



US Army Corps  
Of Engineers  
Wilmington District

# PUBLIC NOTICE

Issue Date: November 1, 2007  
Comment Deadline: December 3, 2007  
Corps Action ID #: 2007-03344-016

The Wilmington District, Corps of Engineers (Corps) has received an application from the United States Coast Guard (USCG) c/o: Mr. Ray Pipak seeking Department of the Army authorization to conduct maintenance dredging from 10,000 cubic yards to 80,000 cubic yards (pending on shoaling amounts) within navigable waters pursuant to Section 10 with the potential of disposing the material in waters subject to Section 10 and Section 404. The disposal area is contingent on which alternative is utilized. The authorization would allow for maintenance dredging to be repeated as necessary over the next ten years. The project site is located at USCG Station Emerald Isle, within Bogue Inlet and Coast Guard Channel, on the northwest side of Emerald Isle, Carteret County, North Carolina.

Specific plans and location information are described below and shown on the attached plans. This Public Notice and all attached plans are also available on the Wilmington District Web Site at [www.saw.usace.army.mil/WETLANDS/](http://www.saw.usace.army.mil/WETLANDS/)

**Applicant:** United States Coast Guard  
Attn: Mr. Ray Pipak  
Civil Engineering Unit  
1240 E. Ninth Street  
Cleveland, Ohio 44199-2060

## Authority

The Corps will evaluate this application and decide whether to issue, conditionally issue, or deny the proposed work pursuant to applicable procedures of Section 10 of the Rivers and Harbors Act of 1899 and Section 404 of the Clean Water Act.

## Location

The project site is located at 34.659, 77.097, within the Bogue Inlet Complex and Coast Guard Channel, off Channel Drive and Bogue Court, at Coast Guard Station Emerald Isle, northwest end of Emerald Isle, Carteret County, North Carolina.

## **Existing Site Conditions**

The 100-acre project site begins in Coast Guard Channel at the present Coast Guard Station facility and moves northward where it fans out toward Bogue Inlet Channel and the Atlantic Intracoastal Waterway (AIWW). The Coast Guard Channel is a dredged basin that includes a navigation channel initially excavated and maintained for Coast Guard vessels. The navigational channel is 6 feet deep by 90 feet wide with a 2 foot over depth. It extends 4,000 to 5,000 feet to the north of the basin, connecting to the existing federal navigation channel between Bogue Inlet and the AIWW. Due to the dynamic nature of the area, the Station's navigation channel follows the naturally occurring deep water.

Results of 10 vibracore samples show that the material within the channel bottom and shoal areas within the proposed project area consists of unconsolidated sand. This material has been determined to be beach compatible, and results show less than 10 percent fine-grained material.

The Corps office has authorized several dredging and maintenance events within the existing basin and channel and its connection to Bogue Inlet. Our records show channel work occurring in 1961, 1976, 1987 (Action ID. 198700199), and a recent one-time emergency maintenance event in December 2006 (Action ID. 2006-40689-016). The current proposal coincides with the permitted 1976 and 1987 dredging areas. Other past permitted activities at the Station Emerald Isle include pier construction and repair, shoreline stabilization, and boat ramp.

## **Project Purpose**

Basic: The basic purpose is to maintain the USCG missions at Station Emerald Isle, which includes the safeguarding of navigation interests (government, commercial, and private), protecting North Carolina's coastline from pollution and marine accidents, and enforcement of federal Laws and responsibilities under the Homeland Security Act. The Station's area of responsibility covers approximately 50 nautical miles of the Atlantic Intracoastal Waterway (from Bogue Inlet to Surf City) and to 30 nautical miles offshore. As a result of shoaling within the mouth of this channel, the applicant states that the station's primary missions of search, rescue, and law enforcement, as mandated and authorized by 14 U.S.C. 2, 88, 89, and 674, have been severely constrained.

Overall: The goal of the project is to increase the rapid response and travel times within its area of responsibility by the removal of shallow shoals within the connecting channel from Coast Guard Channel to Bogue Inlet Channel, and to periodically maintain that navigational travel way on as needed basis over a period of 10 years. Currently, the station has three assigned search and rescue response boats that draft over 3-feet each. These boats are inoperable from two hours before, to two hours after low tide, on average 8 hours per day, due to inaccessibility via the channel. During these periods of shallow water depths, operation procedures consist of hauling a response boat by vehicle to the

closest boat access ramp, which is approximately 8.0 miles from the station. This method of operation has resulted in significant loss of time in search and rescue operations, and is contingent on highway traffic and boat ramp congestion. There have been two emergency occasions, one medivac from a vessel 46 miles offshore and one rescue operation in close proximity to the station, where a delay of 45 minutes occurred due to the inability for deployment from Coast Guard Channel. Both situations resulted in the launching of vessels at the boat access ramp 8.0 miles away.

## **Project Description**

The proposed action involves the removal of unconsolidated shoals from the connecting channel from Coast Guard Channel and the AIWW. The amount of material to be dredge is contingent on the amount present in the shoals at the time of dredging, but is not expected to exceed 80,000 cubic yards per event. It should be noted that up to 17,600 cubic yards were extracted during the 2006/2007 one-time emergency sidecast dredging event. All dredging will follow the deepest point of the channel.

Several alternative methods of dredging and disposal are proposed for accomplishing the work. For dredging, methods include hydraulic pipeline dredge, mechanical (clamshell) dredge, government owned sidecast dredge (Merritt or Fry), and government-owned special purpose, hopper-type, dredge (Currituck). The dredging type is dependent on availability, conditions, and cost. It is the USCG's intention to coincide the dredging work with contracts overseen by the U.S. Army Corps of Engineers, Wilmington District, when maintenance dredging is being conducted in nearby federally maintained channels. This would allow the USCG to avoid the dredge mobilization and demobilization expense, which often exceeds \$500,000. However, USCG would incur the expense associated with relocating the dredging plant to its basin and potentially installing pipeline for disposal.

For disposal alternatives, options include direct placement of material on the beach via pipeline dredge, disposal of material nearshore in an available area with 6-10 feet water depth via the Currituck or a mechanical clamshell dredge, sidecast disposal via Merritt or Fry, and the pumping of material to a confined upland facility via pipeline dredge. The disposal alternatives will be contingent on the type of dredge plant that will be used, and will also be pending on the compatibility of the extracted material. If a pipeline dredge is employed and the material is compatible, then the disposal method would consist of placing the material on the beach shoreline or nearshore areas pursuant to the North Carolina Dredge and Fill Law, General Statue 113-229 (h2). If extracted sediment is incompatible when using the pipeline dredge, the material will be pumped to a confined upland storage facility. As stated above, initial sampling indicates that the material is compatibility for beach placement. Results of the compatibility test are enclosed with this notice.

## **Other Required Authorizations**

This notice and all applicable application materials are being forwarded to the appropriate State agencies for review. The Corps will generally not make a final permit decision until the North Carolina Division of Water Quality (NCDWQ) issues, denies, or waives State certification required by Section 401 of the Clean Water Act (PL 92-500). The applicant has determined that the proposal is eligible for NCDWQ General Water Quality Certification No. #3629, #3640, #3369, and/or #3650, as they apply to a specific dredging and disposal alternative. Additional information regarding the Clean Water Act certification may be reviewed at the NCDWQ Central Office, 401 Oversight and Express Permits Unit (for NCDOT projects, the Transportation Permitting Unit), 2321 Crabtree Boulevard, Raleigh, North Carolina 27604-2260.

The applicant has certified that the proposed work complies with and will be conducted in a manner that is consistent with the approved North Carolina Coastal Zone Management Program. Pursuant to 33 CFR 325.2 (b)(2) the Corps is, by this notice, forwarding this certification to the North Carolina Division of Coastal Management (NCDCM) and requesting its concurrence or objection. Generally, the Corps will not issue a Department of the Army (DA) permit until the NCDCM notifies the Corps that it concurs with the applicant's consistency certification. It should also be noted that the applicant has requested, by letter dated October 2, 2007, a concurrence with their Consistency Determination.

## **Cultural Resources**

The Corps has consulted the latest published version of the National Register of Historic Places and is not aware that any registered properties, or properties listed as being eligible for inclusion therein are located within the project area or will be affected by the proposed work. Presently, unknown archeological, scientific, prehistoric, or historical data may be located within the project area and/or could be affected by the proposed work.

## **Essential Fish Habitat**

This notice initiates the Essential Fish Habitat (EFH) consultation requirements of the Magnuson-Stevens Fishery Conservation and Management Act. The Corps' initial determination is that the proposed project will not adversely impact EFH or associated fisheries managed by the South Atlantic or Mid Atlantic Fishery Management Councils or the National Marine Fisheries Service since the dredging activities will occur within existing channels, and the disposal methods will occur within areas that have previously received material. Reference the "September 2007 Environmental Assessment, Maintenance Dredging for U.S. Coast Guard Station at Emerald Isle" (EA) for further discussion on the EFH assess for this project. This assessment has been provided to National Marine Fisheries Service for concurrence.

## **Endangered Species**

The Corps has reviewed the project area, examined all information provided by the applicant and consulted the latest North Carolina Natural Heritage Database. Based on available information, the Corps has determined pursuant to the Endangered Species Act of 1973 (ESA), that the proposed project may affect federally listed endangered or threatened species or their formally designated critical habitat. Species that may be affected by the project and how it may be affected depend on method of dredging and disposal. The following sea turtles may be affected by the placement of material on the beach; Green (*Chelonia mydas*), Hawksbill (*Eretmochelys imbricate*), Kemp's ridley (*Lepidochelys kempi*), Leatherback (*Dermochelys coriacea*), and Loggerhead (*Caretta Caretta*). Additionally, the dredging work, regardless of method, may be conducted within the Critical Habitat designation of the Piping plover (*Charadrius melodus*); and also may affect Shortnose sturgeon (*Acipenser brevirostrum*) near the confluence of Bogue Inlet during the operation. Consultation under Section 7 of the ESA will be initiated and no permit will be issued until the consultation process is complete. Reference the September 2007 EA for further discussion.

## **Evaluation**

The decision whether to issue a permit will be based on an evaluation of the probable impacts, including cumulative impacts, of the proposed activity on the public interest. That decision will reflect the national concern for both protection and utilization of important resources. The benefit which reasonably may be expected to accrue from the proposal must be balanced against its reasonably foreseeable detriments. All factors which may be relevant to the proposal will be considered including the cumulative effects thereof; among those are conservation, economics, aesthetics, general environmental concerns, wetlands, historic properties, fish and wildlife values, flood hazards, flood plain values (in accordance with Executive Order 11988), land use, navigation, shoreline erosion and accretion, recreation, water supply and conservation, water quality, energy needs, safety, food and fiber production, mineral needs, considerations of property ownership, and, in general, the needs and welfare of the people. For activities involving the discharge of dredged or fill materials in waters of the United States, the evaluation of the impact of the activity on the public interest will include application of the Environmental Protection Agency's 404(b)(1) guidelines.

