# Appendix E

## Manteo Section 204

# Beneficial Use of Dredged Material for Oyster Restoration

# **Geotechnical Appendix**

#### **1.0 Introduction**

The Manteo 204 Study area is located within northern Dare County, with its center lying 4.5 nautical miles southwest of Oregon Inlet and 6 nautical miles west of Pea Island (Figure E-1). The 17 mile square mile study area also includes the Old House Channel, Range No. 2. Old House Channel, Range No. 2 is approximately 5 miles long with an authorized depth of -12 feet MLLW with 1V to 3H side slopes (Figures E-2a and E-2b). The channel is dredged on average every two years. The area lies within Manteo-Shallowbag Bay, a back-barrier channel region that experiences diurnal tidal changes and seasonal storm overwash from the Atlantic Ocean. The extent of the Study Area was established based on its practical pumping distance of about 2 miles from the channel reach with a more significant shoaling rate than surrounding reaches.

The Manteo 204 Study goal is to recommend an environmentally sound dredge material disposal option that is both cost effective and will contribute to the State of North Carolina's restoration goals in the northern Pamlico Sound, while addressing with the Corps' dredging and disposal needs for Old House Channel, Range No. 2.

#### 2.0 Geological Framework

The geologic history of the Manteo 204 Study Area and the Outer Banks of North Carolina has largely been influenced by fluctuating sea levels associated with glacial cycles over the past 1.5 million years (Dolan, 1986). Sea-level rise associated with glacial melt resulted in the flooding of paleo-coastal areas and the deposition of finer-grained, deeper-water sediments atop coarser-grained, near shore and land derived sediments. Conversely, sea-level fall associated with glacial freezing resulted in shoreline advancement seaward, and the deposition of coarser-grained sediments atop the finer-grained deep water derived sediments. Geochronologic dating of strata and fossil material indicate that there have been at least six major sea-level fluctuations (Wehmiller, 2006) within region during the Pleistocene Period alone (1.8 million years ago-100,000 years ago). When the last period of glaciation, the Wisconsin, ended 14,000 to 18,000 years ago, sea-level was 300 feet lower than it is today and the North Carolina shoreline was located 50-70 miles seaward of its current position (Dolan, 1986). During this period of sea-level, the shelf area was exposed weathering and erosional processes. Rivers and streams meandered across the exposed continental shelf, incising channels and created river deltas along position of the present-day shelf-break (Riggs, 2000, Buckner and other 2005). As the climate warmed during the Holocene Period (12,000 years ago to Present) and the glaciers melted, the sea-level rose and drowned the Pleistocene shoreline. Freshwater peat deposits, found near Cape Hatteras, are the result of the landward migration of the shoreline and barrier island complexes. Numerous postglacial sea-level fluctuations driven by oceanographic (salinity, current flow and ocean temperature) and climatic changes (mini-ice ages) have resulted in multiple depositional and erosional events that have extensively modified the morphology of the nearby landforms (Riggs, 2000). The morphology of the nearby landforms, such as Pea-Island, is constrained by four main factors; the inherited rock/sediment types of older Pleistocene strata, the paleotopography from Pleistocene landscape, the physical dynamics of erosion (long shore and cross shore currents, wind-transport and storms), and human modification (Riggs and others, 2001).

#### **3.0 Previous Subsurface Investigations**

Subsurface investigations of sediment in the Old House Channel Range 2 are very limited. Some work was published in a research report, titled "A Scoping Study of the Distribution, Composition, and Dynamics of Water-Column and Bottom Sediments: Albemarle-Pamlico Estuarine System". This study was conducted in 1988 by John T. Wells for the University of North Carolina at Chapel Hill. Data for this study was analyzed from 3300 previous grab samples taken from the Albemarle – Pamlico estuarine system between the mid 1950's and the mid 1970's. The study area has not been explored recently; therefore it is unknown if there have been any significant changes from the historical sedimentation conditions that existed 30-years ago to those that exist today. Of the 3300 grab sample taken, 862 were subjected to sieve, pipette, or hydrometer analysis. Bottom sediment is primarily composed of fine sand. Modal grain sizes of the samples, following the Wentworth classification, range from 2 $\phi$  to 4 $\phi$  (0.25 mm - 0.0625 mm), while the percentage of calcium carbonate content (weight of shell fragments) ranges from 4 to 8%. Results of each sample taken in the area of interest were not reported in the study.

