Borrow Area Composite Summary Tables

COMPOSITE SUMMARY TABLE
DAUPHIN ISLAND 2010 VIBRACORES

VIBRACORE I. D.	EFFECTIVE LENGTH (FT)	MEAN (mm)	PHI MEAN	PHI SORTING	% SILT	DRY MUNSELL VALUE
DIVC-10-03 COMPOSITE	8.7	0.28	1.82	0.57	1.21	7
DIVC-10-04 COMPOSITE	9.4	0.23	2.13	0.47	1.13	7
DIVC-10-09 COMPOSITE	12.9	0.24	2.06	0.51	1.17	7
DIVC-10-10 COMPOSITE	14.8	0.27	1.90	0.61	1.42	7
DIVC-10-11 COMPOSITE	13.8	0.23	2.12	0.43	1.18	7
DIVC-10-12 COMPOSITE	11.7	0.26	1.95	0.56	1.22	7
DIVC-10-13 COMPOSITE	8.8	0.25	2.00	0.51	1.16	7
DIVC-10-19 COMPOSITE	8.0	0.24	2.06	0.65	1.63	7
DIVC-10-20 COMPOSITE	8.1	0.26	1.97	0.53	1.35	8
DIVC-10-21 COMPOSITE	6.6	0.28	1.84	0.70	1.35	8
DIVC-10-22 COMPOSITE	15.4	0.29	1.79	0.72	1.62	7
DIVC-10-23 COMPOSITE	17.0	0.22	2.19	0.54	1.58	7
DIVC-10-24 COMPOSITE	14.4	0.23	2.13	0.50	1.41	7
DIVC-10-25 COMPOSITE	7.9	0.20	2.33	0.50	2.46	7
DIVC-10-26 COMPOSITE	12.8	0.24	2.04	0.60	1.28	7
DIVC-10-27 COMPOSITE	6.3	0.22	2.18	0.49	1.10	8
DIVC-10-28 COMPOSITE	5.0	0.22	2.19	0.22	1.16	7
DIVC-10-29 COMPOSITE	13.4	0.25	1.98	0.57	1.05	7
DIVC-10-31 COMPOSITE	8.3	0.28	1.84	0.62	0.94	8
DIVC-10-32 COMPOSITE	14.3	0.24	2.04	0.57	1.43	7
DIVC-10-33 COMPOSITE	5.0	0.23	2.14	0.57	1.12	8
DIVC-10-34 COMPOSITE	5.9	0.25	2.00	0.76	1.56	7
DIVC-10-35 COMPOSITE	14.1	0.22	2.18	0.57	1.23	7
DIVC-10-36 COMPOSITE	5.5	0.28	1.83	0.77	1.17	7
DIVC-10-37 COMPOSITE	9.6	0.35	1.50	0.79	1.22	8
BORROW AREA I	171.5	0.26	1.95	0.63	1.30	7
BORROW AREA II	86.2	0.23	2.13	0.54	1.40	7

COMPOSITE DATA TABLE
DAUPHIN ISLAND 2010 VIBRACORES

VIBRACORE I. D.	EFFECTIVE LENGTH (FT)	MEAN (mm)	PHI MEAN	PHI SORTING	% SILT	DRY MUNSELL VALUE	PHI SIZES -4.0	-3.5	-3.0	-2.5	-2.0	-1.5	-1.0	-0.5	0.0	0.5	1.0	1.25	1.5	1.75	2.0	2.25	2.5	3.0	3.5	3.75	4.0	PAN
DIVC-10-03 COMPOSITE	8.7	0.28	1.82	0.57	1.21	7	0.00	0.00	0.00	0.01	0.18	0.28	0.47	0.67	0.95	1.63	5.23	11.28	18.94	41.55	62.78	79.80	91.71	98.32	98.72	98.76	98.79	99.98
DIVC-10-04 COMPOSITE	9.4	0.23	2.13	0.47	1.13	7	0.00	0.00	0.00	0.00	0.01	0.04	0.15	0.26	0.40	0.65	1.54	3.07	6.49	16.05	33.19	57.70	83.30	97.92	98.80	98.86	98.87	100.00
DIVC-10-09 COMPOSITE	12.9	0.24	2.06	0.51	1.17	7	0.00	0.00	0.00	0.00	0.05	0.13	0.21	0.36	0.57	1.07	2.95	4.90	8.77	20.16	39.53	61.96	86.16	97.95	98.80	98.82	98.83	100.00
DIVC-10-10 COMPOSITE	14.8	0.27	1.90	0.61	1.42	7	0.00	0.00	0.00	0.06	0.12	0.23	0.45	0.81	1.31	2.23	6.07	9.96	16.89	32.81	53.04	71.82	88.75	98.05	98.51	98.56	98.58	99.98
DIVC-10-11 COMPOSITE	13.8	0.23	2.12	0.43	1.18	7	0.00	0.00	0.00	0.00	0.03	0.04	0.05	0.09	0.16	0.31	1.13	2.36	5.28	15.62	36.01	60.55	84.50	97.75	98.74	98.80	98.82	99.97
DIVC-10-12 COMPOSITE	11.7	0.26	1.95	0.56	1.22	7	0.00	0.00	0.00	0.03	0.06	0.21	0.39	0.66	0.98	1.57	4.22	7.40	12.46	29.12	51.51	70.87	88.20	97.92	98.70	98.76	98.78	99.86
DIVC-10-13 COMPOSITE	8.8	0.25	2.00	0.51	1.16	7	0.00	0.00	0.00	0.08	0.08	0.13	0.24	0.38	0.62	1.11	2.94	5.26	10.35	25.34	45.08	69.09	88.15	98.34	98.80	98.83	98.84	99.96
DIVC-10-19 COMPOSITE	8.0	0.24	2.06	0.65	1.63	7	0.00	0.00	0.00	0.05	0.12	0.27	0.55	0.92	1.45	2.25	4.69	7.53	12.05	24.12	38.91	56.40	77.70	96.39	98.26	98.34	98.37	99.93
DIVC-10-20 COMPOSITE	8.1	0.26	1.97	0.53	1.35	8	0.00	0.00	0.00	0.00	0.07	0.12	0.28	0.39	0.61	1.09	3.79	7.29	13.76	27.82	47.68	69.35	89.25	98.26	98.61	98.64	98.65	99.96
DIVC-10-21 COMPOSITE	6.6	0.28	1.84	0.70	1.35	8	0.00	0.00	0.00	0.19	0.42	0.76	1.16	1.66	2.22	3.20	7.71	12.53	18.56	36.76	56.07	73.70	89.65	97.83	98.54	98.63	98.65	99.92
DIVC-10-22 COMPOSITE	15.4	0.29	1.79	0.72	1.62	7	0.00	0.00	0.00	0.15	0.45	0.89	1.36	1.89	2.46	3.69	7.82	12.04	16.17	44.42	63.20	77.01	87.78	97.42	98.28	98.34	98.38	99.94
DIVC-10-23 COMPOSITE	17.0	0.22	2.19	0.54	1.58	7	0.00	0.00	0.00	0.07	0.13	0.17	0.28	0.40	0.57	0.82	1.95	3.41	5.07	16.56	32.06	51.64	74.01	95.89	98.17	98.37	98.42	99.93
DIVC-10-24 COMPOSITE	14.4	0.23	2.13	0.50	1.41	7	0.00	0.00	0.00	0.02	0.06	0.10	0.18	0.30	0.43	0.63	1.63	3.26	4.78	18.67	37.04	57.07	79.62	97.14	98.44	98.56	98.59	99.95
DIVC-10-25 COMPOSITE	7.9	0.20	2.33	0.50	2.46	7	0.00	0.00	0.00	0.00	0.02	0.04	0.07	0.14	0.25	0.44	1.48	2.70	3.31	11.35	21.79	36.53	60.31	94.32	97.40	97.52	97.54	99.82
DIVC-10-26 COMPOSITE	12.8	0.24	2.04	0.60	1.28	7	0.00	0.00	0.02	0.08	0.15	0.32	0.44	0.63	1.03	1.91	4.64	7.08	9.60	23.40	40.03	60.20	83.33	97.68	98.61	98.69	98.72	99.95
DIVC-10-27 COMPOSITE	6.3	0.22	2.18	0.49	1.10	8	0.00	0.00	0.00	0.00	0.00	0.06	0.10	0.20	0.33	0.62	1.89	3.31	5.86	15.37	30.66	50.15	77.38	97.62	98.84	98.89	98.90	99.96
DIVC-10-28 COMPOSITE	5.0	0.22	2.19	0.22	1.16	7	0.00	0.00	0.00	0.00	0.00	0.01	0.06	0.13	0.18	0.35	1.38	2.81	5.29	15.73	30.69	49.89	77.72	97.61	98.75	98.81	98.84	99.99
DIVC-10-29 COMPOSITE	13.4	0.25	1.98	0.57	1.05	7	0.00	0.00	0.11	0.19	0.21	0.27	0.38	0.50	0.70	1.17	3.67	7.05	11.22	29.93	48.91	66.70	86.29	98.19	98.90	98.95	98.95	99.97
DIVC-10-31 COMPOSITE	8.3	0.28	1.84	0.62	0.94	8	0.00	0.00	0.07	0.17	0.30	0.54	0.83	1.13	1.53	2.27	5.74	9.34	12.80	37.76	61.83	78.59	91.53	98.51	99.01	99.04	99.06	99.94
DIVC-10-32 COMPOSITE	14.3	0.24	2.04	0.57	1.43	7	0.00	0.00	0.00	0.03	0.07	0.14	0.21	0.32	0.49	1.08	4.52	7.98	12.03	24.96	42.31	62.43	82.76	96.94	98.37	98.51	98.57	99.88
DIVC-10-33 COMPOSITE	5.0	0.23	2.14	0.57	1.12	8	0.00	0.00	0.00	0.14	0.25	0.34	0.48	0.64	0.90	1.37	3.05	4.73	6.16	17.13	30.52	49.62	79.78	98.28	98.85	98.87	98.88	99.96
DIVC-10-34 COMPOSITE	5.9	0.25	2.00	0.76	1.56	7	0.00	0.10	0.40	0.58	0.73	1.01	1.34	1.76	2.28	3.09	5.37	7.54	10.19	22.79	40.49	60.39	83.43	96.95	98.18	98.35	98.44	99.93
DIVC-10-35 COMPOSITE	14.1	0.22	2.18	0.57	1.23	7	0.00	0.00	0.00	0.06	0.18	0.32	0.59	0.85	1.18	1.58	2.55	3.52	4.20	13.23	28.39	50.89	78.55	96.80	98.54	98.69	98.77	99.92
DIVC-10-36 COMPOSITE	5.5	0.28	1.83	0.77	1.17	7	0.00	0.00	0.00	0.30	0.70	1.15	1.68	2.31	3.00	4.20	8.84	13.01	19.17	35.61	53.58	71.81	89.25	98.21	98.76	98.81	98.83	99.93
DIVC-10-37 COMPOSITE	9.6	0.35	1.50	0.79	1.22	8	0.00	0.29	0.62	0.90	1.14	1.41	1.80	2.29	3.09	5.43	16.31	25.55	33.04	62.26	79.59	89.75	95.92	98.62	98.74	98.78	98.78	99.90
BORROW AREA I	171.5	0.26	1.95	0.63	1.30	7	0.00	0.02	0.05	0.13	0.25	0.42	0.65	0.93	1.30	2.07	5.27	8.68	13.23	29.75	48.67	67.86	86.52	97.74	98.60	98.67	98.70	99.94
BORROW AREA II	86.2	0.23	2.13	0.54	1.40	7	0.00	0.00	0.02	0.06	0.09	0.15	0.24	0.36	0.55	0.91	2.44	4.35	6.71	19.34	35.70	55.22	78.46	97.03	98.48	98.58	98.60	99.95

CUMULATIVE PERCENTS AND COMPUTED DISTRIBUTIONS
DAUPHIN ISLAND 2010 VIBRACORES (1 of 4)

VIBRACORE I. D.	SAMPLE ELEVATION (NAVD 88 FT)	EFFECTIVE LENGTH (FT)	MEAN (mm)	PHI MEAN	PHI SORTING	% SILT	DRY MUNSELL VALUE	PHI SIZES -4.0	-3.5	-3.0	-2.5	-2.0	-1.5	-1.0	-0.5	0.0	0.5	1.0	1.25	1.5	1.75	2.0	2.25	2.5	3.0	3.5	3.75	4.0	PAN
DIVC-10-01#1	-15.5	0.0	0.35	1.51	0.77	1.36	7	0.00	0.00	0.00	0.66	0.81	1.23	1.96	2.70	3.74	6.09	16.01	24.41	36.49	59.44	78.19	89.79	95.95	98.45	98.62	98.63	98.64	100.00
DIVC-10-01#2	-17.5	0.0	0.29	1.77	0.46	1.07	7	0.00	0.00	0.00	0.00	0.00	0.07	0.16	0.36	0.55	0.85	2.99	9.23	20.98	48.02	71.83	86.59	95.15	98.66	98.87	98.91	98.93	100.00
DIVC-10-01#3	-18.8	0.0	0.28	1.84	0.62	1.07	7	0.00	0.00	0.00	0.08	0.14	0.42	0.89	1.39	2.06	2.86	5.09	9.76	16.76	36.07	58.33	79.38	92.76	98.49	98.91	98.92	98.93	100.00
DIVC-10-01#4	-20.8	0.0	0.21	2.26	0.35	1.11	7	0.00	0.00	0.00	0.00	0.00	0.03	0.06	0.09	0.13	0.20	0.35	0.64	1.49	4.83	17.99	46.69	81.92	98.30	98.67	98.87	98.89	100.00
DIVC-10-01#5	-24.3	0.0	0.27	1.87	0.92	3.13	6	0.00	1.87	1.87	1.87	1.89	1.94	2.07	2.28	2.45	2.67	3.33	5.58	10.39	29.39	52.06	73.54	86.50	95.89	96.76	96.85	96.87	100.00
DIVC-10-01#6	-27.3	0.0	0.25	1.98	0.45	2.02	6	0.00	0.00	0.00	0.00	0.00	0.04	0.07	0.09	0.13	0.22	0.73	2.57	8.74	32.59	55.56	71.10	87.11	97.01	97.74	97.87	97.98	100.00
DIVC-10-01#7	-29.8	0.0	0.26	1.97	0.46	1.10	7	0.00	0.00	0.00	0.00	0.00	0.01	0.02	0.04	0.07	0.15	0.46	2.82	11.64	38.62	56.77	69.88	86.71	98.37	98.83	98.89	98.90	100.00
DIVC-10-01#8	-32.5	0.0	0.22	2.18	0.35	1.58	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.02	0.03	0.25	1.61	10.77	28.94	56.04	84.48	97.64	98.28	98.37	98.42	100.00
DIVC-10-01#9	-33.8	0.0	0.22	2.19	0.38	2.48	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.03	0.21	1.02	11.55	31.54	56.06	79.64	96.24	97.23	97.41	97.52	99.99
DIVC-10-01 COMPOSITE								**VIBRACORE NOT USED IN BOROW AREA COMPOSITE CALCULATIONS**																					
DIVC-10-02#1	-33.3	0.0	0.23	2.14	0.36	1.21	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.04	0.09	0.34	1.13	2.74	9.60	33.64	65.69	87.29	97.64	98.71	98.77	98.79	100.00
DIVC-10-02#2	-36.8	0.0	0.17	2.59	0.39	2.57	7	0.00	0.00	0.00	0.00	0.00	0.01	0.03	0.06	0.11	0.16	0.27	0.51	0.64	2.51	6.56	15.54	34.79	89.41	96.91	97.34	97.43	100.00
DIVC-10-02#3	-40.3	0.0	0.16	2.67	0.34	4.52	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.04	0.10	0.20	0.35	0.77	1.09	2.21	6.18	28.08	84.65	94.31	95.13	95.48	100.00
DIVC-10-02 COMPOSITE								**VIBRACORE NOT USED IN BORROW AREA COMPOSITE CALCULATIONS**																					
DIVC-10-03#1	-19.3	1.0	0.25	2.00	0.56	1.39	7	0.00	0.00	0.00	0.00	0.00	0.10	0.22	0.34	0.57	1.16	3.91	7.42	11.94	30.20	45.30	64.79	83.53	97.93	98.52	98.58	98.61	99.99
DIVC-10-03#2	-20.9	2.3	0.30	1.76	0.63	1.30	7	0.00	0.00	0.00	0.00	0.35	0.49	0.83	1.18	1.64	2.73	7.77	14.82	20.69	43.10	65.69	82.69	92.90	98.41	98.66	98.68	98.70	100.00
DIVC-10-03#3	-23.8	4.0	0.27	1.89	0.46	1.02	7	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.09	0.16	0.40	2.46	7.12	15.58	36.71	59.51	78.32	91.84	98.46	98.91	98.96	98.98	100.00
DIVC-10-03#4	-26.0	1.4	0.33	1.58	0.65	1.49	8	0.00	0.00	0.00	0.04	0.53	0.86	1.27	1.71	2.34	3.67	9.94	20.08	30.65	60.93	79.81	90.03	95.24	98.08	98.41	98.47	98.51	99.90
DIVC-10-03#5	-30.8	0.0	0.18	2.46	0.36	1.28	7	0.00	0.00	0.00	0.00	0.00	0.01	0.02	0.04	0.06	0.11	0.23	0.43	0.78	2.75	8.75	24.56	54.55	95.57	98.54	98.70	98.72	99.98
DIVC-10-03#6	-33.8	0.0	0.18	2.49	0.55	1.61	6	0.00	0.00	0.00	0.00	0.02	0.09	0.30	0.59	0.89	1.19	1.57	2.21	2.73	5.56	11.61	23.07	44.88	88.79	97.87	98.29	98.39	100.00
DIVC-10-03#7	-36.6	0.0	0.20	2.33	0.37	1.78	7	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.05	0.07	0.11	0.26	0.54	0.96	5.33	16.32	37.66	70.18	96.43	98.05	98.18	98.22	100.00
DIVC-10-03 COMPOSITE		**8.7**	**0.28**	**1.82**	**0.57**	**1.21**	**7**	**0.00**	**0.00**	**0.00**	**0.01**	**0.18**	**0.28**	**0.47**	**0.67**	**0.95**	**1.63**	**5.23**	**11.28**	**18.94**	**41.55**	**62.78**	**79.80**	**91.71**	**98.32**	**98.72**	**98.76**	**98.79**	**99.98**
DIVC-10-04#1	-23.2	1.2	0.22	2.19	0.50	1.22	7	0.00	0.00	0.00	0.00	0.04	0.10	0.15	0.19	0.25	0.46	1.54	2.90	5.76	15.35	31.83	52.02	73.44	97.24	98.71	98.76	98.78	99.99
DIVC-10-04#2	-27.1	4.8	0.24	2.08	0.48	1.04	7	0.00	0.00	0.00	0.00	0.00	0.05	0.20	0.30	0.47	0.77	1.86	3.82	8.17	19.84	37.65	61.32	85.68	98.01	98.88	98.94	98.96	100.00
DIVC-10-04#3	-30.1	3.4	0.22	2.18	0.42	1.22	7	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.24	0.35	0.55	1.10	2.07	4.38	10.94	27.36	54.59	83.42	98.03	98.73	98.77	98.78	100.00
DIVC-10-04#4	-34.2	0.0	0.17	2.53	0.42	1.86	7	0.00	0.00	0.00	0.00	0.00	0.02	0.04	0.09	0.15	0.24	0.44	0.77	1.25	4.22	9.90	20.67	41.07	91.04	97.85	98.10	98.14	100.00
DIVC-10-04#5	-37.1	0.0	0.23	2.12	0.50	1.45	7	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.12	0.21	0.40	1.74	4.27	9.98	21.48	35.40	57.60	80.02	97.22	98.43	98.53	98.55	100.00
CUT TO -32.0 FT																													
DIVC-10-04 COMPOSITE		**9.4**	**0.23**	**2.13**	**0.47**	**1.13**	**7**	**0.00**	**0.00**	**0.00**	**0.00**	**0.01**	**0.04**	**0.15**	**0.26**	**0.40**	**0.65**	**1.54**	**3.07**	**6.49**	**16.05**	**33.19**	**57.70**	**83.30**	**97.92**	**98.80**	**98.86**	**98.87**	**100.00**
DIVC-10-05#1	-34.6	0.0	0.26	1.96	0.54	1.27	7	0.00	0.00	0.00	0.00	0.14	0.17	0.35	0.56	0.70	1.08	2.38	6.90	13.80	28.59	51.47	72.01	87.91	97.39	98.58	98.69	98.73	100.00
DIVC-10-05#2	-37.1	0.0	0.26	1.96	0.91	1.26	7	0.00	1.03	1.03	1.11	1.38	1.94	2.07	2.21	2.41	2.81	5.34	9.04	16.73	30.75	44.07	58.60	77.58	96.35	98.60	98.66	98.74	99.69
DIVC-10-05#3	-38.7	0.0	1.30	-0.38	2.30	1.58	6	11.53	15.40	18.52	23.92	27.74	33.07	37.61	41.09	44.53	48.46	56.18	63.73	71.87	82.81	88.50	92.08	95.09	97.63	98.21	98.35	98.42	100.00
DIVC-10-05#4	-40.1	0.0	0.27	1.91	0.65	1.47	7	0.00	0.42	0.42	0.52	0.53	0.59	0.67	0.77	0.91	1.24	3.53	6.96	15.54	31.84	53.48	73.13	88.25	97.72	98.49	98.52	98.53	99.99
DIVC-10-05#5	-42.0	0.0	0.26	1.92	0.52	2.79	6	0.00	0.00	0.00	0.00	0.00	0.03	0.11	0.21	0.36	0.67	2.64	7.48	16.06	35.95	56.11	72.50	86.31	95.94	97.05	97.17	97.21	100.00
DIVC-10-05#6	-44.2	0.0	0.29	1.78	0.94	1.45	6	0.00	0.00	0.00	0.00	0.64	1.27	2.47	4.76	7.23	9.41	13.52	16.91	21.16	29.80	45.82	68.40	87.72	97.26	98.33	98.41	98.55	100.00
DIVC-10-05 COMPOSITE								**VIBRACORE NOT USED IN BORROW AREA COMPOSITE CALCULATIONS**																					
DIVC-10-06#1	-27.3	0.0	0.30	1.72	0.84	0.83	7	0.00	0.00	0.00	0.25	0.81	1.51	1.98	2.55	3.46	5.38	12.39	19.72	29.73	44.86	61.61	74.70	87.76	98.20	99.02	99.14	99.17	99.99
DIVC-10-06#2	-28.7	0.0	0.26	1.96	0.40	1.80	7	0.00	0.00	0.00	0.00	0.01	0.02	0.03	0.08	0.13	0.26	0.71	2.59	6.47	28.56	54.03	81.18	92.32	96.76	97.92	98.15	98.20	100.00
DIVC-10-06#3	-32.0	0.0	0.18	2.48	0.47	9.39	6	0.00	0.00	0.00	0.00	0.00	0.04	0.08	0.13	0.17	0.31	0.58	1.21	2.32	4.93	10.84	21.93	46.94	82.93	89.39	90.17	90.61	100.00
DIVC-10-06 COMPOSITE								**VIBRACORE NOT USED IN BORROW AREA COMPOSITE CALCULATIONS**																					
DIVC-10-07#1	-28.6	0.0	0.34	1.57	0.60	5.71	6	0.00	0.00	0.00	0.00	0.00	0.25	0.79	1.24	1.87	3.19	10.20	20.14	36.14	59.82	75.81	86.28	91.55	93.95	94.20	94.25	94.29	99.99
DIVC-10-07#2	-33.0	0.0	0.17	2.57	0.69	26.69	5	0.00	0.00	0.00	0.00	0.02	0.15	0.33	0.45	0.71	1.23	1.76	2.03	2.26	3.38	9.32	20.78	34.49	56.15	66.98	70.74	73.31	100.00
DIVC-10-07#3	-37.1	0.0	0.18	2.47	0.54	25.70	5	0.00	0.00	0.00	0.00	0.00	0.01	0.08	0.13	0.16	0.23	0.32	0.43	0.75	2.29	11.54	28.01	45.43	62.96	70.16	72.49	74.30	99.99
DIVC-10-07 COMPOSITE								**VIBRACORE NOT USED IN BORROW AREA COMPOSITE CALCULATIONS**																					
DIVC-10-08#1	-20.8	0.0	0.24	2.03	0.60	1.24	7	0.00	0.00	0.00	0.00	0.04	0.16	0.40	0.82	1.46	2.16	4.05	6.95	12.26	23.69	39.45	60.99	84.75	97.75	98.73	98.75	98.76	100.00
DIVC-10-08#2	-23.6	0.0	0.15	2.71	0.47	2.03	6	0.00	0.00	0.00	0.00	0.00	0.11	0.25	0.53	0.78	1.08	1.36	1.57	1.63	2.20	3.24	6.13	15.76	83.86	97.55	97.88	97.97	100.00
DIVC-10-08#3	-29.1	0.0	0.18	2.49	0.48	5.36	6	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.10	0.21	0.38	0.74	1.29	2.34	4.76	10.63	23.19	49.70	85.31	93.14	94.15	94.64	100.00
DIVC-10-08#4	-30.6	0.0	0.20	2.29	0.40	2.79	6	0.00	0.00	0.00	0.07	0.07	0.10	0.12	0.16	0.24	0.32	0.55	0.96	2.05	5.73	16.04	39.49	74.90	96.21	97.08	97.17	97.21	99.98
DIVC-10-08 COMPOSITE								**VIBRACORE NOT USED IN BORROW AREA COMPOSITE CALCULATIONS**																					
DIVC-10-09#1	-23.6	7.0	0.23	2.11	0.42	1.07	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.06	0.23	1.28	3.02	6.75	16.62	35.02	59.62	86.90	98.00	98.91	98.92	98.93	100.00
DIVC-10-09#2	-28.6	5.9	0.25	2.00	0.60	1.28	6	0.00	0.00	0.00	0.00	0.12	0.28	0.47	0.76	1.17	2.07	4.93	7.14	11.17	24.36	44.89	64.74	85.28	97.90	98.68	98.71	98.72	100.00
DIVC-10-09#3	-34.1	0.0	0.19	2.37	0.43	1.93	6	0.00	0.00	0.00	0.04	0.04	0.05	0.13	0.18	0.25	0.30	0.51	0.72	1.39	5.01	15.04	33.06	65.55	94.27	97.71	97.95	98.07	99.91
CUT TO -32.0 FT																													
DIVC-10-09 COMPOSITE		**12.9**	**0.24**	**2.06**	**0.51**	**1.17**	**7**	**0.00**	**0.00**	**0.00**	**0.00**	**0.05**	**0.13**	**0.21**	**0.36**	**0.57**	**1.07**	**2.95**	**4.90**	**8.77**	**20.16**	**39.53**	**61.96**	**86.16**	**97.95**	**98.80**	**98.82**	**98.83**	**100.00**
DIVC-10-10#1	-18.2	2.8	0.26	1.97	0.50	0.93	7	0.00	0.00	0.00	0.00	0.10	0.15	0.20	0.25	0.41	0.75	2.91	5.40	11.27	27.75	52.46	72.62	89.12	98.35	99.01	99.04	99.07	99.99
DIVC-10-10#2	-20.0	1.4	0.34	1.56	0.69	1.23	7	0.00	0.00	0.00	0.12	0.36	0.66	1.15	1.82	2.82	5.05	14.41	22.90	35.70	57.01	76.56	88.30	95.83	98.48	98.70	98.74	98.77	99.98
DIVC-10-10#3	-25.2	3.8	0.28	1.86	0.57	1.08	8	0.00	0.00	0.00	0.00	0.03	0.03	0.09	0.19	0.43	1.33	6.73	12.42	22.35	40.07	57.75	73.89	88.27	98.55	98.89	98.91	98.92	99.99
DIVC-10-10#4	-27.7	5.5	0.26	1.95	0.67	1.79	7	0.00	0.00	0.00	0.11	0.14	0.35	0.75	1.45	2.29	3.37	6.14	8.72	13.74	25.68	44.59	65.46	86.59	97.61	98.12	98.18	98.21	99.97
DIVC-10-10#5	-34.2	1.3	0.25	1.99	0.42	2.07	6	0.00	0.00	0.00	0.05	0.05	0.05	0.05	0.06	0.09	0.17	1.62	3.95	6.11	26.59	50.90	73.26	90.82	97.37	97.77	97.88	97.93	99.94
CUT TO -32.0 FT																													
DIVC-10-10 COMPOSITE		**14.8**	**0.27**	**1.90**	**0.61**	**1.42**	**7**	**0.00**	**0.00**	**0.00**	**0.06**	**0.12**	**0.23**	**0.45**	**0.81**	**1.31**	**2.23**	**6.07**	**9.96**	**16.89**	**32.81**	**53.04**	**71.82**	**88.75**	**98.05**	**98.51**	**98.56**	**98.58**	**99.98**

CUMULATIVE PERCENTS AND COMPUTED DISTRIBUTIONS
DAUPHIN ISLAND 2010 VIBRACORES (2 of 4)