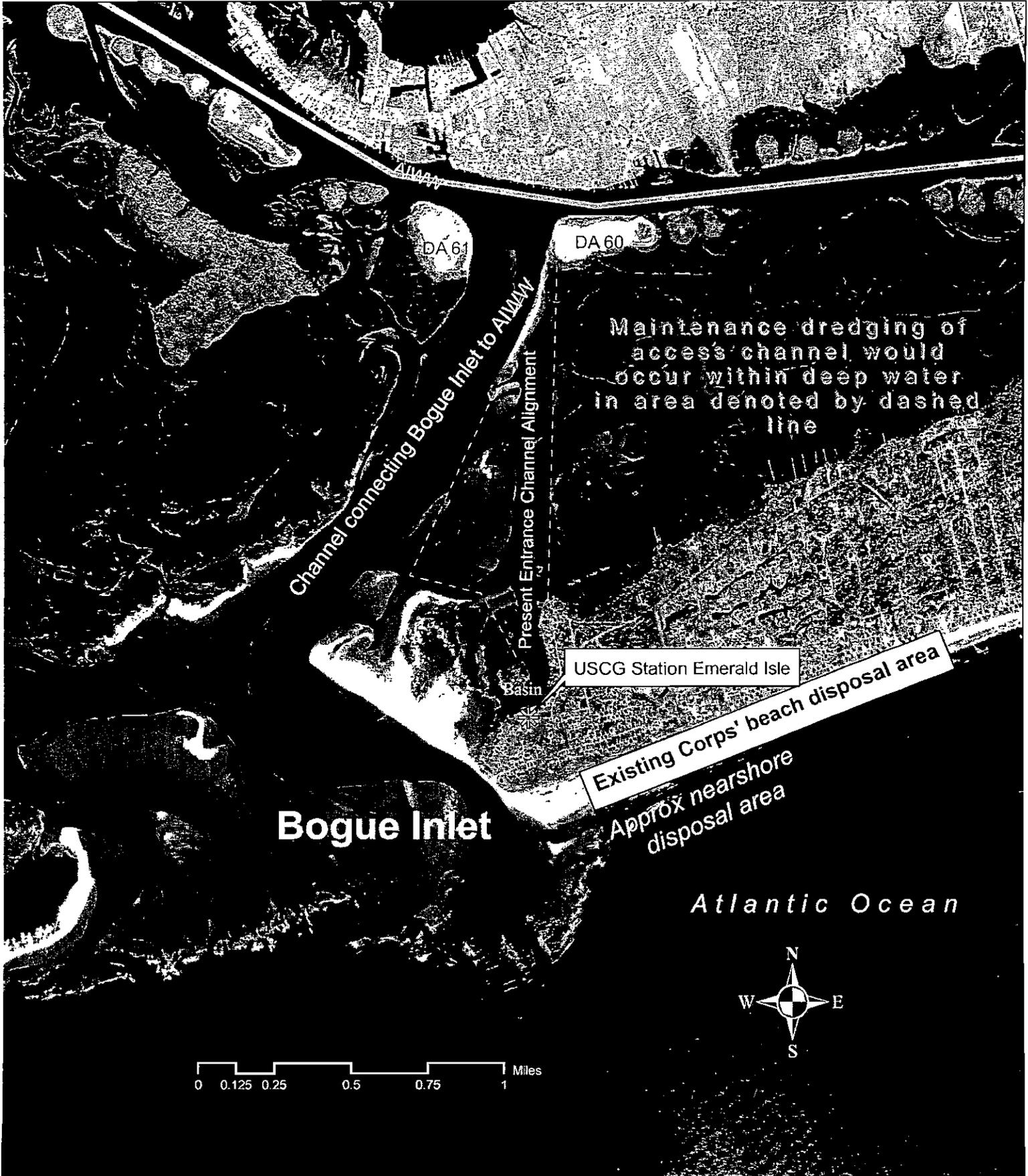
## **Commenting Information**

The Corps of Engineers is soliciting comments from the public; Federal, State and local agencies and officials, including any consolidate State Viewpoint or written position of the Governor; Indian Tribes and other interested parties in order to consider and evaluate the impacts of this proposed activity. Any comments received will be considered by the Corps of Engineers to determine whether to issue, modify, condition or deny a permit for this proposal. To make this decision, comments are used to assess impacts on

endangered species, historic properties, water quality, general environmental effects and the other public interest factors listed above. Comments are used in the preparation of an Environmental Assessment (EA) and/or an Environmental Impact Statement (EIS) pursuant to the National Environmental Policy Act (NEPA). Comments are also used to determine the need for a public hearing and to determine the overall public interest of the proposed activity.

Any person may request, in writing, within the comment period specified in this notice, that a public hearing be held to consider the application. Requests for public hearings shall state, with particularity, the reasons for holding a public hearing. Requests for a public hearing shall be granted, unless the District Engineer determines that the issues raised are insubstantial or there is otherwise no valid interest to be served by a hearing.

Written comments pertinent to the proposed work, as outlined above, will be received by the Corps of Engineers, Wilmington District, until 5pm, December 3, 2007. Comments should be submitted to Mr. Mickey Sugg, Post Office Box 1890, Wilmington, North Carolina 28402-1890, or via internet at [mickey.t.sugg@saw02.usace.army.mil](mailto:mickey.t.sugg@saw02.usace.army.mil) . If you have any questions concerning this application, please contact Mr. Sugg at (910) 251-4811.



DA 61

DA 60

Channel connecting Bogue Inlet to AIWAY

Present Entrance Channel Alignment

Basin

USCG Station Emerald Isle

Existing Corps' beach disposal area

Approx nearshore disposal area

Maintenance dredging of access channel would occur within deep water in area denoted by dashed line

Bogue Inlet

Atlantic Ocean



**ATTACHMENT A**

**Location and Results of Borings**

Boring Probe	Existing	Northing	Time	Depth	Cone Radius	Vibracore Bearing	Foot Heading	Penetration
EICG-V-07-01	2572288	340862	1142	7.9	35	335	268	10
EICG-V-07-02	2571679	338812	1152	10	35	121	165	10
EICG-V-07-03	2572481	336578	1205	4.9	60	78	113	10
EICG-V-07-04	2572511	335783	1214	8.6	40	130	173	10
EICG-V-07-05	2572560	334782	1236	10	40	134	178	10
EICG-V-07-06	2572972	333070	1249	16.7	50	100	184	5
EICG-V-07-07	2572733	333011	1259	7.5	40	276	184	10
EICG-V-07-08	2572839	332669	1311	12	45	298	210	10
EICG-V-07-09	2572866	332502	1321	13	35	298	242	10
EICG-V-07-10	2570210	335347	1351	5.5	50	201	151	10

Section 10 - Tangent G

Section 11 - Tangent F

EICG-V-07-01

EICG-V-07-02

EICG-V-07-03

EICG-V-07-04

EICG-V-07-10

EICG-V-07-05

EICG-V-07-07

EICG-V-07-06

EICG-V-07-08

EICG-V-07-09

USCG  
Emerald Isle

### Bogue Inlet

May 22, 2007 Boring Locations

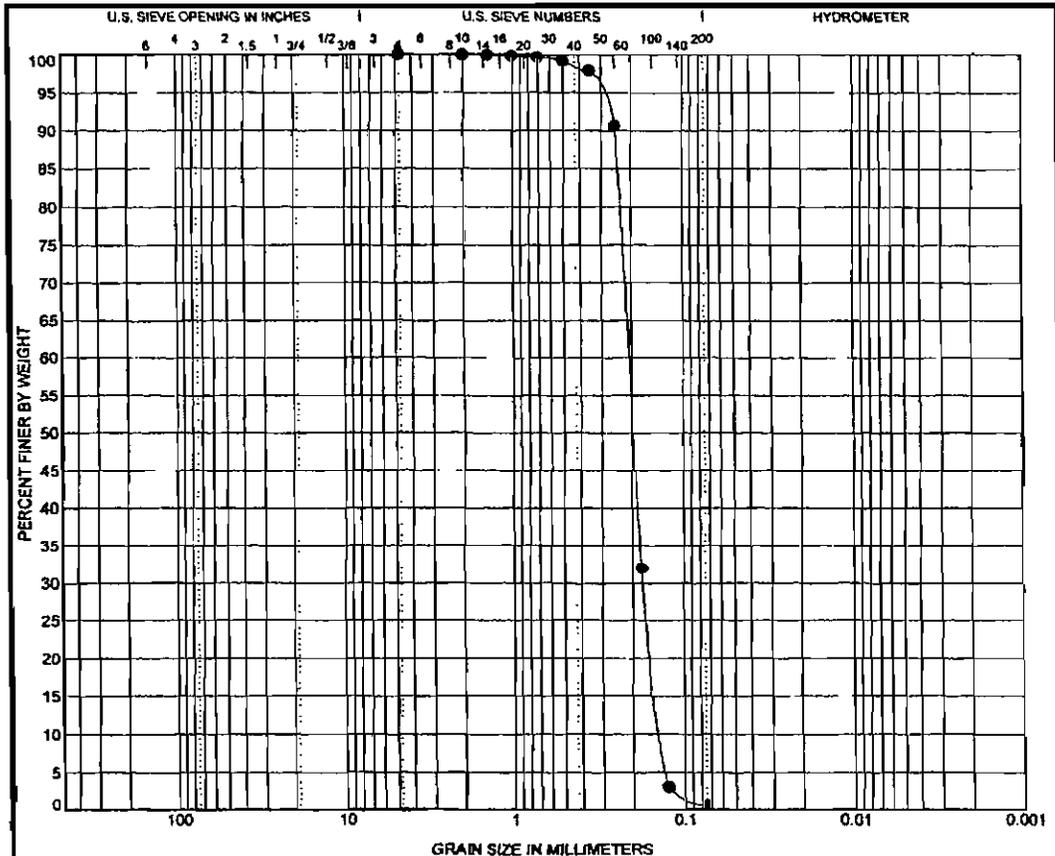
Map Date: June 20, 2007

Photography Date: 2005

Map # sawgis-2007-072

*Bogue Inlet*

DRILLING LOG		DIVISION	INSTALLATION	SHEET 1 OF 1 SHEETS		
1. PROJECT EMERALD ISLE COAST GUARD STATION		SOUTH ATLANTIC	WILMINGTON DISTRICT			
2. LOCATION (Coordinates or Station) N340862 E2512289 NCHAD 83			10. SIZE AND TYPE OF BIT 4" Dia. Vibracore			
3. DRILLING AGENCY WILMINGTON DISTRICT			11. DATUM FOR ELEVATION SHOWN BM or MSL MLLW			
4. HOLE NO. (As shown on drawing title and file number) EICG-07-V-1			12. MANUFACTURER'S DESIGNATION OF DRILL VIBRACORE D/B SNELL			
5. NAME OF DRILLER LESTER GAUGHF (CRANE OPERATOR D/B SNELL)			13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN : 4	UNDISTURBED : 0		
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.			14. TOTAL NUMBER CORE BOXES N/A			
7. THICKNESS OF OVERBURDEN N/A (6.2' of Water)			15. ELEVATION GROUND WATER N/A			
8. DEPTH DRILLED INTO ROCK 0.0'			16. DATE HOLE STARTED : 5/22/07 COMPLETED : 5/22/07			
9. TOTAL DEPTH OF HOLE 16.2'			17. ELEVATION TOP OF HOLE 0.0' MLLW			
			18. TOTAL CORE RECOVERY FOR BORING N/A			
			19. SIGNATURE OF INSPECTOR LARRY BENJAMIN CIVIL ENGINEERING TECH.			
ELEVATION MLLW	DEPTH Feet	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc. if significant)
0.0	0		0.0' TO 6.2' WATER			Time begin vibracoring: 1142 hrs Soils described by Larry Benjamin, Civ. Eng. Tech. NOTE: TOP OF HOLE is defined as the surface of water and compensation is made for the actual tide such that the top of hole is 0.0 EL MLLW.
-6.2	6.2		CHANNEL BOTTOM @ 6.2'		6.2'	
			SP- Grayish Tan, coarse poorly graded sand		1	
					6.7'	
					8.0'	VIBRACORE BORING From 0.0' to 10.0' Ran 10.0' Rec: 7.0'
					8.5'	Top of vibracore soil sample is logged as the ocean/channel bottom
					10.0'	When the run is greater than the recovery, the difference is depicted Assumed Not Recovered
					10.5'	
					12.0'	NOTE: Commercial soils lab classified samples according to ASTM D2457
					12.5'	
-13.2	13.2		12.2' Tan colored		4	
						LAB CLASSIFICATION
			13.2' ASSUMED NOT RECOVERED			Jar Number Classification
						1 SP
						2 SP
						3 NOT TESTED
						4 NOT TESTED
-16.2	16.0					
	16.2		BOTTOM OF HOLE AT 16.2'			NOTE: HOLE TERMINATED AT PREDETERMINED DEPTH OF 10.0'
			SOILS ARE FIELD VISUALLY CLASSIFIED IN ACCORDANCE WITH THE UNIFIED SOIL CLASSIFICATION SYSTEM			



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

Specimen ID	Depth	Classification				LL	PL	PI	Cc	Cu
● EICG-07-V-1-1	6.2	Olive gray poorly graded sand, SP							1.05	1.54
■	6.7	0.3% shells								
▲										
★										
◎										