#### 4.0 Methodology

For the purpose of this study, a subsurface investigation was performed using the USACE Vessel SNELL. The SNELL is fitted with a 3 7/8-inch diameter, 20-foot long, Alpine vibracore drill machine. The Vibracore drill machine consists of a metal barrel in which a plastic cylinder is inserted. After the plastic tube is inserted, a metal shoe is screwed onto the plastic tube and metal barrel. The shoe provides a cutting edge for the sampler and retains the plastic tube. An air-powered vibrator is mounted at the uppermost end of the vibracore barrel, and the vibrator and the vibracore barrel are mounted to a stand. The stand is lowered to the sediment surface by the SNELL's crane; the vibrator is activated and vibrates the vibracore barrel into the ocean bottom sediment. The disturbed sediment sample is retained in the plastic cylinder. All vibracore borings are drilled to a depth of 10 to 20 feet below the sediment surface, unless vibracore refusal is encountered. Vibracore refusal is defined as a penetration rate of less than 0.1 feet in 10 seconds. The SNELL's HYPACK navigation system is used to determine vibracore boring coordinates. Bottom elevation is determined by measuring water depth from the water line to the sediment surface, with water line datum as 0.0'. The tidal level is subtracted from the water depth to determine actual bottom elevation.

The sediment in the plastic cylinders recovered from vibracore drilling is delivered to the USACE Engineer Yard for sampling. The cylinders are cut open with a power saw and the material inside is visually classified. Samples are taken at 2 foot intervals or at each change of material, whichever is lesser. Vertical datum for a specific coring sample is determined by taking the actual bottom elevation (correlating to the top of the plastic cylinder) and subtracting from that the depth of the sample from the distance to the top of the cylinder. The samples are stored in jars for grain size testing at a USACE certified soils laboratory. Vibracore samples are disturbed samples and cannot be tested for strength properties. All samples are visually and laboratory classified in accordance with the Unified Soils Classification System (USCS) as required in Engineering Manual 1110-1-1804. A particle-size analysis was conducted on each sample in general accordance with ASTM Standard D 422, "Standard Test Method for Particle-Size Analysis of Soils" using the following U.S. Standard sieve sizes: ¾", 3/8", No. 4, No. 7, No. 10, No. 14, No. 18, No. 25, No. 35, No. 45, No. 60, No. 80, No. 120, No. 170, No. 200 and No. 230 sieve. These samples were classified in accordance with ASTM Standard D 2487, "Classification of Soils for Engineering Purposes (Unified Soil Classification System)".

### 5.0 Subsurface Investigation Results

A total of 27 vibracore borings were drilled in the study area on 15 and 16 March 2010 (Figure 3). Borings were advanced to elevations between -8.6 to -34.5 feet MLLW (Table 1). The results of the field exploration are summarized in soil boring logs, starting on page E-20 of this appendix. The results of the laboratory testing are presented on the grain size analysis sheets, summarized on the boring logs, and provided in Table E-2. The soil type boundaries presented in the boring logs are approximate and may be more gradual than shown. Figures E-4a - E-4c and Figure E- 6 show various soil cross sections in the Old House Channel, Range 2 and the dredged disposal and reef construction area.

### 5.1 Old House Channel, Range 2

The materials encountered in the northern portion of Old House Channel, Range 2 (MAN-10-V-23, MAN-10-V-24, MAN-10-V-26, and MAN-10-V-27), generally consist of fine sand (SP) and fine sand with silt (SP-SM). This material is suitable for use in the oyster reef construction because the composite percent silt content is less than 10%. The materials encountered in the southern portion of Old House Channel, Range 2 (MAN-10-V-16, MAN-10-V-17, MAN-10-V-18, MAN-10-V-21, and MAN-10-V-22) generally consists of fine sand (SP), fine sand with silt (SP-SM), silty fine sand (SM), and elastic silt with sand (MH). This material is not suited for use in the study area. See Figure E- 3, A – A' for channel soil profile boring location.

### 5.2 Dredged Material Disposal and Reef Construction Area

The material encountered in the recommended disposal and reef construction area (MAN-10-V- 01, MAN-10-V-2, MAN-10-V-5, and MAN-10-V-6) generally consists of fine sand (SP). The materials encountered in the unusable placement area (MAN-10-V-04, MAN-10-V-08, MAN-10-V-10, MAN-10-V-13, and MAN-10-V-15) generally consists of fine sand (SP), fine sand with silt (SP-SM), silty fine sand (SM), and elastic silt with sand (MH). Soil profile borings locations in the vicinity of the recommended reef area are shown in Figure E-3, B - B', while soil profile borings locations in the vicinity of the unusable placement area are shown in Figure E-3, C - C'.