VIBRACORE I. D.	SAMPLE ELEVATION (NAVD 88 FT)	EFFECTIVE LENGTH (FT)	MEAN (mm)	PHI MEAN	PHI SORTING	% SILT	DRY MUNSELL VALUE	PHI SIZES -4.0	-3.50	-3.0	-2.50	-2.00	-1.50	-1.0	-0.5	0.0	0.5	1.0	1.25	1.5	1.75	2.0	2.25	2.5	3.0	3.5	3.75	4.0	PAN
DIVC-10-11#1	-20.2	5.0	0.24	2.07	0.46	1.21	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.10	0.31	1.76	3.99	8.97	22.18	42.41	62.98	84.88	98.17	98.74	98.78	98.79	99.98
DIVC-10-11#2	-25.2	4.0	0.23	2.09	0.39	0.84	7	0.00	0.00	0.00	0.00	0.09	0.09	0.10	0.12	0.16	0.24	0.84	1.77	3.97	14.71	37.72	67.06	89.99	98.98	99.13	99.15	99.16	99.98
DIVC-10-11#3	-29.2	3.9	0.22	2.17	0.36	1.11	7	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.06	0.09	0.17	0.30	0.63	1.95	9.57	30.44	58.19	86.38	97.91	98.80	98.86	98.89	99.95
DIVC-10-11#4	-32.6	0.9	0.19	2.41	0.60	2.78	6	0.00	0.00	0.00	0.05	0.06	0.19	0.27	0.54	0.83	1.28	2.46	3.43	5.10	9.38	17.03	28.34	49.91	89.23	96.68	97.08	97.22	99.95
DIVC-10-11#5	-34.7	0.0	0.21	2.26	0.73	4.98	6	0.00	0.00	0.00	0.17	0.30	0.64	1.15	1.69	2.17	2.71	3.67	4.48	6.15	11.27	21.74	38.07	62.50	89.45	94.16	94.72	95.02	99.97
CUT TO -32.0 FT																													
DIVC-10-11 COMPOSITE		**13.8**	**0.23**	**2.12**	**0.43**	**1.18**	**7**	**0.00**	**0.00**	**0.00**	**0.00**	**0.03**	**0.04**	**0.05**	**0.09**	**0.16**	**0.31**	**1.13**	**2.36**	**5.28**	**15.62**	**36.01**	**60.55**	**84.50**	**97.75**	**98.74**	**98.80**	**98.82**	**99.97**
DIVC-10-12#1	-23.3	5.1	0.25	1.99	0.47	1.08	8	0.00	0.00	0.00	0.00	0.00	0.01	0.05	0.12	0.20	0.45	2.48	5.26	10.22	27.57	50.04	70.02	88.05	98.25	98.87	98.91	98.92	99.82
DIVC-10-12#2	-26.3	4.5	0.26	1.95	0.55	1.25	7	0.00	0.00	0.00	0.00	0.04	0.21	0.36	0.63	0.93	1.50	3.89	7.03	13.17	27.85	50.20	71.09	89.14	98.23	98.72	98.75	98.75	99.90
DIVC-10-12#3	-30.7	2.1	0.28	1.84	0.76	1.50	7	0.00	0.00	0.00	0.18	0.25	0.68	1.28	2.03	2.96	4.43	9.13	13.40	16.36	35.60	57.89	72.47	86.55	96.48	98.23	98.41	98.50	99.87
DIVC-10-12#4	-35.6	0.0	0.24	2.07	0.80	3.06	7	0.00	0.00	0.00	0.25	0.42	0.61	1.01	1.69	2.60	4.04	7.52	10.86	15.55	23.78	34.71	48.46	70.95	93.22	96.56	96.83	96.94	99.85
CUT TO -32.0 FT																													
DIVC-10-12 COMPOSITE		**11.7**	**0.26**	**1.95**	**0.56**	**1.22**	**7**	**0.00**	**0.00**	**0.00**	**0.03**	**0.06**	**0.21**	**0.39**	**0.66**	**0.98**	**1.57**	**4.22**	**7.40**	**12.46**	**29.12**	**51.51**	**70.87**	**88.20**	**97.92**	**98.70**	**98.76**	**98.78**	**99.86**
DIVC-10-13#1	-20.4	6.6	0.25	1.98	0.52	1.11	7	0.00	0.00	0.00	0.11	0.11	0.16	0.29	0.44	0.70	1.21	3.07	5.40	10.83	27.19	47.28	71.15	88.61	98.53	98.85	98.88	98.89	99.97
DIVC-10-13#2	-28.9	2.2	0.24	2.07	0.48	1.30	7	0.00	0.00	0.00	0.00	0.00	0.02	0.08	0.19	0.38	0.79	2.56	4.82	8.91	19.80	38.46	62.90	86.78	97.76	98.63	98.69	98.70	99.93
DIVC-10-13#3	-33.5	0.0	0.21	2.26	0.46	4.68	7	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.15	0.30	0.50	1.12	1.81	3.19	9.40	22.42	44.61	69.99	93.04	95.14	95.27	95.32	99.94
CUT TO -27.5 FT																													
DIVC-10-13 COMPOSITE		**8.8**	**0.25**	**2.00**	**0.51**	**1.16**	**7**	**0.00**	**0.00**	**0.00**	**0.08**	**0.08**	**0.13**	**0.24**	**0.38**	**0.62**	**1.11**	**2.94**	**5.26**	**10.35**	**25.34**	**45.08**	**69.09**	**88.15**	**98.34**	**98.80**	**98.83**	**98.84**	**99.96**
DIVC-10-14#1	-15.9	0.0	0.34	1.56	0.79	1.44	7	0.00	0.00	0.00	0.45	0.57	0.80	1.30	2.16	3.50	6.80	17.44	26.20	37.84	54.21	69.86	82.35	93.54	98.34	98.51	98.54	98.56	99.89
DIVC-10-14#2	-18.9	0.0	0.21	2.23	0.46	1.12	7	0.00	0.00	0.00	0.00	0.07	0.13	0.20	0.27	0.36	0.49	1.07	1.81	2.59	10.44	25.19	50.13	76.21	97.59	98.78	98.84	98.88	99.99
DIVC-10-14#3	-20.8	0.0	0.29	1.80	0.71	2.64	6	0.00	0.00	0.00	0.57	0.82	0.98	1.24	1.70	2.13	3.20	7.06	11.27	19.63	36.79	58.49	77.03	90.40	96.60	97.25	97.33	97.36	99.93
DIVC-10-14#4	-24.9	0.0	0.23	2.12	0.45	1.66	6	0.00	0.00	0.00	0.00	0.00	0.02	0.08	0.15	0.54	0.90	1.41	1.90	2.08	16.85	37.70	61.37	82.02	97.52	98.28	98.33	98.34	99.95
DIVC-10-14#5	-30.9	0.0	0.18	2.46	0.37	4.08	6	0.00	0.00	0.00	0.00	0.00	0.02	0.03	0.07	0.13	0.20	0.36	0.49	0.71	1.68	6.69	21.61	59.27	91.57	95.14	95.64	95.92	99.96
DIVC-10-14 COMPOSITE		**VIBRACORE NOT USED IN BORROW AREA COMPOSITE CALCULATIONS**																											
DIVC-10-15#1	-16.0	0.0	0.33	1.61	0.87	0.62	7	0.00	0.00	0.13	1.06	1.46	1.86	2.47	3.03	3.94	6.14	15.00	22.08	32.35	49.46	66.45	80.28	94.01	99.15	99.33	99.37	99.38	99.95
DIVC-10-15#2	-19.0	0.0	0.26	1.92	0.56	1.21	7	0.00	0.00	0.00	0.15	0.19	0.35	0.64	0.93	1.31	1.86	3.75	5.74	11.48	28.35	52.11	76.15	92.15	98.45	98.76	98.79	98.79	100.00
DIVC-10-15#3	-21.1	0.0	0.22	2.21	0.43	1.35	6	0.00	0.00	0.00	0.00	0.00	0.05	0.11	0.20	0.37	0.61	1.35	2.03	3.62	9.15	23.98	49.64	80.80	97.93	98.53	98.61	98.65	99.95
DIVC-10-15#4	-27.0	0.0	0.23	2.15	0.53	1.89	6	0.00	0.00	0.00	0.06	0.26	0.37	0.53	0.72	0.96	1.28	1.78	2.15	2.90	10.04	33.95	58.13	80.01	96.74	97.95	98.06	98.11	99.93
DIVC-10-15 COMPOSITE		**VIBRACORE NOT USED IN BORROW AREA COMPOSITE CALCULATIONS**																											
DIVC-10-16#1	-14.0	0.0	0.29	1.77	0.63	1.40	7	0.00	0.00	0.00	0.05	0.15	0.64	0.95	1.30	1.92	3.03	7.73	12.83	21.63	40.22	61.34	80.88	94.69	98.40	98.55	98.58	98.60	99.94
DIVC-10-16#2	-15.9	0.0	0.24	2.05	0.60	1.08	8	0.00	0.00	0.45	0.59	0.59	0.76	0.86	0.91	1.05	1.26	2.32	3.52	6.02	14.82	36.63	67.28	89.51	98.27	98.86	98.91	98.92	99.96
DIVC-10-16#3	-21.1	0.0	0.26	1.93	0.71	2.07	6	0.00	0.00	0.00	0.00	0.14	0.35	0.62	0.96	1.72	3.10	7.34	12.81	23.57	33.16	46.16	61.28	81.84	96.33	97.64	97.82	97.93	99.92
DIVC-10-16#4	-26.1	0.0	0.22	2.17	0.57	2.13	6	0.00	0.00	0.00	0.06	0.10	0.26	0.49	0.79	1.27	2.08	3.10	3.95	5.14	11.69	25.46	52.20	78.03	96.52	97.62	97.78	97.87	99.99
DIVC-10-16 COMPOSITE		**VIBRACORE NOT USED IN BORROW AREA COMPOSITE CALCULATIONS**																											
DIVC-10-17#1	-15.9	0.0	0.26	1.92	0.53	1.52	7	0.00	0.00	0.00	0.00	0.09	0.24	0.47	0.65	0.94	1.52	4.31	7.13	13.02	27.56	51.07	75.03	93.12	98.18	98.42	98.46	98.48	99.91
DIVC-10-17#2	-17.2	0.0	0.29	1.80	0.95	1.53	8	0.00	1.54	1.54	1.68	2.12	2.19	2.48	2.87	3.28	4.03	6.95	10.29	16.50	31.75	50.83	73.32	90.94	98.21	98.44	98.45	98.47	99.93
DIVC-10-17#3	-18.5	0.0	0.25	2.01	0.42	0.99	8	0.00	0.00	0.00	0.00	0.00	0.09	0.20	0.32	0.43	0.66	1.62	2.90	6.66	19.07	45.34	75.30	93.90	98.55	98.97	99.01	99.01	99.97
DIVC-10-17#4	-22.2	0.0	0.26	1.94	0.83	1.86	6	0.00	0.00	0.00	0.52	0.88	1.46	1.93	2.54	3.31	4.52	7.23	9.37	14.04	26.71	44.62	63.48	81.25	96.65	98.05	98.13	98.14	99.89
DIVC-10-17#5	-29.2	0.0	0.20	2.35	0.38	2.57	6	0.00	0.00	0.00	0.00	0.05	0.05	0.05	0.07	0.10	0.18	0.42	0.79	1.65	4.65	12.62	33.34	70.81	95.71	97.19	97.35	97.43	99.95
DIVC-10-17 COMPOSITE		**VIBRACORE NOT USED IN BORROW AREA COMPOSITE CALCULATIONS**																											
DIVC-10-18#1	-17.5	0.0	0.28	1.82	0.51	1.42	7	0.00	0.00	0.00	0.12	0.14	0.19	0.30	0.49	0.71	1.26	4.82	9.18	14.56	40.34	65.68	83.62	94.27	98.43	98.55	98.57	98.58	99.88
DIVC-10-18#2	-19.9	0.0	0.23	2.10	0.49	1.39	8	0.00	0.00	0.00	0.00	0.00	0.08	0.12	0.19	0.28	0.50	1.85	4.04	8.62	21.74	38.72	56.18	81.88	97.91	98.58	98.61	98.61	99.93
DIVC-10-18#3	-22.6	0.0	0.26	1.92	0.50	1.18	7	0.00	0.00	0.00	0.00	0.10	0.18	0.24	0.33	0.46	0.77	2.99	6.09	11.42	32.32	57.54	77.70	89.90	98.19	98.73	98.81	98.82	99.93
DIVC-10-18#4	-25.6	0.0	0.19	2.42	0.41	1.49	7	0.00	0.00	0.00	0.00	0.00	0.01	0.06	0.09	0.19	0.31	0.60	0.97	1.76	5.29	12.21	25.40	57.55	95.71	98.38	98.47	98.51	99.96
DIVC-10-18#5	-27.2	0.0	0.24	2.07	0.90	3.32	6	0.00	0.00	0.00	0.35	0.67	1.41	2.09	3.11	4.21	5.38	7.38	9.16	11.29	21.97	34.57	49.00	67.95	92.54	96.48	96.63	96.68	99.81
DIVC-10-18#6	-31.8	0.0	0.26	1.92	0.46	1.72	6	0.00	0.00	0.00	0.00	0.00	0.02	0.08	0.17	0.30	0.48	0.99	2.58	10.06	38.59	65.04	78.49	88.44	96.78	98.04	98.21	98.28	99.87
DIVC-10-18 COMPOSITE		**VIBRACORE NOT USED IN BORROW AREA COMPOSITE CALCULATIONS**																											
DIVC-10-19#1	-18.2	2.5	0.26	1.96	0.54	1.40	8	0.00	0.00	0.00	0.00	0.00	0.09	0.37	0.60	0.93	1.59	4.15	7.24	11.13	29.27	49.34	69.99	89.08	98.31	98.57	98.59	98.60	99.84
DIVC-10-19#2	-20.5	2.0	0.28	1.85	0.67	1.15	7	0.00	0.00	0.00	0.21	0.23	0.41	0.68	1.04	1.51	2.45	6.87	12.70	22.80	39.37	56.29	71.66	86.72	97.85	98.78	98.84	98.85	99.99
DIVC-10-19#3	-22.2	1.4	0.19	2.40	0.45	1.51	7	0.00	0.00	0.00	0.00	0.13	0.16	0.31	0.46	0.68	0.90	1.14	1.32	1.34	2.69	8.63	27.52	62.26	96.88	98.45	98.48	98.49	99.99
DIVC-10-19#4	-23.9	2.1	0.22	2.17	0.75	2.46	6	0.00	0.00	0.00	0.00	0.17	0.41	0.81	1.48	2.54	3.74	5.62	7.11	10.04	17.75	30.13	44.95	65.85	92.38	97.25	97.47	97.54	99.95
DIVC-10-19#5	-29.5	0.0	0.25	2.02	0.38	1.18	7	0.00	0.00	0.00	0.00	0.00	0.02	0.05	0.09	0.12	0.20	0.56	1.32	2.43	21.03	52.28	74.80	89.34	98.35	98.79	98.81	98.82	99.92
CUT TO -25.0 FT																													
DIVC-10-19 COMPOSITE		**8.0**	**0.24**	**2.06**	**0.65**	**1.63**	**7**	**0.00**	**0.00**	**0.00**	**0.05**	**0.12**	**0.27**	**0.55**	**0.92**	**1.45**	**2.25**	**4.69**	**7.53**	**12.05**	**24.12**	**38.91**	**56.40**	**77.70**	**96.39**	**98.26**	**98.34**	**98.37**	**99.93**
DIVC-10-20#1	-19.4	5.1	0.27	1.90	0.56	1.32	8	0.00	0.00	0.00	0.00	0.11	0.14	0.39	0.55	0.87	1.58	5.24	9.80	17.50	32.32	51.95	73.15	90.83	98.32	98.62	98.67	98.68	99.95
DIVC-10-20#2	-24.7	3.0	0.24	2.07	0.44	1.41	7	0.00	0.00	0.00	0.00	0.00	0.08	0.08	0.13	0.16	0.27	1.33	3.02	7.41	20.16	40.42	62.90	86.56	98.16	98.59	98.59	98.59	99.99
DIVC-10-20#3	-29.1	0.0	0.22	2.21	0.57	3.31	6	0.00	0.00	0.00	0.00	0.01	0.03	0.20	0.46	0.78	1.17	2.23	3.66	7.35	16.69	30.55	47.86	68.97	92.86	96.40	96.60	96.69	99.97
DIVC-10-20#4	-33.4	0.0	0.22	2.21	0.37	3.49	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.04	0.07	0.17	0.39	1.62	8.22	26.18	56.38	80.07	94.79	96.09	96.35	96.51	99.92
CUT TO -25.0 FT																													
DIVC-10-20 COMPOSITE		**8.1**	**0.26**	**1.97**	**0.53**	**1.35**	**8**	**0.00**	**0.00**	**0.00**	**0.00**	**0.07**	**0.12**	**0.28**	**0.39**	**0.61**	**1.09**	**3.79**	**7.29**	**13.76**	**27.82**	**47.68**	**69.35**	**89.25**	**98.26**	**98.61**	**98.64**	**98.65**	**99.96**

CUMULATIVE PERCENTS AND COMPUTED DISTRIBUTIONS
DAUPHIN ISLAND 2010 VIBRACORES (3 of 4)

VIBRACORE I. D.	SAMPLE ELEVATION (NAVD 88 FT)	EFFECTIVE LENGTH (FT)	MEAN (mm)	PHI MEAN	PHI SORTING	% SILT	DRY MUNSELL VALUE	PHI SIZES -4.0	-3.50	-3.0	-2.50	-2.00	-1.50	-1.0	-0.5	0.0	0.5	1.0	1.25	1.5	1.75	2.0	2.25	2.5	3.0	3.5	3.75	4.0	PAN
DIVC-10-21#1	-19.9	2.7	0.30	1.74	0.71	1.31	7	0.00	0.00	0.00	0.12	0.51	0.79	1.20	1.77	2.36	3.57	9.43	16.08	26.40	43.07	60.71	77.45	93.28	98.42	98.66	98.68	98.69	99.91
DIVC-10-21#2	-21.7	1.1	0.33	1.62	0.65	1.09	8	0.00	0.00	0.00	0.23	0.35	0.50	0.80	1.28	1.88	3.41	12.57	21.10	28.81	57.79	76.17	87.18	94.52	98.54	98.86	98.90	98.91	99.92
DIVC-10-21#3	-23.5	2.5	0.26	1.96	0.68	1.42	8	0.00	0.00	0.00	0.25	0.36	0.89	1.36	1.82	2.37	2.98	4.48	6.24	7.55	24.51	47.49	69.45	88.08	97.76	98.40	98.53	98.58	99.92
DIVC-10-21#4	-26.0	0.3	0.18	2.45	0.56	2.05	7	0.00	0.00	0.00	0.12	0.28	0.41	0.53	0.68	0.86	1.04	1.30	1.52	2.17	4.95	12.09	25.95	52.27	90.60	97.50	97.93	97.95	99.95
DIVC-10-21#5	-27.4	0.0	0.24	2.04	0.94	7.50	6	0.00	0.00	0.63	0.98	1.41	1.60	2.06	2.78	3.70	4.77	6.78	8.44	12.07	20.98	33.94	47.90	67.55	88.59	92.21	92.45	92.50	99.95
DIVC-10-21#6	-34.9	0.0	0.24	2.07	0.34	1.72	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.03	0.11	0.20	0.41	0.58	14.35	44.60	72.31	89.86	97.51	98.14	98.22	98.28	99.93
CUT TO -25.0 FT																													
DIVC-10-21 COMPOSITE		**6.6**	**0.28**	**1.84**	**0.70**	**1.35**	**8**	**0.00**	**0.00**	**0.00**	**0.19**	**0.42**	**0.76**	**1.16**	**1.66**	**2.22**	**3.20**	**7.71**	**12.53**	**18.56**	**36.76**	**56.07**	**73.70**	**89.65**	**97.83**	**98.54**	**98.63**	**98.65**	**99.92**
DIVC-10-22#1	-22.1	5.5	0.24	2.03	0.60	1.26	6	0.00	0.00	0.00	0.00	0.04	0.18	0.32	0.59	1.04	1.79	4.28	7.32	9.13	27.64	45.81	63.69	79.92	97.16	98.62	98.70	98.74	99.98
DIVC-10-22#2	-26.1	6.2	0.28	1.82	0.43	2.14	7	0.00	0.00	0.00	0.00	0.09	0.11	0.21	0.34	0.48	0.65	1.67	4.52	6.69	50.77	72.90	85.17	92.80	97.43	97.78	97.82	97.86	99.91
DIVC-10-22#3	-30.9	2.7	0.37	1.42	0.78	1.15	8	0.00	0.00	0.00	0.38	0.59	1.12	1.68	2.44	3.53	7.75	22.75	33.35	47.32	65.77	79.87	88.73	94.51	98.28	98.77	98.84	98.85	99.95
DIVC-10-22#4	-32.8	1.0	0.39	1.35	1.52	1.66	7	0.00	0.00	0.00	1.30	4.56	9.02	13.34	17.12	19.73	22.05	25.18	27.05	29.63	39.66	53.68	68.04	81.74	96.54	98.18	98.29	98.34	99.93
CUT TO -34.0 FT																													
DIVC-10-22 COMPOSITE		**15.4**	**0.29**	**1.79**	**0.72**	**1.62**	**7**	**0.00**	**0.00**	**0.00**	**0.15**	**0.45**	**0.89**	**1.36**	**1.89**	**2.46**	**3.69**	**7.82**	**12.04**	**16.17**	**44.42**	**63.20**	**77.01**	**87.78**	**97.42**	**98.28**	**98.34**	**98.38**	**99.94**
DIVC-10-23#1	-19.7	3.3	0.23	2.15	0.49	1.12	8	0.00	0.00	0.00	0.00	0.00	0.00	0.11	0.24	0.40	0.74	2.28	4.13	4.26	18.49	33.44	53.89	78.19	97.92	98.82	98.88	98.88	100.00
DIVC-10-23#2	-25.0	7.7	0.22	2.21	0.47	1.40	7	0.00	0.00	0.00	0.00	0.00	0.01	0.05	0.10	0.19	0.29	1.02	2.14	5.21	14.83	30.69	51.09	76.10	95.78	98.35	98.57	98.60	99.93
DIVC-10-23#3	-30.5	4.6	0.21	2.26	0.52	2.19	7	0.00	0.00	0.00	0.00	0.10	0.10	0.11	0.14	0.21	0.38	1.42	2.81	3.66	15.09	30.08	47.09	64.63	94.17	97.38	97.68	97.81	99.86
DIVC-10-23#4	-34.5	1.4	0.27	1.91	0.88	1.61	7	0.00	0.00	0.00	0.80	1.24	1.74	2.52	3.33	4.29	5.42	8.06	10.64	10.83	26.39	42.85	64.31	83.45	97.35	98.27	98.37	98.39	99.97
CUT TO -35.0 FT																													
DIVC-10-23 COMPOSITE		**17.0**	**0.22**	**2.19**	**0.54**	**1.58**	**7**	**0.00**	**0.00**	**0.00**	**0.07**	**0.13**	**0.17**	**0.28**	**0.40**	**0.57**	**0.82**	**1.95**	**3.41**	**5.07**	**16.56**	**32.06**	**51.64**	**74.01**	**95.89**	**98.17**	**98.37**	**98.42**	**99.93**
DIVC-10-24#1	-23.6	4.5	0.19	2.37	0.41	1.38	7	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.06	0.09	0.15	0.59	1.22	2.19	6.13	14.57	32.04	66.14	95.83	98.41	98.57	98.62	99.99
DIVC-10-24#2	-26.6	3.8	0.26	1.94	0.45	1.15	7	0.00	0.00	0.00	0.00	0.00	0.01	0.04	0.11	0.22	0.51	2.49	5.72	8.56	32.62	56.73	76.37	90.97	98.36	98.64	98.81	98.85	99.89
DIVC-10-24#3	-29.4	0.9	0.21	2.22	0.92	3.63	6	0.00	0.00	0.00	0.24	1.02	1.53	2.44	3.58	4.60	5.56	6.71	7.50	9.02	12.18	18.39	30.28	58.09	92.86	96.08	96.29	96.37	99.95
DIVC-10-24#4	-33.6	5.2	0.24	2.06	0.41	1.25	7	0.00	0.00	0.00	0.00	0.00	0.01	0.03	0.07	0.15	0.27	1.02	2.49	3.53	20.44	45.33	69.27	86.73	98.13	98.72	98.75	98.75	99.95
DIVC-10-24#5	-37.6	0.0	0.21	2.25	0.40	1.37	7	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.06	0.13	0.25	0.69	1.28	2.51	8.21	22.64	46.62	77.64	97.26	98.53	98.59	98.63	99.95
CUT TO -35.0 FT																													
DIVC-10-24 COMPOSITE		**14.4**	**0.23**	**2.13**	**0.50**	**1.41**	**7**	**0.00**	**0.00**	**0.00**	**0.02**	**0.06**	**0.10**	**0.18**	**0.30**	**0.43**	**0.63**	**1.63**	**3.26**	**4.78**	**18.67**	**37.04**	**57.07**	**79.62**	**97.14**	**98.44**	**98.56**	**98.59**	**99.95**
DIVC-10-25#1	-27.5	6.7	0.20	2.30	0.50	2.54	7	0.00	0.00	0.00	0.00	0.02	0.04	0.08	0.15	0.27	0.47	1.58	2.89	3.37	12.17	23.37	38.85	63.05	94.92	97.35	97.44	97.46	99.80
DIVC-10-25#2	-31.7	1.2	0.18	2.49	0.47	1.99	6	0.00	0.00	0.00	0.00	0.00	0.01	0.02	0.06	0.13	0.28	0.94	1.64	2.96	6.79	13.00	23.57	45.01	90.98	97.71	97.95	98.01	99.94
DIVC-10-25#3	-34.2	0.0	0.25	2.00	0.52	1.40	7	0.00	0.00	0.00	0.00	0.00	0.07	0.13	0.26	0.49	0.91	2.89	5.44	10.54	27.31	50.27	69.50	84.93	97.38	98.50	98.55	98.60	99.94
CUT TO -32.0 FT																													
DIVC-10-25 COMPOSITE		**7.9**	**0.20**	**2.33**	**0.50**	**2.46**	**7**	**0.00**	**0.00**	**0.00**	**0.00**	**0.02**	**0.04**	**0.07**	**0.14**	**0.25**	**0.44**	**1.48**	**2.70**	**3.31**	**11.35**	**21.79**	**36.53**	**60.31**	**94.32**	**97.40**	**97.52**	**97.54**	**99.82**
DIVC-10-26#1	-20.1	1.6	0.33	1.61	0.80	1.57	7	0.00	0.00	0.00	0.44	0.44	0.72	0.96	1.63	3.28	7.28	17.02	24.01	35.84	53.26	68.94	80.77	90.34	97.03	98.17	98.33	98.43	99.92
DIVC-10-26#2	-23.2	5.1	0.24	2.08	0.51	1.24	7	0.00	0.00	0.00	0.00	0.05	0.27	0.33	0.38	0.55	0.88	2.32	4.12	4.20	21.72	40.84	62.36	83.12	97.80	98.70	98.75	98.76	99.95
DIVC-10-26#3	-26.2	4.9	0.21	2.22	0.43	1.11	7	0.00	0.00	0.00	0.00	0.05	0.10	0.15	0.20	0.27	0.39	0.90	1.62	3.20	10.14	24.41	47.36	80.04	97.85	98.80	98.87	98.89	99.97
DIVC-10-26#4	-30.2	1.2	0.30	1.72	0.80	1.80	7	0.00	0.00	0.26	0.31	0.56	0.90	1.37	2.10	3.22	5.37	13.31	19.39	23.74	44.83	61.77	75.99	88.27	97.38	98.07	98.16	98.20	99.94
CUT TO -32.0 FT																													
DIVC-10-26 COMPOSITE		**12.8**	**0.24**	**2.04**	**0.60**	**1.28**	**7**	**0.00**	**0.00**	**0.02**	**0.08**	**0.15**	**0.32**	**0.44**	**0.63**	**1.03**	**1.91**	**4.64**	**7.08**	**9.60**	**23.40**	**40.03**	**60.20**	**83.33**	**97.68**	**98.61**	**98.69**	**98.72**	**99.95**
DIVC-10-27#1	-20.7	3.9	0.23	2.14	0.52	1.07	8	0.00	0.00	0.00	0.00	0.00	0.08	0.13	0.25	0.43	0.81	2.59	4.52	8.45	18.74	34.23	53.02	79.11	97.51	98.86	98.92	98.93	99.94
DIVC-10-27#2	-23.7	2.0	0.21	2.24	0.41	1.12	7	0.00	0.00	0.00	0.00	0.00	0.02	0.06	0.14	0.19	0.33	0.72	1.24	1.26	9.98	25.98	47.52	75.81	97.92	98.84	98.87	98.88	100.00
DIVC-10-27#3	-25.9	0.4	0.20	2.32	0.43	1.26	7	0.00	0.00	0.00	0.00	0.00	0.02	0.04	0.07	0.11	0.26	0.96	1.80	3.63	9.53	19.31	35.28	68.30	97.23	98.67	98.72	98.74	100.00
CUT TO -25.0 FT																													
DIVC-10-27 COMPOSITE		**6.3**	**0.22**	**2.18**	**0.49**	**1.10**	**8**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.06**	**0.10**	**0.20**	**0.33**	**0.62**	**1.89**	**3.31**	**5.86**	**15.37**	**30.66**	**50.15**	**77.38**	**97.62**	**98.84**	**98.89**	**98.90**	**99.96**
DIVC-10-28#1	-20.7	1.4	0.23	2.12	0.48	1.21	7	0.00	0.00	0.00	0.00	0.00	0.02	0.14	0.23	0.35	0.59	1.98	3.64	4.07	18.44	37.21	59.03	81.90	97.54	98.66	98.75	98.79	99.95
DIVC-10-28#2	-23.7	3.6	0.22	2.21	0.46	1.14	7	0.00	0.00	0.00	0.00	0.00	0.01	0.03	0.09	0.11	0.26	1.15	2.49	5.76	14.68	28.16	46.34	76.10	97.64	98.78	98.84	98.86	100.00
DIVC-10-28#3	-26.4	0.0	0.18	2.48	0.46	1.45	7	0.00	0.00	0.00	0.09	0.21	0.23	0.27	0.31	0.36	0.47	0.90	1.32	1.35	4.64	9.91	20.57	47.75	95.04	98.41	98.52	98.55	99.99
DIVC-10-28#4	-27.0	0.0	0.18	2.47	0.44	13.00	6	0.00	0.00	0.00	0.00	0.00	0.03	0.04	0.05	0.13	0.15	0.39	0.84	1.93	5.62	11.73	20.40	43.67	81.78	86.54	86.87	87.00	99.97
DIVC-10-28#5	-32.0	0.0	0.28	1.86	0.57	1.05	7	0.00	0.00	0.50	0.50	0.50	0.51	0.57	0.69	0.85	1.15	3.03	6.49	10.17	36.51	63.33	81.92	93.43	98.64	98.91	98.94	98.95	99.99
DIVC-10-28#6	-36.0	0.0	0.26	1.93	0.47	0.97	7	0.00	0.00	0.00	0.00	0.02	0.05	0.11	0.28	0.52	0.84	2.44	5.55	13.45	31.17	55.60	76.42	91.65	98.60	98.99	99.01	99.03	99.98
CUT TO -25.0 FT																													
DIVC-10-28 COMPOSITE		**5.0**	**0.22**	**2.19**	**0.22**	**1.16**	**7**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.01**	**0.06**	**0.13**	**0.18**	**0.35**	**1.38**	**2.81**	**5.29**	**15.73**	**30.69**	**49.89**	**77.72**	**97.61**	**98.75**	**98.81**	**98.84**	**99.99**
DIVC-10-29#1	-22.0	0.8	0.29	1.80	0.67	1.01	7	0.00	0.00	0.00	0.28	0.37	0.55	0.73	1.02	1.54	3.04	9.51	15.09	19.62	41.87	60.06	75.85	90.46	98.65	98.96	98.98	98.99	99.98
DIVC-10-29#2	-24.2	3.4	0.20	2.30	0.43	1.12	7	0.00	0.00	0.00	0.00	0.00	0.10	0.11	0.13	0.18	0.27	0.89	1.79	3.37	9.00	19.43	38.08	71.93	97.42	98.78	98.87	98.88	99.99
DIVC-10-29#3	-29.6	5.8	0.28	1.84	0.58	1.01	8	0.00	0.00	0.26	0.39	0.44	0.47	0.58	0.72	0.88	1.30	4.24	8.58	12.24	39.81	63.27	80.27	92.48	98.57	98.95	98.99	98.99	99.94
DIVC-10-29#4	-33.6	3.4	0.26	1.94	0.54	1.04	7	0.00	0.00	0.00	0.00	0.00	0.05	0.22	0.39	0.71	1.39	4.11	7.82	15.35	31.21	51.28	70.00	89.12	98.20	98.93	98.96	98.96	100.00
DIVC-10-29#5	-37.1	0.0	0.27	1.89	1.12	2.37	6	0.00	0.00	0.55	1.20	2.23	3.17	4.79	6.38	7.86	9.08	10.34	11.28	11.43	21.47	37.53	56.14	77.22	95.48	97.29	97.59	97.63	99.74
DIVC-10-29#6	-40.9	0.0	0.16	2.60	0.37	2.35	6	0.00	0.00	0.00	0.00	0.00	0.01	0.04	0.07	0.10	0.13	0.19	0.23	0.33	0.89	4.02	13.07	41.31	87.17	96.95	97.48	97.65	99.91
CUT TO -35.0 FT																													
DIVC-10-29 COMPOSITE		**13.4**	**0.25**	**1.98**	**0.57**	**1.05**	**7**	**0.00**	**0.00**	**0.11**	**0.19**	**0.21**	**0.27**	**0.38**	**0.50**	**0.70**	**1.17**	**3.67**	**7.05**	**11.22**	**29.93**	**48.91**	**66.70**	**86.29**	**98.19**	**98.90**	**98.95**	**98.95**	**99.97**
DIVC-10-30#1	-20.3	0.0	0.24	2.06	0.50	0.87	8	0.00	0.00	0.00	0.00	0.00	0.06	0.12	0.23	0.43	0.87	2.85	5.04	6.52	22.74	43.39	63.05	83.76	98.55	99.09	99.12	99.13	99.92
DIVC-10-30#2	-22.0	0.0	0.22	2.19	0.55	1.62	7	0.00	0.00	0.00	0.00	0.07	0.15	0.21	0.28	0.42	0.70	2.06	4.20	8.60	17.77	31.59	48.95	73.19	95.03	98.00	98.30	98.38	99.98
DIVC-10-30#3	-25.3	0.0	0.19	2.43	0.47	1.08	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.03	0.12	0.37	0.84	3.77	9.70	22.22	28.44	47.60	94.50	98.64	98.85	98.92	99.80
DIVC-10-30#4	-29.3	0.0	0.20	2.32	0.39	0.87	7	0.00	0.00	0.00	0.00	0.02	0.04	0.07	0.11	0.18	0.27	0.71	1.20	2.25	5.37	14.56	36.48	74.20	97.44	98.97	99.10	99.13	99.99
DIVC-10-30#5	-34.3	0.0	0.20	2.29	0.69	1.19	7	0.00	0.00	0.00	0.00	0.06	0.25	0.58	0.90	1.36	1.98	4.17	6.22	6.48	17.48	28.19	38.97	55.32	91.43	98.14	98.62	98.81	99.92
DIVC-10-30#6	-37.3	0.0	0.26	1.94	0.54	1.67	8	0.00	0.00	0.00	0.17	0.23	0.36	0.61	0.97	1.40	1.89	3.19	5.09	5.12	26.04	53.21	76.93	91.87	97.89	98.22	98.28	98.33	99.94
DIVC-10-30 COMPOSITE		**VIBRACORE NOT USED IN BORROW AREA COMPOSITE CALCULATIONS**																											

CUMULATIVE PERCENTS AND COMPUTED DISTRIBUTIONS
DAUPHIN ISLAND 2010 VIBRACORES (4 of 4)