Specimen ID	Depth	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
● EICG-07-V-1-1	6.2	4.76	0.209	0.173	0.136	0.0	99.4		0.6
■	6.7								
▲									
★									
◎									

U.S. GRAIN SIZE SINGLE SINGLE 202000 EICG-07-V-1-1 CATLIN DINT 7/13/07

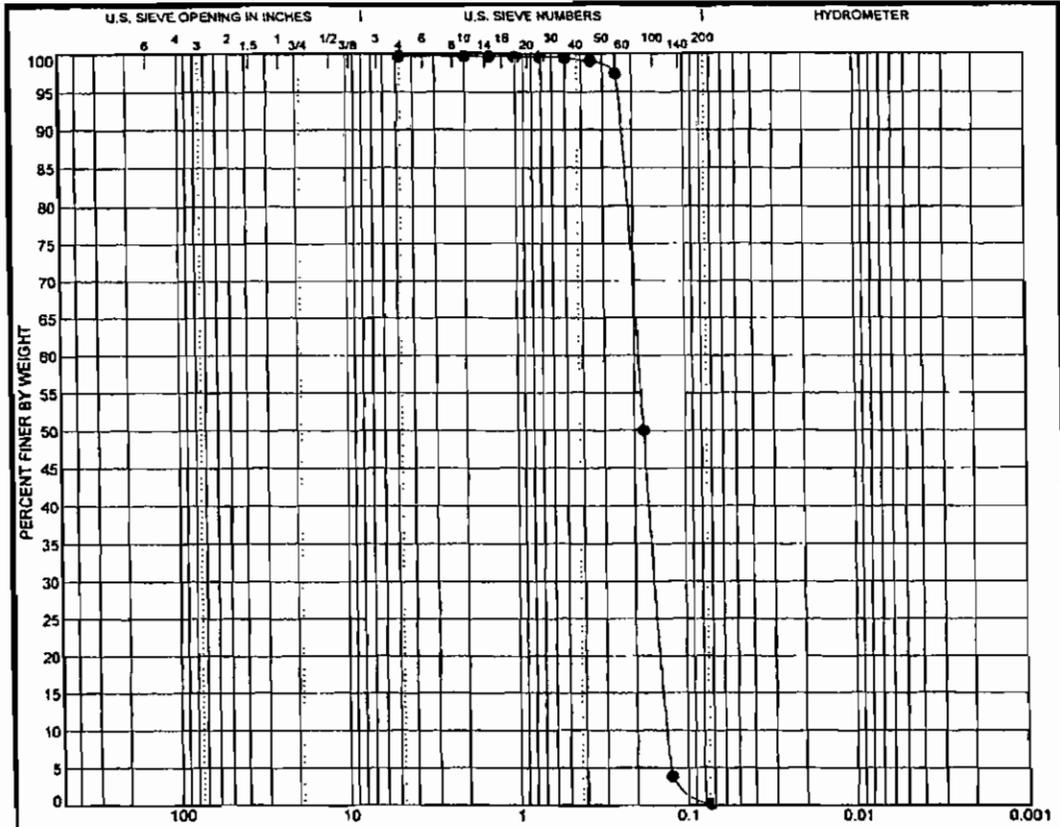


**ENGINEERS and SCIENTISTS**  
GEOTECHNICAL LABORATORIES  
Huntington, NC

CATLIN NAME: USACOE  
CATLIN NUM.: 202-062

**GRAIN SIZE DISTRIBUTION**

PROJECT NAME: USACOE  
CITY: Emerald Isle Coast Guard  
PREPARED FOR: USACOE



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

Specimen ID	Depth	Classification				LL	PL	PI	Cc	Cu
● EICG-07-V-1-2	8.0	Olive gray poorly graded sand, SP							0.93	1.45
■	8.5	0.4% shells								
▲										
★										
◎										
Specimen ID	Depth	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay	
● EICG-07-V-1-2	8.0	4.76	0.19	0.152	0.131	0.0	99.4	0.3		
■	8.5									
▲										
★										
◎										

**CATLIN**  
ENGINEERS and SCIENTISTS  
GEOTECHNICAL LABORATORIES  
Wilmington, NC

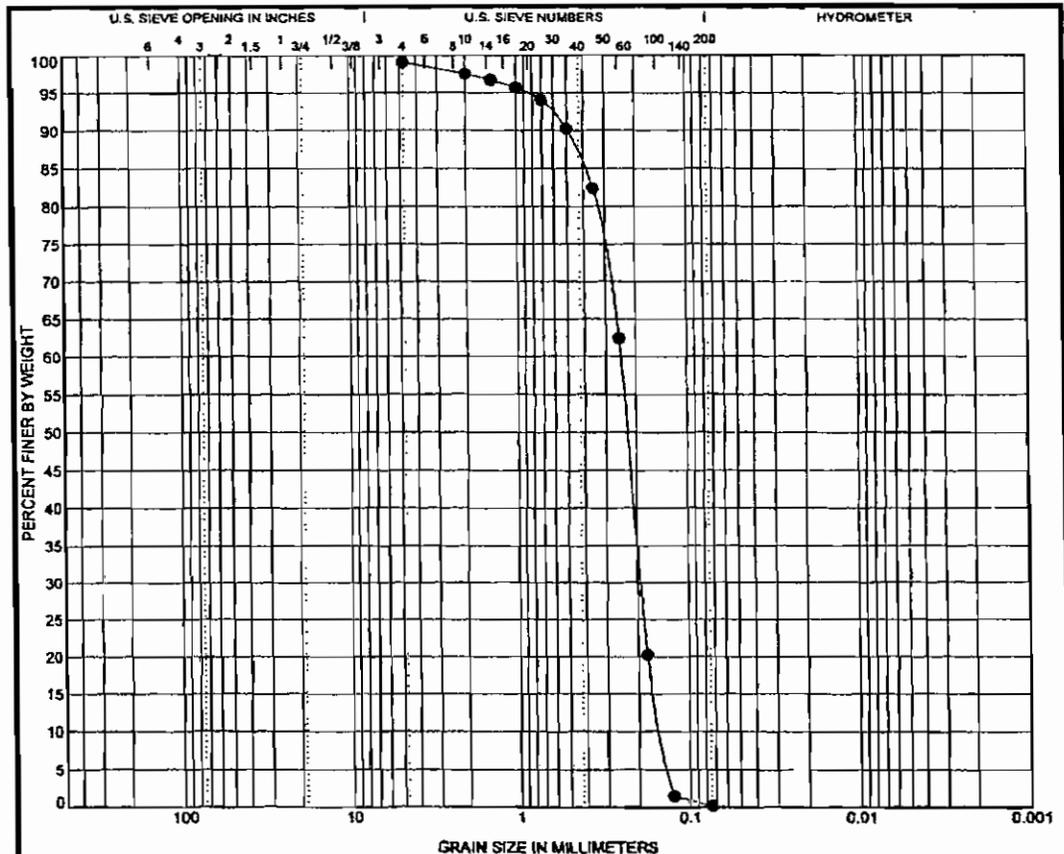
**GRAIN SIZE DISTRIBUTION**

PROJECT NAME: USACOE  
CITY: Emerald Isle Coast Guard  
PREPARED FOR: USACOE

CATLIN NAME: USACOE  
CATLIN NUM.: 202-062

U.S. GRAIN SIZE SINGLE 202-062 (CO. REL. CAT. INT. 7/13/07)

DRILLING LOG		DIVISION	INSTALLATION	SHEET		
1. PROJECT EMERALD ISLE COAST GUARD STATION		SOUTH ATLANTIC	WILMINGTON DISTRICT	1 OF 1 SHEETS		
2. LOCATION (Coordinates or Station) N2571679 E338817 NCNAD83		10. SIZE AND TYPE OF BIT 4" Dia. Vibracore				
3. DRILLING AGENCY WILMINGTON DISTRICT		11. DATUM FOR ELEVATION SHOWN BM or MLLW MLLW				
4. HOLE NO. (As shown on drawing title and file number) . EICG 07 V-2		12. MANUFACTURER'S DESIGNATION OF DRILL VIBRACORE D/B SNELL				
5. NAME OF DRILLER LESTER GAUGHF (CRANE OPERATOR D/B SNELL)		13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN : 4 : 0 DISTURBED : 4 : 0 UNDISTURBED : 0 : 0				
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.		14. TOTAL NUMBER CORE BOXES N/A				
7. THICKNESS OF OVERBURDEN N/A (8.2' of Water)		15. ELEVATION GROUND WATER N/A				
8. DEPTH DRILLED INTO ROCK 0.0'		16. DATE HOLE : STARTED : 5/22/07 : COMPLETED : 5/22/07				
9. TOTAL DEPTH OF HOLE 18.2'		17. ELEVATION TOP OF HOLE 0.0' MLLW				
		18. TOTAL CORE RECOVERY FOR BORING N/A				
		19. SIGNATURE OF INSPECTOR LARRY BENJAMIN CIVIL ENGINEERING TECH.				
ELEVATION MLLW	DEPTH Feet	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOV- ERY	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)
0.0	0		0.0' TO 8.2' WATER			Time begin vibracoring: 1152 hrs Soils described by Larry Benjamin, Civ. Eng. Tech. NOTE: TOP OF HOLE is defined as the surface of water and compensation is made for the actual tide such that the top of hole is 0.0 EL MLLW.
-8.2	8.0 8.2		CHANNEL BOTTOM @ 8.2'		8.2'	
			SP- Tan. coarse, poorly- graded sand		1 8.7'	
	10.0				10.0'	VIBRACORE BORING From 0.0' to 10.0', Ran 10.0' Rec: 6.8'
					10.5'	Top of vibracore soil sample is logged as the ocean/channel bottom
	12.0				12.0'	When the run is greater than the recovery, the difference is depicted Assumed Not Recovered
					12.5'	
	14.0				14.0'	NOTE: Commercial soils lab classified samples according to ASTM 02457
					14.5'	
-15.0	15.0		ASSUMED NOT RECOVERED			LAB CLASSIFICATION  Jar Number      Classification 1            SP 2            NOT TESTED 3            NOT TESTED 4            NOT TESTED
	16.0					
	18.0 18.2		BOTTOM OF HOLE AT 18.2'			NOTE: HOLE TERMINATED AT PREDETERMINED DEPTH OF 10.0'
			SOILS ARE FIELD VISUALLY CLASSIFIED IN ACCORDANCE WITH THE UNIFIED SOIL CLASSIFICATION SYSTEM			



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

Specimen ID	Depth	Classification	LL	PL	PI	Cc	Cu
● EICG-07-V-2-1	8.2	Olive gray poorly graded sand, SP				1.02	1.68
■	8.7	5.9% shells					
▲							
★							
◎							

Specimen ID	Depth	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
● EICG-07-V-2-1	8.2	4.76	0.245	0.192	0.146	0.0	98.8		0.2
■	8.7								
▲									
★									
◎									