#### 6.0 Recommendations

Based on the limited sampling and testing, the composite silt content was used as a determinate in the oyster reef placement (Table E-3). Samples with a composite silt percentage of less than 10% were considered acceptable for placing heavier loads (i.e., rock, riprap, and confined material) at those boring locations. Also, samples with a composite silt percentage of 15% or less were considered acceptable for

use of material placed inside reef containment structures. The oyster reef placement should be located in general proximity to the borings MAN-10-V-1, MAN-10-V-2, MAN-10-V-05, MAN-10-V-06, and MAN-10-V-08 (Figure E-5). Based on Material dredged from Old House Channel, Range 2, and utilized for the oyster reef placement would be limited to boring areas MAN-10-V-18, MAN-10-V-23, MAN-10-V-24, MAN-10-V-26, and MAN-10-V-27. These borings have high sand, low silt content. However, future dredging along Old House Channel (Range 2) is likely to concentrate on shoaling "hot spots" where silt content would be lower. Additional soil sampling is recommended in the Design & Implementation phase to obtain undisturbed samples when a finalized design is presented. Analysis of the undisturbed soil samples will determine quantitative values for compressibility, strength, and settlement.

The soil samples collected for this project are disturbed samples and are used for identifying soil types only. The soil in the study area consists mainly of fine sand with some silt. This type of soil generally performs well under stresses and strains applied by large loads; however, compressibility and strength values cannot be determined from disturbed samples and therefore was not quantified due to insufficient information from the collected soil samples.

If geotubes or riprap is to be used for this project, minor settlement may occur. A settlement analysis was not performed on the tested samples, so some settlement may occur when larger loads are placed on this type of soil. This is not expected to be enough to have a negative impact on the geotubes, riprap, or the confined material placed inside. In order to more accurately determine settlement, additional data is needed to quantify the amount of expected settlement.

Sources Cited:

Buckner, M., Mallinson, D., Riggs, S., Thieler, R., Foster, D., 2005, Quaternary Seismic Stratigraphy of the Southern Albemarle Embayment: The Sequence Stratigraphic Response to Evolving Paleotopography, Geological Society of America, Abstracts with Programs, Volume 37, Issue 2, p. 16.

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Wells, John T., 1988, A Scoping Study Of The Distribution, Composition, and Dynamics of Water-Column and Bottom Sediments: Albemarle-Pamlico Estuarine System, University of North Carolina at Chapel Hill, A/P Project No. 89-05.