VIBRACORE I. D.	SAMPLE ELEVATION (NAVD 88 FT)	EFFECTIVE LENGTH (FT)	MEAN (mm)	PHI MEAN	PHI SORTING	% SILT	DRY MUNSELL VALUE	PHI SIZES -4.0	-3.50	-3.0	-2.50	-2.00	-1.50	-1.0	-0.5	0.0	0.5	1.0	1.25	1.5	1.75	2.0	2.25	2.5	3.0	3.5	3.75	4.0	PAN
DIVC-10-31#1	-21.0	3.4	0.32	1.66	0.61	0.95	8	0.00	0.00	0.16	0.22	0.44	0.75	1.04	1.35	1.83	2.93	9.17	15.22	19.29	54.08	78.17	90.52	96.74	98.90	99.03	99.05	99.05	99.93
DIVC-10-31#2	-23.2	1.1	0.23	2.15	0.43	0.88	8	0.00	0.00	0.00	0.00	0.00	0.03	0.05	0.07	0.09	0.17	0.64	1.45	4.30	15.92	36.70	57.99	81.79	97.70	99.07	99.11	99.12	99.96
DIVC-10-31#3	-24.7	2.4	0.25	2.02	0.41	0.88	8	0.00	0.00	0.00	0.00	0.02	0.09	0.12	0.15	0.22	0.38	1.18	2.51	2.55	23.62	51.56	73.36	89.98	98.57	99.06	99.10	99.12	99.93
DIVC-10-31#4	-26.5	1.4	0.29	1.77	0.82	1.07	8	0.00	0.00	0.00	0.45	0.68	1.23	2.16	3.11	4.16	5.57	9.22	12.99	21.31	39.52	59.48	74.78	89.21	98.12	98.81	98.88	98.93	99.96
DIVC-10-31#5	-30.2	0.0	0.17	2.58	0.46	1.14	7	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.10	0.23	0.36	0.69	1.05	1.11	4.58	10.17	19.34	36.27	87.03	98.46	98.79	98.86	99.96
DIVC-10-31#6	-35.9	0.0	0.19	2.43	0.49	2.96	6	0.00	0.00	0.00	0.00	0.00	0.11	0.32	0.45	0.62	0.78	1.02	1.31	1.90	4.86	12.22	26.42	56.85	91.23	96.51	96.91	97.04	99.98
CUT TO -27.5 FT																													
DIVC-10-31 COMPOSITE		**8.3**	**0.28**	**1.84**	**0.62**	**0.94**	**8**	**0.00**	**0.00**	**0.07**	**0.17**	**0.30**	**0.54**	**0.83**	**1.13**	**1.53**	**2.27**	**5.74**	**9.34**	**12.80**	**37.76**	**61.83**	**78.59**	**91.53**	**98.51**	**99.01**	**99.04**	**99.06**	**99.94**
DIVC-10-32#1	-20.8	2.2	0.27	1.90	0.49	0.99	8	0.00	0.00	0.00	0.00	0.04	0.10	0.24	0.39	0.62	1.12	4.19	7.98	8.03	34.37	57.91	78.37	93.04	98.70	98.97	99.00	99.01	99.76
DIVC-10-32#2	-23.4	3.2	0.21	2.27	0.51	2.13	7	0.00	0.00	0.00	0.14	0.14	0.15	0.17	0.28	0.44	0.71	1.44	2.21	3.88	10.17	23.08	42.73	71.28	94.69	97.48	97.77	97.87	99.97
DIVC-10-32#3	-28.2	4.6	0.23	2.13	0.50	1.56	7	0.00	0.00	0.00	0.00	0.10	0.26	0.34	0.45	0.58	0.80	1.90	3.12	5.91	14.67	33.96	58.92	81.99	97.23	98.26	98.38	98.44	99.91
DIVC-10-32#4	-31.2	4.3	0.28	1.83	0.63	1.01	8	0.00	0.00	0.00	0.00	0.00	0.02	0.09	0.18	0.35	1.64	9.80	17.46	26.70	42.17	57.58	72.68	86.86	97.39	98.84	98.95	98.99	99.85
DIVC-10-32#5	-34.9	0.0	0.22	2.19	0.54	3.74	7	0.00	0.00	0.00	0.00	0.00	0.08	0.24	0.41	0.62	1.01	2.19	3.62	3.68	15.30	31.44	52.36	71.93	92.54	95.91	96.16	96.26	99.97
CUT TO -34.0 FT																													
DIVC-10-32 COMPOSITE		**14.3**	**0.24**	**2.04**	**0.57**	**1.43**	**7**	**0.00**	**0.00**	**0.00**	**0.03**	**0.07**	**0.14**	**0.21**	**0.32**	**0.49**	**1.08**	**4.52**	**7.98**	**12.03**	**24.96**	**42.31**	**62.43**	**82.76**	**96.94**	**98.37**	**98.51**	**98.57**	**99.88**
DIVC-10-33#1	-21.6	3.5	0.21	2.23	0.40	0.99	8	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.04	0.10	0.19	0.74	1.63	3.64	11.05	24.55	44.56	78.94	98.39	98.98	99.00	99.01	99.97
DIVC-10-33#2	-24.4	1.5	0.26	1.94	0.80	1.42	8	0.00	0.00	0.00	0.45	0.84	1.12	1.55	2.05	2.75	4.13	8.43	11.96	12.03	31.30	44.46	61.43	81.73	98.01	98.55	98.57	98.58	99.95
DIVC-10-33#3	-27.5	0.0	0.22	2.20	0.59	1.87	8	0.00	0.00	0.00	0.05	0.20	0.39	0.61	0.99	1.43	1.92	2.83	3.62	5.36	11.28	23.89	44.92	77.08	96.77	97.93	98.05	98.13	99.93
DIVC-10-33#4	-30.3	0.0	0.19	2.43	0.62	5.24	6	0.00	0.00	0.00	0.00	0.24	0.41	0.68	0.92	1.17	1.40	1.94	2.40	2.42	6.38	14.49	29.07	50.07	85.18	94.00	94.58	94.76	99.93
DIVC-10-33#5	-33.6	0.0	0.18	2.45	0.51	3.06	6	0.00	0.00	0.00	0.08	0.10	0.18	0.33	0.50	0.68	0.98	1.54	2.08	2.90	4.94	9.67	19.83	53.91	92.14	96.40	96.77	96.94	99.96
CUT TO -25.0 FT																													
DIVC-10-33 COMPOSITE		**5.0**	**0.23**	**2.14**	**0.57**	**1.12**	**8**	**0.00**	**0.00**	**0.00**	**0.14**	**0.25**	**0.34**	**0.48**	**0.64**	**0.90**	**1.37**	**3.05**	**4.73**	**6.16**	**17.13**	**30.52**	**49.62**	**79.78**	**98.28**	**98.85**	**98.87**	**98.88**	**99.96**
DIVC-10-34#1	-19.5	0.7	0.30	1.74	0.68	0.82	8	0.00	0.00	0.00	0.21	0.30	0.45	0.65	0.92	1.43	3.25	12.04	19.01	21.83	48.27	66.05	79.25	91.18	98.47	99.08	99.16	99.18	99.93
DIVC-10-34#2	-21.8	3.8	0.22	2.16	0.45	1.33	7	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.06	0.12	0.27	1.09	2.49	5.47	16.68	34.68	55.22	81.07	96.94	98.36	98.56	98.67	99.92
DIVC-10-34#3	-24.0	0.9	0.26	1.92	0.99	3.24	6	0.00	0.00	1.63	1.69	1.90	2.43	3.02	3.70	4.58	5.63	7.69	9.34	11.85	19.53	36.70	60.22	84.02	95.50	96.61	96.71	96.76	99.97
DIVC-10-34#4	-24.8	0.5	0.38	1.38	1.45	1.36	8	0.00	1.13	1.80	3.54	4.80	6.90	9.34	12.33	15.75	19.70	24.39	26.67	26.73	39.40	55.67	73.58	89.47	97.56	98.38	98.55	98.64	99.93
DIVC-10-34#5	-27.6	0.0	0.18	2.49	0.49	0.99	7	0.00	0.00	0.00	0.04	0.11	0.18	0.28	0.42	0.58	0.73	0.99	1.21	1.67	3.83	9.54	21.23	48.87	91.77	98.51	98.91	99.01	100.00
DIVC-10-34#6	-31.6	0.0	0.21	2.26	0.29	1.73	7	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.07	0.11	0.17	0.27	0.36	1.12	4.03	13.58	36.14	91.25	97.75	98.14	98.25	98.27	99.97
DIVC-10-34#7	-35.4	0.0	0.18	2.51	0.42	3.80	7	0.00	0.00	0.00	0.00	0.00	0.01	0.05	0.09	0.18	0.33	0.60	0.77	1.01	2.22	7.45	20.20	50.19	88.70	95.42	95.98	96.20	99.96
CUT TO -25.0 FT																													
DIVC-10-34 COMPOSITE		**5.9**	**0.25**	**2.00**	**0.76**	**1.56**	**7**	**0.00**	**0.10**	**0.40**	**0.58**	**0.73**	**1.01**	**1.34**	**1.76**	**2.28**	**3.09**	**5.37**	**7.54**	**10.19**	**22.79**	**40.49**	**60.39**	**83.43**	**96.95**	**98.18**	**98.35**	**98.44**	**99.93**
DIVC-10-35#1	-21.3	2.7	0.23	2.11	0.44	1.24	7	0.00	0.00	0.00	0.00	0.00	0.03	0.04	0.09	0.19	0.42	1.95	3.96	4.05	18.58	35.20	59.15	86.70	98.27	98.72	98.74	98.76	99.93
DIVC-10-35#2	-24.1	2.8	0.23	2.13	0.51	1.04	7	0.00	0.00	0.00	0.00	0.14	0.26	0.47	0.71	1.01	1.35	2.09	2.93	5.02	13.09	30.21	56.71	85.15	98.32	98.90	98.95	98.96	99.99
DIVC-10-35#3	-27.4	3.5	0.24	2.06	0.82	1.51	6	0.00	0.00	0.00	0.23	0.63	1.06	1.84	2.62	3.51	4.58	6.36	7.78	8.07	20.84	37.13	56.01	74.37	95.12	98.20	98.41	98.49	99.87
DIVC-10-35#4	-33.4	5.1	0.20	2.32	0.40	1.14	7	0.00	0.00	0.00	0.00	0.00	0.01	0.08	0.11	0.19	0.27	0.51	0.70	1.17	5.24	17.79	39.81	73.47	96.33	98.47	98.72	98.86	99.92
CUT TO -34.0 FT																													
DIVC-10-35 COMPOSITE		**14.1**	**0.22**	**2.18**	**0.57**	**1.23**	**7**	**0.00**	**0.00**	**0.00**	**0.06**	**0.18**	**0.32**	**0.59**	**0.85**	**1.18**	**1.58**	**2.55**	**3.52**	**4.20**	**13.23**	**28.39**	**50.89**	**78.55**	**96.80**	**98.54**	**98.69**	**98.77**	**99.92**
DIVC-10-36#1	-20.3	1.6	0.23	2.14	0.42	1.07	7	0.00	0.00	0.00	0.00	0.00	0.02	0.07	0.12	0.23	0.42	1.25	2.39	2.46	14.76	33.57	57.73	84.39	98.44	98.88	98.91	98.93	99.98
DIVC-10-36#2	-22.2	2.3	0.33	1.59	0.91	1.23	7	0.00	0.00	0.00	0.60	1.48	2.40	3.38	4.61	5.74	7.39	13.39	18.85	29.03	49.11	68.30	82.79	93.60	98.44	98.72	98.76	98.77	99.89
DIVC-10-36#3	-23.7	0.6	0.36	1.49	0.71	0.91	8	0.00	0.00	0.00	0.42	0.59	0.79	1.09	1.47	2.21	5.16	19.26	30.04	41.39	65.71	80.10	88.99	94.67	98.68	99.06	99.09	99.09	99.92
DIVC-10-36#4	-24.5	1.0	0.24	2.06	0.62	1.37	7	0.00	0.00	0.00	0.00	0.10	0.32	0.70	1.05	1.61	2.32	4.26	6.37	9.87	19.84	35.83	58.79	83.77	97.03	98.46	98.58	98.63	99.96
DIVC-10-36#5	-26.3	0.0	0.18	2.45	0.55	1.22	7	0.00	0.00	0.00	0.24	0.29	0.43	0.66	0.98	1.17	1.33	1.51	1.61	1.62	2.59	6.93	21.20	52.44	94.84	98.62	98.74	98.78	99.99
DIVC-10-36#6	-27.7	0.0	0.19	2.37	0.41	1.90	6	0.00	0.00	0.00	0.00	0.00	0.02	0.03	0.10	0.15	0.20	0.34	0.56	1.24	4.31	14.22	35.38	67.84	92.79	97.64	98.00	98.10	99.98
DIVC-10-36#7	-28.7	0.0	0.22	2.18	0.89	2.05	7	0.00	0.00	0.29	0.29	0.86	1.53	2.24	3.07	3.78	4.52	5.75	6.71	6.81	15.53	27.90	43.59	63.49	91.66	97.29	97.74	97.95	99.93
CUT TO -25.0 FT																													
DIVC-10-36 COMPOSITE		**5.5**	**0.28**	**1.83**	**0.77**	**1.17**	**7**	**0.00**	**0.00**	**0.00**	**0.30**	**0.70**	**1.15**	**1.68**	**2.31**	**3.00**	**4.20**	**8.84**	**13.01**	**19.17**	**35.61**	**53.58**	**71.81**	**89.25**	**98.21**	**98.76**	**98.81**	**98.83**	**99.93**
DIVC-10-37#1	-20.9	4.5	0.36	1.46	0.83	1.38	7	0.00	0.00	0.70	0.99	1.37	1.73	2.27	2.85	3.78	6.15	17.24	27.18	42.09	62.19	78.11	88.91	96.13	98.48	98.59	98.60	98.62	99.93
DIVC-10-37#2	-23.9	5.1	0.34	1.54	0.76	1.07	8	0.00	0.54	0.54	0.82	0.93	1.12	1.39	1.80	2.48	4.80	15.48	24.11	25.06	62.32	80.90	90.49	95.73	98.75	98.87	98.93	98.93	99.88
DIVC-10-37#3	-30.9	0.0	0.22	2.19	0.69	0.92	7	0.00	0.00	0.00	0.04	0.11	0.51	1.09	1.73	2.43	3.11	4.45	5.59	7.43	12.82	24.32	43.71	74.31	95.67	98.86	99.05	99.08	100.00
DIVC-10-37#4	-34.9	0.0	0.20	2.33	0.42	1.40	7	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.05	0.12	0.23	0.49	0.79	0.84	6.96	21.78	42.23	66.22	95.56	98.35	98.53	98.60	100.00
CUT TO -27.5 FT																													
DIVC-10-37 COMPOSITE		**9.6**	**0.35**	**1.50**	**0.79**	**1.22**	**8**	**0.00**	**0.29**	**0.62**	**0.90**	**1.14**	**1.41**	**1.80**	**2.29**	**3.09**	**5.43**	**16.31**	**25.55**	**33.04**	**62.26**	**79.59**	**89.75**	**95.92**	**98.62**	**98.74**	**98.78**	**98.78**	**99.90**

APPENDIX 15
Borrow Area Composite Granularmetric Reports

Granularmetric Report

Depths and elevations based on measured values

Project Name: Dauphin Island Shore Protection

Sample Name: BORROW AREA I

Analysis Date: 03-14-11

Analyzed By: JR

Coastal Planning & Engineering
2481 NW Boca Raton Blvd, Boca Raton
FL 33431
ph (561) 391-8102
fax (561) 391-9116

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
		Alabama State Plane West	0.0 NAVD 88

USCS:	Munsell:	Comments:
SP		Composite data. Average dry Munsell Value is 7

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
100.00	100.00	1.24	0.06	#200 - 1.33 #230 - 1.30			

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
5/8"	-4.00	16.00	0.00	0.00	0.00	0.00
7/16"	-3.50	11.31	0.02	0.02	0.02	0.02
5/16"	-3.00	8.00	0.03	0.03	0.05	0.05
3.5	-2.50	5.66	0.08	0.08	0.13	0.13
5	-2.00	4.00	0.12	0.12	0.25	0.25
7	-1.50	2.83	0.17	0.17	0.42	0.42
10	-1.00	2.00	0.23	0.23	0.65	0.65
14	-0.50	1.41	0.28	0.28	0.93	0.93
18	0.00	1.00	0.37	0.37	1.30	1.30
25	0.50	0.71	0.77	0.77	2.07	2.07
35	1.00	0.50	3.20	3.20	5.27	5.27
40	1.25	0.42	3.41	3.41	8.68	8.68
45	1.50	0.35	4.55	4.55	13.23	13.23
50	1.75	0.30	16.52	16.52	29.75	29.75
60	2.00	0.25	18.92	18.92	48.67	48.67
70	2.25	0.21	19.19	19.19	67.86	67.86
80	2.50	0.18	18.66	18.66	86.52	86.52
120	3.00	0.13	11.22	11.22	97.74	97.74
170	3.50	0.09	0.86	0.86	98.60	98.60
200	3.75	0.07	0.07	0.07	98.67	98.67
230	4.00	0.06	0.03	0.03	98.70	98.70

Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.88	2.47	2.35	2.02	1.68	1.54	0.96

Moment	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
Statistics	1.95	0.26	0.63	-2.17	14.28

GRANULARMETRIC REPORT DIVC-10_COMPOSITES_031411.GPJ JPBRAZIL.GDT 5/3/11

Granularmetric Report

Depths and elevations based on measured values

Project Name: Dauphin Island Shore Protection

Sample Name: BORROW AREA II

Analysis Date: 03-14-11

Analyzed By: JR

Coastal Planning & Engineering
2481 NW Boca Raton Blvd, Boca Raton
FL 33431
ph (561) 391-8102
fax (561) 391-9116

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
		Alabama State Plane West	0.0 NAVD 88

USCS:	Munsell:	Comments:
SP		Composite data. Average dry Munsell Value is 7

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
100.00	100.00	1.35	0.05	#200 - 1.42 #230 - 1.40			

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
5/8"	-4.00	16.00	0.00	0.00	0.00	0.00
7/16"	-3.50	11.31	0.00	0.00	0.00	0.00
5/16"	-3.00	8.00	0.02	0.02	0.02	0.02
3.5	-2.50	5.66	0.04	0.04	0.06	0.06
5	-2.00	4.00	0.03	0.03	0.09	0.09
7	-1.50	2.83	0.06	0.06	0.15	0.15
10	-1.00	2.00	0.09	0.09	0.24	0.24
14	-0.50	1.41	0.12	0.12	0.36	0.36
18	0.00	1.00	0.19	0.19	0.55	0.55
25	0.50	0.71	0.36	0.36	0.91	0.91
35	1.00	0.50	1.53	1.53	2.44	2.44
40	1.25	0.42	1.91	1.91	4.35	4.35
45	1.50	0.35	2.36	2.36	6.71	6.71
50	1.75	0.30	12.63	12.63	19.34	19.34
60	2.00	0.25	16.36	16.36	35.70	35.70
70	2.25	0.21	19.52	19.52	55.22	55.22
80	2.50	0.18	23.24	23.24	78.46	78.46
120	3.00	0.13	18.57	18.57	97.03	97.03
170	3.50	0.09	1.45	1.45	98.48	98.48
200	3.75	0.07	0.10	0.10	98.58	98.58
230	4.00	0.06	0.02	0.02	98.60	98.60

Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.95	2.65	2.46	2.18	1.84	1.68	1.32

Moment Statistics	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
	2.13	0.23	0.54	-1.75	13.33

GRANULARMETRIC REPORT DIVC-10_COMPOSITES_031411.GPJ JPBRAZIL.GDT 5/3/11

Granularmetric Report

Depths and elevations based on measured values

Project Name: Dauphin Island Shore Protection

Sample Name: DIVC-10-03 COMP.

Analysis Date: 03-14-11

Analyzed By: JR

Coastal Planning & Engineering
2481 NW Boca Raton Blvd, Boca Raton
FL 33431
ph (561) 391-8102
fax (561) 391-9116

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
1,789,459	64,265	Alabama State Plane West	0.0 NAVD 88

USCS:	Munsell:	Comments:
SP		Composite data. Average dry Munsell Value is 7

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
100.00	100.00	1.19	0.02	#200 - 1.24 #230 - 1.21			

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
5/8"	-4.00	16.00	0.00	0.00	0.00	0.00
7/16"	-3.50	11.31	0.00	0.00	0.00	0.00
5/16"	-3.00	8.00	0.00	0.00	0.00	0.00
3.5	-2.50	5.66	0.01	0.01	0.01	0.01
5	-2.00	4.00	0.17	0.17	0.18	0.18
7	-1.50	2.83	0.10	0.10	0.28	0.28
10	-1.00	2.00	0.19	0.19	0.47	0.47
14	-0.50	1.41	0.20	0.20	0.67	0.67
18	0.00	1.00	0.28	0.28	0.95	0.95
25	0.50	0.71	0.68	0.68	1.63	1.63
35	1.00	0.50	3.60	3.60	5.23	5.23
40	1.25	0.42	6.05	6.05	11.28	11.28
45	1.50	0.35	7.66	7.66	18.94	18.94
50	1.75	0.30	22.61	22.61	41.55	41.55
60	2.00	0.25	21.23	21.23	62.78	62.78
70	2.25	0.21	17.02	17.02	79.80	79.80
80	2.50	0.18	11.91	11.91	91.71	91.71
120	3.00	0.13	6.61	6.61	98.32	98.32
170	3.50	0.09	0.40	0.40	98.72	98.72
200	3.75	0.07	0.04	0.04	98.76	98.76
230	4.00	0.06	0.03	0.03	98.79	98.79

Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.75	2.34	2.18	1.85	1.57	1.40	0.97

Moment Statistics	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
	1.82	0.28	0.57	-1.6	11.47

GRANULARMETRIC REPORT DIVC-10_COMPOSITES_031411.GPJ JPBRAZIL.GDT 5/3/11

Granularmetric Report

Depths and elevations based on measured values

Project Name: Dauphin Island Shore Protection

Sample Name: DIVC-10-04 COMP.

Analysis Date: 03-14-11

Analyzed By: JR

Coastal Planning & Engineering
2481 NW Boca Raton Blvd, Boca Raton
FL 33431
ph (561) 391-8102
fax (561) 391-9116

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
1,787,891	59,735	Alabama State Plane West	0.0 NAVD 88

USCS:	Munsell:	Comments:
SP		Composite data. Average dry Munsell Value is 7

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
100.00	100.00	1.13	0.00	#200 - 1.14 #230 - 1.13			

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
5/8"	-4.00	16.00	0.00	0.00	0.00	0.00
7/16"	-3.50	11.31	0.00	0.00	0.00	0.00
5/16"	-3.00	8.00	0.00	0.00	0.00	0.00
3.5	-2.50	5.66	0.00	0.00	0.00	0.00
5	-2.00	4.00	0.01	0.01	0.01	0.01
7	-1.50	2.83	0.03	0.03	0.04	0.04
10	-1.00	2.00	0.11	0.11	0.15	0.15
14	-0.50	1.41	0.11	0.11	0.26	0.26
18	0.00	1.00	0.14	0.14	0.40	0.40
25	0.50	0.71	0.25	0.25	0.65	0.65
35	1.00	0.50	0.89	0.89	1.54	1.54
40	1.25	0.42	1.53	1.53	3.07	3.07
45	1.50	0.35	3.42	3.42	6.49	6.49
50	1.75	0.30	9.56	9.56	16.05	16.05
60	2.00	0.25	17.14	17.14	33.19	33.19
70	2.25	0.21	24.51	24.51	57.70	57.70
80	2.50	0.18	25.60	25.60	83.30	83.30
120	3.00	0.13	14.62	14.62	97.92	97.92
170	3.50	0.09	0.88	0.88	98.80	98.80
200	3.75	0.07	0.06	0.06	98.86	98.86
230	4.00	0.06	0.01	0.01	98.87	98.87

Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.90	2.52	2.42	2.17	1.88	1.75	1.39

Moment Statistics	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
	2.13	0.23	0.47	-1.44	10.69

GRANULARMETRIC REPORT DIVC-10_COMPOSITES_031411.GPJ JPBRAZIL.GDT 5/3/11

Granularmetric Report

Depths and elevations based on measured values

Project Name: Dauphin Island Shore Protection

Sample Name: DIVC-10-09 COMP.

Analysis Date: 03-14-11

Analyzed By: JR

Coastal Planning & Engineering
2481 NW Boca Raton Blvd, Boca Raton
FL 33431
ph (561) 391-8102
fax (561) 391-9116

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
1,787,827	64,695	Alabama State Plane West	0.0 NAVD 88

USCS:	Munsell:	Comments:
SP		Composite data. Average dry Munsell Value is 7

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
100.00	100.00			#200 - 1.18 #230 - 1.17			

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
5/8"	-4.00	16.00	0.00	0.00	0.00	0.00
7/16"	-3.50	11.31	0.00	0.00	0.00	0.00
5/16"	-3.00	8.00	0.00	0.00	0.00	0.00
3.5	-2.50	5.66	0.00	0.00	0.00	0.00
5	-2.00	4.00	0.05	0.05	0.05	0.05
7	-1.50	2.83	0.08	0.08	0.13	0.13
10	-1.00	2.00	0.08	0.08	0.21	0.21
14	-0.50	1.41	0.15	0.15	0.36	0.36
18	0.00	1.00	0.21	0.21	0.57	0.57
25	0.50	0.71	0.50	0.50	1.07	1.07
35	1.00	0.50	1.88	1.88	2.95	2.95
40	1.25	0.42	1.95	1.95	4.90	4.90
45	1.50	0.35	3.87	3.87	8.77	8.77
50	1.75	0.30	11.39	11.39	20.16	20.16
60	2.00	0.25	19.37	19.37	39.53	39.53
70	2.25	0.21	22.43	22.43	61.96	61.96
80	2.50	0.18	24.20	24.20	86.16	86.16
120	3.00	0.13	11.79	11.79	97.95	97.95
170	3.50	0.09	0.85	0.85	98.80	98.80
200	3.75	0.07	0.02	0.02	98.82	98.82
230	4.00	0.06	0.01	0.01	98.83	98.83

Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.87	2.48	2.38	2.12	1.81	1.66	1.26

Moment	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
Statistics	2.06	0.24	0.51	-1.68	11.48

GRANULARMETRIC REPORT DIVC-10_COMPOSITES_031411.GPJ JPBRAZIL.GDT 5/3/11

Granularmetric Report

Depths and elevations based on measured values

Project Name: Dauphin Island Shore Protection

Sample Name: DIVC-10-10 COMP.

Analysis Date: 03-14-11

Analyzed By: JR

Coastal Planning & Engineering
2481 NW Boca Raton Blvd, Boca Raton
FL 33431
ph (561) 391-8102
fax (561) 391-9116

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
1,788,794	64,755	Alabama State Plane West	0.0 NAVD 88

USCS:	Munsell:	Comments:
SP		Composite data. Average dry Munsell Value is 7

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
100.00	100.00	1.40	0.02	#200 - 1.44 #230 - 1.42			

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
5/8"	-4.00	16.00	0.00	0.00	0.00	0.00
7/16"	-3.50	11.31	0.00	0.00	0.00	0.00
5/16"	-3.00	8.00	0.00	0.00	0.00	0.00
3.5	-2.50	5.66	0.06	0.06	0.06	0.06
5	-2.00	4.00	0.06	0.06	0.12	0.12
7	-1.50	2.83	0.11	0.11	0.23	0.23
10	-1.00	2.00	0.22	0.22	0.45	0.45
14	-0.50	1.41	0.36	0.36	0.81	0.81
18	0.00	1.00	0.50	0.50	1.31	1.31
25	0.50	0.71	0.92	0.92	2.23	2.23
35	1.00	0.50	3.84	3.84	6.07	6.07
40	1.25	0.42	3.89	3.89	9.96	9.96
45	1.50	0.35	6.93	6.93	16.89	16.89
50	1.75	0.30	15.92	15.92	32.81	32.81
60	2.00	0.25	20.23	20.23	53.04	53.04
70	2.25	0.21	18.78	18.78	71.82	71.82
80	2.50	0.18	16.93	16.93	88.75	88.75
120	3.00	0.13	9.30	9.30	98.05	98.05
170	3.50	0.09	0.46	0.46	98.51	98.51
200	3.75	0.07	0.05	0.05	98.56	98.56
230	4.00	0.06	0.02	0.02	98.58	98.58

Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.84	2.43	2.30	1.96	1.63	1.47	0.86

Moment	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
Statistics	1.9	0.27	0.61	-1.71	10.31

GRANULARMETRIC REPORT DIVC-10_COMPOSITES_031411.GPJ JPBRAZIL.GDT 5/3/11

Granularmetric Report

Depths and elevations based on measured values

Project Name: Dauphin Island Shore Protection

Sample Name: DIVC-10-11 COMP.

Analysis Date: 03-14-11

Analyzed By: JR

Coastal Planning & Engineering
2481 NW Boca Raton Blvd, Boca Raton
FL 33431
ph (561) 391-8102
fax (561) 391-9116

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
1,788,371	63,930	Alabama State Plane West	0.0 NAVD 88

USCS:	Munsell:	Comments:
SP		Composite data. Average dry Munsell Value is 7

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
100.00	100.00	1.15	0.03	#200 - 1.20 #230 - 1.18			

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
5/8"	-4.00	16.00	0.00	0.00	0.00	0.00
7/16"	-3.50	11.31	0.00	0.00	0.00	0.00
5/16"	-3.00	8.00	0.00	0.00	0.00	0.00
3.5	-2.50	5.66	0.00	0.00	0.00	0.00
5	-2.00	4.00	0.03	0.03	0.03	0.03
7	-1.50	2.83	0.01	0.01	0.04	0.04
10	-1.00	2.00	0.01	0.01	0.05	0.05
14	-0.50	1.41	0.04	0.04	0.09	0.09
18	0.00	1.00	0.07	0.07	0.16	0.16
25	0.50	0.71	0.15	0.15	0.31	0.31
35	1.00	0.50	0.82	0.82	1.13	1.13
40	1.25	0.42	1.23	1.23	2.36	2.36
45	1.50	0.35	2.92	2.92	5.28	5.28
50	1.75	0.30	10.34	10.34	15.62	15.62
60	2.00	0.25	20.39	20.39	36.01	36.01
70	2.25	0.21	24.54	24.54	60.55	60.55
80	2.50	0.18	23.95	23.95	84.50	84.50
120	3.00	0.13	13.25	13.25	97.75	97.75
170	3.50	0.09	0.99	0.99	98.74	98.74
200	3.75	0.07	0.06	0.06	98.80	98.80
230	4.00	0.06	0.02	0.02	98.82	98.82

Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.90	2.49	2.40	2.14	1.87	1.75	1.48

Moment Statistics	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
	2.12	0.23	0.43	-0.9	9.05

Granularmetric Report

Depths and elevations based on measured values

Project Name: Dauphin Island Shore Protection

Sample Name: DIVC-10-12 COMP.

Analysis Date: 03-14-11

Analyzed By: JR

Coastal Planning & Engineering
2481 NW Boca Raton Blvd, Boca Raton
FL 33431
ph (561) 391-8102
fax (561) 391-9116

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
1,788,442	63,059	Alabama State Plane West	0.0 NAVD 88

USCS:	Munsell:	Comments:
SP		Composite data. Average dry Munsell Value is 7

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
100.00	100.00	0.08	1.14	#200 - 1.24 #230 - 1.22			

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
5/8"	-4.00	16.00	0.00	0.00	0.00	0.00
7/16"	-3.50	11.31	0.00	0.00	0.00	0.00
5/16"	-3.00	8.00	0.00	0.00	0.00	0.00
3.5	-2.50	5.66	0.03	0.03	0.03	0.03
5	-2.00	4.00	0.03	0.03	0.06	0.06
7	-1.50	2.83	0.15	0.15	0.21	0.21
10	-1.00	2.00	0.18	0.18	0.39	0.39
14	-0.50	1.41	0.27	0.27	0.66	0.66
18	0.00	1.00	0.32	0.32	0.98	0.98
25	0.50	0.71	0.59	0.59	1.57	1.57
35	1.00	0.50	2.65	2.65	4.22	4.22
40	1.25	0.42	3.18	3.18	7.40	7.40
45	1.50	0.35	5.06	5.06	12.46	12.46
50	1.75	0.30	16.66	16.66	29.12	29.12
60	2.00	0.25	22.39	22.39	51.51	51.51
70	2.25	0.21	19.36	19.36	70.87	70.87
80	2.50	0.18	17.33	17.33	88.20	88.20
120	3.00	0.13	9.72	9.72	97.92	97.92
170	3.50	0.09	0.78	0.78	98.70	98.70
200	3.75	0.07	0.06	0.06	98.76	98.76
230	4.00	0.06	0.02	0.02	98.78	98.78

Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.85	2.44	2.31	1.98	1.69	1.55	1.06

Moment	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
Statistics	1.95	0.26	0.56	-1.69	11.36

Granularmetric Report

Depths and elevations based on measured values

Project Name: Dauphin Island Shore Protection

Sample Name: DIVC-10-13 COMP.

Analysis Date: 03-14-11

Analyzed By: JR

Coastal Planning & Engineering
2481 NW Boca Raton Blvd, Boca Raton
FL 33431
ph (561) 391-8102
fax (561) 391-9116

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
1,789,373	63,248	Alabama State Plane West	0.0 NAVD 88

USCS:	Munsell:	Comments:
SP		Composite data. Average dry Munsell Value is 7

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
100.00	100.00	1.12	0.04	#200 - 1.17 #230 - 1.16			

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
5/8"	-4.00	16.00	0.00	0.00	0.00	0.00
7/16"	-3.50	11.31	0.00	0.00	0.00	0.00
5/16"	-3.00	8.00	0.00	0.00	0.00	0.00
3.5	-2.50	5.66	0.08	0.08	0.08	0.08
5	-2.00	4.00	0.00	0.00	0.08	0.08
7	-1.50	2.83	0.05	0.05	0.13	0.13
10	-1.00	2.00	0.11	0.11	0.24	0.24
14	-0.50	1.41	0.14	0.14	0.38	0.38
18	0.00	1.00	0.24	0.24	0.62	0.62
25	0.50	0.71	0.49	0.49	1.11	1.11
35	1.00	0.50	1.83	1.83	2.94	2.94
40	1.25	0.42	2.32	2.32	5.26	5.26
45	1.50	0.35	5.09	5.09	10.35	10.35
50	1.75	0.30	14.99	14.99	25.34	25.34
60	2.00	0.25	19.74	19.74	45.08	45.08
70	2.25	0.21	24.01	24.01	69.09	69.09
80	2.50	0.18	19.06	19.06	88.15	88.15
120	3.00	0.13	10.19	10.19	98.34	98.34
170	3.50	0.09	0.46	0.46	98.80	98.80
200	3.75	0.07	0.03	0.03	98.83	98.83
230	4.00	0.06	0.01	0.01	98.84	98.84

Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.84	2.45	2.33	2.05	1.74	1.59	1.22

Moment	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
Statistics	2	0.25	0.51	-1.8	13.6

GRANULARMETRIC REPORT DIVC-10_COMPOSITES_031411.GPJ JPBRAZIL.GDT 5/3/11

Granularmetric Report

Depths and elevations based on measured values

Project Name: Dauphin Island Shore Protection

Sample Name: DIVC-10-19 COMP.