CATLIN NAME: USACOE  
CATLIN NUM: 202-062

**GRAIN SIZE DISTRIBUTION**

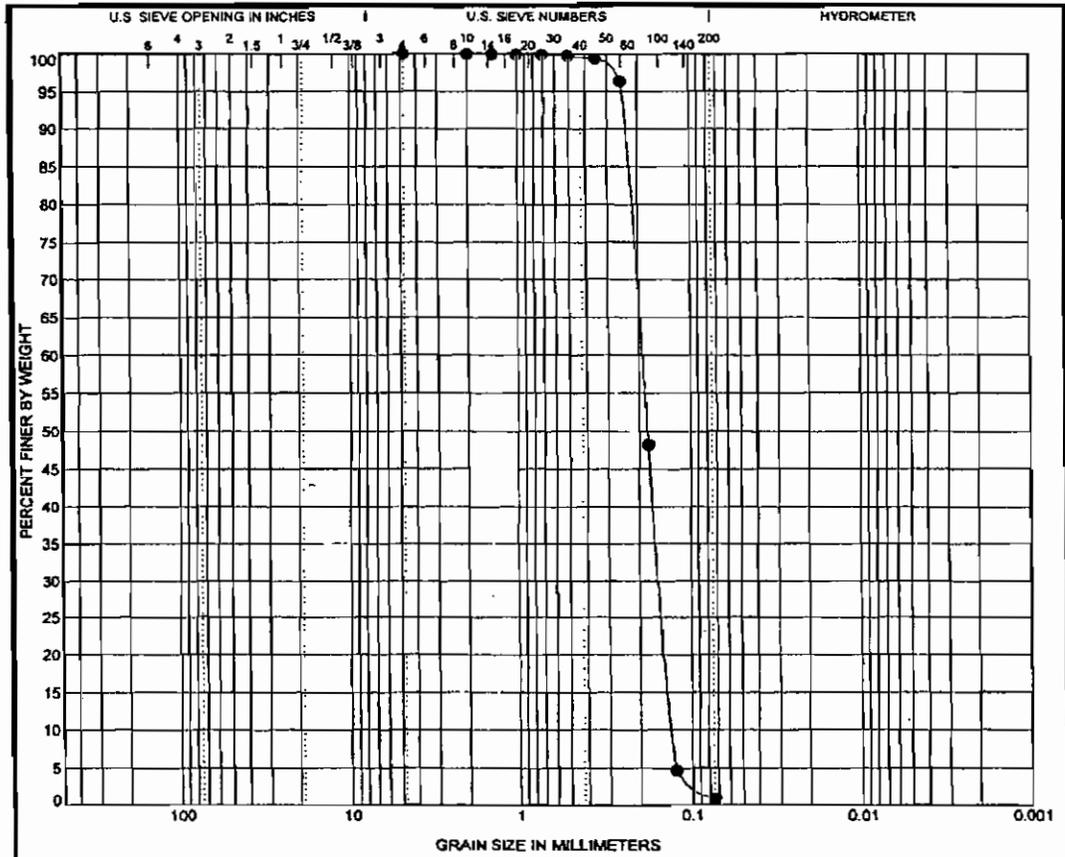
PROJECT NAME: USACOE  
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PREPARED FOR: USACOE

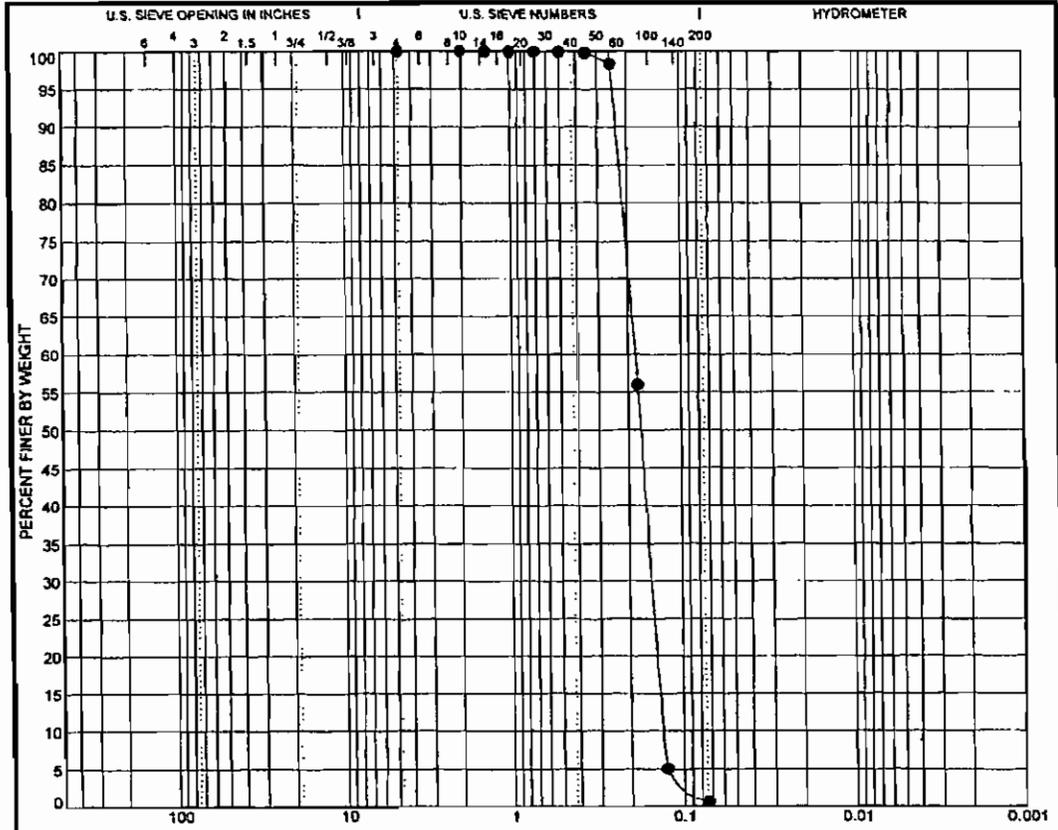
U.S. GRAIN SIZE SINGLE 300-002 EICG (P&I) CATLIN.COE 3/1/07

DRILLING LOG		DIVISION	INSTALLATION	SHEET
PROJECT EMERALD ISLE COAST GUARD STATION		SOUTH ATLANTIC	WILMINGTON DISTRICT	1 OF 1 SHEETS
2. LOCATION (Coordinates or Station) E2572481 N276578 NCNAD83		10. SIZE AND TYPE OF BIT 4" Dia. Vibracore		
3. DRILLING AGENCY WILMINGTON DISTRICT		11. DATUM FOR ELEVATION SHOWN <i>FBM</i> or <i>MSL</i> MLLW		
4. HOLE NO. (As shown on drawing title and file number) EICG-07-V-3		12. MANUFACTURER'S DESIGNATION OF DRILL VIBRACORE D/B SNELL		
5. NAME OF DRILLER LESTER GAUGHF (CRANE OPERATOR D/B SNELL)		13. TOTAL NO OF OVER-BURDEN SAMPLES TAKEN : 4 : UNDISTURBED : 0		
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.		14. TOTAL NUMBER CORE BOXES N/A		
7. THICKNESS OF OVERBURDEN N/A (3.0' of Water)		15. ELEVATION GROUND WATER N/A		
8. DEPTH DRILLED INTO ROCK 0.0'		16. DATE HOLE STARTED : 5/22/07 COMPLETED : 5/22/07		
9. TOTAL DEPTH OF HOLE 13.0'		17. ELEVATION TOP OF HOLE D.G. MLLW		
		18. TOTAL CORE RECOVERY FOR BORING N/A		
		19. SIGNATURE OF INSPECTOR LARRY BENJAMIN CIVIL ENGINEERING TECH.		

ELEVATION MLLW	DEPTH Feet	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc. if significant)
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-3.0	3.0		CHANNEL BOTTOM @ 3.0'		1	NOTE: TOP OF HOLE is defined as the surface of water and compensation is made for the actual tide such that the top of hole is 0.0 EL MLLW.
			SP--Tan, coarse, poorly-graded sand		3.5'	
	5.0				2	VIBRACORE BORING From 0.0' to 10.0' Ran 10.0' Rec: 7.8'
					5.5'	
	7.0				3	Top of vibrocoring soil sample is logged as the ocean/channel bottom When the run is greater than the recovery, the difference is depicted Assumed Not Recovered
					7.5'	
	8.4				4	NOTE: Commercial soils too classified samples according to ASTM 02457
			SM- Dark gray, fine silty sand with shell fragments		8.9'	
-10.8	11.0		ASSUMED NOT RECOVERED			LAB CLASSIFICATION  Jar Number      Classification 1                  SP 2                  SP 3                  SP 4                  NOT TESTED
-13.0	13.0		BOTTOM OF HOLE AT 13.0'			
			SOILS ARE FIELD VISUALLY CLASSIFIED IN ACCORDANCE WITH THE UNIFIED SOIL CLASSIFICATION SYSTEM			NOTE: HOLE TERMINATED AT PREDETERMINED DEPTH OF 10.0'





COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

Specimen ID	Depth	Classification	LL	PL	PI	Cc	Cu
● EICG-07-V-3-2	5.0	Olive gray poorly graded sand, SP				0.93	1.41
■	5.5	0.0% shells					
▲							
★							
◎							

Specimen ID	Depth	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
● EICG-07-V-3-2	5.0	4.76	0.183	0.148	0.129	0.0	99.2	0.8	
■	5.5								
▲									
★									
◎									

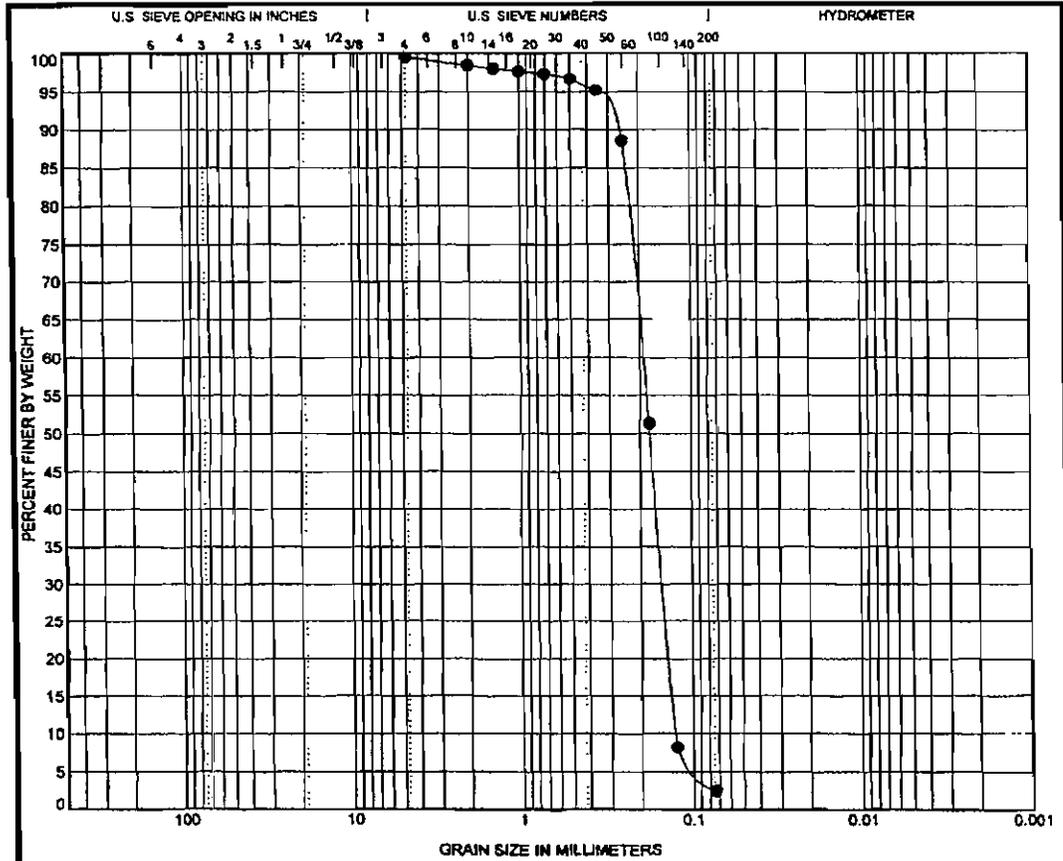


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GEOTECHNICAL LABORATORIES  
Wilmington, NC

**GRAIN SIZE DISTRIBUTION**

PROJECT NAME: USACOE  
CITY: Emerald Isle Coast Guard  
PREPARED FOR: USACOE

CATLIN NAME: USACOE  
CATLIN NUM.: 202-062



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

Specimen ID	Depth	Classification	LL	PL	PI	Cc	Cu
● EICG-07-V-3-3	7.0	Olive gray poorly graded sand, SP				0.91	1.51
■	7.5	2.6% shells					
▲							
★							
○							

Specimen ID	Depth	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
● EICG-07-V-3-3	7.0	4.76	0.192	0.149	0.127	0.0	96.9		2.6
■	7.5								
▲									
★									
○									