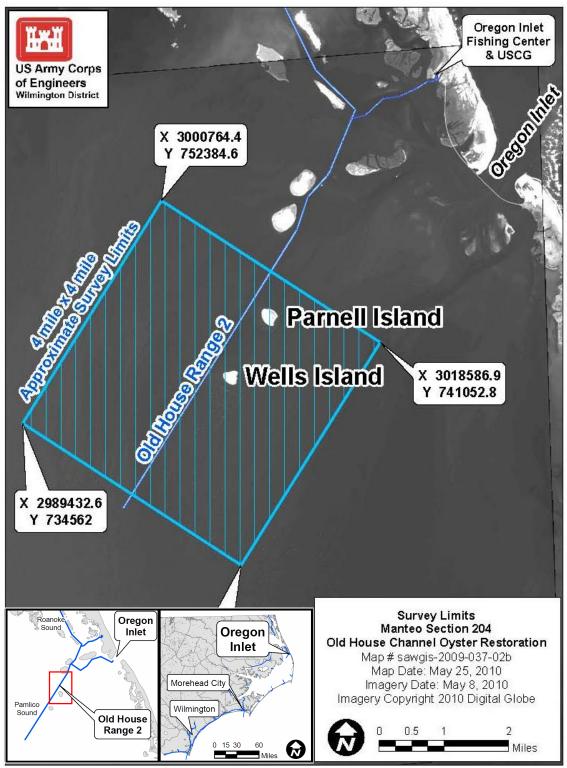


Figure E-1. Manteo 204 Study Area

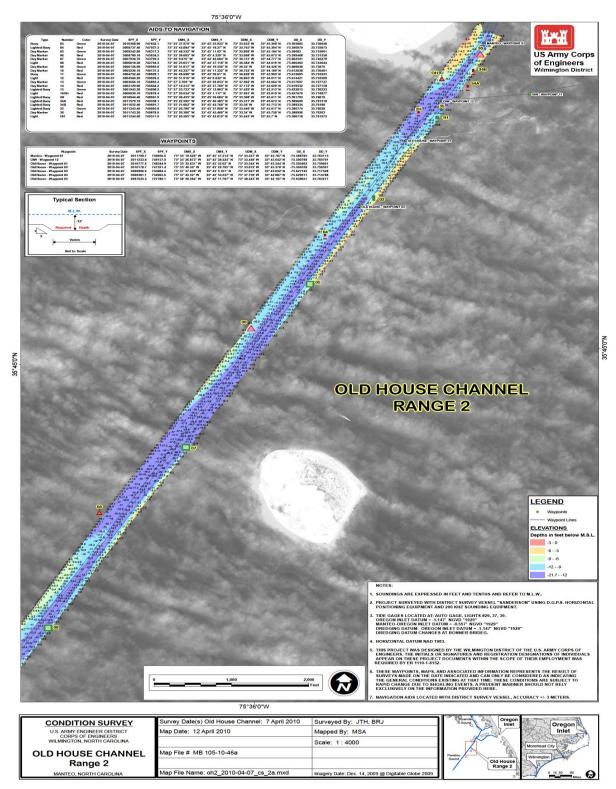


Figure 2a. Old House Channel Range #2 Station 0+00 – 84+00

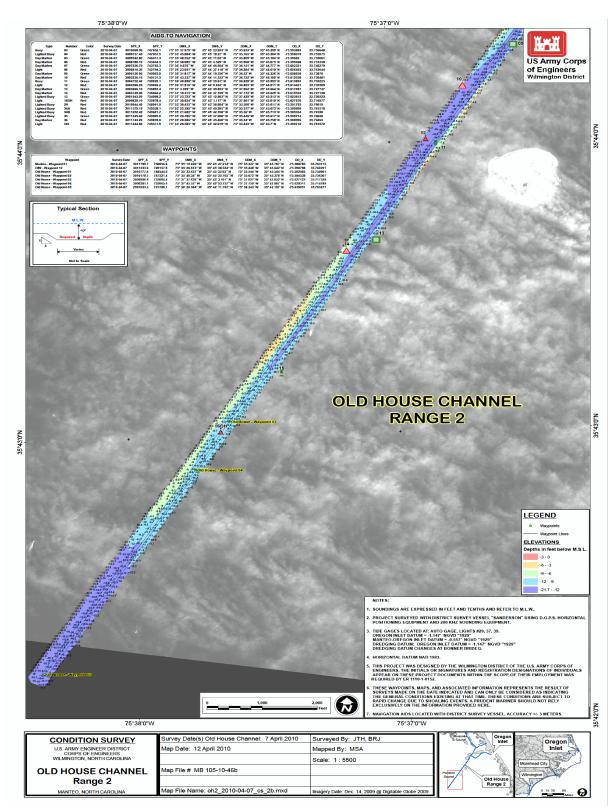


Figure 2b. Old House Channel Range #2 Station 84+00 – 263+99.5

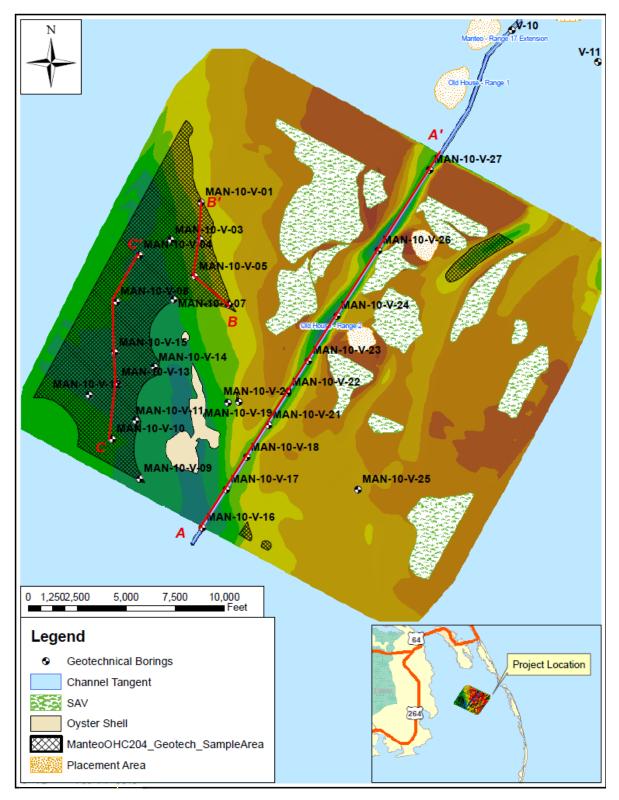


Figure 3. Vibracore Boring Locations

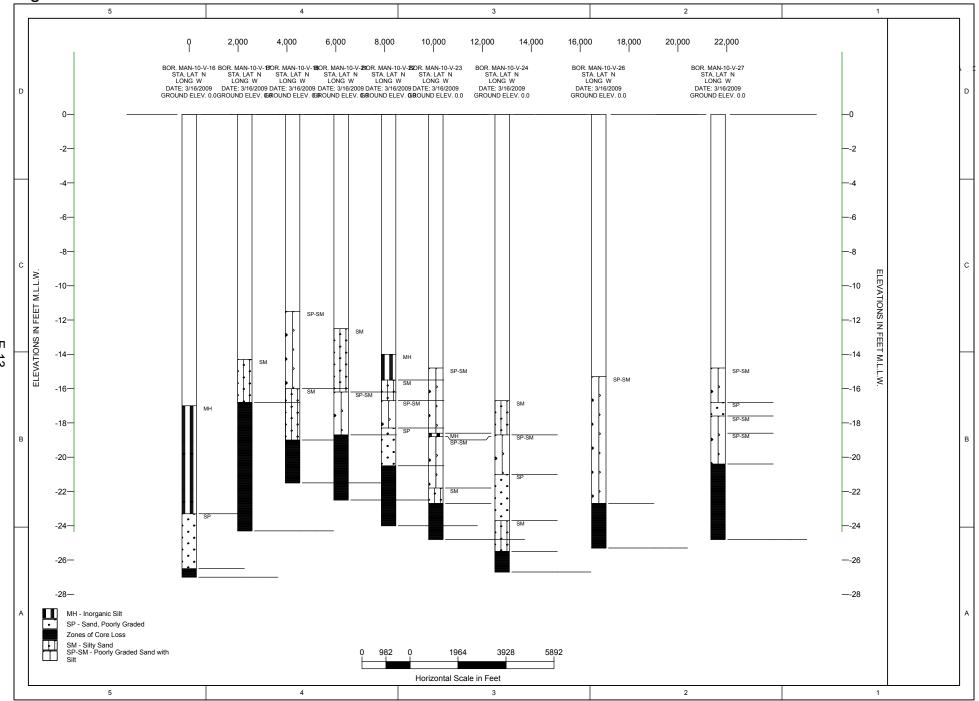
		Boring Co	ordinates		Total Depth of	
		-	ne NAD 83	Channel	Boring	Bottom
				Bottom	Below	of Boring
				Elevation	Channel	Elevation
				(feet,	Bottom	(feet,
Boring ID	Date of Boring	Easting	Northing	MLLW)	(feet)	MLLW)
MAN-10-V-01	3/15/2010	2998073	745215	-9.3	10.0	-19.3