Analysis Date: 03-14-11

Analyzed By: JR

Coastal Planning & Engineering
2481 NW Boca Raton Blvd, Boca Raton
FL 33431
ph (561) 391-8102
fax (561) 391-9116

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
1,791,209	66,338	Alabama State Plane West	0.0 NAVD 88

USCS:	Munsell:	Comments:
SP		Composite data. Average dry Munsell Value is 7

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
100.00	100.00	1.56	0.07	#200 - 1.66 #230 - 1.63			

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
5/8"	-4.00	16.00	0.00	0.00	0.00	0.00
7/16"	-3.50	11.31	0.00	0.00	0.00	0.00
5/16"	-3.00	8.00	0.00	0.00	0.00	0.00
3.5	-2.50	5.66	0.05	0.05	0.05	0.05
5	-2.00	4.00	0.07	0.07	0.12	0.12
7	-1.50	2.83	0.15	0.15	0.27	0.27
10	-1.00	2.00	0.28	0.28	0.55	0.55
14	-0.50	1.41	0.37	0.37	0.92	0.92
18	0.00	1.00	0.53	0.53	1.45	1.45
25	0.50	0.71	0.80	0.80	2.25	2.25
35	1.00	0.50	2.44	2.44	4.69	4.69
40	1.25	0.42	2.84	2.84	7.53	7.53
45	1.50	0.35	4.52	4.52	12.05	12.05
50	1.75	0.30	12.07	12.07	24.12	24.12
60	2.00	0.25	14.79	14.79	38.91	38.91
70	2.25	0.21	17.49	17.49	56.40	56.40
80	2.50	0.18	21.30	21.30	77.70	77.70
120	3.00	0.13	18.69	18.69	96.39	96.39
170	3.50	0.09	1.87	1.87	98.26	98.26
200	3.75	0.07	0.08	0.08	98.34	98.34
230	4.00	0.06	0.03	0.03	98.37	98.37

Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.96	2.67	2.47	2.16	1.76	1.58	1.03

Moment Statistics	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
	2.06	0.24	0.65	-1.83	10.4

GRANULARMETRIC REPORT DIVC-10_COMPOSITES_031411.GPJ JPBRAZIL.GDT 5/3/11

Granularmetric Report

Depths and elevations based on measured values

Project Name: Dauphin Island Shore Protection

Sample Name: DIVC-10-20 COMP.

Analysis Date: 03-14-11

Analyzed By: JR

Coastal Planning & Engineering
2481 NW Boca Raton Blvd, Boca Raton
FL 33431
ph (561) 391-8102
fax (561) 391-9116

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
1,790,576	65,529	Alabama State Plane West	0.0 NAVD 88

USCS:	Munsell:	Comments:
SP		Composite data. Average dry Munsell Value is 8

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
100.00	100.00	1.31	0.04	#200 - 1.36 #230 - 1.35			

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
5/8"	-4.00	16.00	0.00	0.00	0.00	0.00
7/16"	-3.50	11.31	0.00	0.00	0.00	0.00
5/16"	-3.00	8.00	0.00	0.00	0.00	0.00
3.5	-2.50	5.66	0.00	0.00	0.00	0.00
5	-2.00	4.00	0.07	0.07	0.07	0.07
7	-1.50	2.83	0.05	0.05	0.12	0.12
10	-1.00	2.00	0.16	0.16	0.28	0.28
14	-0.50	1.41	0.11	0.11	0.39	0.39
18	0.00	1.00	0.22	0.22	0.61	0.61
25	0.50	0.71	0.48	0.48	1.09	1.09
35	1.00	0.50	2.70	2.70	3.79	3.79
40	1.25	0.42	3.50	3.50	7.29	7.29
45	1.50	0.35	6.47	6.47	13.76	13.76
50	1.75	0.30	14.06	14.06	27.82	27.82
60	2.00	0.25	19.86	19.86	47.68	47.68
70	2.25	0.21	21.67	21.67	69.35	69.35
80	2.50	0.18	19.90	19.90	89.25	89.25
120	3.00	0.13	9.01	9.01	98.26	98.26
170	3.50	0.09	0.35	0.35	98.61	98.61
200	3.75	0.07	0.03	0.03	98.64	98.64
230	4.00	0.06	0.01	0.01	98.65	98.65

Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.82	2.43	2.32	2.03	1.70	1.54	1.09

Moment	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
Statistics	1.97	0.26	0.53	-1.53	10.16

GRANULARMETRIC REPORT DIVC-10_COMPOSITES_031411.GPJ JPBRAZIL.GDT 5/3/11

Granularmetric Report

Depths and elevations based on measured values

Project Name: Dauphin Island Shore Protection

Sample Name: DIVC-10-21 COMP.

Analysis Date: 03-14-11

Analyzed By: JR

Coastal Planning & Engineering
2481 NW Boca Raton Blvd, Boca Raton
FL 33431
ph (561) 391-8102
fax (561) 391-9116

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
1,791,351	65,352	Alabama State Plane West	0.0 NAVD 88

USCS:	Munsell:	Comments:
SP		Composite data. Average dry Munsell Value is 8

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
100.00	100.00	1.27	0.08	#200 - 1.37 #230 - 1.35			

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
5/8"	-4.00	16.00	0.00	0.00	0.00	0.00
7/16"	-3.50	11.31	0.00	0.00	0.00	0.00
5/16"	-3.00	8.00	0.00	0.00	0.00	0.00
3.5	-2.50	5.66	0.19	0.19	0.19	0.19
5	-2.00	4.00	0.23	0.23	0.42	0.42
7	-1.50	2.83	0.34	0.34	0.76	0.76
10	-1.00	2.00	0.40	0.40	1.16	1.16
14	-0.50	1.41	0.50	0.50	1.66	1.66
18	0.00	1.00	0.56	0.56	2.22	2.22
25	0.50	0.71	0.98	0.98	3.20	3.20
35	1.00	0.50	4.51	4.51	7.71	7.71
40	1.25	0.42	4.82	4.82	12.53	12.53
45	1.50	0.35	6.03	6.03	18.56	18.56
50	1.75	0.30	18.20	18.20	36.76	36.76
60	2.00	0.25	19.31	19.31	56.07	56.07
70	2.25	0.21	17.63	17.63	73.70	73.70
80	2.50	0.18	15.95	15.95	89.65	89.65
120	3.00	0.13	8.18	8.18	97.83	97.83
170	3.50	0.09	0.71	0.71	98.54	98.54
200	3.75	0.07	0.09	0.09	98.63	98.63
230	4.00	0.06	0.02	0.02	98.65	98.65

Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.83	2.41	2.27	1.92	1.59	1.39	0.70

Moment Statistics	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
	1.84	0.28	0.7	-2.19	12.33

GRANULARMETRIC REPORT DIVC-10_COMPOSITES_031411.GPJ JPBRAZIL.GDT 5/3/11

Granularmetric Report

Depths and elevations based on measured values

Project Name: Dauphin Island Shore Protection

Sample Name: DIVC-10-22 COMP.

Analysis Date: 03-14-11

Analyzed By: JR

Coastal Planning & Engineering
2481 NW Boca Raton Blvd, Boca Raton
FL 33431
ph (561) 391-8102
fax (561) 391-9116

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
1,792,791	65,318	Alabama State Plane West	0.0 NAVD 88

USCS:	Munsell:	Comments:
SP		Composite data. Average dry Munsell Value is 7

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
100.00	100.00	1.56	0.06	#200 - 1.66 #230 - 1.62			

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
5/8"	-4.00	16.00	0.00	0.00	0.00	0.00
7/16"	-3.50	11.31	0.00	0.00	0.00	0.00
5/16"	-3.00	8.00	0.00	0.00	0.00	0.00
3.5	-2.50	5.66	0.15	0.15	0.15	0.15
5	-2.00	4.00	0.30	0.30	0.45	0.45
7	-1.50	2.83	0.44	0.44	0.89	0.89
10	-1.00	2.00	0.47	0.47	1.36	1.36
14	-0.50	1.41	0.53	0.53	1.89	1.89
18	0.00	1.00	0.57	0.57	2.46	2.46
25	0.50	0.71	1.23	1.23	3.69	3.69
35	1.00	0.50	4.13	4.13	7.82	7.82
40	1.25	0.42	4.22	4.22	12.04	12.04
45	1.50	0.35	4.13	4.13	16.17	16.17
50	1.75	0.30	28.25	28.25	44.42	44.42
60	2.00	0.25	18.78	18.78	63.20	63.20
70	2.25	0.21	13.81	13.81	77.01	77.01
80	2.50	0.18	10.77	10.77	87.78	87.78
120	3.00	0.13	9.64	9.64	97.42	97.42
170	3.50	0.09	0.86	0.86	98.28	98.28
200	3.75	0.07	0.06	0.06	98.34	98.34
230	4.00	0.06	0.04	0.04	98.38	98.38

Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.87	2.41	2.21	1.82	1.58	1.49	0.66

Moment Statistics	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
	1.79	0.29	0.72	-2.11	11.95

GRANULARMETRIC REPORT DIVC-10_COMPOSITES_031411.GPJ JPBRAZIL.GDT 5/3/11

Granularmetric Report

Depths and elevations based on measured values

Project Name: Dauphin Island Shore Protection

Sample Name: DIVC-10-23 COMP.

Analysis Date: 03-14-11

Analyzed By: JR

Coastal Planning & Engineering
2481 NW Boca Raton Blvd, Boca Raton
FL 33431
ph (561) 391-8102
fax (561) 391-9116

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
1,791,669	59,181	Alabama State Plane West	0.0 NAVD 88

USCS:	Munsell:	Comments:
SP		Composite data. Average dry Munsell Value is 7

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
100.00	100.00	1.51	0.07	#200 - 1.63 #230 - 1.58			

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
5/8"	-4.00	16.00	0.00	0.00	0.00	0.00
7/16"	-3.50	11.31	0.00	0.00	0.00	0.00
5/16"	-3.00	8.00	0.00	0.00	0.00	0.00
3.5	-2.50	5.66	0.07	0.07	0.07	0.07
5	-2.00	4.00	0.06	0.06	0.13	0.13
7	-1.50	2.83	0.04	0.04	0.17	0.17
10	-1.00	2.00	0.11	0.11	0.28	0.28
14	-0.50	1.41	0.12	0.12	0.40	0.40
18	0.00	1.00	0.17	0.17	0.57	0.57
25	0.50	0.71	0.25	0.25	0.82	0.82
35	1.00	0.50	1.13	1.13	1.95	1.95
40	1.25	0.42	1.46	1.46	3.41	3.41
45	1.50	0.35	1.66	1.66	5.07	5.07
50	1.75	0.30	11.49	11.49	16.56	16.56
60	2.00	0.25	15.50	15.50	32.06	32.06
70	2.25	0.21	19.58	19.58	51.64	51.64
80	2.50	0.18	22.37	22.37	74.01	74.01
120	3.00	0.13	21.88	21.88	95.89	95.89
170	3.50	0.09	2.28	2.28	98.17	98.17
200	3.75	0.07	0.20	0.20	98.37	98.37
230	4.00	0.06	0.05	0.05	98.42	98.42

Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.98	2.73	2.52	2.23	1.89	1.74	1.49

Moment Statistics	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
	2.19	0.22	0.54	-1.83	14.48

GRANULARMETRIC REPORT DIVC-10_COMPOSITES_031411.GPJ JPBRAZIL.GDT 5/3/11

Granularmetric Report

Depths and elevations based on measured values

Project Name: Dauphin Island Shore Protection

Sample Name: DIVC-10-24 COMP.

Analysis Date: 03-14-11

Analyzed By: JR

Coastal Planning & Engineering
2481 NW Boca Raton Blvd, Boca Raton
FL 33431
ph (561) 391-8102
fax (561) 391-9116

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
1,790,945	59,401	Alabama State Plane West	0.0 NAVD 88

USCS:	Munsell:	Comments:
SP		Composite data. Average dry Munsell Value is 7

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
100.00	100.00	1.36	0.05	#200 - 1.44 #230 - 1.41			

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
5/8"	-4.00	16.00	0.00	0.00	0.00	0.00
7/16"	-3.50	11.31	0.00	0.00	0.00	0.00
5/16"	-3.00	8.00	0.00	0.00	0.00	0.00
3.5	-2.50	5.66	0.02	0.02	0.02	0.02
5	-2.00	4.00	0.04	0.04	0.06	0.06
7	-1.50	2.83	0.04	0.04	0.10	0.10
10	-1.00	2.00	0.08	0.08	0.18	0.18
14	-0.50	1.41	0.12	0.12	0.30	0.30
18	0.00	1.00	0.13	0.13	0.43	0.43
25	0.50	0.71	0.20	0.20	0.63	0.63
35	1.00	0.50	1.00	1.00	1.63	1.63
40	1.25	0.42	1.63	1.63	3.26	3.26
45	1.50	0.35	1.52	1.52	4.78	4.78
50	1.75	0.30	13.89	13.89	18.67	18.67
60	2.00	0.25	18.37	18.37	37.04	37.04
70	2.25	0.21	20.03	20.03	57.07	57.07
80	2.50	0.18	22.55	22.55	79.62	79.62
120	3.00	0.13	17.52	17.52	97.14	97.14
170	3.50	0.09	1.30	1.30	98.44	98.44
200	3.75	0.07	0.12	0.12	98.56	98.56
230	4.00	0.06	0.03	0.03	98.59	98.59

Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.94	2.62	2.45	2.16	1.84	1.70	1.50

Moment Statistics	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
	2.13	0.23	0.5	-1.44	12.08

GRANULARMETRIC REPORT DIVC-10_COMPOSITES_031411.GPJ JPBRAZIL.GDT 5/3/11

Granularmetric Report

Depths and elevations based on measured values

Project Name: Dauphin Island Shore Protection

Sample Name: DIVC-10-25 COMP.

Analysis Date: 03-14-11

Analyzed By: JR

Coastal Planning & Engineering
2481 NW Boca Raton Blvd, Boca Raton
FL 33431
ph (561) 391-8102
fax (561) 391-9116

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
1,789,873	59,320	Alabama State Plane West	0.0 NAVD 88

USCS:	Munsell:	Comments:
SP		Composite data. Average dry Munsell Value is 7

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
100.00	100.00	2.28	0.18	#200 - 2.48 #230 - 2.46			

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
5/8"	-4.00	16.00	0.00	0.00	0.00	0.00
7/16"	-3.50	11.31	0.00	0.00	0.00	0.00
5/16"	-3.00	8.00	0.00	0.00	0.00	0.00
3.5	-2.50	5.66	0.00	0.00	0.00	0.00
5	-2.00	4.00	0.02	0.02	0.02	0.02
7	-1.50	2.83	0.02	0.02	0.04	0.04
10	-1.00	2.00	0.03	0.03	0.07	0.07
14	-0.50	1.41	0.07	0.07	0.14	0.14
18	0.00	1.00	0.11	0.11	0.25	0.25
25	0.50	0.71	0.19	0.19	0.44	0.44
35	1.00	0.50	1.04	1.04	1.48	1.48
40	1.25	0.42	1.22	1.22	2.70	2.70
45	1.50	0.35	0.61	0.61	3.31	3.31
50	1.75	0.30	8.04	8.04	11.35	11.35
60	2.00	0.25	10.44	10.44	21.79	21.79
70	2.25	0.21	14.74	14.74	36.53	36.53
80	2.50	0.18	23.78	23.78	60.31	60.31
120	3.00	0.13	34.01	34.01	94.32	94.32
170	3.50	0.09	3.08	3.08	97.40	97.40
200	3.75	0.07	0.12	0.12	97.52	97.52
230	4.00	0.06	0.02	0.02	97.54	97.54

Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
3.11	2.85	2.72	2.39	2.05	1.86	1.55

Moment Statistics	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
	2.33	0.20	0.5	-1.33	8.46

GRANULARMETRIC REPORT DIVC-10_COMPOSITES_031411.GPJ JPBRAZIL.GDT 5/3/11

Granularmetric Report

Depths and elevations based on measured values

Project Name: Dauphin Island Shore Protection

Sample Name: DIVC-10-26 COMP.

Analysis Date: 03-14-11

Analyzed By: JR

Coastal Planning & Engineering
2481 NW Boca Raton Blvd, Boca Raton
FL 33431
ph (561) 391-8102
fax (561) 391-9116

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
1,788,778	60,203	Alabama State Plane West	0.0 NAVD 88

USCS:	Munsell:	Comments:
SP		Composite data. Average dry Munsell Value is 7

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
100.00	100.00	1.23	0.05	#200 - 1.31 #230 - 1.28			

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
5/8"	-4.00	16.00	0.00	0.00	0.00	0.00
7/16"	-3.50	11.31	0.00	0.00	0.00	0.00
5/16"	-3.00	8.00	0.02	0.02	0.02	0.02
3.5	-2.50	5.66	0.06	0.06	0.08	0.08
5	-2.00	4.00	0.07	0.07	0.15	0.15
7	-1.50	2.83	0.17	0.17	0.32	0.32
10	-1.00	2.00	0.12	0.12	0.44	0.44
14	-0.50	1.41	0.19	0.19	0.63	0.63
18	0.00	1.00	0.40	0.40	1.03	1.03
25	0.50	0.71	0.88	0.88	1.91	1.91
35	1.00	0.50	2.73	2.73	4.64	4.64
40	1.25	0.42	2.44	2.44	7.08	7.08
45	1.50	0.35	2.52	2.52	9.60	9.60
50	1.75	0.30	13.80	13.80	23.40	23.40
60	2.00	0.25	16.63	16.63	40.03	40.03
70	2.25	0.21	20.17	20.17	60.20	60.20
80	2.50	0.18	23.13	23.13	83.33	83.33
120	3.00	0.13	14.35	14.35	97.68	97.68
170	3.50	0.09	0.93	0.93	98.61	98.61
200	3.75	0.07	0.08	0.08	98.69	98.69
230	4.00	0.06	0.03	0.03	98.72	98.72

Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.91	2.52	2.41	2.12	1.77	1.62	1.04

Moment Statistics	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
	2.04	0.24	0.6	-2.08	13.23

GRANULARMETRIC REPORT DIVC-10_COMPOSITES_031411.GPJ JPBRAZIL.GDT 5/3/11

Granularmetric Report

Depths and elevations based on measured values

Project Name: Dauphin Island Shore Protection

Sample Name: DIVC-10-27 COMP.

Analysis Date: 03-14-11

Analyzed By: JR

Coastal Planning & Engineering
2481 NW Boca Raton Blvd, Boca Raton
FL 33431
ph (561) 391-8102
fax (561) 391-9116

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
1,789,530	60,098	Alabama State Plane West	0.0 NAVD 88

USCS:	Munsell:	Comments:
SP		Composite data. Average dry Munsell Value is 8

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
100.00	100.00	1.06	0.04	#200 - 1.11 #230 - 1.10			

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
5/8"	-4.00	16.00	0.00	0.00	0.00	0.00
7/16"	-3.50	11.31	0.00	0.00	0.00	0.00
5/16"	-3.00	8.00	0.00	0.00	0.00	0.00
3.5	-2.50	5.66	0.00	0.00	0.00	0.00
5	-2.00	4.00	0.00	0.00	0.00	0.00
7	-1.50	2.83	0.06	0.06	0.06	0.06
10	-1.00	2.00	0.04	0.04	0.10	0.10
14	-0.50	1.41	0.10	0.10	0.20	0.20
18	0.00	1.00	0.13	0.13	0.33	0.33
25	0.50	0.71	0.29	0.29	0.62	0.62
35	1.00	0.50	1.27	1.27	1.89	1.89
40	1.25	0.42	1.42	1.42	3.31	3.31
45	1.50	0.35	2.55	2.55	5.86	5.86
50	1.75	0.30	9.51	9.51	15.37	15.37
60	2.00	0.25	15.29	15.29	30.66	30.66
70	2.25	0.21	19.49	19.49	50.15	50.15
80	2.50	0.18	27.23	27.23	77.38	77.38
120	3.00	0.13	20.24	20.24	97.62	97.62
170	3.50	0.09	1.22	1.22	98.84	98.84
200	3.75	0.07	0.05	0.05	98.89	98.89
230	4.00	0.06	0.01	0.01	98.90	98.90

Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.94	2.66	2.48	2.25	1.91	1.76	1.42

Moment Statistics	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
	2.18	0.22	0.49	-1.32	8.83

GRANULARMETRIC REPORT DIVC-10_COMPOSITES_031411.GPJ JPBRAZIL.GDT 5/3/11

Granularmetric Report

Depths and elevations based on measured values

Project Name: Dauphin Island Shore Protection

Sample Name: DIVC-10-28 COMP.

Analysis Date: 03-14-11

Analyzed By: JR

Coastal Planning & Engineering
2481 NW Boca Raton Blvd, Boca Raton
FL 33431
ph (561) 391-8102
fax (561) 391-9116

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
1,790,597	60,122	Alabama State Plane West	0.0 NAVD 88

USCS:	Munsell:	Comments:
SP		Composite data. Average dry Munsell Value is 7

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
100.00	100.00	1.15	0.01	#200 - 1.19 #230 - 1.16			

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
5/8"	-4.00	16.00	0.00	0.00	0.00	0.00
7/16"	-3.50	11.31	0.00	0.00	0.00	0.00
5/16"	-3.00	8.00	0.00	0.00	0.00	0.00
3.5	-2.50	5.66	0.00	0.00	0.00	0.00
5	-2.00	4.00	0.00	0.00	0.00	0.00
7	-1.50	2.83	0.01	0.01	0.01	0.01
10	-1.00	2.00	0.05	0.05	0.06	0.06
14	-0.50	1.41	0.07	0.07	0.13	0.13
18	0.00	1.00	0.05	0.05	0.18	0.18
25	0.50	0.71	0.17	0.17	0.35	0.35
35	1.00	0.50	1.03	1.03	1.38	1.38
40	1.25	0.42	1.43	1.43	2.81	2.81
45	1.50	0.35	2.48	2.48	5.29	5.29
50	1.75	0.30	10.44	10.44	15.73	15.73
60	2.00	0.25	14.96	14.96	30.69	30.69
70	2.25	0.21	19.20	19.20	49.89	49.89
80	2.50	0.18	27.83	27.83	77.72	77.72
120	3.00	0.13	19.89	19.89	97.61	97.61
170	3.50	0.09	1.14	1.14	98.75	98.75
200	3.75	0.07	0.06	0.06	98.81	98.81
230	4.00	0.06	0.03	0.03	98.84	98.84

Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.93	2.66	2.48	2.25	1.90	1.75	1.47

Moment Statistics	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
	2.19	0.22	0.46	-0.96	6.83

GRANULARMETRIC REPORT DIVC-10_COMPOSITES_031411.GPJ JPBRAZIL.GDT 5/3/11

Granularmetric Report

Depths and elevations based on measured values

Project Name: Dauphin Island Shore Protection

Sample Name: DIVC-10-29 COMP.

Analysis Date: 03-14-11

Analyzed By: JR

Coastal Planning & Engineering
2481 NW Boca Raton Blvd, Boca Raton
FL 33431
ph (561) 391-8102
fax (561) 391-9116

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
1,791,549	60,168	Alabama State Plane West	0.0 NAVD 88

USCS:	Munsell:	Comments:
SP		Composite data. Average dry Munsell Value is 7

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
100.00	100.00	1.02	0.03	#200 - 1.05 #230 - 1.05			

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
5/8"	-4.00	16.00	0.00	0.00	0.00	0.00
7/16"	-3.50	11.31	0.00	0.00	0.00	0.00
5/16"	-3.00	8.00	0.11	0.11	0.11	0.11
3.5	-2.50	5.66	0.08	0.08	0.19	0.19
5	-2.00	4.00	0.02	0.02	0.21	0.21
7	-1.50	2.83	0.06	0.06	0.27	0.27
10	-1.00	2.00	0.11	0.11	0.38	0.38
14	-0.50	1.41	0.12	0.12	0.50	0.50
18	0.00	1.00	0.20	0.20	0.70	0.70
25	0.50	0.71	0.47	0.47	1.17	1.17
35	1.00	0.50	2.50	2.50	3.67	3.67
40	1.25	0.42	3.38	3.38	7.05	7.05
45	1.50	0.35	4.17	4.17	11.22	11.22
50	1.75	0.30	18.71	18.71	29.93	29.93
60	2.00	0.25	18.98	18.98	48.91	48.91
70	2.25	0.21	17.79	17.79	66.70	66.70
80	2.50	0.18	19.59	19.59	86.29	86.29
120	3.00	0.13	11.90	11.90	98.19	98.19
170	3.50	0.09	0.71	0.71	98.90	98.90
200	3.75	0.07	0.05	0.05	98.95	98.95
230	4.00	0.06	0.00	0.00	98.95	98.95

Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.87	2.47	2.36	2.02	1.68	1.56	1.10

Moment	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
Statistics	1.98	0.25	0.57	-2.14	17.15

GRANULARMETRIC REPORT DIVC-10_COMPOSITES_031411.GPJ JPBRAZIL.GDT 5/3/11

Granularmetric Report

Depths and elevations based on measured values

Project Name: Dauphin Island Shore Protection

Sample Name: DIVC-10-31 COMP.

Analysis Date: 03-14-11

Analyzed By: JR

Coastal Planning & Engineering
2481 NW Boca Raton Blvd, Boca Raton
FL 33431
ph (561) 391-8102
fax (561) 391-9116

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
1,790,189	63,831	Alabama State Plane West	0.0 NAVD 88

USCS:	Munsell:	Comments:
SP		Composite data. Average dry Munsell Value is 8

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
100.00	100.00	0.88	0.06	#200 - 0.96 #230 - 0.94			

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
5/8"	-4.00	16.00	0.00	0.00	0.00	0.00
7/16"	-3.50	11.31	0.00	0.00	0.00	0.00
5/16"	-3.00	8.00	0.07	0.07	0.07	0.07
3.5	-2.50	5.66	0.10	0.10	0.17	0.17
5	-2.00	4.00	0.13	0.13	0.30	0.30
7	-1.50	2.83	0.24	0.24	0.54	0.54
10	-1.00	2.00	0.29	0.29	0.83	0.83
14	-0.50	1.41	0.30	0.30	1.13	1.13
18	0.00	1.00	0.40	0.40	1.53	1.53
25	0.50	0.71	0.74	0.74	2.27	2.27
35	1.00	0.50	3.47	3.47	5.74	5.74
40	1.25	0.42	3.60	3.60	9.34	9.34
45	1.50	0.35	3.46	3.46	12.80	12.80
50	1.75	0.30	24.96	24.96	37.76	37.76
60	2.00	0.25	24.07	24.07	61.83	61.83
70	2.25	0.21	16.76	16.76	78.59	78.59
80	2.50	0.18	12.94	12.94	91.53	91.53
120	3.00	0.13	6.98	6.98	98.51	98.51
170	3.50	0.09	0.50	0.50	99.01	99.01
200	3.75	0.07	0.03	0.03	99.04	99.04
230	4.00	0.06	0.02	0.02	99.06	99.06

Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.75	2.35	2.20	1.88	1.62	1.53	0.89

Moment Statistics	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
	1.84	0.28	0.62	-2.46	16.6

GRANULARMETRIC REPORT DIVC-10_COMPOSITES_031411.GPJ JPBRAZIL.GDT 5/3/11

Granularmetric Report

Depths and elevations based on measured values

Project Name: Dauphin Island Shore Protection

Sample Name: DIVC-10-32 COMP.

Analysis Date: 03-14-11

Analyzed By: JR

Coastal Planning & Engineering
2481 NW Boca Raton Blvd, Boca Raton
FL 33431
ph (561) 391-8102
fax (561) 391-9116

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
1,793,136	64,325	Alabama State Plane West	0.0 NAVD 88

USCS:	Munsell:	Comments:
SP		Composite data. Average dry Munsell Value is 7

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
100.00	100.00	1.41	0.02	#200 - 1.49 #230 - 1.43			

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
5/8"	-4.00	16.00	0.00	0.00	0.00	0.00
7/16"	-3.50	11.31	0.00	0.00	0.00	0.00
5/16"	-3.00	8.00	0.00	0.00	0.00	0.00
3.5	-2.50	5.66	0.03	0.03	0.03	0.03
5	-2.00	4.00	0.04	0.04	0.07	0.07
7	-1.50	2.83	0.07	0.07	0.14	0.14
10	-1.00	2.00	0.07	0.07	0.21	0.21
14	-0.50	1.41	0.11	0.11	0.32	0.32
18	0.00	1.00	0.17	0.17	0.49	0.49
25	0.50	0.71	0.59	0.59	1.08	1.08
35	1.00	0.50	3.44	3.44	4.52	4.52
40	1.25	0.42	3.46	3.46	7.98	7.98
45	1.50	0.35	4.05	4.05	12.03	12.03
50	1.75	0.30	12.93	12.93	24.96	24.96
60	2.00	0.25	17.35	17.35	42.31	42.31
70	2.25	0.21	20.12	20.12	62.43	62.43
80	2.50	0.18	20.33	20.33	82.76	82.76
120	3.00	0.13	14.18	14.18	96.94	96.94
170	3.50	0.09	1.43	1.43	98.37	98.37
200	3.75	0.07	0.14	0.14	98.51	98.51
230	4.00	0.06	0.06	0.06	98.57	98.57

Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.93	2.54	2.40	2.10	1.75	1.58	1.03

Moment	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
Statistics	2.04	0.24	0.57	-1.26	8.64

GRANULARMETRIC REPORT DIVC-10_COMPOSITES_031411.GPJ JPBRAZIL.GDT 5/3/11

Granularmetric Report

Depths and elevations based on measured values

Project Name: Dauphin Island Shore Protection

Sample Name: DIVC-10-33 COMP.

Analysis Date: 03-14-11

Analyzed By: JR

Coastal Planning & Engineering
2481 NW Boca Raton Blvd, Boca Raton
FL 33431
ph (561) 391-8102
fax (561) 391-9116

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
1,791,133	63,571	Alabama State Plane West	0.0 NAVD 88

USCS:	Munsell:	Comments:
SP		Composite data. Average dry Munsell Value is 8

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
100.00	100.00	1.08	0.04	#200 - 1.13 #230 - 1.12			

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
5/8"	-4.00	16.00	0.00	0.00	0.00	0.00
7/16"	-3.50	11.31	0.00	0.00	0.00	0.00
5/16"	-3.00	8.00	0.00	0.00	0.00	0.00
3.5	-2.50	5.66	0.14	0.14	0.14	0.14
5	-2.00	4.00	0.11	0.11	0.25	0.25
7	-1.50	2.83	0.09	0.09	0.34	0.34
10	-1.00	2.00	0.14	0.14	0.48	0.48
14	-0.50	1.41	0.16	0.16	0.64	0.64
18	0.00	1.00	0.26	0.26	0.90	0.90
25	0.50	0.71	0.47	0.47	1.37	1.37
35	1.00	0.50	1.68	1.68	3.05	3.05
40	1.25	0.42	1.68	1.68	4.73	4.73
45	1.50	0.35	1.43	1.43	6.16	6.16
50	1.75	0.30	10.97	10.97	17.13	17.13
60	2.00	0.25	13.39	13.39	30.52	30.52
70	2.25	0.21	19.10	19.10	49.62	49.62
80	2.50	0.18	30.16	30.16	79.78	79.78
120	3.00	0.13	18.50	18.50	98.28	98.28
170	3.50	0.09	0.57	0.57	98.85	98.85
200	3.75	0.07	0.02	0.02	98.87	98.87
230	4.00	0.06	0.01	0.01	98.88	98.88

Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.91	2.61	2.46	2.25	1.90	1.72	1.30

Moment	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
Statistics	2.14	0.23	0.57	-2.79	19.37

GRANULARMETRIC REPORT DIVC-10_COMPOSITES_031411.GPJ JPBRAZIL.GDT 5/3/11

Granularmetric Report

Depths and elevations based on measured values

Project Name: Dauphin Island Shore Protection

Sample Name: DIVC-10-34 COMP.

Analysis Date: 03-14-11

Analyzed By: JR

Coastal Planning & Engineering
2481 NW Boca Raton Blvd, Boca Raton
FL 33431
ph (561) 391-8102
fax (561) 391-9116

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
1,792,066	63,658	Alabama State Plane West	0.0 NAVD 88

USCS:	Munsell:	Comments:
SP		Composite data. Average dry Munsell Value is 7

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
100.00	100.00	1.49	0.07	#200 - 1.65 #230 - 1.56			

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
5/8"	-4.00	16.00	0.00	0.00	0.00	0.00
7/16"	-3.50	11.31	0.10	0.10	0.10	0.10
5/16"	-3.00	8.00	0.30	0.30	0.40	0.40
3.5	-2.50	5.66	0.18	0.18	0.58	0.58
5	-2.00	4.00	0.15	0.15	0.73	0.73
7	-1.50	2.83	0.28	0.28	1.01	1.01
10	-1.00	2.00	0.33	0.33	1.34	1.34
14	-0.50	1.41	0.42	0.42	1.76	1.76
18	0.00	1.00	0.52	0.52	2.28	2.28
25	0.50	0.71	0.81	0.81	3.09	3.09
35	1.00	0.50	2.28	2.28	5.37	5.37
40	1.25	0.42	2.17	2.17	7.54	7.54
45	1.50	0.35	2.65	2.65	10.19	10.19
50	1.75	0.30	12.60	12.60	22.79	22.79
60	2.00	0.25	17.70	17.70	40.49	40.49
70	2.25	0.21	19.90	19.90	60.39	60.39
80	2.50	0.18	23.04	23.04	83.43	83.43
120	3.00	0.13	13.52	13.52	96.95	96.95
170	3.50	0.09	1.23	1.23	98.18	98.18
200	3.75	0.07	0.17	0.17	98.35	98.35
230	4.00	0.06	0.09	0.09	98.44	98.44

Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.93	2.52	2.41	2.12	1.78	1.62	0.92

Moment Statistics	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
	2	0.25	0.76	-3.19	19.78

GRANULARMETRIC REPORT DIVC-10_COMPOSITES_031411.GPJ JPBRAZIL.GDT 5/3/11

Granularmetric Report

Depths and elevations based on measured values

Project Name: Dauphin Island Shore Protection

Sample Name: DIVC-10-35 COMP.