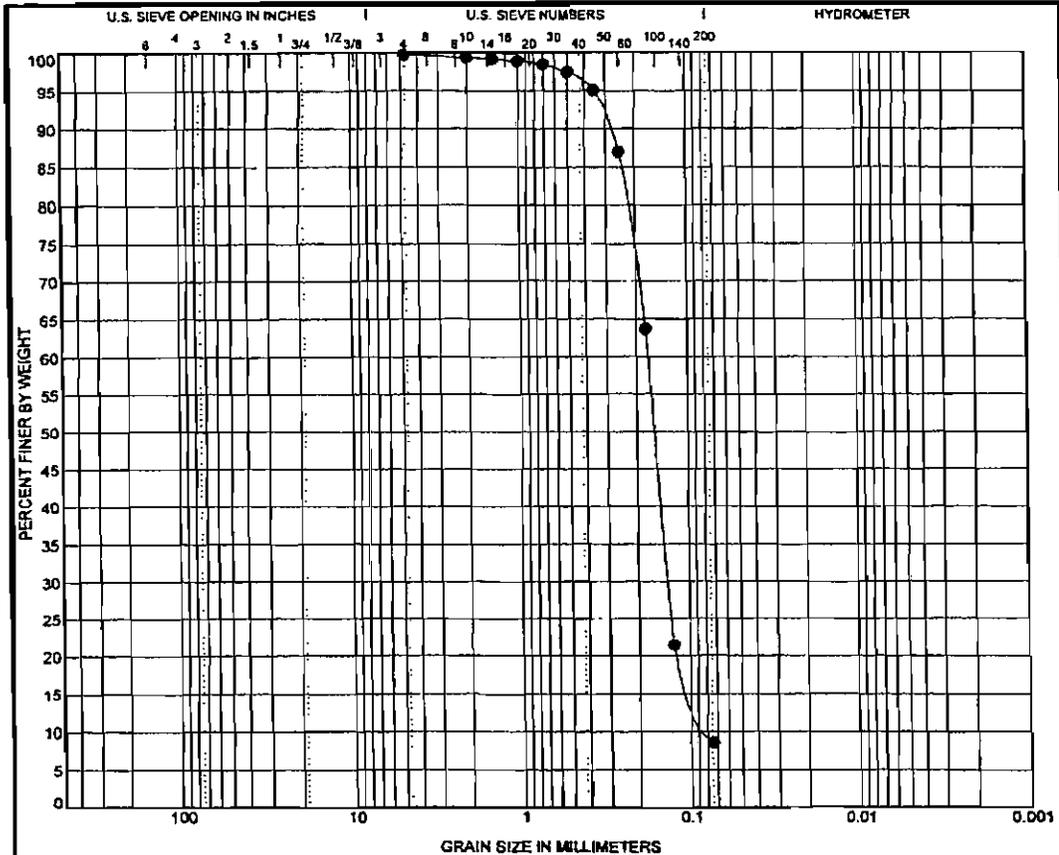
U.S. GRAIN SIZE SINGLE 2009 EICG-07-V-3-3 CATLIN 07-17-07



CATLIN NAME: USACOE  
CATLIN NUM: 202-062

**GRAIN SIZE DISTRIBUTION**  
PROJECT NAME: USACOE  
CITY: Emerald Isle Coast Guard  
PREPARED FOR: USACOE

DRILLING LOG		DIVISION	INSTALLATION	SHEET		
		SOUTH ATLANTIC	WILMINGTON DISTRICT	1 OF 1 SHEETS		
1. PROJECT EMERALD ISLE COAST GUARD STATION		10. SIZE AND TYPE OF BIT 4" Dia. Vibracore				
2. LOCATION (Coordinates or Station) E2572511 N335783 NCNAD83		11. DATUM FOR ELEVATION SHOWN BY or MSL MLLW				
3. DRILLING AGENCY WILMINGTON DISTRICT		12. MANUFACTURER'S DESIGNATION OF DRILL VIBRACORE D/B SNELL				
4. HOLE NO. (As shown on drawing title and file number) EICG-07-V-4		13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN		: DISTURBED : 4	: UNDISTURBED : 0	
5. NAME OF DRILLER LESTER GAUGHF (CRANE OPERATOR D/B SNELL)		14. TOTAL NUMBER CORE BOXES N/A				
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.		15. ELEVATION GROUND WATER N/A				
7. THICKNESS OF OVERBURDEN N/A (6.7' of Water)		16. DATE HOLE		: STARTED : 5/22/07	: COMPLETED : 5/22/07	
8. DEPTH DRILLED INTO ROCK 0.0'		17. ELEVATION TOP OF HOLE 0.0' MLLW				
9. TOTAL DEPTH OF HOLE 16.7'		18. TOTAL CORE RECOVERY FOR BORING %				
19. SIGNATURE OF INSPECTOR LARRY BENJAMIN CIVIL ENGINEERING TECH.						
ELEVATION MLLW	DEPTH Feet	LEGENO	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)
0.0	0		0.0' TO 6.7' WATER			Time begin vibracoring: 1214 hrs Soils described by Larry Benjamin, Civ. Eng. Tech.  NOTE: TOP OF HOLE is de- fined as the surface of water and compensation is made for the actual tide such that the top of hole is 0.0 EL MLLW.
-6.7	6.7		CHANNEL BOTTOM @ 6.7'		6.7'	
	7.2'		SP-Tan, coarse, poorly- graded sand		1	
	8.0				7.2'	VIBRACORE BORING From 0.0' to 10.0' Ran 10.0' Rec: 7.0'
	9.0'				2	Top of vibracore soil sample is logged as the ocean/channel bottom
	9.5'				9.5'	When the run is greater than the recovery, the difference is depicted Assumed Not Recovered
	11.0'				3	
	11.5'				11.5'	NOTE: Commercial soils lab classified samples according to ASTM D2457
	13.0'				4	LAB CLASSIFICATION
	13.7				13.7'	Jar Number      Classification
-13.7	14.0		ASSUMED NOT RECOVERED		13.5'	1      SP-SM 2      NOT TESTED 3      NOT TESTED 4      NOT TESTED
	16.0					
-16.7	16.7		BOTTOM OF HOLE AT 16.7'			NOTE: HOLE TERMINATED AT PREDETERMINED, DEPTH OF 10.0'
			SOILS ARE FIELD VISUALLY CLASSIFIED IN ACCORDANCE WITH THE UNIFIED SOIL CLASSIFICATION SYSTEM			



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

Specimen ID	Depth	Classification	LL	PL	PI	Cc	Cu		
● EICG-07-V-4-1	6.7	Olive gray poorly graded sand with silt, SP-SM				1.34	2.19		
■	7.2	1.5% shells							
▲									
★									
◎									
Specimen ID	Depth	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
● EICG-07-V-4-1	6.7	4.76	0.172	0.134	0.075	0.0	90.8	8.9	
■	7.2								
▲									
★									
◎									



**ENGINEERS and SCIENTISTS**  
**GEOTECHNICAL LABORATORIES**  
Wilmington, NC

CATLIN NAME: USACOE  
 CATLIN NUM.: 202-062

**GRAIN SIZE DISTRIBUTION**

PROJECT NAME: USACOE  
 CITY: Emerald Isle Coast Guard  
 PREPARED FOR: USACOE

U.S. GRAIN SIZE SAND 1. 200-062 EICG DE CATLIN 202-062

DRILLING LOG		DIVISION	INSTALLATION	SHEET
1. PROJECT EMERALD ISLE COAST GUARD STATION		SOUTH ATLANTIC	WILMINGTON DISTRICT	1 OF 1 SHEETS
2. LOCATION (Coordinates or Station) E2572530 N334782 NCNAD83		10. SIZE AND TYPE OF BIT 4" Dia. Vibrocure		
3. DRILLING AGENCY WILMINGTON DISTRICT		11. DATUM FOR ELEVATION SHOW/FB# or MSU MLLW		
4. HOLE NO (As shown on drawing title and file number) EICG-07-V-5		12. MANUFACTURER'S DESIGNATION OF DRILL VIBRACORE D/B SNELL		
5. NAME OF DRILLER LESTER GAUGHF (CRANE OPERATOR D/B SNELL)		13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN : 4 : 0		
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG FROM VERT.		14. TOTAL NUMBER CORE BOXES N/A		
7. THICKNESS OF OVERBURDEN N/A (8.0' of Water)		15. ELEVATION GROUND WATER N/A		
8. DEPTH DRILLED INTO ROCK 0.0'		16. DATE HOLE : STARTED : 5/22/07 : COMPLETED : 5/22/07		
9. TOTAL DEPTH OF HOLE 18.0'		17. ELEVATION TOP OF HOLE 0.0' MLLW		
		18. TOTAL CORE RECOVERY FOR BORING %		
		19. SIGNATURE OF INSPECTOR LARRY BENJAMIN CIVIL ENGINEERING TECH.		

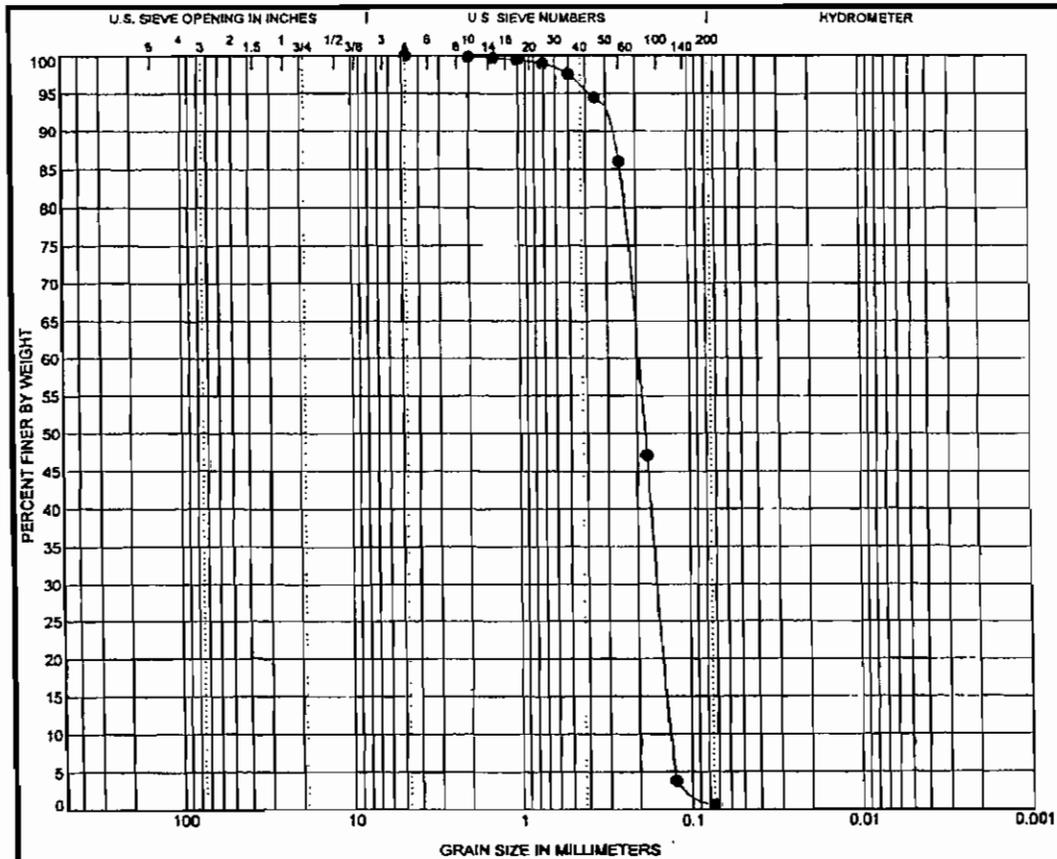
  

ELEVATION MLLW	DEPTH FBFT	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc. if significant)
0.0	0		0.0' TO 8.0' WATER			Time begin vibracoring: 1236 hrs Soils described by Larry Benjamin, Civ. Eng. Tech.
-8.0	8.0		CHANNEL BOTTOM @ 8.0'		8.0'	NOTE: TDP OF HOLE is defined as the surface of water and compensation is made for the actual tide such that the top of hole is 0.0 EL MLLW.
			SP- Grayish-tan, coarse poorly-graded sand		8.5'	
					10.0'	<b>VIBRACORE BORING</b> From 0.0' to 10.0', Ran 10.0' Rec: 8.0'
					10.5'	Top of vibracore soil sample is logged as the ocean/channel bottom
					12.0'	When the run is greater than the recovery, the difference is depicted Assumed Not Recovered
					12.5'	
					14.0'	NOTE: Commercial soils lab classified samples according to ASTM D2457
			14.0' with shell fragments		14.0'	
					14.5'	<b>LAB CLASSIFICATION</b>
						Jar Number      Classification
						1      SP
						2      NOT TESTED
						3      NOT TESTED
						4      NOT TESTED
-16.0	16.0		16.0' ASSUMED NOT RECOVERED			
-18.0	18.0		BOTTOM OF HOLE AT 18.0'			NOTE: HOLE TERMINATED AT PREDETERMINED DEPTH OF 10.0'
			SOILS ARE FIELD VISUALLY CLASSIFIED IN ACCORDANCE WITH THE UNIFIED SOIL CLASSIFICATION SYSTEM			