MAN-10-V-02	3/15/2010	2998043	743301	-11.0	10.0	-21.0
MAN-10-V-03	3/15/2010	2996535	743299	-14.0	10.0	-24.0
MAN-10-V-04	3/15/2010	2994943	742532	-15.7	10.0	-25.7
MAN-10-V-05	3/15/2010	2997768	741440	-12.2	10.0	-22.2
MAN-10-V-06	3/15/2010	2999495	739963	-10.0	10.0	-20.0
MAN-10-V-07	3/15/2010	2996690	740245	-15.2	10.0	-25.2
MAN-10-V-08	3/15/2010	2993762	740145	-14.8	10.0	-24.8
MAN-10-V-09	3/16/2010	2994952	731109	-14.5	20.0	-34.5
MAN-10-V-10	3/16/2010	2993558	733117	-14.0	16.0	-30.0
MAN-10-V-11	3/16/2010	2994758	734054	-14.0	15.0	-29.0
MAN-10-V-12	3/16/2010	2992362	735375	-13.6	12.0	-25.6
MAN-10-V-13	3/16/2010	2993815	736010	-13.6	12.0	-25.6
MAN-10-V-14	3/16/2010	2995705	736791	-14.8	10.0	-24.8
MAN-10-V-15	3/16/2010	2993679	737545	-14.0	12.0	-26.0
MAN-10-V-16	3/16/2010	2998149	728610	-17.0	10.0	-27.0
MAN-10-V-17	3/16/2010	2999371	730531	-14.3	10.0	-24.3
MAN-10-V-18	3/16/2010	3000416	732183	-11.5	10.0	-21.5
MAN-10-V-19	3/16/2010	2999458	734976	-11.6	10.0	-21.6
MAN-10-V-20	3/16/2010	3000012	735018	-8.6	10.0	-18.6
MAN-10-V-21	3/16/2010	3001522	733832	-12.5	10.0	-22.5
MAN-10-V-22	3/16/2010	3002518	735505	-14.0	10.0	-24.0
MAN-10-V-23	3/16/2010	3003565	737128	-14.8	10.0	-24.8
MAN-10-V-24	3/16/2010	3005010	739424	-16.7	10.0	-26.7
MAN-10-V-25	3/16/2010	3006087	730531	-14.2	10.0	-24.2
MAN-10-V-26	3/16/2010	3007143	742755	-15.3	10.0	-25.3
MAN-10-V-27	3/16/2010	3009755	746877	-14.8	10.0	-24.8