Analysis Date: 03-14-11

Analyzed By: JR

Coastal Planning & Engineering
2481 NW Boca Raton Blvd, Boca Raton
FL 33431
ph (561) 391-8102
fax (561) 391-9116

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
1,792,192	64,538	Alabama State Plane West	0.0 NAVD 88

USCS:	Munsell:	Comments:
SP		Composite data. Average dry Munsell Value is 7

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
100.00	100.00	1.15	0.08	#200 - 1.31 #230 - 1.23			

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
5/8"	-4.00	16.00	0.00	0.00	0.00	0.00
7/16"	-3.50	11.31	0.00	0.00	0.00	0.00
5/16"	-3.00	8.00	0.00	0.00	0.00	0.00
3.5	-2.50	5.66	0.06	0.06	0.06	0.06
5	-2.00	4.00	0.12	0.12	0.18	0.18
7	-1.50	2.83	0.14	0.14	0.32	0.32
10	-1.00	2.00	0.27	0.27	0.59	0.59
14	-0.50	1.41	0.26	0.26	0.85	0.85
18	0.00	1.00	0.33	0.33	1.18	1.18
25	0.50	0.71	0.40	0.40	1.58	1.58
35	1.00	0.50	0.97	0.97	2.55	2.55
40	1.25	0.42	0.97	0.97	3.52	3.52
45	1.50	0.35	0.68	0.68	4.20	4.20
50	1.75	0.30	9.03	9.03	13.23	13.23
60	2.00	0.25	15.16	15.16	28.39	28.39
70	2.25	0.21	22.50	22.50	50.89	50.89
80	2.50	0.18	27.66	27.66	78.55	78.55
120	3.00	0.13	18.25	18.25	96.80	96.80
170	3.50	0.09	1.74	1.74	98.54	98.54
200	3.75	0.07	0.15	0.15	98.69	98.69
230	4.00	0.06	0.08	0.08	98.77	98.77

Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.95	2.65	2.47	2.24	1.94	1.80	1.52

Moment Statistics	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
	2.18	0.22	0.57	-2.76	19.15

GRANULARMETRIC REPORT DIVC-10_COMPOSITES_031411.GPJ JPBRAZIL.GDT 5/3/11

Granularmetric Report

Depths and elevations based on measured values

Project Name: Dauphin Island Shore Protection

Sample Name: DIVC-10-36 COMP.

Analysis Date: 03-14-11

Analyzed By: JR

Coastal Planning & Engineering
2481 NW Boca Raton Blvd, Boca Raton
FL 33431
ph (561) 391-8102
fax (561) 391-9116

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
1,791,262	64,470	Alabama State Plane West	0.0 NAVD 88

USCS:	Munsell:	Comments:
SP		Composite data. Average dry Munsell Value is 7

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
100.00	100.00	1.10	0.07	#200 - 1.19 #230 - 1.17			

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
5/8"	-4.00	16.00	0.00	0.00	0.00	0.00
7/16"	-3.50	11.31	0.00	0.00	0.00	0.00
5/16"	-3.00	8.00	0.00	0.00	0.00	0.00
3.5	-2.50	5.66	0.30	0.30	0.30	0.30
5	-2.00	4.00	0.40	0.40	0.70	0.70
7	-1.50	2.83	0.45	0.45	1.15	1.15
10	-1.00	2.00	0.53	0.53	1.68	1.68
14	-0.50	1.41	0.63	0.63	2.31	2.31
18	0.00	1.00	0.69	0.69	3.00	3.00
25	0.50	0.71	1.20	1.20	4.20	4.20
35	1.00	0.50	4.64	4.64	8.84	8.84
40	1.25	0.42	4.17	4.17	13.01	13.01
45	1.50	0.35	6.16	6.16	19.17	19.17
50	1.75	0.30	16.44	16.44	35.61	35.61
60	2.00	0.25	17.97	17.97	53.58	53.58
70	2.25	0.21	18.23	18.23	71.81	71.81
80	2.50	0.18	17.44	17.44	89.25	89.25
120	3.00	0.13	8.96	8.96	98.21	98.21
170	3.50	0.09	0.55	0.55	98.76	98.76
200	3.75	0.07	0.05	0.05	98.81	98.81
230	4.00	0.06	0.02	0.02	98.83	98.83

Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.82	2.42	2.30	1.95	1.59	1.37	0.59

Moment Statistics	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
	1.83	0.28	0.77	-2.38	12.15

GRANULARMETRIC REPORT DIVC-10_COMPOSITES_031411.GPJ JPBRAZIL.GDT 5/3/11

Granularmetric Report

Depths and elevations based on measured values

Project Name: Dauphin Island Shore Protection

Sample Name: DIVC-10-37 COMP.

Analysis Date: 03-14-11

Analyzed By: JR

Coastal Planning & Engineering
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FL 33431
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fax (561) 391-9116

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
1,790,318	64,684	Alabama State Plane West	0.0 NAVD 88

USCS:	Munsell:	Comments:
SP		Composite data. Average dry Munsell Value is 8

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
100.00	100.00	1.12	0.10	#200 - 1.22 #230 - 1.22			

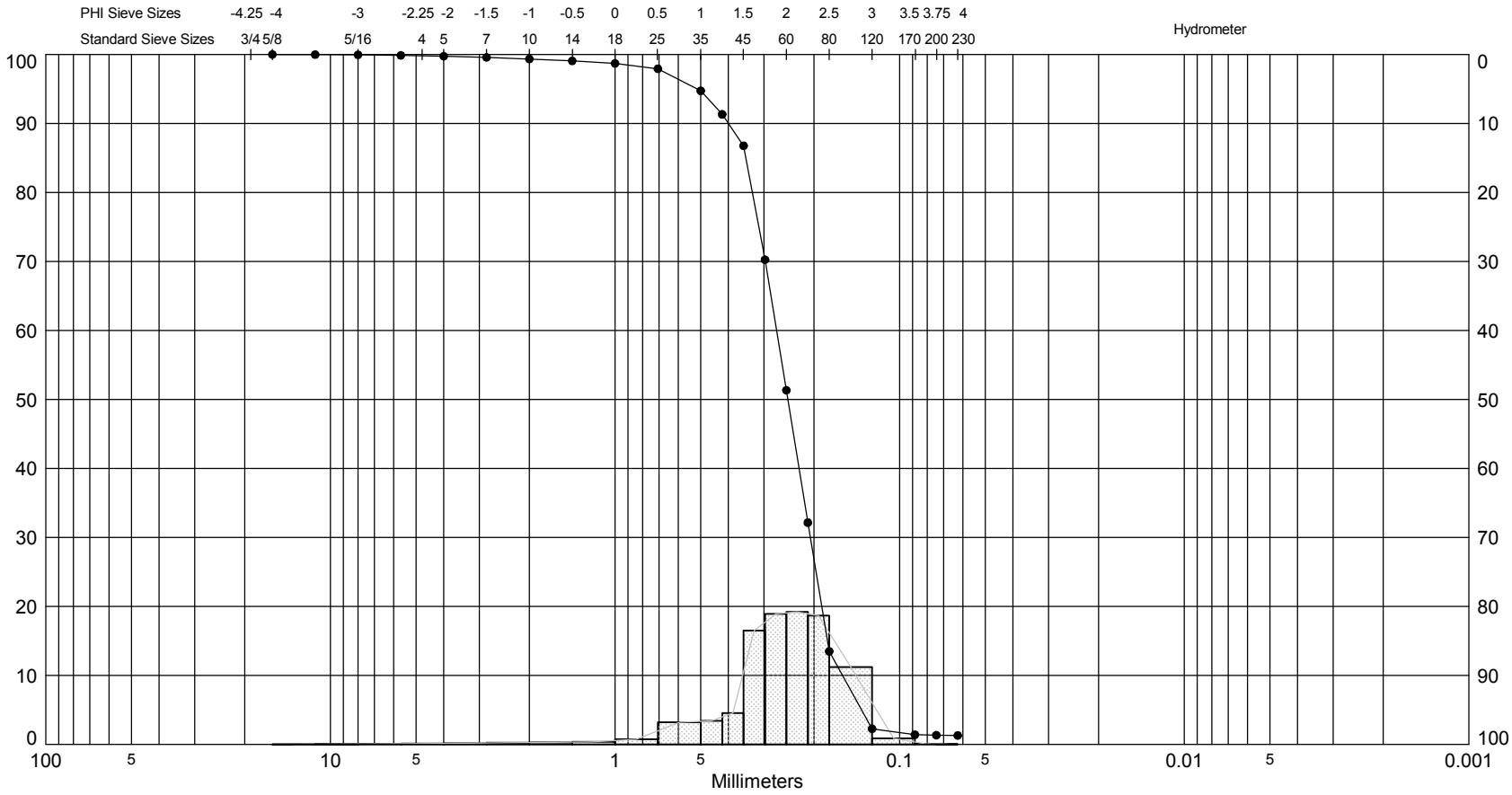
Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
5/8"	-4.00	16.00	0.00	0.00	0.00	0.00
7/16"	-3.50	11.31	0.29	0.29	0.29	0.29
5/16"	-3.00	8.00	0.33	0.33	0.62	0.62
3.5	-2.50	5.66	0.28	0.28	0.90	0.90
5	-2.00	4.00	0.24	0.24	1.14	1.14
7	-1.50	2.83	0.27	0.27	1.41	1.41
10	-1.00	2.00	0.39	0.39	1.80	1.80
14	-0.50	1.41	0.49	0.49	2.29	2.29
18	0.00	1.00	0.80	0.80	3.09	3.09
25	0.50	0.71	2.34	2.34	5.43	5.43
35	1.00	0.50	10.88	10.88	16.31	16.31
40	1.25	0.42	9.24	9.24	25.55	25.55
45	1.50	0.35	7.49	7.49	33.04	33.04
50	1.75	0.30	29.22	29.22	62.26	62.26
60	2.00	0.25	17.33	17.33	79.59	79.59
70	2.25	0.21	10.16	10.16	89.75	89.75
80	2.50	0.18	6.17	6.17	95.92	95.92
120	3.00	0.13	2.70	2.70	98.62	98.62
170	3.50	0.09	0.12	0.12	98.74	98.74
200	3.75	0.07	0.04	0.04	98.78	98.78
230	4.00	0.06	0.00	0.00	98.78	98.78

Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.46	2.11	1.93	1.65	1.24	0.99	0.41

Moment Statistics	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
	1.5	0.35	0.79	-2.75	16

APPENDIX 16
Borrow Area Composite Grain Size Curves/Histograms



Gravel		Sand			Silt and Clay
Coarse	Fine	Coarse	Medium	Fine	

Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
BORROW AREA I	—●—	0.0	SP	#200 - 1.33 #230 - 1.30			2.02	1.95	-2.17	14.28	0.63

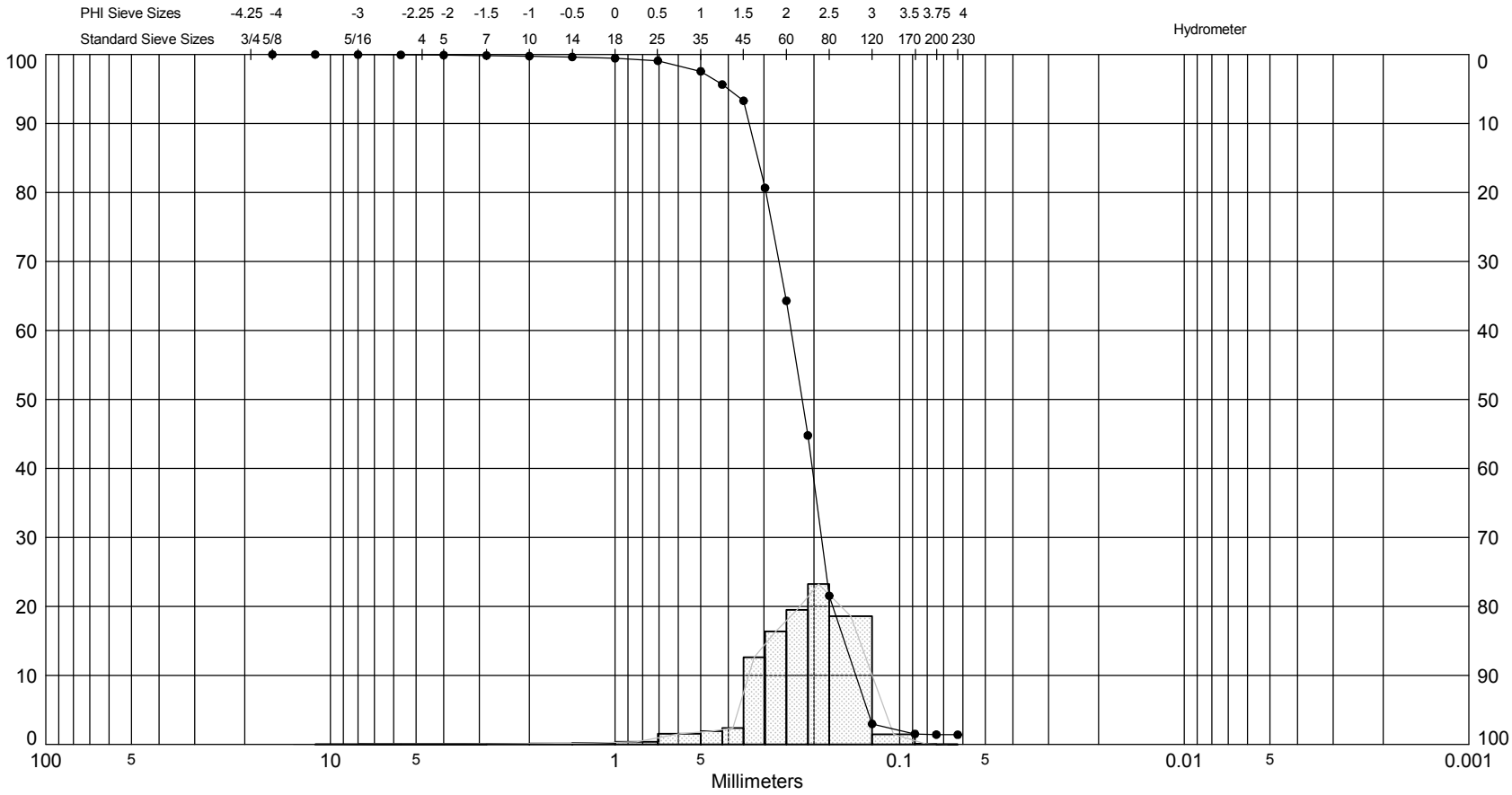
Comments: Composite data. Average dry Munsell Value is 7

Depths and elevations based on measured values

Sample Information	
Project Name:	Dauphin Island Shore Protection
Analysis Date:	03-14-11
Analyzed By:	JR
Easting (X, ft):	
Northing (Y, ft):	
Horizontal System:	NAD 1983
Vertical System:	NAVD 88

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SIEVE ANALYSIS DIVC-10_COMPOSITES_031411.GPJ JPBRAZIL.GDT 5/3/11



Gravel		Sand			Silt and Clay
Coarse	Fine	Coarse	Medium	Fine	

Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
BORROW AREA II	—●—	0.0	SP	#200 - 1.42 #230 - 1.40			2.18	2.13	-1.75	13.33	0.54

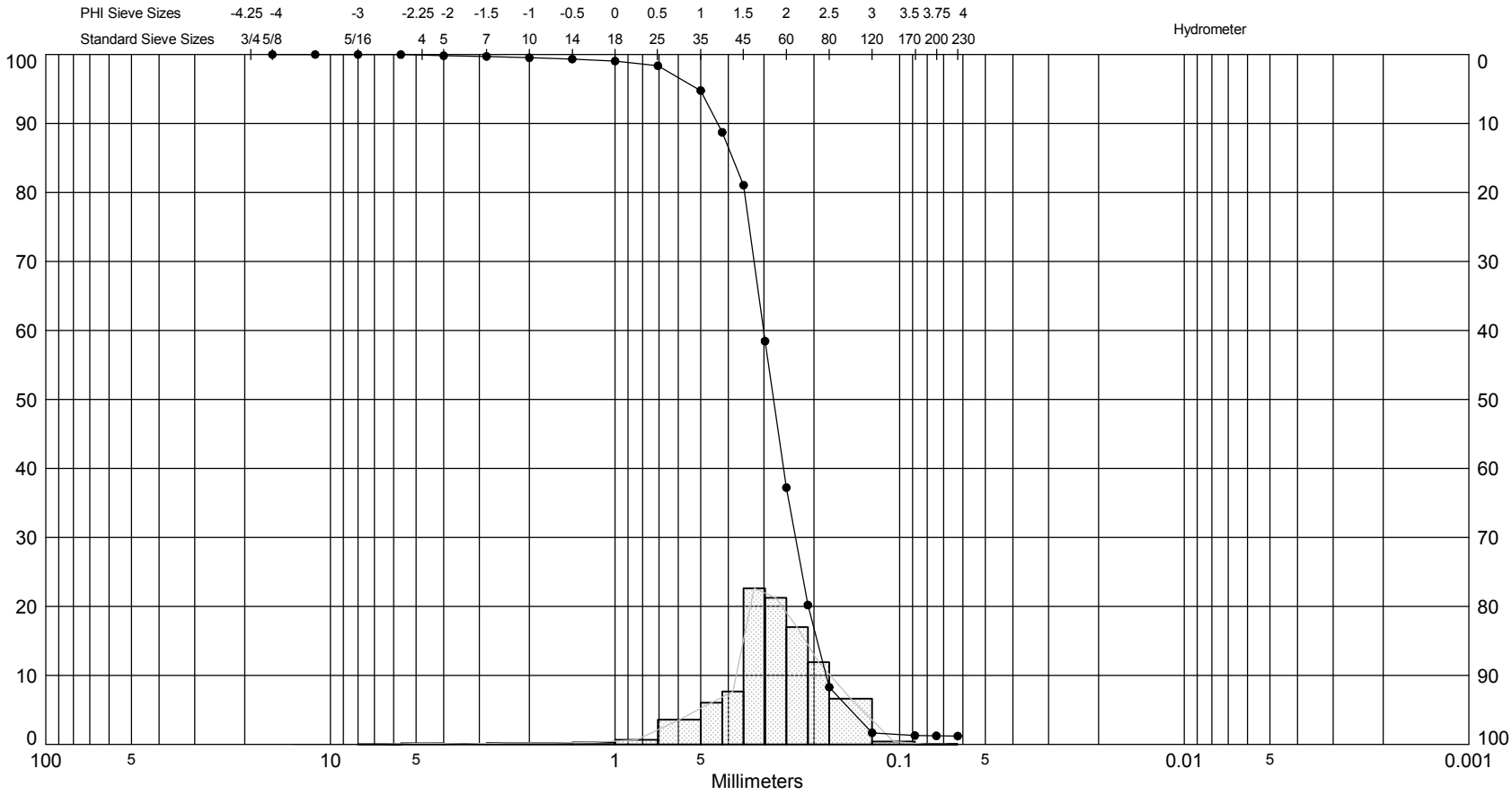
Comments: Composite data. Average dry Munsell Value is 7

Depths and elevations based on measured values

Sample Information	
Project Name:	Dauphin Island Shore Protection
Analysis Date:	03-14-11
Analyzed By:	JR
Easting (X, ft):	
Northing (Y, ft):	
Horizontal System:	NAD 1983
Vertical System:	NAVD 88

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Gravel		Sand			Silt and Clay
Coarse	Fine	Coarse	Medium	Fine	

Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
DIVC-10-03 COMP.	—●—	0.0	SP	#200 - 1.24 #230 - 1.21			1.85	1.82	-1.6	11.47	0.57

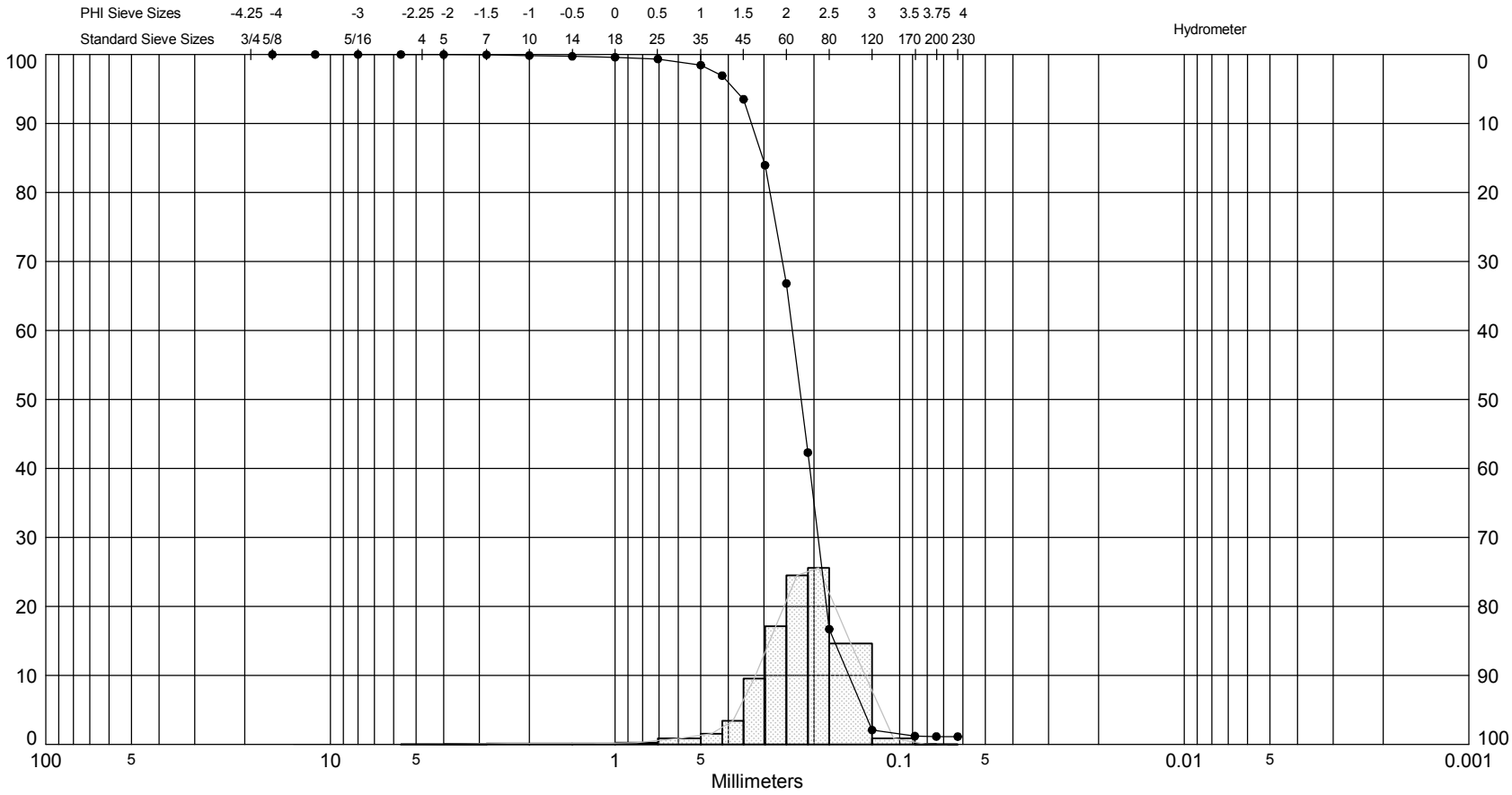
Comments: Composite data. Average dry Munsell Value is 7

Depths and elevations based on measured values

Sample Information	
Project Name:	Dauphin Island Shore Protection
Analysis Date:	03-14-11
Analyzed By:	JR
Easting (X, ft):	1,789,459
Northing (Y, ft):	64,265
Horizontal System:	NAD 1983
Vertical System:	NAVD 88

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SIEVE ANALYSIS DIVC-10_COMPOSITES_031411.GPJ JPBRAZIL.GDT 5/3/11



Gravel		Sand			Silt and Clay
Coarse	Fine	Coarse	Medium	Fine	

Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
DIVC-10-04 COMP.	—●—	0.0	SP	#200 - 1.14 #230 - 1.13			2.17	2.13	-1.44	10.69	0.47

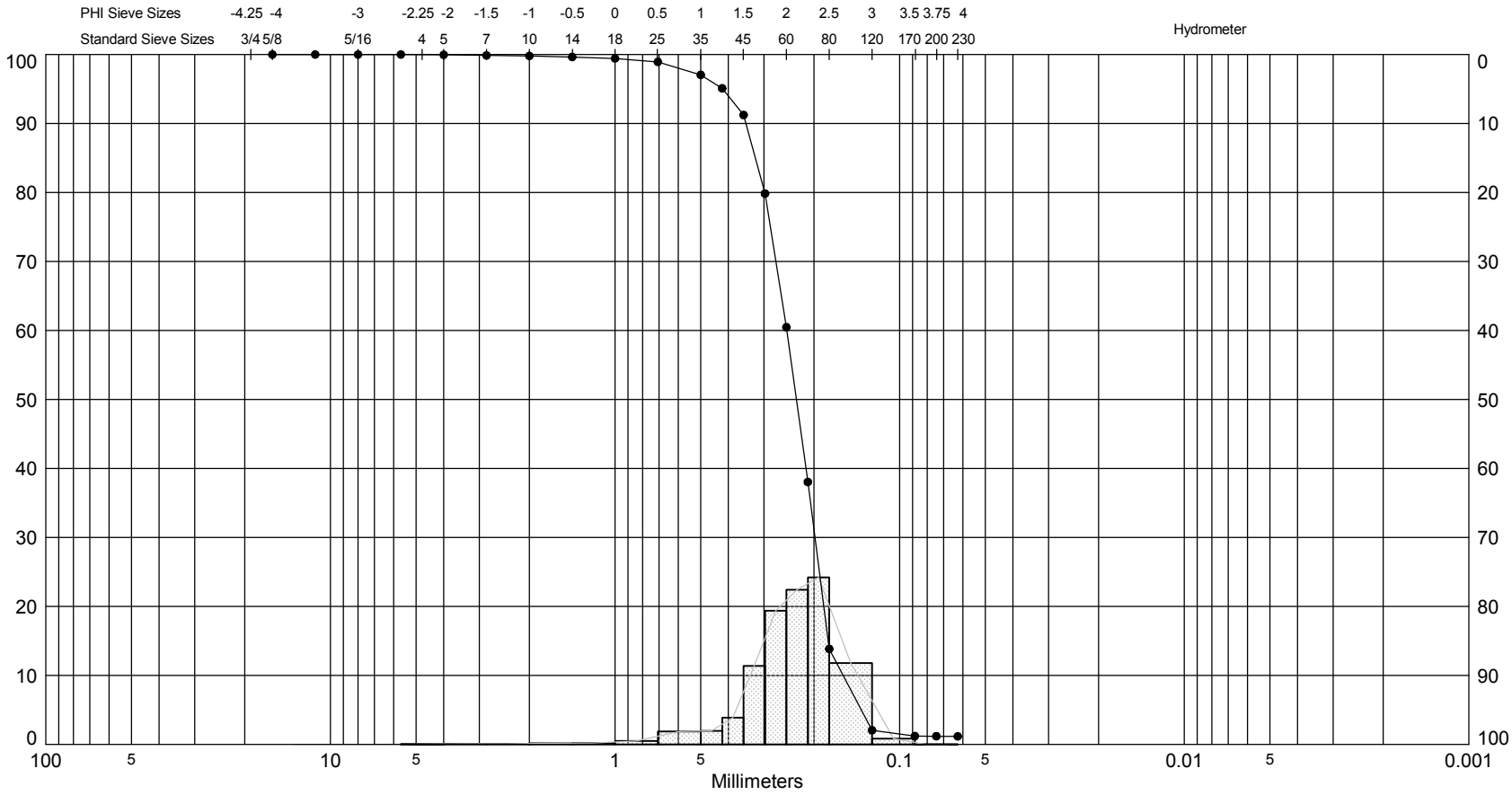
Comments: Composite data. Average dry Munsell Value is 7

Depths and elevations based on measured values

Sample Information	
Project Name:	Dauphin Island Shore Protection
Analysis Date:	03-14-11
Analyzed By:	JR
Easting (X, ft):	1,787,891
Northing (Y, ft):	59,735
Horizontal System:	NAD 1983
Vertical System:	NAVD 88

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SIEVE ANALYSIS DIVC-10_COMPOSITES_031411.GPJ JPBRAZIL.GDT 5/3/11



Gravel		Sand			Silt and Clay
Coarse	Fine	Coarse	Medium	Fine	

Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
DIVC-10-09 COMP.	—●—	0.0	SP	#200 - 1.18 #230 - 1.17			2.12	2.06	-1.68	11.48	0.51

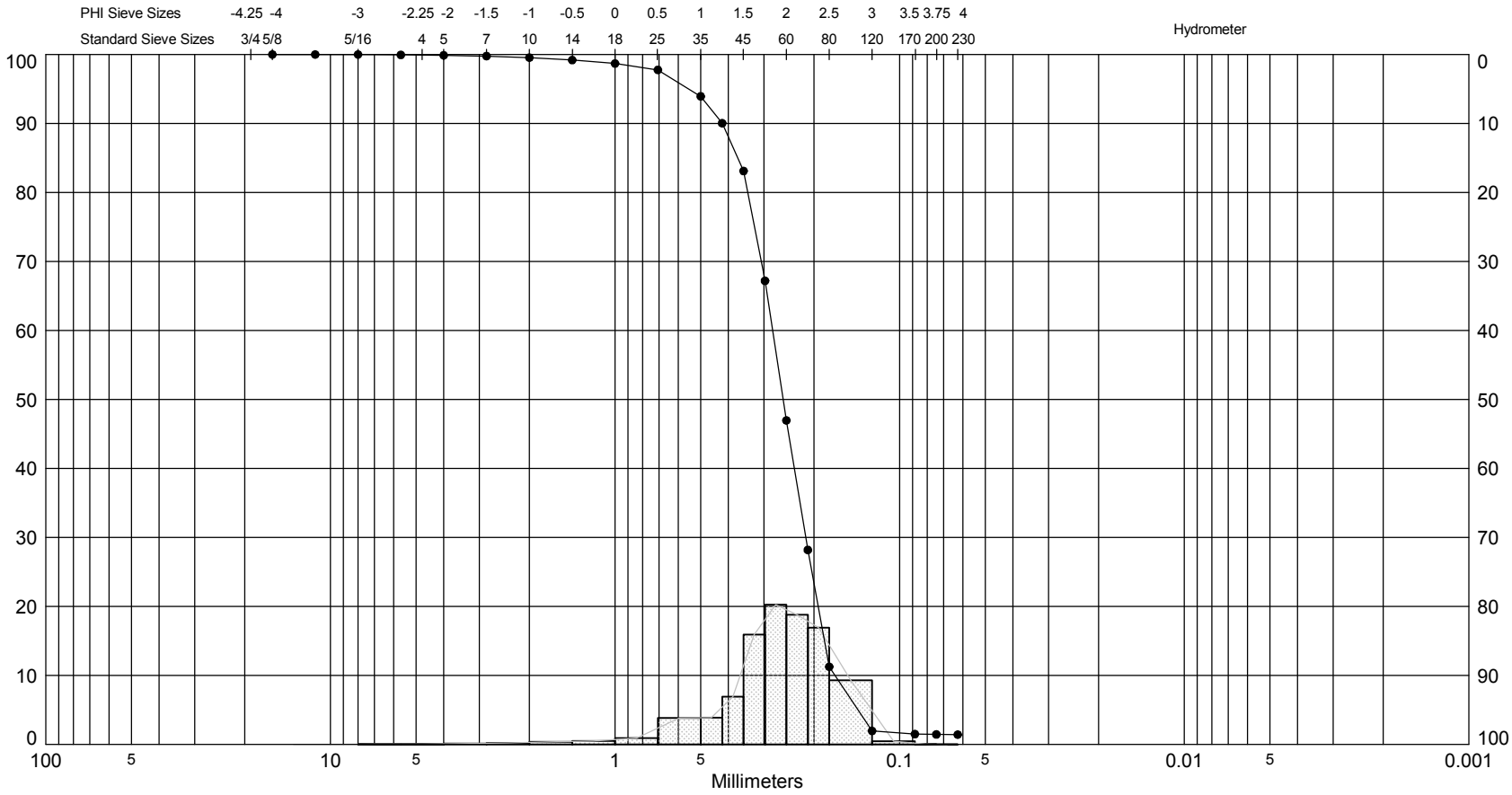
Comments: Composite data. Average dry Munsell Value is 7

Depths and elevations based on measured values

Sample Information	
Project Name:	Dauphin Island Shore Protection
Analysis Date:	03-14-11
Analyzed By:	JR
Easting (X, ft):	1,787,827
Northing (Y, ft):	64,695
Horizontal System:	NAD 1983
Vertical System:	NAVD 88

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SIEVE ANALYSIS DIVC-10_COMPOSITES_031411.GPJ JPBRAZIL.GDT 5/3/11



Gravel		Sand			Silt and Clay
Coarse	Fine	Coarse	Medium	Fine	

Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
DIVC-10-10 COMP.	—●—	0.0	SP	#200 - 1.44 #230 - 1.42			1.96	1.9	-1.71	10.31	0.61