DRILLING LOG		DIVISION	INSTALLATION		SHEET 1 OF 1 SHEETS	
1. PROJECT EMERALD ISLE COAST GUARD STATION			SOUTH ATLANTIC		WILMINGTON DISTRICT	
2. LOCATION (Coordinates or Station) E2572972 N333070 NCNAD83			10. SIZE AND TYPE OF BIT 4" Dia. Vibrocure		11. DATUM FOR ELEVATION SHOWING or MSL MLLW	
3. DRILLING AGENCY WILMINGTON DISTRICT			12. MANUFACTURER'S DESIGNATION OF DRILL VIBRACORE D/B SNELL		13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN : 'DISTURBED' : 'UNDISTURBED' : 2 : 0	
4. HOLE NO. (As shown on drawing title and file number) : EICG-07-V-6			14. TOTAL NUMBER CORE BOXES N/A		15. ELEVATION GROUND WATER N/A	
5. NAME OF DRILLER LESTER GAUGH (CRANE OPERATOR D/B SNELL)			16. DATE HOLE : 'STARTED' : 'COMPLETED' : 5/22/07 : 5/22/07		17. ELEVATION TOP OF HOLE 0.0' MLLW	
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG FROM VERT.			18. TOTAL CORE RECOVERY FOR BORING N/A %		19. SIGNATURE OF INSPECTOR LARRY BENJAMIN CIVIL ENGINEERING TECH.	
7. THICKNESS OF OVERBURDEN N/A (14.7' of Water)			19.7'			
8. DEPTH DRILLED INTO ROCK 0.0'						
9. TOTAL DEPTH OF HOLE 19.7'						
ELEVATION MLLW	DEPTH Feet	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc. if applicable)
0.0			0.0' TO 14.7' WATER			Time begin vibracoring: 1249 hrs Soils described by Larry Benjamin, Civ. Eng. Tech. NOTE: TOP OF HOLE is defined as the surface of water and compensation is made for the actual tide such that the top of hole is 0.0 El. MLLW.
-14.7	14.7		CHANNEL BOTTOM @ 14.7'		14.7'	
	15.0		SP-Tan. coarse, poorly-graded sand		15.2'	VIBRACORE BORING from 0.0' to 5.0' Ran 5.0' Rec: 3.8'
	16.0		16.0' Trace of shell fragments		17.0'	Top of vibrocure soil sample is logged as the ocean/channel bottom When the run is greater than the recovery, the difference is depicted Assumed Not Recovered
	17.0				17.5'	NOTE: Commercial soils lab classified samples according to ASTM D2457
	18.0				2	LAB CLASSIFICATION
	18.5					Jar Number Classification 1 NOT TESTED 2 NOT TESTED
-18.5	18.5		ASSUMED NOT RECOVERED			
	19.0					
-19.7	19.7		BOTTOM OF HOLE AT 19.7'			NOTE: HOLE TERMINATED AT REFUSAL DEPTH OF 5.0'
	20.0		SOILS ARE FIELD VISUALLY CLASSIFIED IN ACCORDANCE WITH THE UNIFIED SOIL CLASSIFICATION SYSTEM			

DRILLING LOG		DIVISION	INSTALLATION	SHEET		
		SOUTH ATLANTIC	WILMINGTON DISTRICT	1 OF 1 SHEETS		
1. PROJECT EMERALD ISLE COAST GUARD STATION		10. SIZE AND TYPE OF BIT 4" Dia. Vibracore				
2. LOCATION (Coordinates or Station) E2572733 N333011 NCNAD83		11. DATUM FOR ELEVATION SHOWN (BM or MSL) MLLW				
3. DRILLING AGENCY WILMINGTON DISTRICT		12. MANUFACTURER'S DESIGNATION OF DRILL VIBRACORE D/B SNELL				
4. HOLE NO. (As shown on drawing title and file number) : EICG-07-V-7		13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN : DISTURBED : UNDISTURBED : 4 : 0				
5. NAME OF DRILLER LESTER GAUGHF (CRANE OPERATOR D/B SNELL)		14. TOTAL NUMBER CORE BOXES N/A				
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.		15. ELEVATION GROUND WATER N/A				
7. THICKNESS OF OVERBURDEN N/A (5.5' of water)		16. DATE HOLE : STARTED : COMPLETED : 5/22/07 : 5/22/07				
8. DEPTH DRILLED INTO ROCK 0.0'		17. ELEVATION TOP OF HOLE 0.0' MLLW				
9. TOTAL DEPTH OF HOLE 15.5'		18. TOTAL CORE RECOVERY FOR BORING N/A				
		19. SIGNATURE OF INSPECTOR LARRY BENJAMIN CIVIL ENGINEERING TECH.				
ELEVATION MLLW	DEPTH FOOT	LEGEND	CLASSIFICATION OF MATERIALS (Description)	Z CORE RECOVERY	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)
0.0	0		0.0' TO 5.5' WATER			Time begin vibracoring: 1259 hrs
	5.0					Soils described by Larry Benjamin, Civ. Eng. Tech.
-5.5	5.5		CHANNEL BOTTOM @ 5.5'		5.5'	NOTE: TOP OF HOLE is defined as the surface of water and compensation is made for the actual tide such that the top of hole is 0.0 EL MLLW.
	5.5		SP-Tan, coarse, poorly graded sand		1	
	6.0				6.0'	
	7.0				7.5'	VIBRACORE BORING From 0.0' to 10.0' Ran 10.0' Rec: 7.5'
	8.0				2	Top of vibracore soil sample is logged as the ocean/channel bottom
	9.0				8.0'	When the run is greater than the recovery, the difference is depicted Assumed Not Recovered
	9.5				9.5'	
	10.0				3	
	11.0				10.0'	NOTE: Commercial soils lab classified samples according to ASTM D2457
	11.5				4	LAB CLASSIFICATION
	12.0				4	Jar Number Classification
	13.0				1	1 SP
	13.0		ASSUMED NOT RECOVERED		2	2 SP
	13.0				3	3 NOT TESTED
	13.0				4	4 NOT TESTED
	15.0					
-15.5	15.5		BOTTOM OF HOLE AT 15.5'			NOTE: HOLE TERMINATED AT PREDETERMINED DEPTH OF 10.0'
			SOILS ARE FIELD VISUALLY CLASSIFIED IN ACCORDANCE WITH THE UNIFIED SOIL CLASSIFICATION SYSTEM			



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

Specimen ID	Depth	Classification					LL	PL	PI	Cc	Cu
● EICG-07-V-7-1	5.5	Olive gray poorly graded sand, SP								0.91	1.61
■	6.0	1.0% shells									
▲											
★											
◎											
Specimen ID	Depth	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay		
● EICG-07-V-7-1	5.5	4.76	0.198	0.154	0.131	0.0	99.2	0.8			
■	6.0										
▲											
★											
◎											

U.S. GEOLOGICAL SURVEY - SINGLE - 30-000 EICG-07-V-7-1-1

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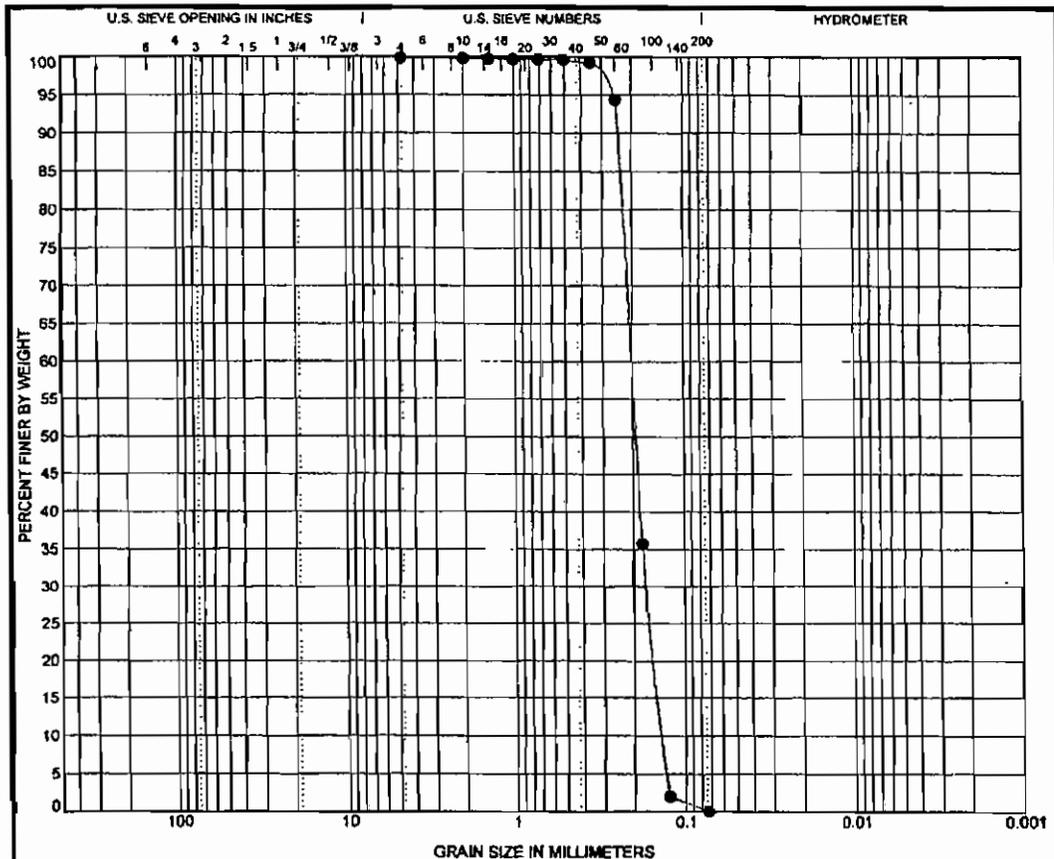
CATLIN NAME: USACOE  
 CATLIN NUM: 202-062