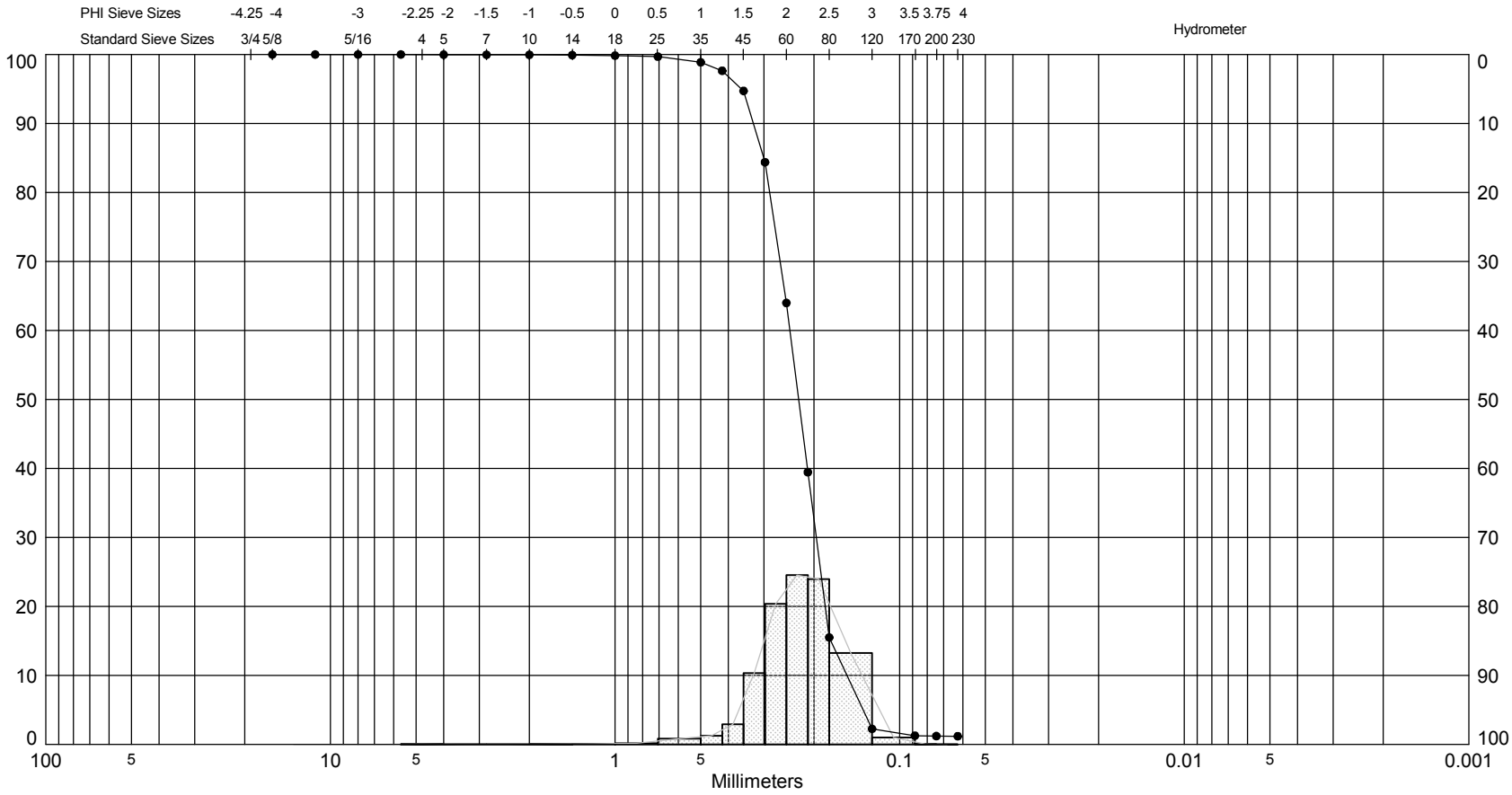
Comments: Composite data. Average dry Munsell Value is 7

Depths and elevations based on measured values

Sample Information	
Project Name:	Dauphin Island Shore Protection
Analysis Date:	03-14-11
Analyzed By:	JR
Easting (X, ft):	1,788,794
Northing (Y, ft):	64,755
Horizontal System:	NAD 1983
Vertical System:	NAVD 88

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SIEVE ANALYSIS DIVC-10_COMPOSITES_031411.GPJ JPBRAZIL.GDT 5/3/11



Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
DIVC-10-11 COMP.	—●—	0.0	SP	#200 - 1.20 #230 - 1.18			2.14	2.12	-0.9	9.05	0.43

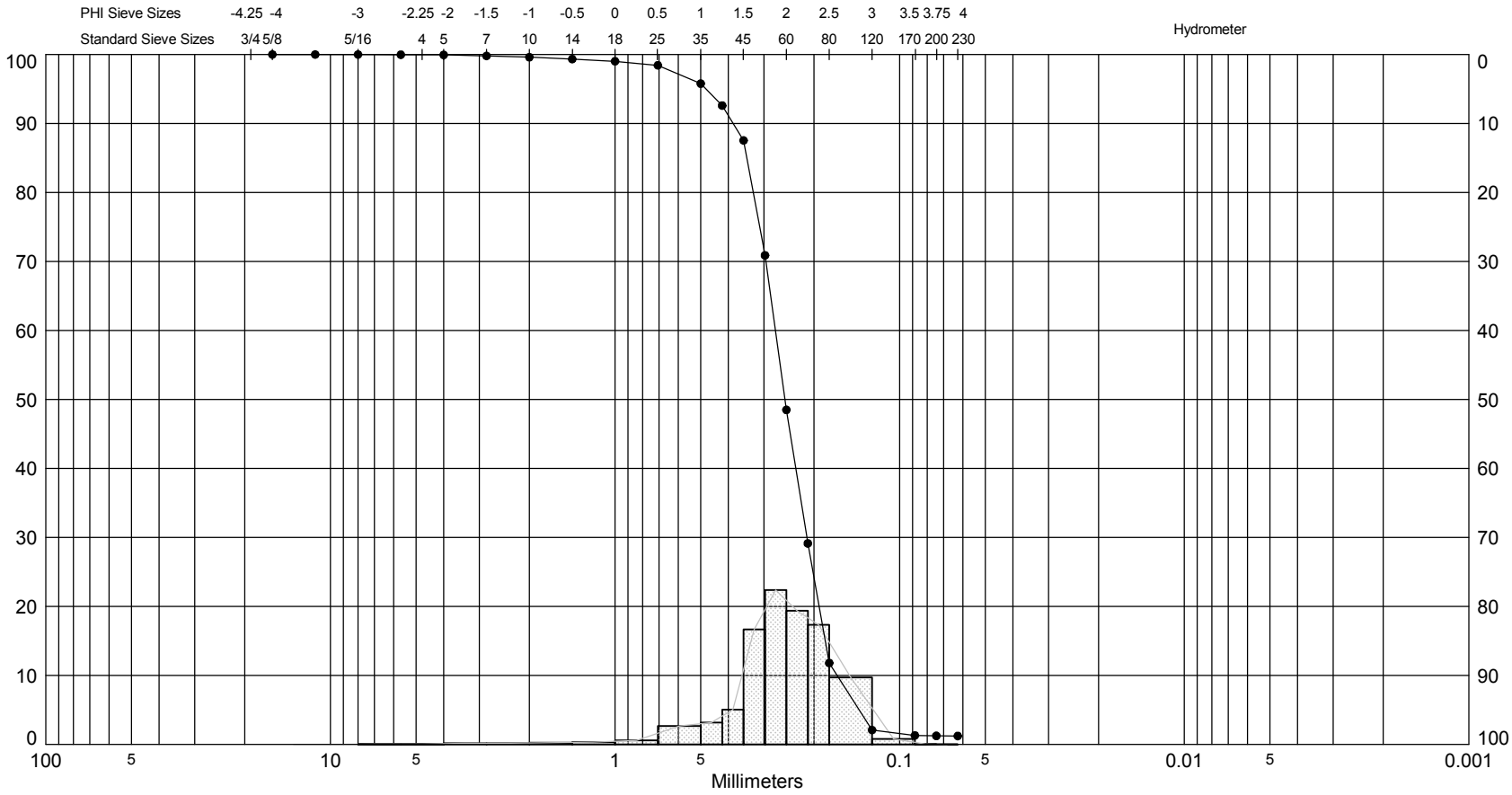
Comments: Composite data. Average dry Munsell Value is 7

Depths and elevations based on measured values

Sample Information	
Project Name:	Dauphin Island Shore Protection
Analysis Date:	03-14-11
Analyzed By:	JR
Easting (X, ft):	1,788,371
Northing (Y, ft):	63,930
Horizontal System:	NAD 1983
Vertical System:	NAVD 88

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SIEVE ANALYSIS DIVC-10_COMPOSITES_031411.GPJ JPBRAZIL.GDT 5/3/11



Gravel		Sand			Silt and Clay
Coarse	Fine	Coarse	Medium	Fine	

Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
DIVC-10-12 COMP.	—●—	0.0	SP	#200 - 1.24 #230 - 1.22			1.98	1.95	-1.69	11.36	0.56

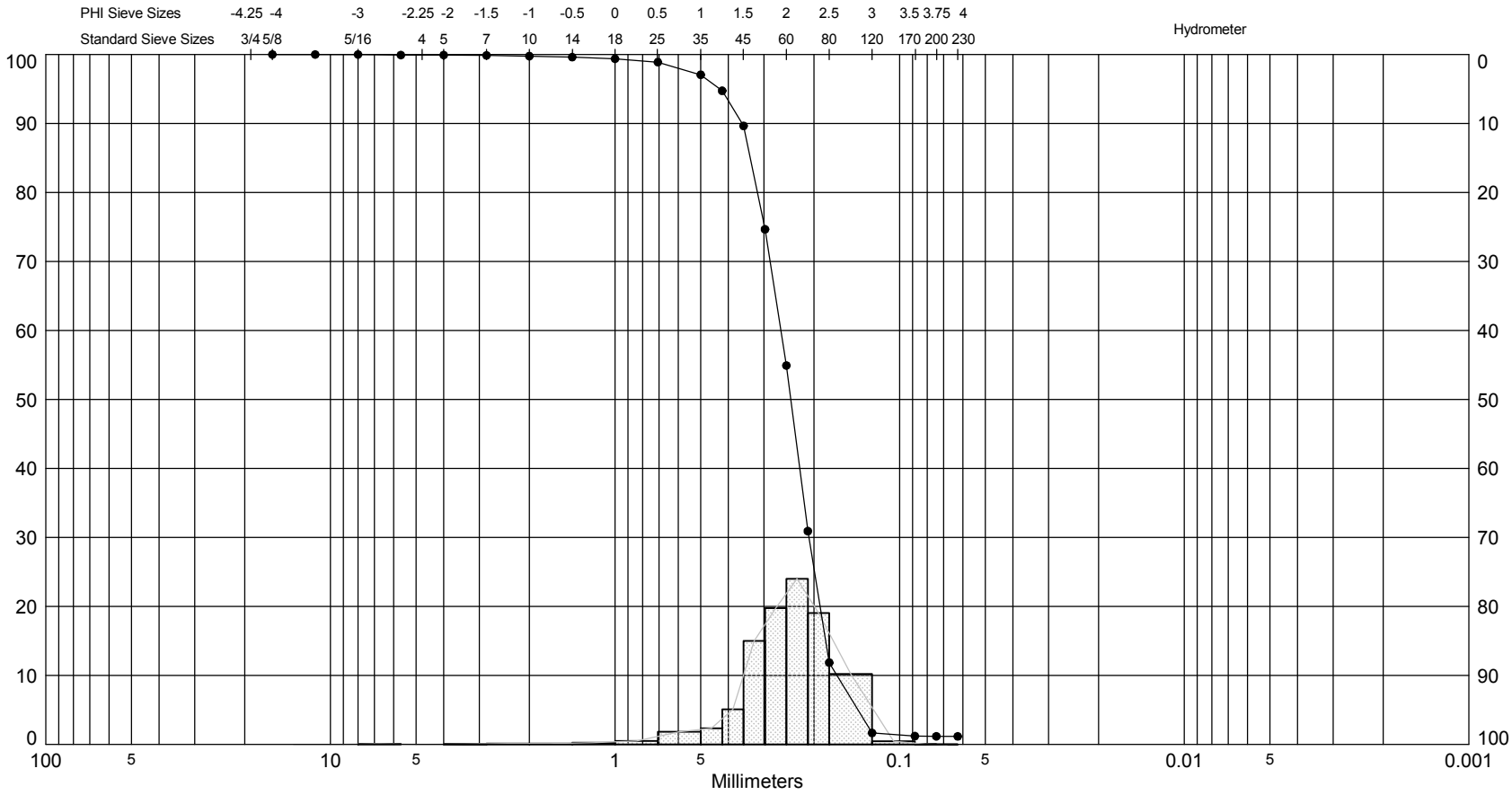
Comments: Composite data. Average dry Munsell Value is 7

Depths and elevations based on measured values

Sample Information	
Project Name:	Dauphin Island Shore Protection
Analysis Date:	03-14-11
Analyzed By:	JR
Easting (X, ft):	1,788,442
Northing (Y, ft):	63,059
Horizontal System:	NAD 1983
Vertical System:	NAVD 88

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SIEVE ANALYSIS DIVC-10_COMPOSITES_031411.GPJ JPBRAZIL.GDT 5/3/11



Gravel		Sand			Silt and Clay
Coarse	Fine	Coarse	Medium	Fine	

Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
DIVC-10-13 COMP.	—●—	0.0	SP	#200 - 1.17 #230 - 1.16			2.05	2	-1.8	13.6	0.51

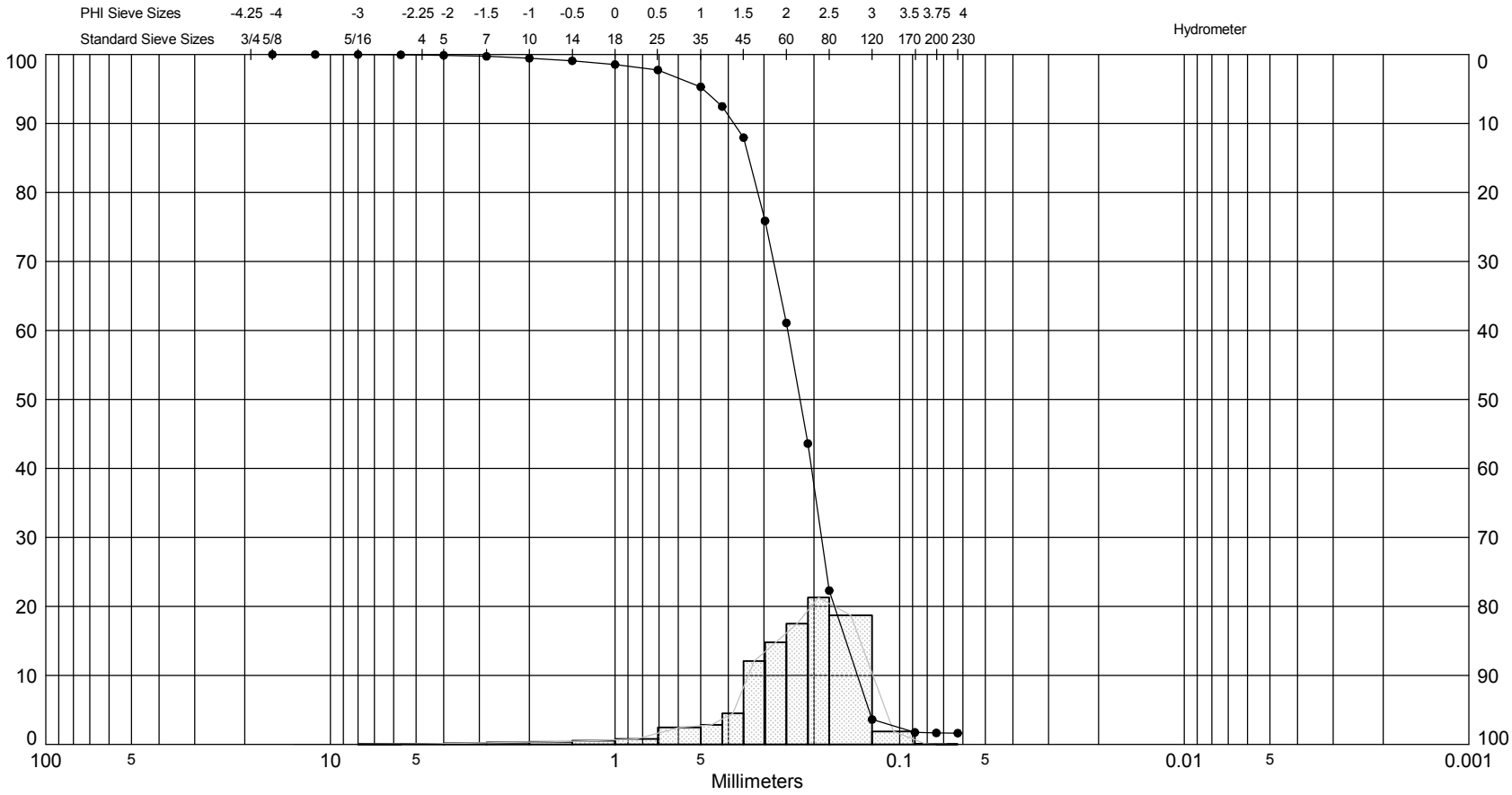
Comments: Composite data. Average dry Munsell Value is 7

Depths and elevations based on measured values

Sample Information	
Project Name:	Dauphin Island Shore Protection
Analysis Date:	03-14-11
Analyzed By:	JR
Easting (X, ft):	1,789,373
Northing (Y, ft):	63,248
Horizontal System:	NAD 1983
Vertical System:	NAVD 88

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SIEVE ANALYSIS DIVC-10_COMPOSITES_031411.GPJ JPBRAZIL.GDT 5/3/11



Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
DIVC-10-19 COMP.	—●—	0.0	SP	#200 - 1.66 #230 - 1.63			2.16	2.06	-1.83	10.4	0.65

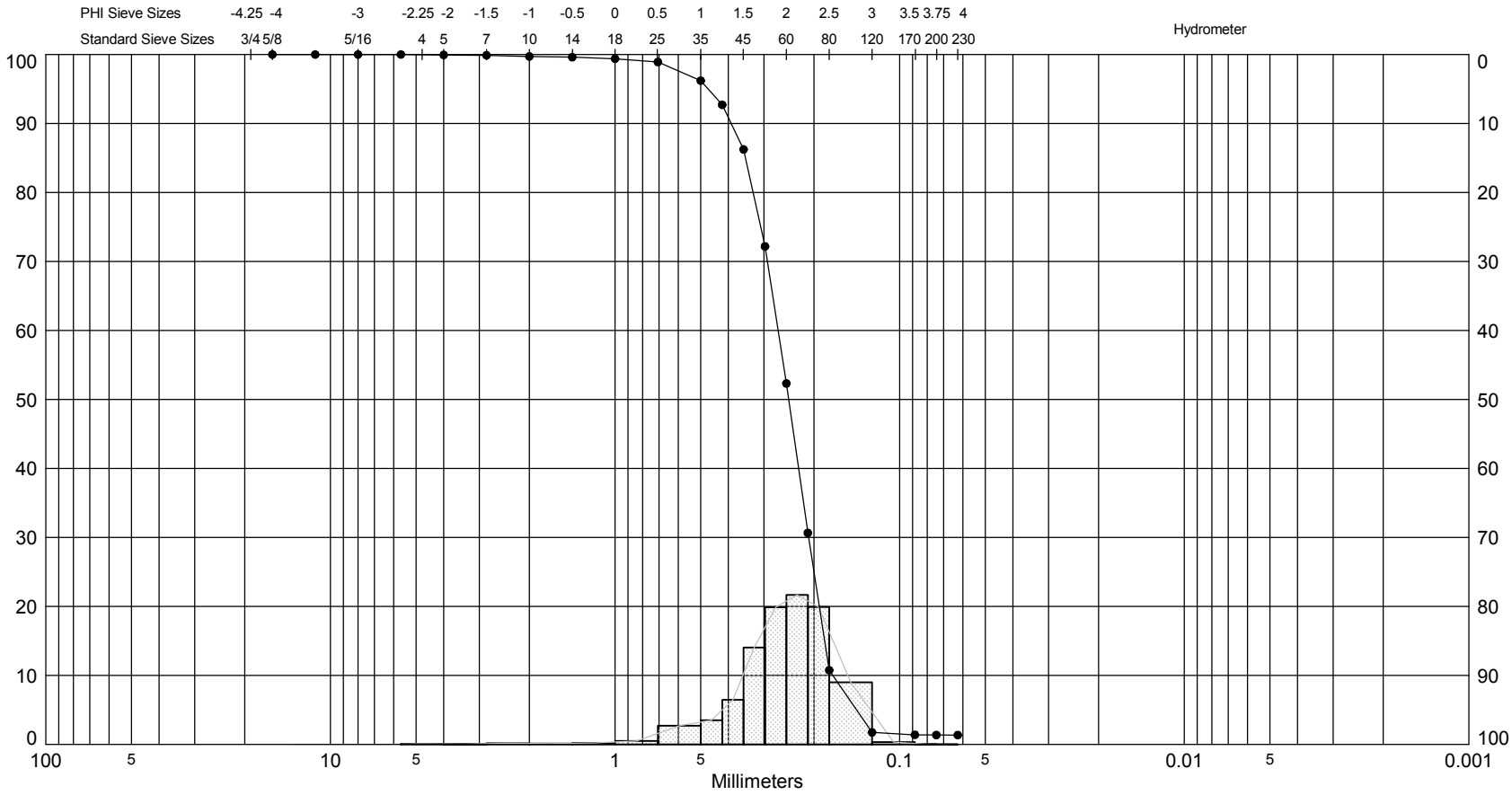
Comments: Composite data. Average dry Munsell Value is 7

Depths and elevations based on measured values

Sample Information	
Project Name:	Dauphin Island Shore Protection
Analysis Date:	03-14-11
Analyzed By:	JR
Easting (X, ft):	1,791,209
Northing (Y, ft):	66,338
Horizontal System:	NAD 1983
Vertical System:	NAVD 88

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SIEVE ANALYSIS DIVC-10_COMPOSITES_031411.GPJ JPBRAZIL.GDT 5/3/11



Gravel		Sand			Silt and Clay
Coarse	Fine	Coarse	Medium	Fine	

Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
DIVC-10-20 COMP.	—●—	0.0	SP	#200 - 1.36 #230 - 1.35			2.03	1.97	-1.53	10.16	0.53

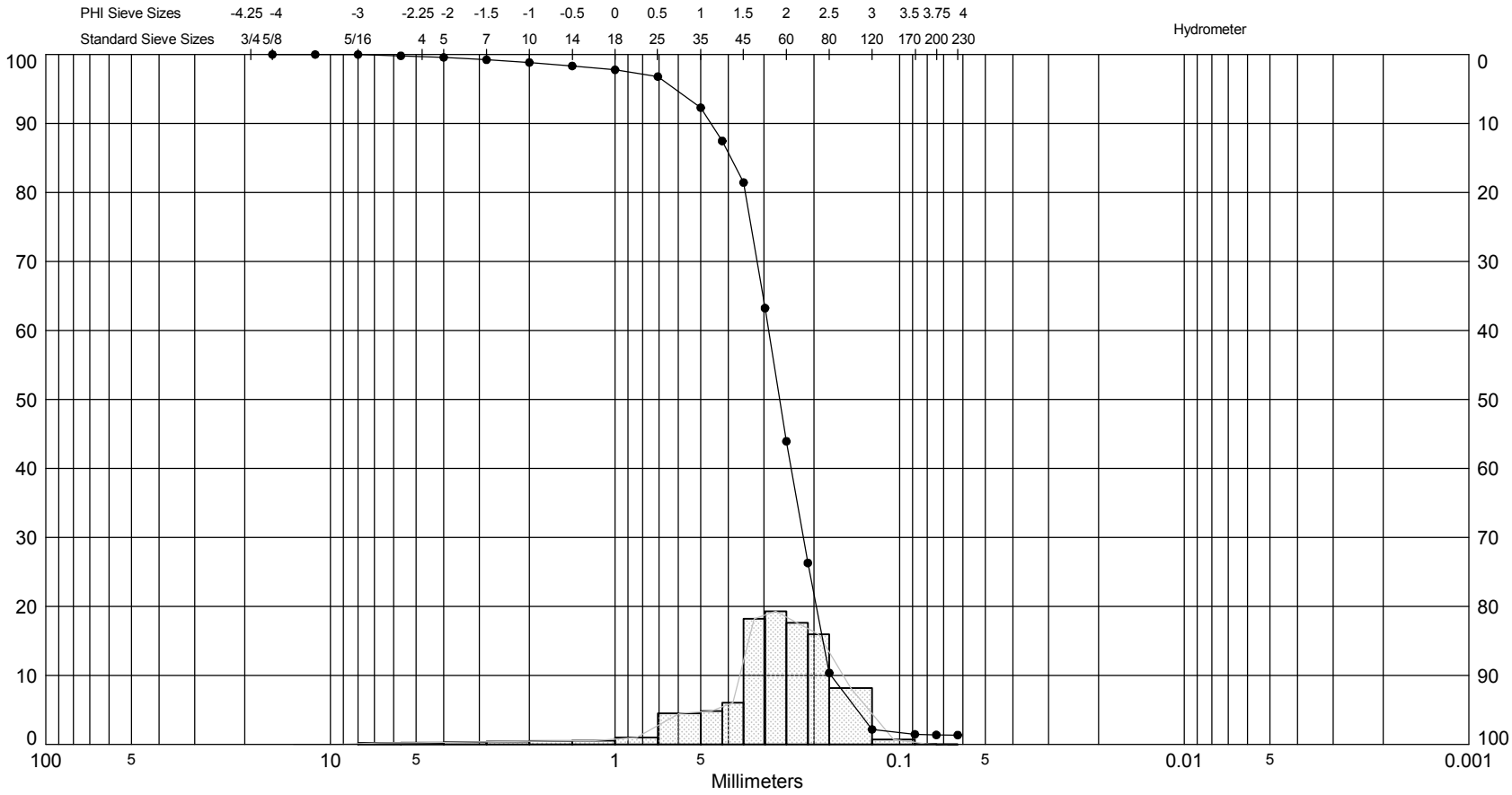
Comments: Composite data. Average dry Munsell Value is 8

Depths and elevations based on measured values

Sample Information	
Project Name:	Dauphin Island Shore Protection
Analysis Date:	03-14-11
Analyzed By:	JR
Easting (X, ft):	1,790,576
Northing (Y, ft):	65,529
Horizontal System:	NAD 1983
Vertical System:	NAVD 88

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SIEVE ANALYSIS DIVC-10_COMPOSITES_031411.GPJ JPBRAZIL.GDT 5/3/11



Gravel		Sand			Silt and Clay
Coarse	Fine	Coarse	Medium	Fine	

Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
DIVC-10-21 COMP.	—●—	0.0	SP	#200 - 1.37 #230 - 1.35			1.92	1.84	-2.19	12.33	0.7

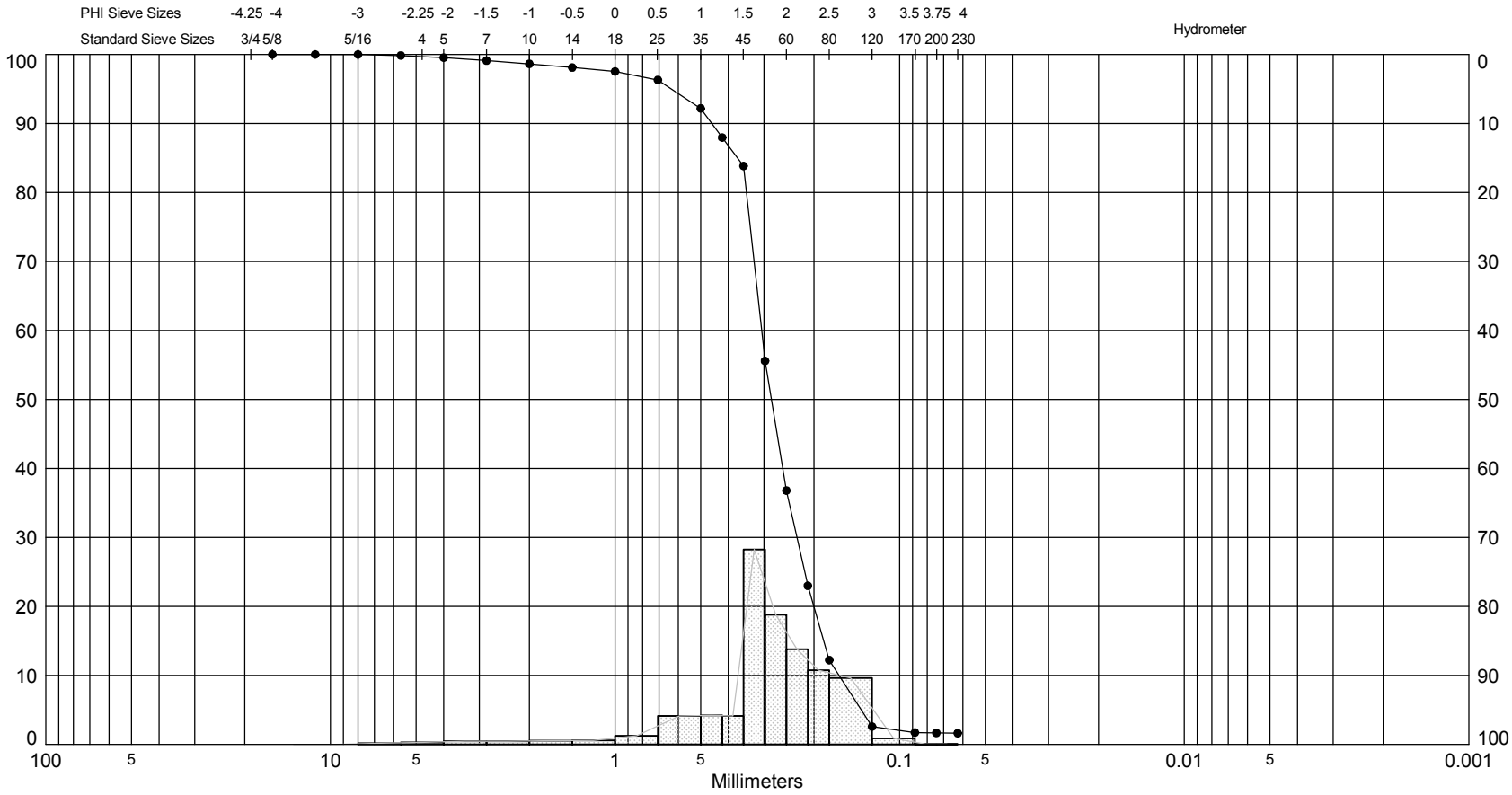
Comments: Composite data. Average dry Munsell Value is 8

Depths and elevations based on measured values

Sample Information	
Project Name:	Dauphin Island Shore Protection
Analysis Date:	03-14-11
Analyzed By:	JR
Easting (X, ft):	1,791,351
Northing (Y, ft):	65,352
Horizontal System:	NAD 1983
Vertical System:	NAVD 88

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SIEVE ANALYSIS DIVC-10_COMPOSITES_031411.GPJ JPBRAZIL.GDT 5/3/11



Gravel		Sand			Silt and Clay
Coarse	Fine	Coarse	Medium	Fine	

Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
DIVC-10-22 COMP.	—●—	0.0	SP	#200 - 1.66 #230 - 1.62			1.82	1.79	-2.11	11.95	0.72

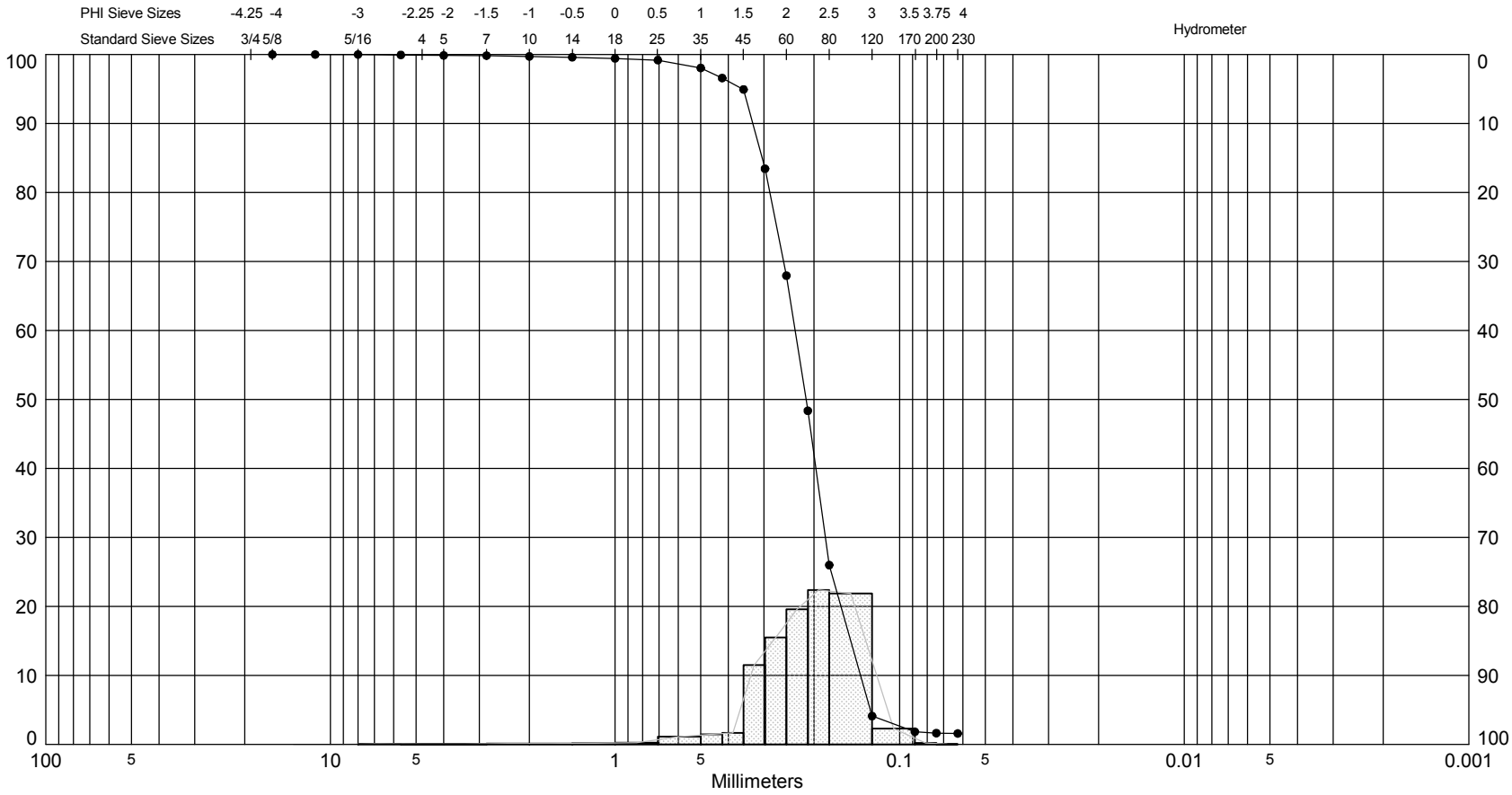
Comments: Composite data. Average dry Munsell Value is 7