**GRAIN SIZE DISTRIBUTION**  
 PROJECT NAME: USACOE  
 CITY: Emerald Isle Coast Guard  
 PREPARED FOR: USACOE



DRILLING LOG		DIVISION SOUTH ATLANTIC		INSTALLATION WILMINGTON DISTRICT		SHEET 1 OF 1 SHEETS													
1. PROJECT EMERALD ISLE COAST GUARD STATION				10. SIZE AND TYPE OF BIT 1" Dia. Vibracore															
2. LOCATION (Coordinates or Station) E2572639 N332669 NCNAD83				11. DATUM FOR ELEVATION SHOWN BY or MSU MLLW															
5. DRILLING AGENCY WILMINGTON DISTRICT				12. MANUFACTURER'S DESIGNATION OF DRILL VIBRACORE D/B SNELL															
4. HOLE NO. (As shown on drawing title and file number) EICG-07-V-8				13. TOTAL NO OF OVER-BURDEN SAMPLES TAKEN		DISTURBED 5 UNDISTURBED 0													
5. NAME OF DRILLER LESTER GAUGHF (CRANE OPERATOR D/B SNELL)				14. TOTAL NUMBER CORE BOXES N/A															
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.				16. DATE HOLE STARTED		COMPLETED													
7. THICKNESS OF OVERBURDEN N/A (10.0' of Water)				15. ELEVATION GROUND WATER N/A		17. ELEVATION TOP OF HOLE 0.0' MLLW													
8. DEPTH DRILLED INTO ROCK 0.0'				18. TOTAL CORE RECOVERY FOR BORING N/A		19. SIGNATURE OF INSPECTOR													
9. TOTAL DEPTH OF HOLE 20.0'				LARRY BENJAMIN CIVIL ENGINEERING TECH.															
ELEVATION MLLW	DEPTH FEET	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc. if significant)													
0.0	0		0.0' TO 10.0' WATER			Time begin vibracoring: 1311 hrs													
-10.0	10.0		CHANNEL BOTTOM @ 10.0'		10.0'	Soils described by Larry Benjamin, Civ. Eng. Tech.													
			SP-Tan. coarse, poorly-graded sand, trace shell fragments		10.5'	NOTE: TOP OF HOLE is defined as the surface of water and compensation is made for the actual tide such that the top of hole is 0.0 EL MLLW.													
	12.0				12.0'	VIBRACORE BORING From 0.0' to 10.0' Ran 10.0' Rec: 6.9'													
					12.5'	Top of vibracore soil sample is logged as the ocean/channel bottom													
	14.0				13.9'	When the run is greater than the recovery, the difference is depicted Assumed Not Recovered													
			MH-Dark gray elastic silt	14.4'	3														
			SP-Tan. coarse, poorly-graded sand	14.9'	4														
	16.0				5	NOTE: Commercial soils lab classified samples according to ASTM D2457													
					15.5'														
-16.9	16.9		ASSUMED NOT RECOVERED			LAB CLASSIFICATION													
						<table border="1"> <thead> <tr> <th>Jor Number</th> <th>Classification</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>NOT TESTED</td> </tr> <tr> <td>2</td> <td>NOT TESTED</td> </tr> <tr> <td>3</td> <td>NOT TESTED</td> </tr> <tr> <td>4</td> <td>NOT TESTED</td> </tr> <tr> <td>5</td> <td>NOT TESTED</td> </tr> </tbody> </table>		Jor Number	Classification	1	NOT TESTED	2	NOT TESTED	3	NOT TESTED	4	NOT TESTED	5	NOT TESTED
Jor Number	Classification																		
1	NOT TESTED																		
2	NOT TESTED																		
3	NOT TESTED																		
4	NOT TESTED																		
5	NOT TESTED																		
	18.0																		
-20.0	20.0		BOTTOM OF HOLE AT 20.0'			NOTE: HOLE TERMINATED AT PREDETERMINED DEPTH OF 10.0'													
			SOILS ARE FIELD VISUALLY CLASSIFIED IN ACCORDANCE WITH THE UNIFIED SOIL CLASSIFICATION SYSTEM																

DRILLING LOG		DIVISION	INSTALLATION	SHEET		
1. PROJECT EMERALD ISLE COAST GUARD STATION		SOUTH ATLANTIC	WILMINGTON DISTRICT	1 OF 1 SHEETS		
2. LOCATION (Coordinates or Station) E2572365 N332502 NCNAD83			10. SIZE AND TYPE OF BIT 4" Dia. Vibracore			
3. DRILLING AGENCY WILMINGTON DISTRICT			11. DATUM FOR ELEVATION SHOW/FBM or MSL MLLW			
4. HOLE NO. (As shown on drawing title and file number) EICG-07-V-9			12. MANUFACTURER'S DESIGNATION OF DRILL VIBRACORE D/B SNELL			
5. NAME OF DRILLER LESTER GAUGHF (CRANE OPERATOR D/B SNELL)			13. TOTAL NO OF OVER-BURDEN SAMPLES TAKEN : DISTURBED : UNOBTAINED	3 : 0		
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.			14. TOTAL NUMBER CORE BOXES N/A			
7. THICKNESS OF OVERBURDEN N/A (1.0' of water)			15. ELEVATION GROUND WATER N/A			
8. DEPTH DRILLED INTO ROCK 0.0'			16. DATE HOLE : STARTED : COMPLETED	5/22/07 : 5/22/07		
9. TOTAL DEPTH OF HOLE 11.0'			17. ELEVATION TOP OF HOLE 0.0' MLLW			
			18. TOTAL CORE RECOVERY FOR BORING N/A	%		
			19. SIGNATURE OF INSPECTOR LARRY BENJAMIN CIVIL ENGINEERING TECH.			
ELEVATION MLLW	DEPTH Feet	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOV- ERY	BOX OR SAMPLE NO	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)
0.0	0		0.0' TO 1.0' WATER			Time begin vibracoring: 1321 hrs
-1.0	1.0		CHANNEL BOTTOM @ 1.0'		1.0'	Soils described by Lorry Benjamin, Civ. Eng. Tech. NOTE: TOP OF HOLE is defined as the surface of water and compensation is made for the actual tide such that the top of hole is 0.0 EL MLLW.
			SP-Tan, coarse, poorly- graded sand		1	
					1.5'	
					3.0'	VIBRACORE BORING From 0.0' to 10.0' Ran 10.0' Rec: 6.0'
					2	
					3.5'	Top of vibracore soil sample is logged as the ocean/channel bottom
					5.0'	When the run is greater than the recovery, the difference is depicted Assumed Not Recovered
					3	
					5.5'	
						NOTE: Commercial soils lab classified samples according to ASTM D2457
-7.0	7.0		ASSUMED NOT RECOVERED			LAB CLASSIFICATION
						Jar Number      Classification
						1              SP
						2              SP
						3              SP
-11.0	11.0		BOTTOM OF HOLE AT 11.0'			NOTE: HOLE TERMINATED AT PREDETERMINED DEPTH OF 10.0'
			SOILS ARE FIELD VISUALLY CLASSIFIED IN ACCORDANCE WITH THE UNIFIED SOIL CLASSIFICATION SYSTEM			



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

Specimen ID	Depth	Classification				LL	PL	PI	Cc	Cu
● EICG-07-V-9-1	1.0	Olive gray poorly graded sand, SP							1.00	1.50
■	1.5	0.3% shells								
▲										
★										
⊙										

Specimen ID	Depth	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
● EICG-07-V-9-1	1.0	4.76	0.204	0.167	0.136	0.0	99.7	0.1	
■	1.5								
▲									
★									
⊙									

U.S. GRAIN SIZE SAMPLE 200-052 EICG-07-V-9-1 CATLIN 07-09-02 2:53:57

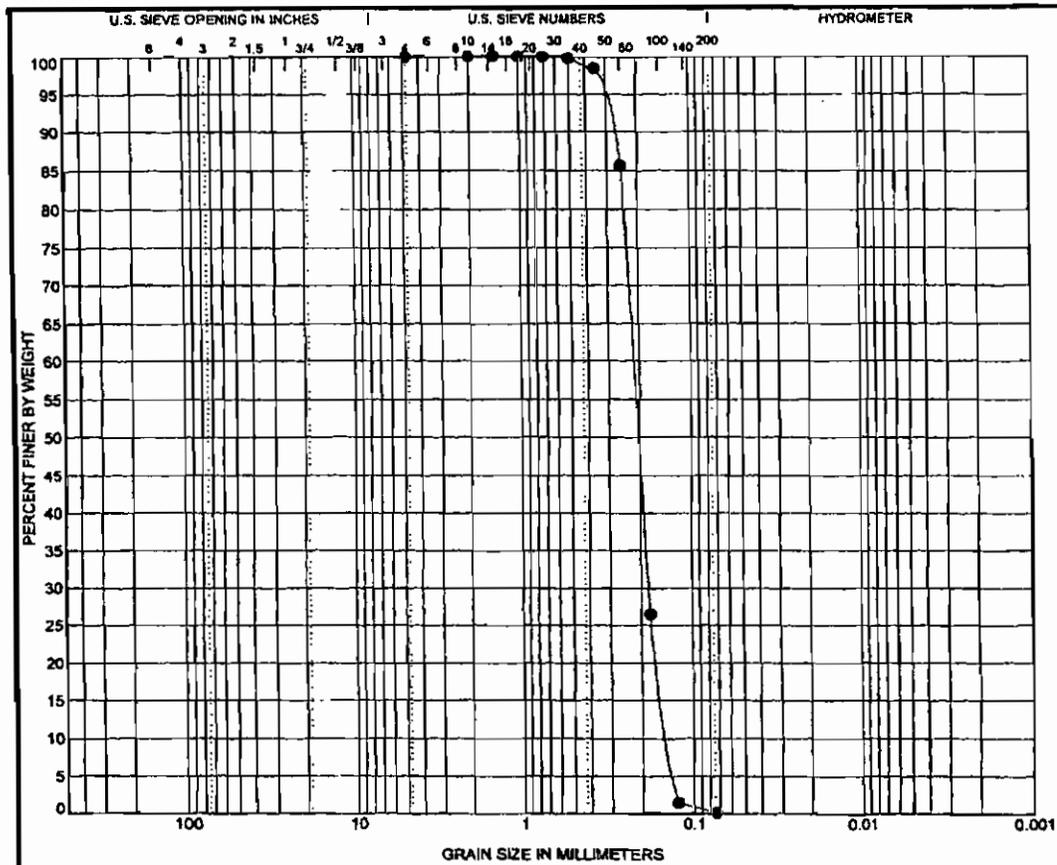


**ENGINEERS and SCIENTISTS**  
GEOTECHNICAL LABORATORIES  
Wilmington, NC

CATLIN NAME: USACOE  
CATLIN NUM.: 202-052

**GRAIN SIZE DISTRIBUTION**

PROJECT NAME: USACOE  
CITY: Emerald Isle Coast Guard  
PREPARED FOR: USACOE



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

Specimen ID	Depth	Classification	LL	PL	PI	Cc	Cu
● EICG-07-V-9-2	3.0	Olive gray poorly graded sand, SP				1.08	1.53
●	3.5	0.1% shells					
▲							
★							
◎							

Specimen ID	Depth	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
● EICG-07-V-9-2	3.0	4.76	0.215	0.181	0.141	0.0	99.8	0.2	
●	3.5								
▲									
★									
◎									

U.S. GRAIN SIZE, SIEVE & HYDROMETER DATA, CATLIN, INC., 2002-082



**ENGINEERS and SCIENTISTS**  
GEOTECHNICAL LABORATORIES  
Wilmington, NC

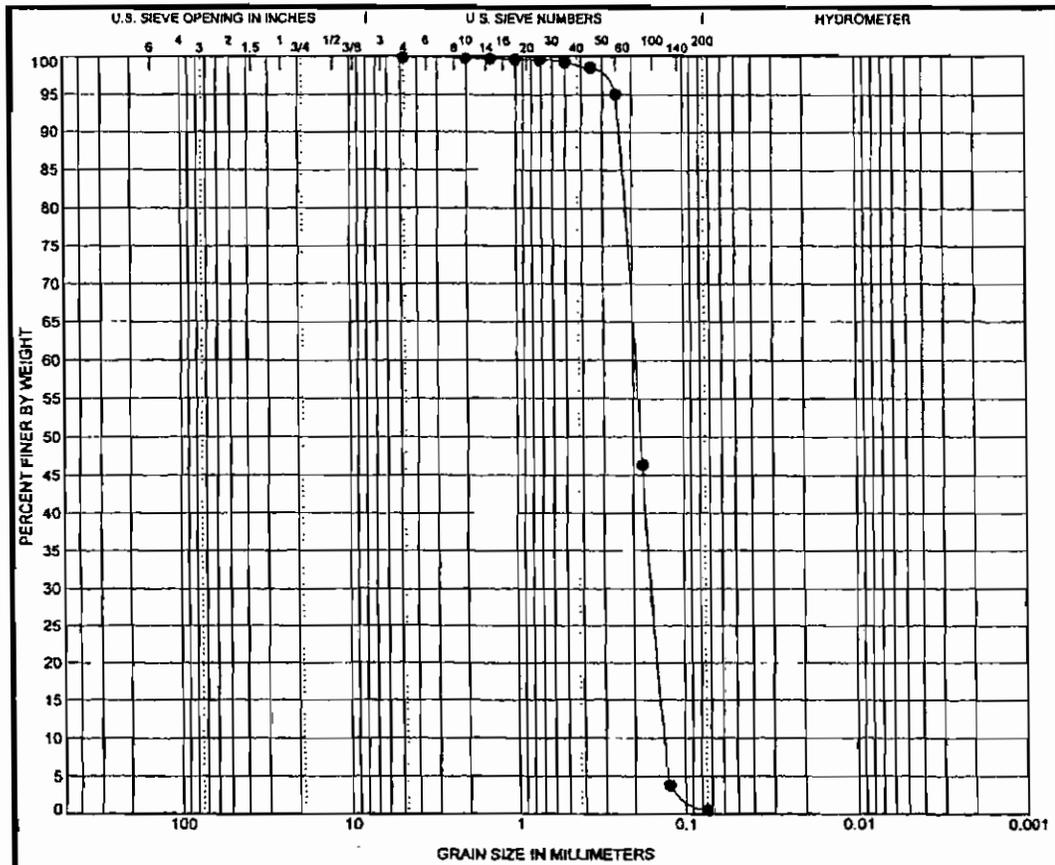
CATLIN NAME: USACOE  
CATLIN NUM: 202-082

**GRAIN SIZE DISTRIBUTION**

PROJECT NAME: USACOE  
CITY: Emerald Isle Coast Guard  
PREPARED FOR: USACOE







COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

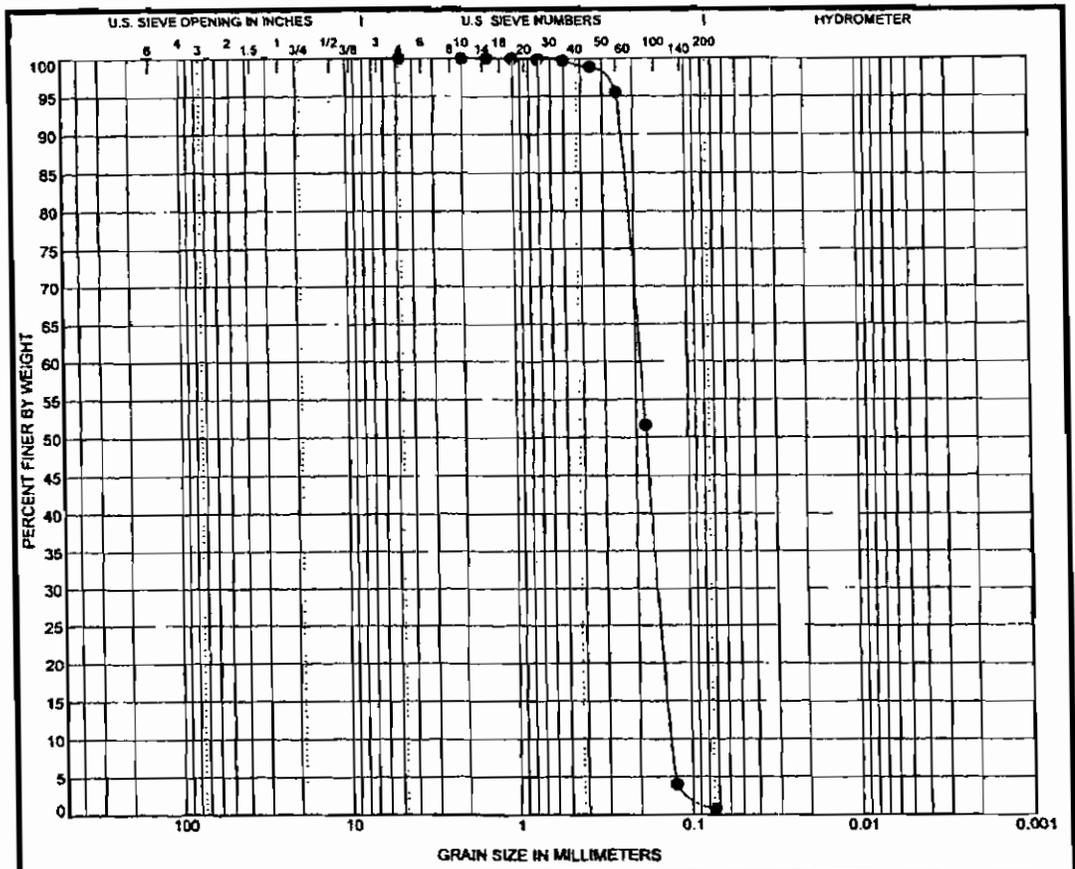
Specimen ID	Depth	Classification					LL	PL	PI	Cc	Cu
● EICG-07-V-10-1	3.5	Olive gray poorly graded sand, SP								0.94	1.48
■	4.0	0.5% shells									
▲											
★											
◎											
Specimen ID	Depth	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay		
● EICG-07-V-10-1	3.5	4.76	0.195	0.155	0.131	0.0	99.2	0.6			
■	4.0										
▲											
★											
◎											

U.S. GRAIN SIZE SINGLE 202-062 EICG 07-V-10-10-1



CATLIN NAME: USACOE  
CATLIN NUM.: 202-062

GRAIN SIZE DISTRIBUTION	
PROJECT NAME:	USACOE
CITY:	Emerald Isle Coast Guard
PREPARED FOR:	USACOE



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

Specimen ID	Depth	Classification	LL	PL	PI	Cc	Cu
● EICG-07-V-10-2	5.5	Olive gray poorly graded sand, SP				0.93	1.45
■	8.0	0.1% shells					
▲							
★							
◎							

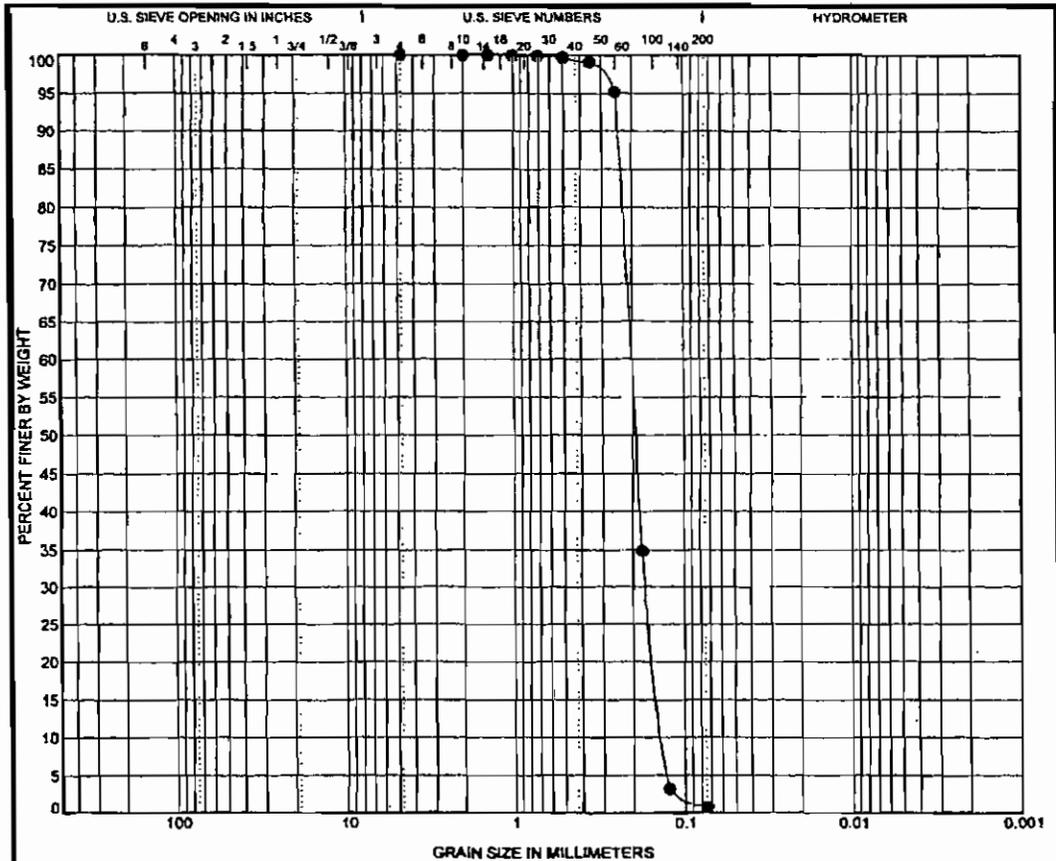
Specimen ID	Depth	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
● EICG-07-V-10-2	5.5	4.76	0.189	0.151	0.131	0.0	99.1		0.9
■	8.0								
▲									
★									
◎									

**CATLIN**  
ENGINEERS and SCIENTISTS  
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Wilmington, NC

**GRAIN SIZE DISTRIBUTION**

PROJECT NAME: USACOE  
CITY: Emerald Isle Coast Guard  
PREPARED FOR: USACOE

CATLIN NAME: USACOE  
CATLIN NUM.: 202-082



**TABLE 1  
SUMMARY OF LABORATORY TESTING RESULTS  
FOR GRAIN SIZE ANALYSIS  
USACOE - EMERALD ISLE COAST GUARD  
CATLIN PROJECT NO. 202-062**

BORING NUMBER	SAMPLE #	DEPTH	% SHELL	#4	#10	#14	#18	#25	#35	#45	#60	#80	#120	#230
EICG-07-V-1	1	6.2-6.7	0.3	100.0	99.9	99.9	99.8	99.7	99.2	97.9	40.6	32.0	3.0	0.5
EICG-07-V-1	2	8.0-8.5	0.4	99.7	99.8	99.8	99.8	99.6	99.4	96.1	97.4	50.0	3.9	0.2
EICG-07-V-2	1	8.2-8.7	5.9	99.1	97.5	96.7	95.7	94.1	90.2	82.4	62.4	20.3	1.5	0.2
EICG-07-V-3	1	3.0-3.5	0.1	100.0	100.0	99.9	99.9	99.9	99.8	99.4	96.4	48.2	4.7	1.0
EICG-07-V-3	2	5.0-5.5	0.0	100.0	100.0	100.0	100.0	100.0	99.9	99.8	98.4	56.0	5.1	0.7
EICG-07-V-3	3	7.0-7.5	2.8	99.5	98.5	98.1	97.7	97.4	96.7	95.2	88.6	51.3	8.2	2.5
EICG-07-V-4	1	6.7-7.2	1.5	99.8	99.4	99.2	98.9	98.5	97.5	95.1	87.0	63.7	21.4	8.8
EICG-07-V-5	1	8.0-8.5	2.4	99.7	99.1	98.5	97.6	96.7	90.1	78.7	58.6	21.9	4.0	3.0
EICG-07-V-7	1	5.5-6.0	1.0	100.0	99.8	99.7	99.4	99.0	97.6	94.5	86.0	47.1	3.8	0.7
EICG-07-V-7	2	7.5-8.0	1.5	99.9	99.7	99.5	99.2	98.5	96.1	89.9	73.1	27.7	1.8	0.1
EICG-07-V-8	1	1.0-1.5	0.3	99.6	99.8	99.7	99.7	99.7	99.6	99.2	94.4	36.1	2.5	0.6
EICG-07-V-8	2	3.0-3.5	0.1	100.0	100.0	100.0	100.0	99.9	99.7	98.4	85.7	29.5	1.5	0.2
EICG-07-V-9	3	5.0-5.5	0.8	99.9	99.9	99.8	99.6	99.2	97.8	93.0	77.9	29.2	1.5	0.1
EICG-07-V-10	1	3.5-4.0	0.5	99.8	99.7	99.7	99.6	99.5	99.3	98.6	95.1	46.4	3.8	0.5
EICG-07-V-10	2	5.5-6.0	0.1	100.0	100.0	100.0	99.9	99.9	99.6	98.9	95.5	51.6	4.0	0.8
EICG-07-V-10	3	7.5-8.0	0.1	100.0	100.0	100.0	99.9	99.9	99.7	99.1	95.2	34.8	3.2	0.8