Depths and elevations based on measured values

Sample Information	
Project Name:	Dauphin Island Shore Protection
Analysis Date:	03-14-11
Analyzed By:	JR
Easting (X, ft):	1,792,791
Northing (Y, ft):	65,318
Horizontal System:	NAD 1983
Vertical System:	NAVD 88

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SIEVE ANALYSIS DIVC-10_COMPOSITES_031411.GPJ JPBRAZIL.GDT 5/3/11



Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
DIVC-10-23 COMP.	—●—	0.0	SP	#200 - 1.63 #230 - 1.58			2.23	2.19	-1.83	14.48	0.54

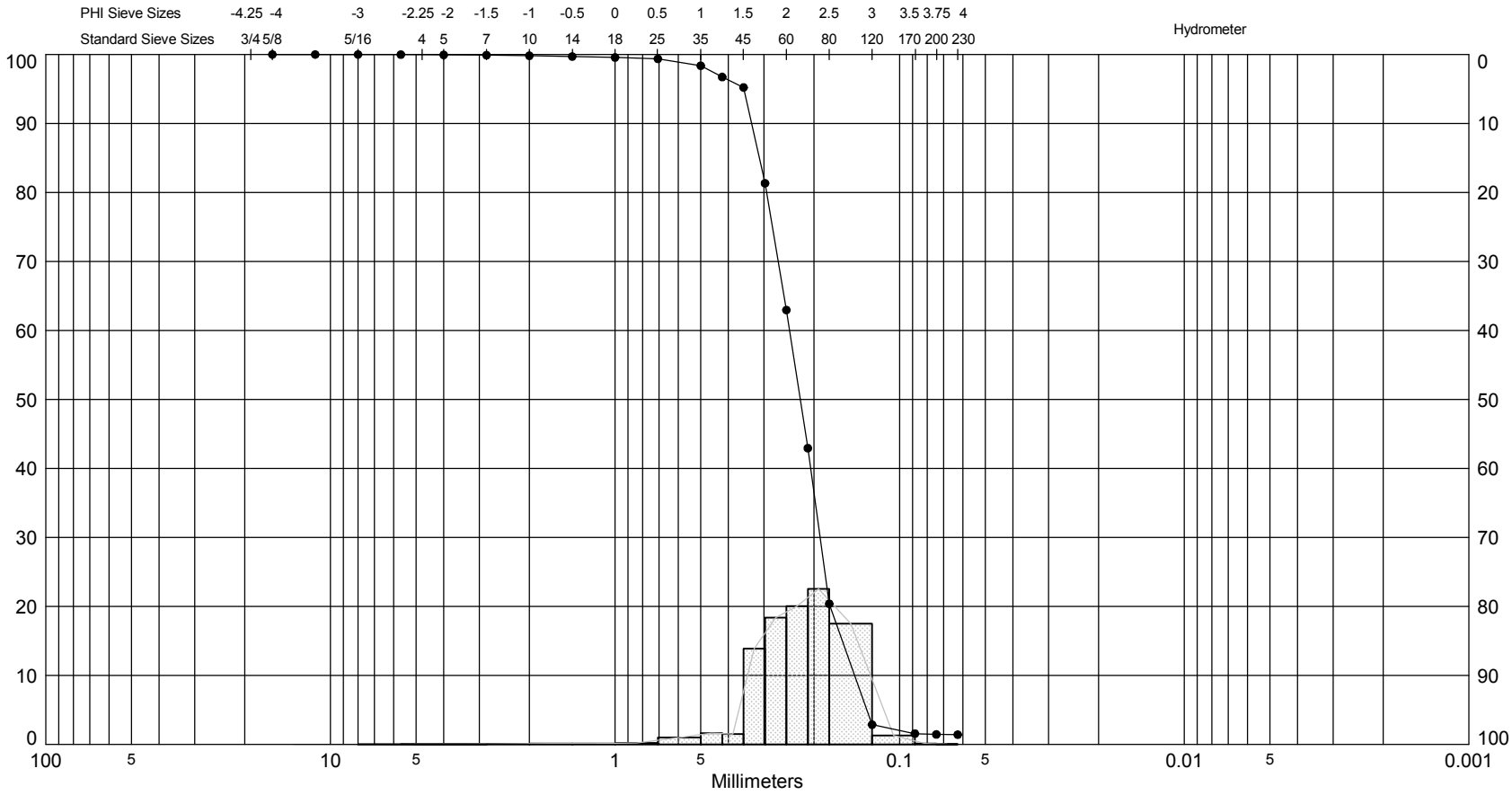
Comments: Composite data. Average dry Munsell Value is 7

Depths and elevations based on measured values

Sample Information	
Project Name:	Dauphin Island Shore Protection
Analysis Date:	03-14-11
Analyzed By:	JR
Easting (X, ft):	1,791,669
Northing (Y, ft):	59,181
Horizontal System:	NAD 1983
Vertical System:	NAVD 88

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SIEVE ANALYSIS DIVC-10_COMPOSITES_031411.GPJ JPBRAZIL.GDT 5/3/11



Gravel		Sand			Silt and Clay
Coarse	Fine	Coarse	Medium	Fine	

Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
DIVC-10-24 COMP.	—●—	0.0	SP	#200 - 1.44 #230 - 1.41			2.16	2.13	-1.44	12.08	0.5

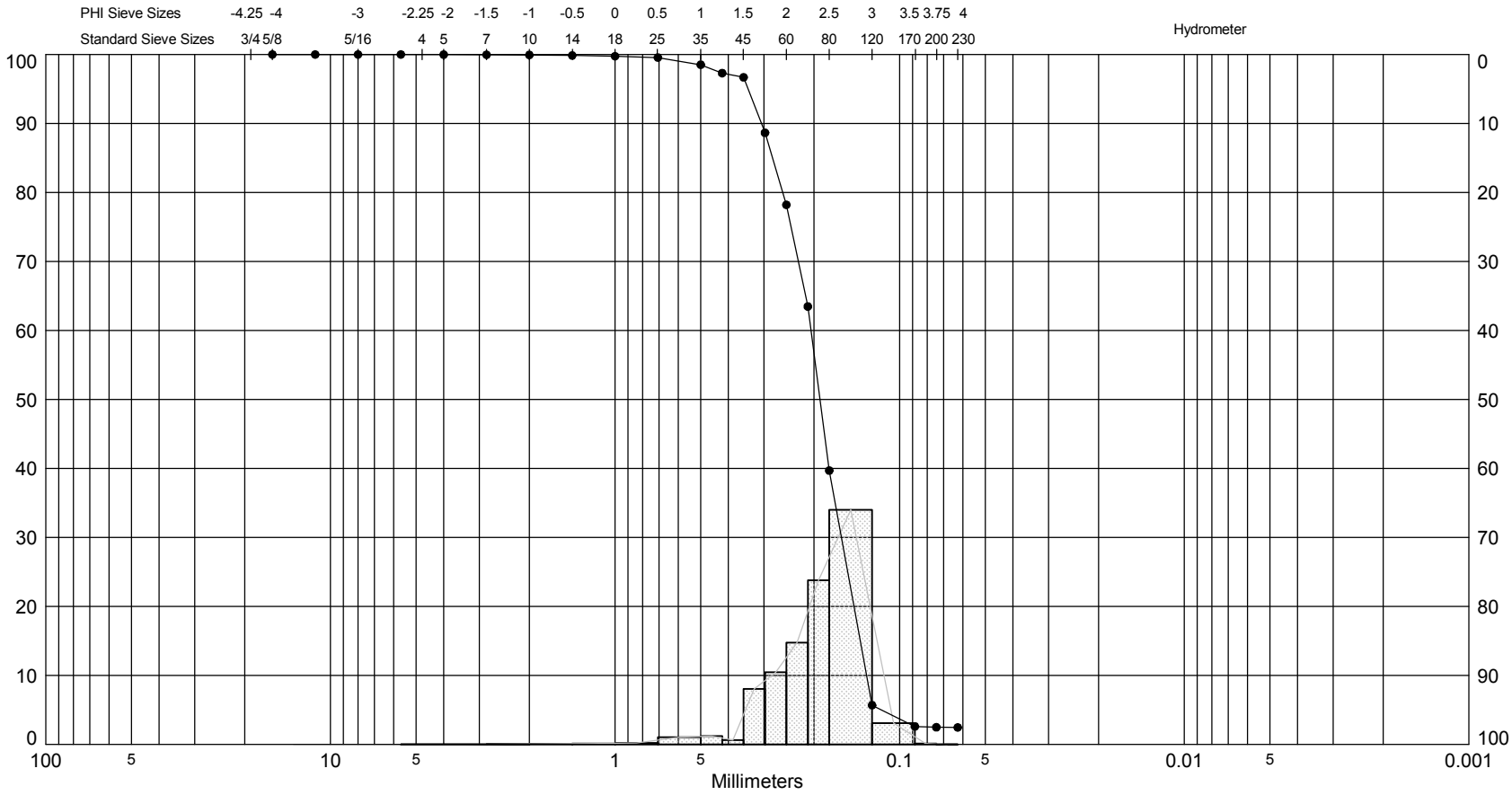
Comments: Composite data. Average dry Munsell Value is 7

Depths and elevations based on measured values

Sample Information	
Project Name:	Dauphin Island Shore Protection
Analysis Date:	03-14-11
Analyzed By:	JR
Easting (X, ft):	1,790,945
Northing (Y, ft):	59,401
Horizontal System:	NAD 1983
Vertical System:	NAVD 88

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Gravel		Sand			Silt and Clay
Coarse	Fine	Coarse	Medium	Fine	

Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
DIVC-10-25 COMP.	—●—	0.0	SP	#200 - 2.48 #230 - 2.46			2.39	2.33	-1.33	8.46	0.5

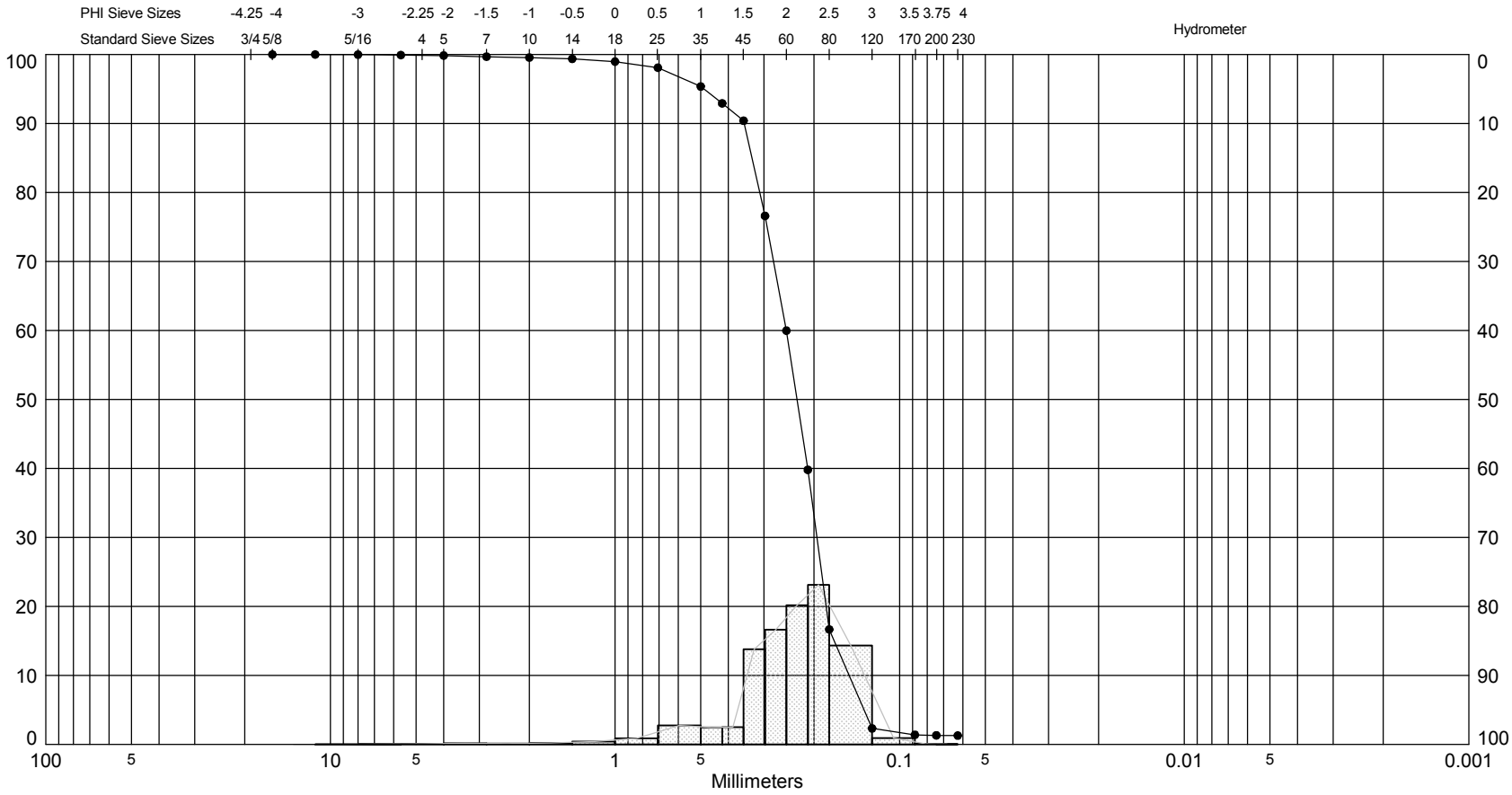
Comments: Composite data. Average dry Munsell Value is 7

Depths and elevations based on measured values

Sample Information	
Project Name:	Dauphin Island Shore Protection
Analysis Date:	03-14-11
Analyzed By:	JR
Easting (X, ft):	1,789,873
Northing (Y, ft):	59,320
Horizontal System:	NAD 1983
Vertical System:	NAVD 88

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Gravel		Sand			Silt and Clay
Coarse	Fine	Coarse	Medium	Fine	

Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
DIVC-10-26 COMP.	—●—	0.0	SP	#200 - 1.31 #230 - 1.28			2.12	2.04	-2.08	13.23	0.6

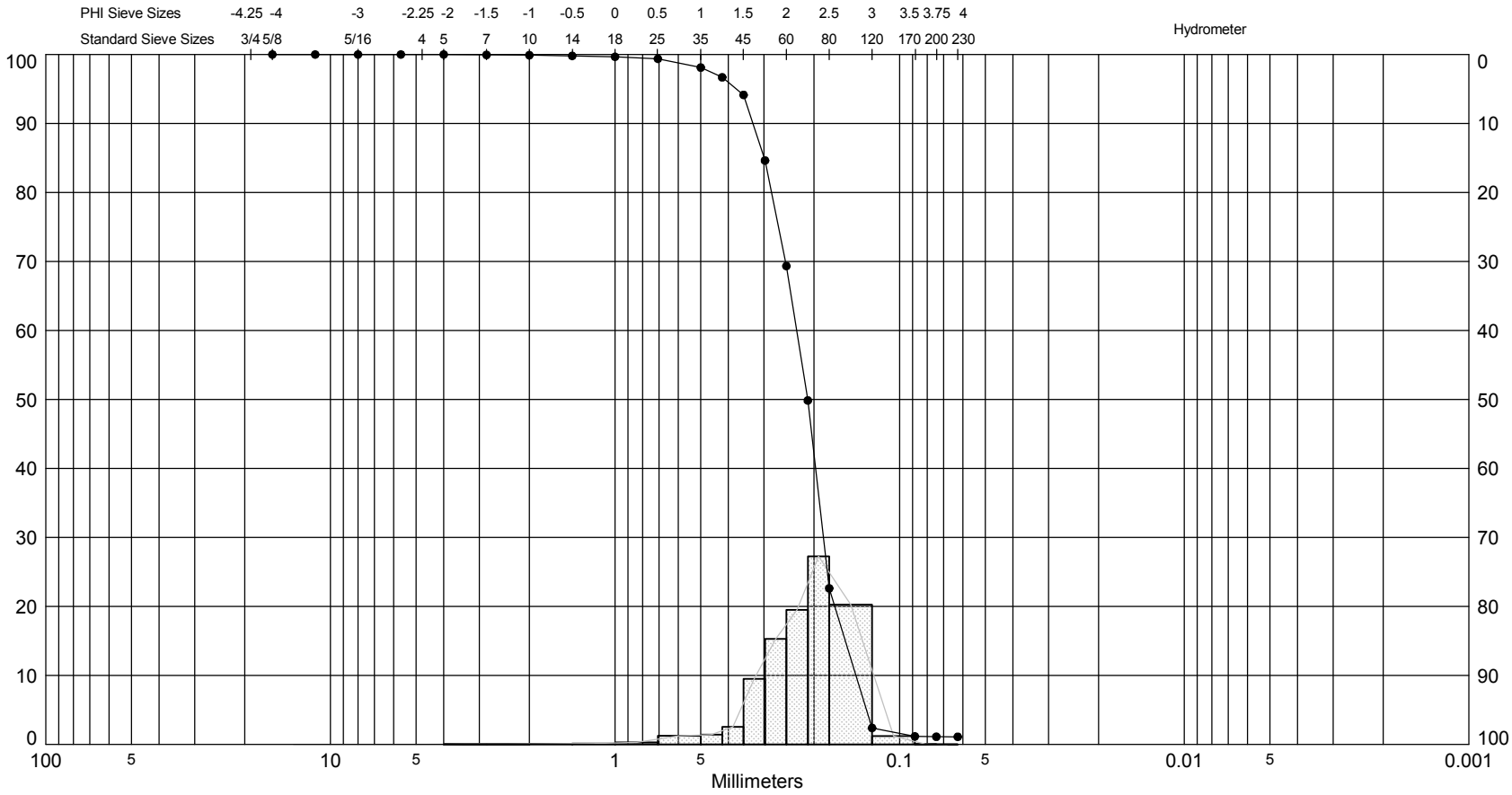
Comments: Composite data. Average dry Munsell Value is 7

Depths and elevations based on measured values

Sample Information	
Project Name:	Dauphin Island Shore Protection
Analysis Date:	03-14-11
Analyzed By:	JR
Easting (X, ft):	1,788,778
Northing (Y, ft):	60,203
Horizontal System:	NAD 1983
Vertical System:	NAVD 88

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Gravel		Sand			Silt and Clay
Coarse	Fine	Coarse	Medium	Fine	

Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
DIVC-10-27 COMP.	—●—	0.0	SP	#200 - 1.11 #230 - 1.10			2.25	2.18	-1.32	8.83	0.49

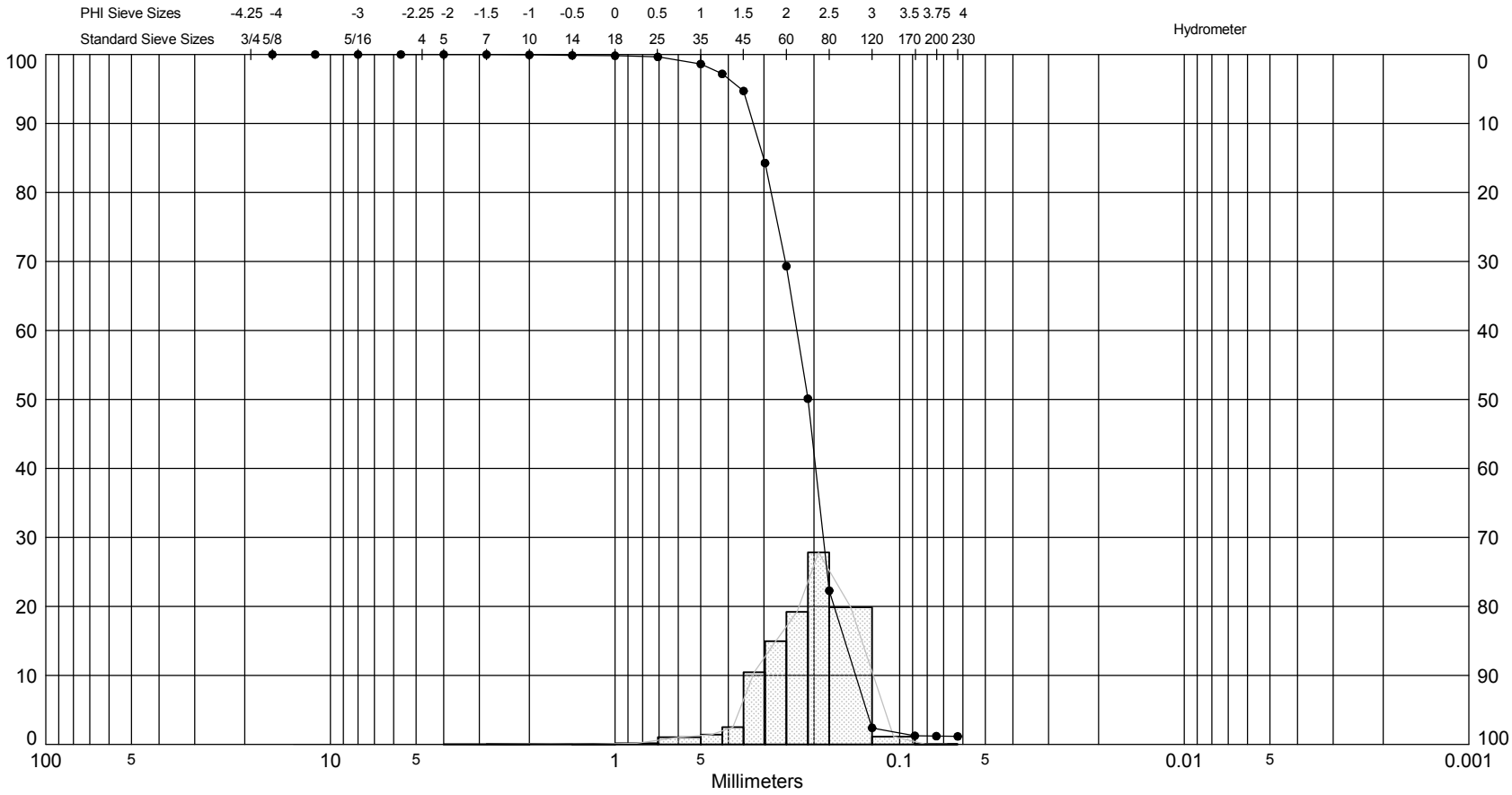
Comments: Composite data. Average dry Munsell Value is 8

Depths and elevations based on measured values

Sample Information	
Project Name:	Dauphin Island Shore Protection
Analysis Date:	03-14-11
Analyzed By:	JR
Easting (X, ft):	1,789,530
Northing (Y, ft):	60,098
Horizontal System:	NAD 1983
Vertical System:	NAVD 88

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Gravel		Sand			Silt and Clay
Coarse	Fine	Coarse	Medium	Fine	

Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
DIVC-10-28 COMP.	—●—	0.0	SP	#200 - 1.19 #230 - 1.16			2.25	2.19	-0.96	6.83	0.46

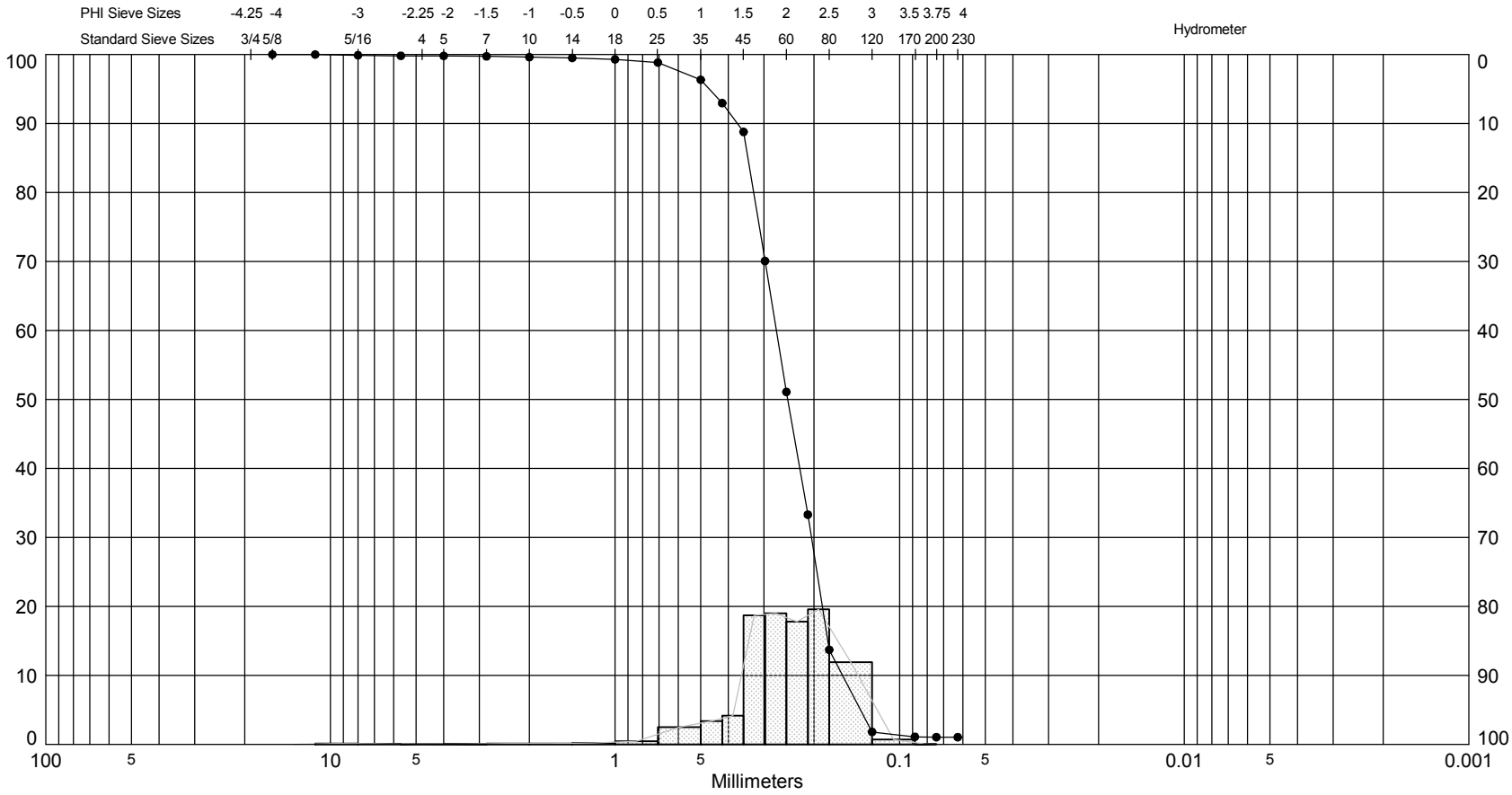
Comments: Composite data. Average dry Munsell Value is 7

Depths and elevations based on measured values

Sample Information	
Project Name:	Dauphin Island Shore Protection
Analysis Date:	03-14-11
Analyzed By:	JR
Easting (X, ft):	1,790,597
Northing (Y, ft):	60,122
Horizontal System:	NAD 1983
Vertical System:	NAVD 88

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Gravel		Sand			Silt and Clay
Coarse	Fine	Coarse	Medium	Fine	

Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
DIVC-10-29 COMP.	—●—	0.0	SP	#200 - 1.05 #230 - 1.05			2.02	1.98	-2.14	17.15	0.57

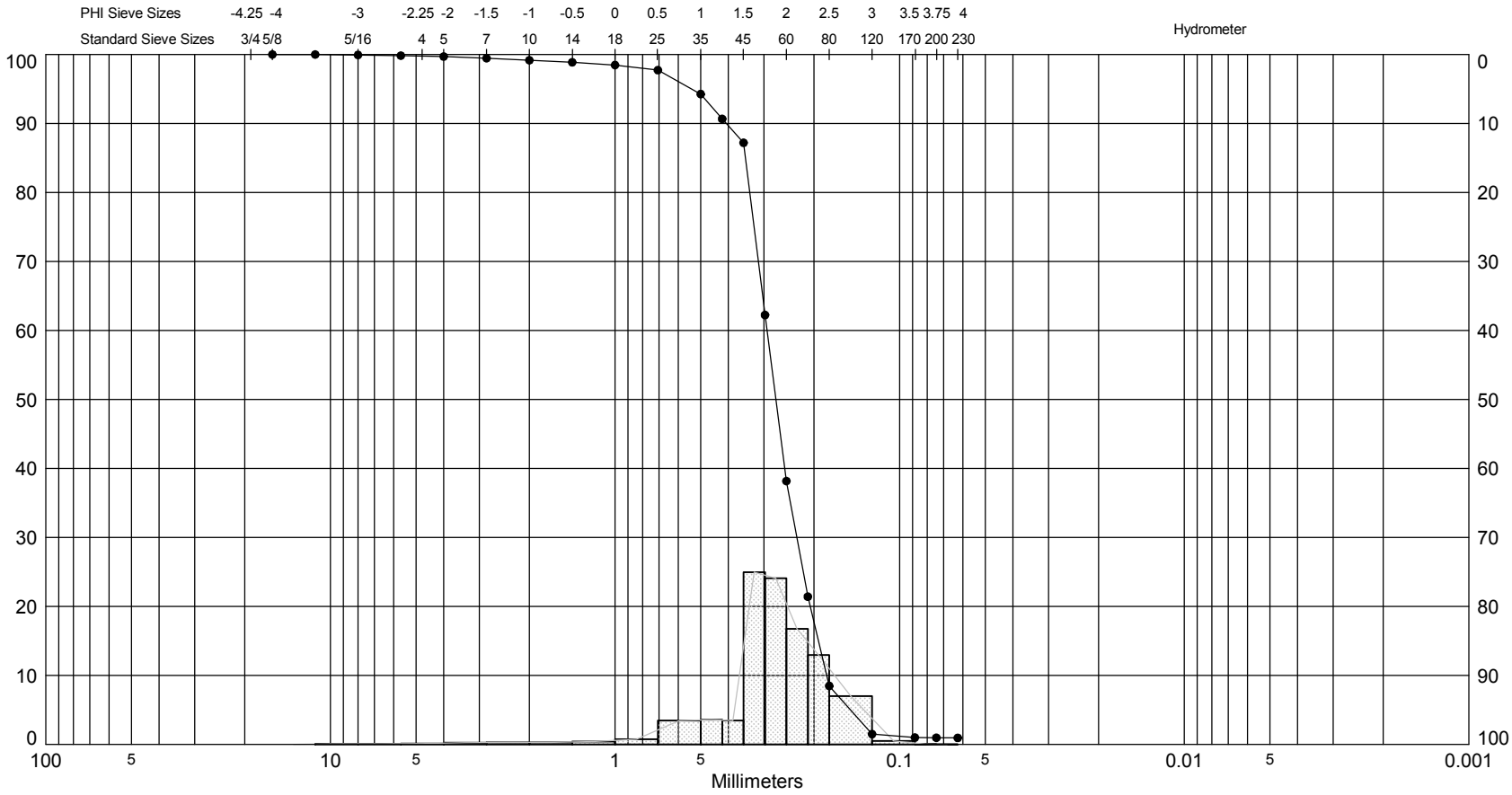
Comments: Composite data. Average dry Munsell Value is 7

Depths and elevations based on measured values

Sample Information	
Project Name:	Dauphin Island Shore Protection
Analysis Date:	03-14-11
Analyzed By:	JR
Easting (X, ft):	1,791,549
Northing (Y, ft):	60,168
Horizontal System:	NAD 1983
Vertical System:	NAVD 88

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Gravel		Sand			Silt and Clay
Coarse	Fine	Coarse	Medium	Fine	

Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
DIVC-10-31 COMP.	—●—	0.0	SP	#200 - 0.96 #230 - 0.94			1.88	1.84	-2.46	16.6	0.62

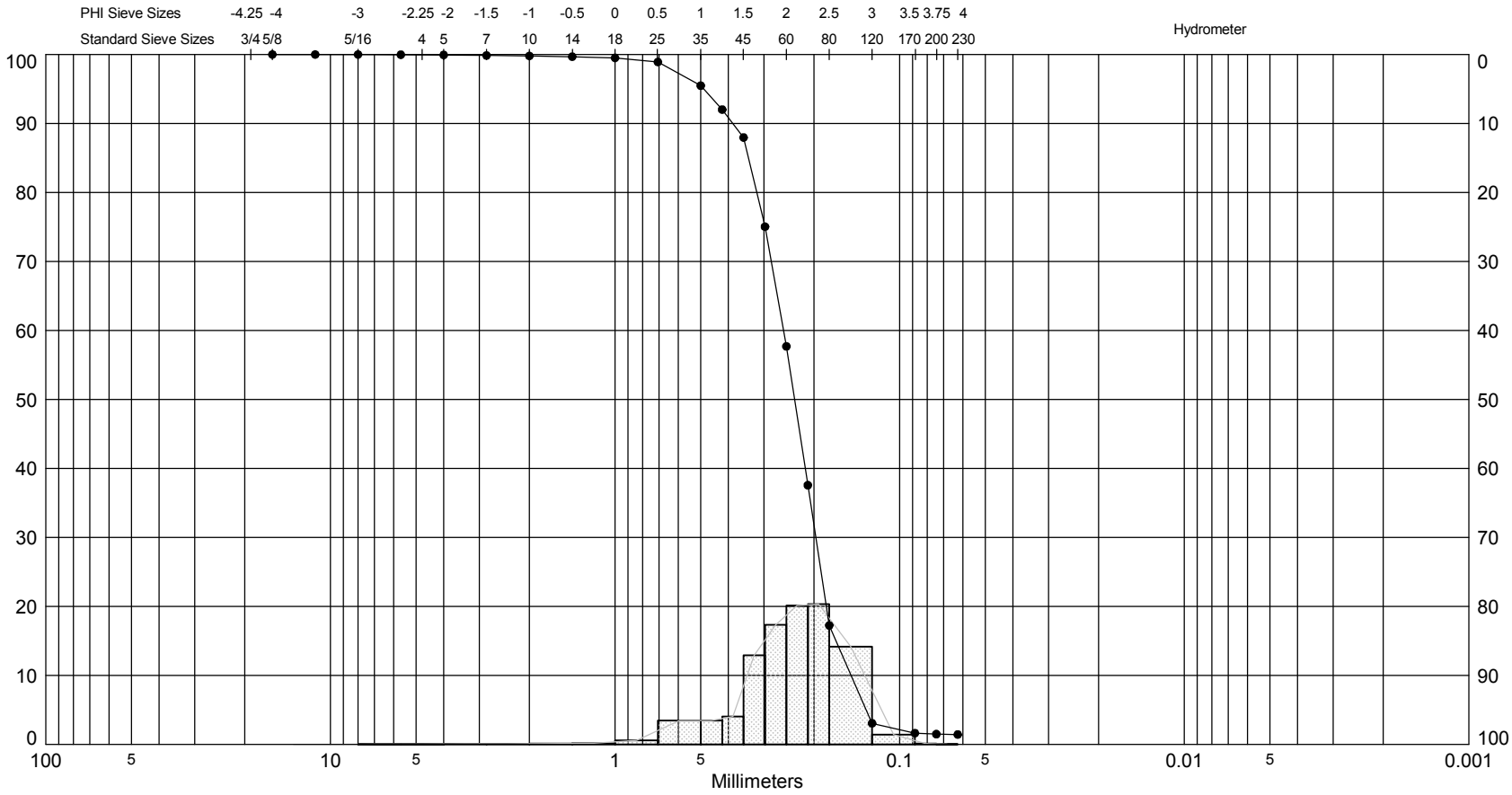
Comments: Composite data. Average dry Munsell Value is 8

Depths and elevations based on measured values

Sample Information	
Project Name:	Dauphin Island Shore Protection
Analysis Date:	03-14-11
Analyzed By:	JR
Easting (X, ft):	1,790,189
Northing (Y, ft):	63,831
Horizontal System:	NAD 1983
Vertical System:	NAVD 88

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Gravel		Sand			Silt and Clay
Coarse	Fine	Coarse	Medium	Fine	

Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
DIVC-10-32 COMP.	—●—	0.0	SP	#200 - 1.49 #230 - 1.43			2.1	2.04	-1.26	8.64	0.57

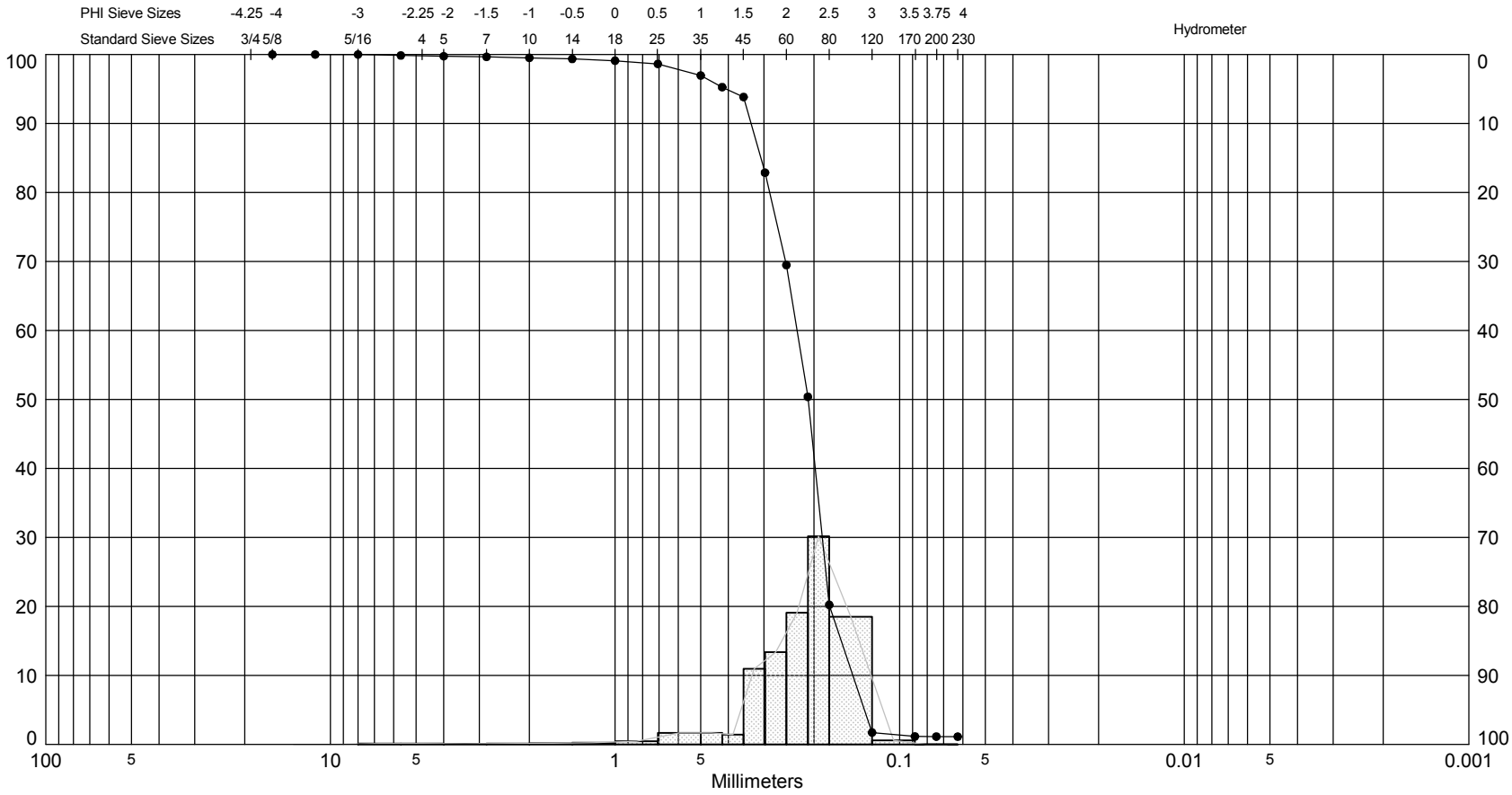
Comments: Composite data. Average dry Munsell Value is 7

Depths and elevations based on measured values

Sample Information	
Project Name:	Dauphin Island Shore Protection
Analysis Date:	03-14-11
Analyzed By:	JR
Easting (X, ft):	1,793,136
Northing (Y, ft):	64,325
Horizontal System:	NAD 1983
Vertical System:	NAVD 88

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Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
DIVC-10-33 COMP.	—●—	0.0	SP	#200 - 1.13 #230 - 1.12			2.25	2.14	-2.79	19.37	0.57

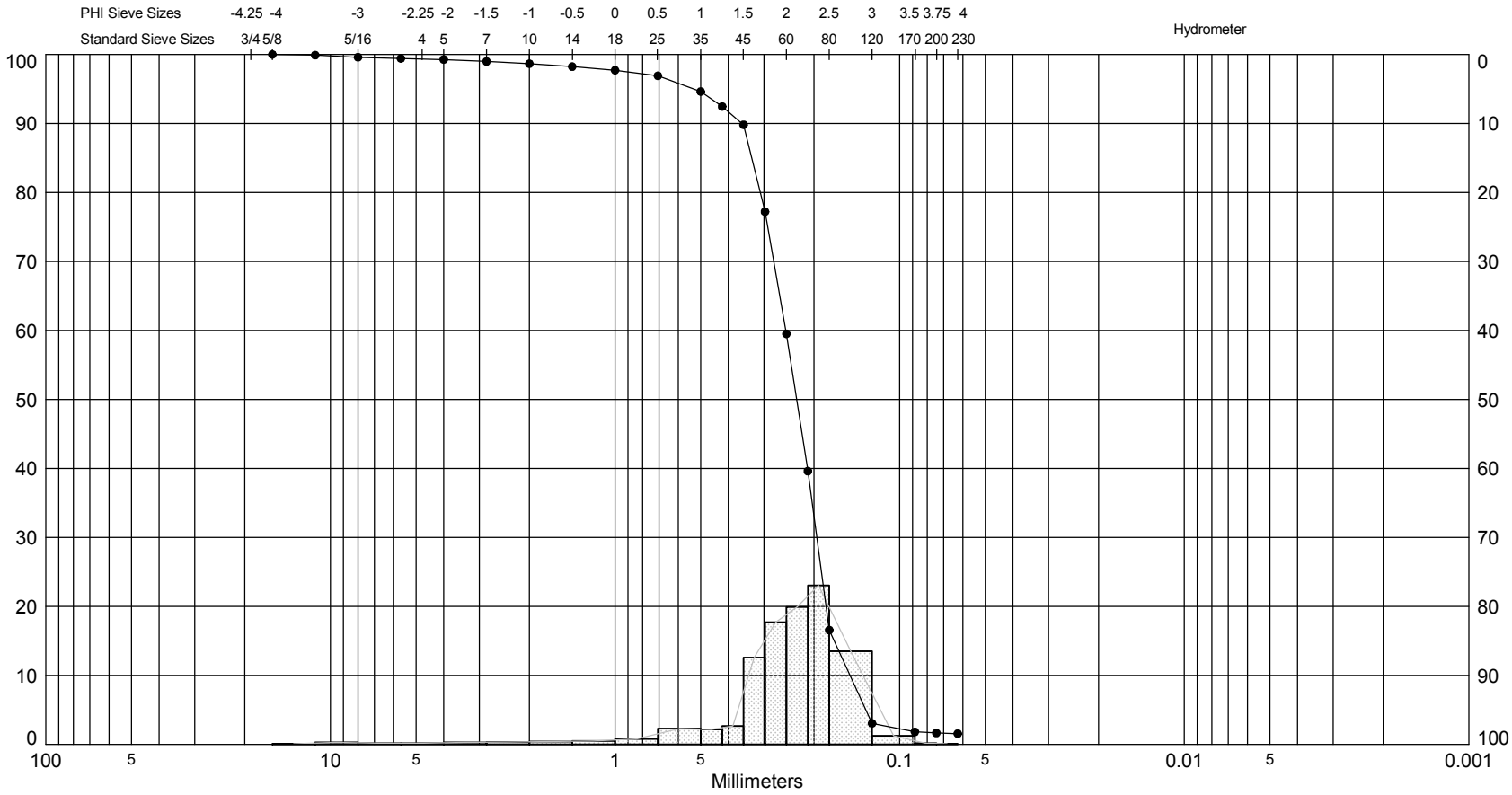
Comments: Composite data. Average dry Munsell Value is 8

Depths and elevations based on measured values

Sample Information	
Project Name:	Dauphin Island Shore Protection
Analysis Date:	03-14-11
Analyzed By:	JR
Easting (X, ft):	1,791,133
Northing (Y, ft):	63,571
Horizontal System:	NAD 1983
Vertical System:	NAVD 88

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Gravel		Sand			Silt and Clay
Coarse	Fine	Coarse	Medium	Fine	

Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
DIVC-10-34 COMP.	—●—	0.0	SP	#200 - 1.65 #230 - 1.56			2.12	2	-3.19	19.78	0.76

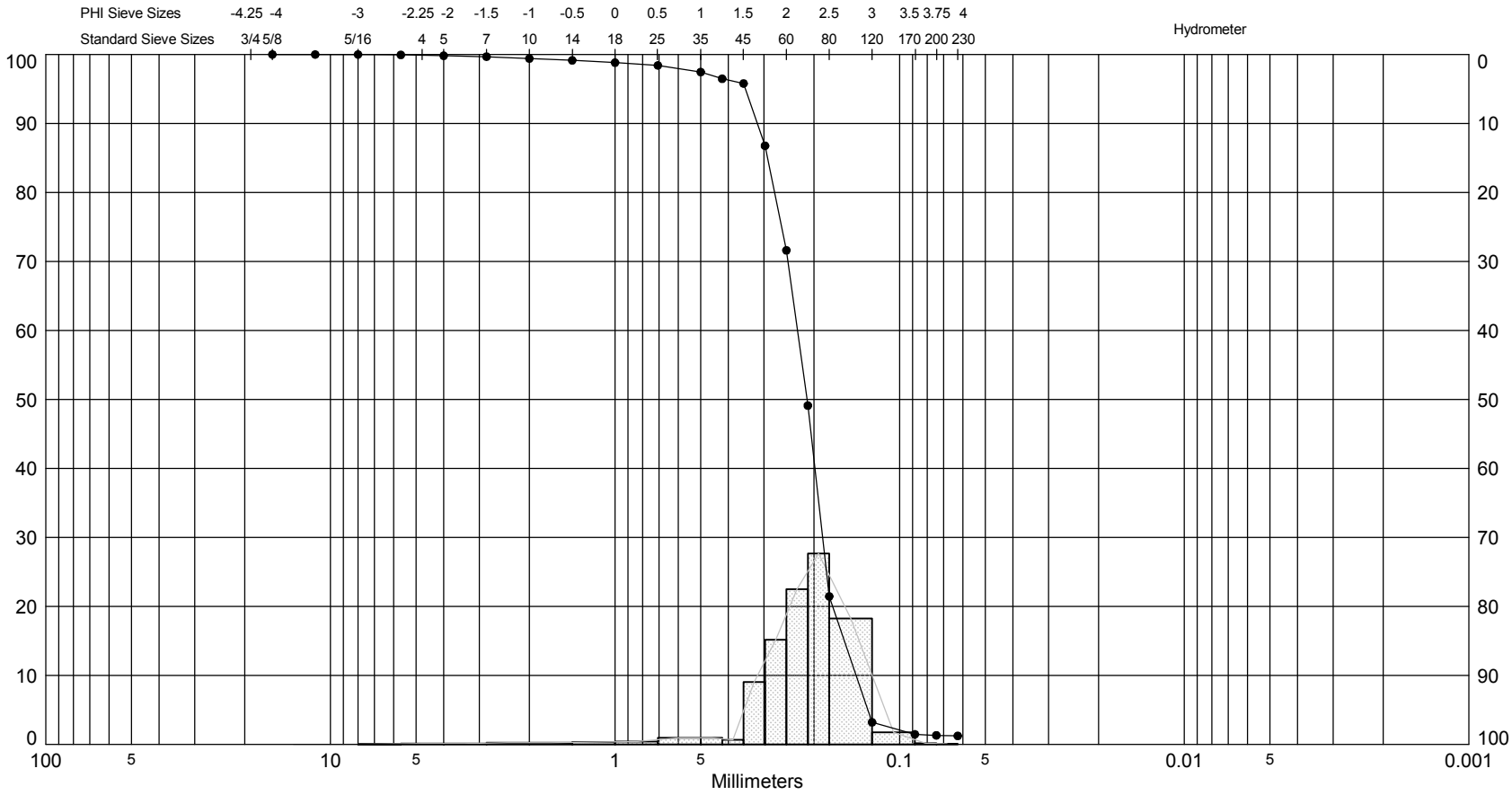
Comments: Composite data. Average dry Munsell Value is 7

Depths and elevations based on measured values

Sample Information	
Project Name:	Dauphin Island Shore Protection
Analysis Date:	03-14-11
Analyzed By:	JR
Easting (X, ft):	1,792,066
Northing (Y, ft):	63,658
Horizontal System:	NAD 1983
Vertical System:	NAVD 88

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Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
DIVC-10-35 COMP.	—●—	0.0	SP	#200 - 1.31 #230 - 1.23			2.24	2.18	-2.76	19.15	0.57

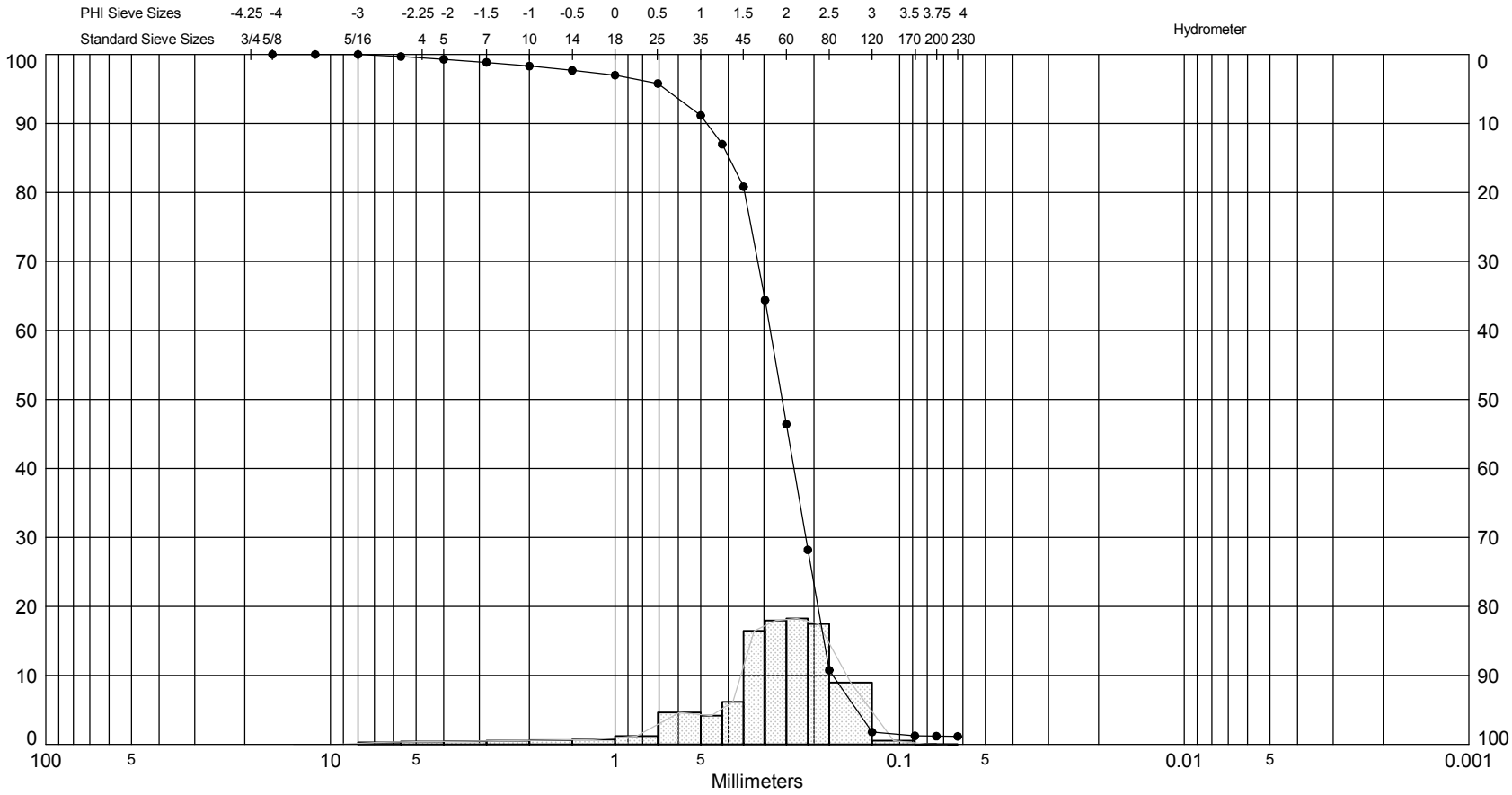
Comments: Composite data. Average dry Munsell Value is 7

Depths and elevations based on measured values

Sample Information	
Project Name:	Dauphin Island Shore Protection
Analysis Date:	03-14-11
Analyzed By:	JR
Easting (X, ft):	1,792,192
Northing (Y, ft):	64,538
Horizontal System:	NAD 1983
Vertical System:	NAVD 88

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Gravel		Sand			Silt and Clay
Coarse	Fine	Coarse	Medium	Fine	

Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
DIVC-10-36 COMP.	—●—	0.0	SP	#200 - 1.19 #230 - 1.17			1.95	1.83	-2.38	12.15	0.77

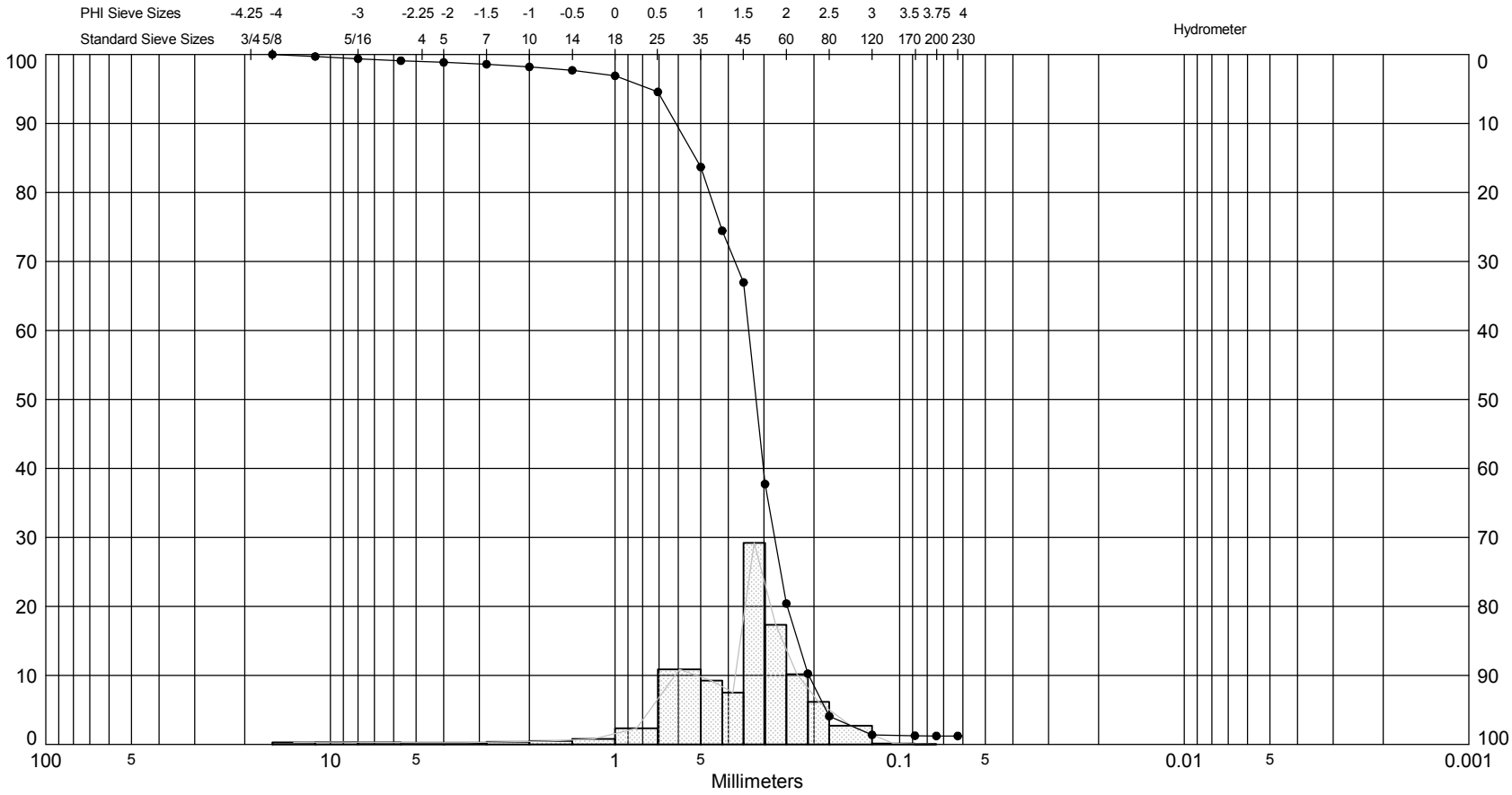
Comments: Composite data. Average dry Munsell Value is 7

Depths and elevations based on measured values

Sample Information	
Project Name:	Dauphin Island Shore Protection
Analysis Date:	03-14-11
Analyzed By:	JR
Easting (X, ft):	1,791,262
Northing (Y, ft):	64,470
Horizontal System:	NAD 1983
Vertical System:	NAVD 88

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Gravel		Sand			Silt and Clay
Coarse	Fine	Coarse	Medium	Fine	

Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
DIVC-10-37 COMP.	—●—	0.0	SP	#200 - 1.22 #230 - 1.22			1.65	1.5	-2.75	16	0.79

Comments: Composite data. Average dry Munsell Value is 8

Depths and elevations based on measured values

Sample Information	
Project Name:	Dauphin Island Shore Protection
Analysis Date:	03-14-11
Analyzed By:	JR
Easting (X, ft):	1,790,318
Northing (Y, ft):	64,684
Horizontal System:	NAD 1983
Vertical System:	NAVD 88

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APPENDIX 17
Compatibility Analysis

SEDIMENT COMPATIBILITY ANALYSIS

INTRODUCTION

The construction of the east and west end alternatives will require the excavation of sediments from offshore borrow areas to be placed within the project footprints. Two offshore borrow areas have been identified, which contain compatible beach fill material. The borrow areas are located on the eastern ebb shoal complex of Mobile Bay, approximately 1 mile south-southwest of Sand Island Lighthouse. Borrow Area I is southeast of the project sites, approximately 7 miles from the west end project area and 5 miles from the east end project area. Borrow Area II is directly to the south of Borrow Area I and is separated by existing oil pipelines. In 2010, Coastal Planning & Engineering, Inc. (CPE) collected vibracores in the vicinity of the borrow areas during sand search investigations. Beach sediment samples were collected in 2010 along the Dauphin Island between DI-2 and DI-32.

Each of the alternatives provides for the restoration of the design section and placement of advance nourishment consistent with standard engineering design.

The compatibility of the borrow area with the beach sand is evaluated herein based upon a comparison of sediment characteristics. Table 1 provides the mean characteristics of the material found along the existing beaches and within the borrow areas.

Table 1. Sediment Characteristics

Material Source	Mean Grain Size		Sorting	Silt	Dry Color
	(mm)	(phi)	(phi)	(%)	Munsell Value
Borrow Area I Composite	0.26	1.95	0.63	1.3	7
Borrow Area II Composite	0.23	2.13	0.54	1.4	7
West End Beach Composite	0.27	1.89	0.65	1.6	7
East End Beach Composite	0.28	1.86	0.69	3.6	7

Silt Content

During dredging and discharge onto the beach, local turbidity in the water column increases due to suspension of silt from the borrow material. The silt content is defined any material passing the #230 sieve. The silt content of the beach material averages 1.6% for the west end and 3.6% for the east end, with a maximum value of 1.9% and 7.5%, respectively. The silt content in Borrow Area I averages 1.3% with a maximum value of

1.6%. The silt content in Borrow Area II, based on sampling of the vibracores, averages 1.4% with a maximum value of 2.5%. The borrow area material is considered beach compatible from a silt content perspective since the average silt content of the borrow material is lower than the existing beach material.

Color

The colors for the beach and borrow area sands were evaluated using the Munsell color system and the classification of Value. The Value is typically considered the most important component when evaluating sediment color for beach nourishment. Value indicates the lightness of the sand color, in which a higher number indicates a lighter sand sample. In general, *light gray sand* has a Munsell Value of 7, whereas *white sand* a Munsell Value of 8.

The vibracore data from within the borrow areas had average dry Munsell Values of 7 with Value ranges from 7 to 8. The average Value was weighted by the effective length of beach compatible material in each vibracore within the borrow area. The beach samples had dry Munsell Values 7. Therefore, the color of the borrow area material is compatible with the beach.

Grain Size

Grain size is the most influential component in determining the compatibility of the borrow area material with the existing beach conditions. The composite grain sizes for the beach are presented in Table 1 for both the east and west end alternatives. The composite grain sizes were approximated across the entire beach profile, including the subaerial beach and the offshore portion.

When evaluating beach fill with respect to grain size compatibility, the change in beach profile due to the placed material is considered below the mean high water line. Based on the cross-shore sampling it was determined that the offshore portion of the existing profile below the mean high water line contained finer grain sediments and the grain size was reduced uniformly by 0.01 mm for both project areas.

The difference in grain sizes between the existing beach and the borrow area were used to approximate the equilibrium profile of the beach and thus calculate any additional fill required to account for grain size differences (overfill volume). Overfill is the volume of sand required to compensate for differences between grain size distributions of the borrow source compared to the existing beach. Essentially, the overfill volume must be placed to achieve an adjusted natural beach slope that is expected given the borrow area material characteristics. Additional volume placed, greater than the overfill volume which in includes the design and advance fill volumes, results in shoreline advance of the dry beach.

COMPATIBILITY ANALYSIS

To estimate the post-construction equilibrated beach profile, the shoreline translation method presented in the Part V, Chapter 4 of the Coastal Engineering Manual (2006) was applied. This method adjusts the shoreline between the still water line (the mean high water line was applied in this analysis and is used from here on for clarity) and the depth of closure based on the difference between the mean grain size of the existing beach (termed as the native beach in the CEM) and the mean grain size of the borrow area. Note that the term existing beach is used here rather than native because some sand from upland sources has been trucked to the western project area in the past.

Compared to the existing beach conditions, beach nourishment with a finer grain size from the borrow area results in a flatter beach slope, while a coarser grain size in the borrow area results in a steeper beach slope. The translation of the profile, W_{add}, is positive if the borrow area grain size is finer that the existing beach and negative is the borrow area grain size is coarser. Translation of the profile is given by Equation 1,

$$W_{add}(y) = y^{3/2}\left[\left(\frac{1}{A_F}\right)^{3/2} - \left(\frac{1}{A_N}\right)^{3/2}\right] \qquad \text{[Equation 1]}$$

where,

y	=	depth below the mean high water line to the depth of closure in feet (positive downward),
A_F	=	Dean's dimensionless A parameter of the borrow area fill material as function of grain size,
A_N	=	Dean's dimensionless A parameter of the existing (native) beach material as function of grain size.

The grain sizes of the existing beach along the west end project area and Borrow Area I were assumed to be similar (0.26 mm). As a result, there was no profile translation and no overfill volume was deemed necessary.

For the scenario that the west end is constructed with material dredged from Borrow Area II, an overfill volume was determined. The grain sizes between the borrow area and the beach varied, thus the established grain sizes of 0.23 mm and 0.26 mm, respectively, were used in the analysis. The analysis revealed that on average an additional 57.6 cy/ft would be required for overfill resulting in a total of approximately 986,800 cubic yards of fill material.

For the east end, an existing beach grain size of 0.27 mm was used to determine the overfill volume due to the variation in grain sizes of the borrow areas. It was assumed that due to the existing groins and the proposed breakwater reconstruction, the beach profile in the vicinity of the structures would not require overfill. The intent of the

structures is to trap sediment in its lee, and it is anticipated that the beach profile in the vicinity of the structures will equilibrate at a steeper slope due to the reduction of wave energy and transport of material offshore. For the beach to the west not protected by the structures, if Borrow Area I is used to construct the project, an additional 7.23 cy/ft of fill would be required which equates to approximately 27,000 cubic yards. If Borrow Area II is used, an additional 39.64 cy/ft of fill would be required equating to approximately 148,000 cubic yards of overfill.

The overfill volumes associated with the various project locations and borrow areas are shown in Table 2.

Table 2. Summary of Overfill Densities and Volumes

Placement Site/Borrow Area	Density (cy/ft)	Volume (cy)
West End/ Borrow Area I	0	0
West End/ Borrow Area II	57.6	986,800
East End/ Borrow Area I	7.23	27,000
East End/ Borrow Area II	39.64	148,000

CONCLUSIONS

- The sediment from the borrow site is compatible to that of the beach based on color, silt, and is similar to the grain size found on the beach in 2010.

- Overfill material was not included in the design as it is anticipated that the contractor will likely construct the projects from Borrow Area I due to its close proximity to the project site and thicker dredge cuts The overfill volumes estimated were relatively small. This volume could be attributed to the expected margin of error when estimating grain size due to measurement and sampling techniques.

- There is sufficient volume of material in the borrow areas to construct both the west and east end fill templates, and if deemed necessary place the overfill volume.

- Environmental impacts due to fill equilibration are not an issue because there are no nearshore hardbottom resources in the project area.

- A sediment QA/QC plan has been developed to ensure that the sediment placed on the beach meets the standards outlined in the permit.

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