Table E-1. Vibracore Boring Locations and Depths

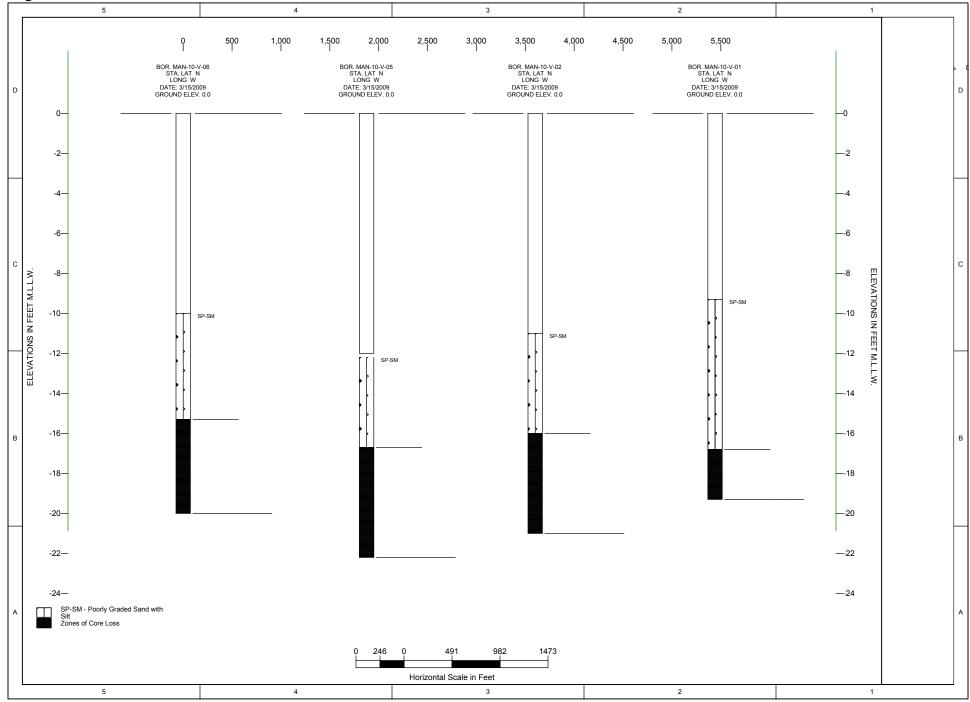
	Sample	Elevation			Sample	Elevation				Sample	Elevation	
Boring Name	No.	(ft)	Classification	Boring Name	No.	(ft)	Classification		Boring Name	No.	(ft)	Classification
	1	9.3-9.8	SP		1	14.0-14.5	SP-SM			1	11.5-12.0	SP-SM
MAN-10-V-01	2	12.0-12.5	SP		2	16.0-16.5	SM		MAN-10-V-18	2	13.5-14.0	SP-SM
	3	15.0-15.5	SP	MAN-10-V-10	3	17.0-17.5	SP-SM			3	16.0-16.5	SM
	1	11.0-11.5	SP	WAN-10-V-10	4	18.8-19.3	SP-SM			1	11.6-12.1	SP-SM
MAN-10-V-02	2	13.5-13.5	SP		5	20.8-21.3	SP-SM		MAN-10-V-19	2	13.5-14.0	SP-SM
	3	15.0-15.5	SP		6	23.0-23.5	SP			3	15.6-16.1	MH
	1	14.0-14.5	SM		1	14.0-14.5	SP-SM			1	8.6-9.1	SP
MAN-10-V-03	2	17.0-17.5	MH		2	16.0-16.5	SM		MAN-10-V-20	2	11.0-11.5	SP-SM
	3	19.5-20.0	MH	MAN-10-V-11	3	17.3-17.8	SP-SM			3	13.6-14.1	SM
	1	15.7-16.2	SP	IVIAIN-10-V-11	4	18.5-19.0	SP			1	12.5-13.0	SM
MAN-10-V-04	2	17.5-18.0	SP-SM		5	20.5-21.0	SM		MAN-10-V-21	2	14.5-15.0	SM
IVIAIN-10-V-04	3	19.2-19.7	MH		6	23.0-23.5	SP			3	16.2-16.7	SM
	4	22.1-22.6	SP-SM		1	13.6-14.1	SP-SM			1	14.0-14.5	MH
	1	12.2-12.7	SP	MANI 10 V/ 12	2	17.1-17.6	MH		MANI 10 V 22	2	15.5-16.0	SM
MAN-10-V-05	2	14.0-14.5	SP	MAN-10-V-12	3	18.1-18.6	SP		MAN-10-V-22	3	16.7-17.2	SP-SM
	3	16.0-16.5	SP-SM		4	20.6-21.1	SP-SM			4	18.3-18.8	SP-SM
	1	10.0-10.5	SP		1	13.6-14.1	SP-SM			1	14.8-15.3	SP-SM
MAN-10-V-06	2	12.0-12.5	SP	MAN-10-V-13	2	15.6-16.1	MH		MAN-10-V-23	2	17.0-17.5	SP-SM
	3	14.0-14.5	SP	IVIAIN-10-V-15	3	16.6-17.1	SP		IVIAIN-10-V-25	3	19.5-20.0	SP-SM
	1	15.2-15.7	SM		4	19.3-19.8	SP			4	21.8-22.3	SM
MAN-10-V-07	2	18.0-18.5	SM		1	14.8-15.3	SP			1	16.7-17.2	SP-SM
	3	21.2-21.7	SP-SM	MANI 10 V/ 14	2	16.8-17.3	MH		MANI 10 V 24	2	18.7-19.2	SP
	1	14.8-15.3	SP-SM	MAN-10-V-14	3	19.3-19.8	SM		MAN-10-V-24	3	21.0-21.5	SP
MAN-10-V-08	2	17.0-17.5	SP-SM		4	21.6-22.1	SM			4	23.7-24.2	SP-SM
IVIAIN-10-V-08	3	19.5-20.0	SP		1	14.0-14.5	SM			1	14.2-14.7	SM
	4	21.5-22.0	SW-SM		2	16.0-16.5	SM		MANI 10 V/ 25	2	16.0-16.5	SP
	1	14.5-15.0	SP-SM	MAN-10-V-15	3	18.4-18.9	SP		MAN-10-V-25	3	18.0-18.5	SP
	2	17.0-17.5	SM		4	20.0-20.5	SP-SM			4	20.0-20.5	SP
	3	19.0-19.5	SP		5	22.0-22.5	SP			1	15.3-15.8	SP
MAN-10-V-09	4	21.0-21.5	SP		1	17.0-17.5	MH		MAN-10-V-26	2	17.5-18.0	SP
	5	24.0-24.5	SP		2	20.0-20.5	MH			3	19.0-19.5	SP
	6	26.5-27.0	SP	MAN-10-V-16	3	23.3-23.8	SP			1	14.8-15.3	SP
					4	25.0-25.5	SP			2	16.8-17.3	SP
					1	14.3-14.8	SM	1	MAN-10-V-27	3	17.6-18.1	SP
				MAN-10-V-17	2	16.3-16.8	SM	1		4	19.5-20.0	SP-SM

 Table E-2.
 Summary of Sample Depths and Classification

## Figure E-4a. Channel Soil Profile A - A'

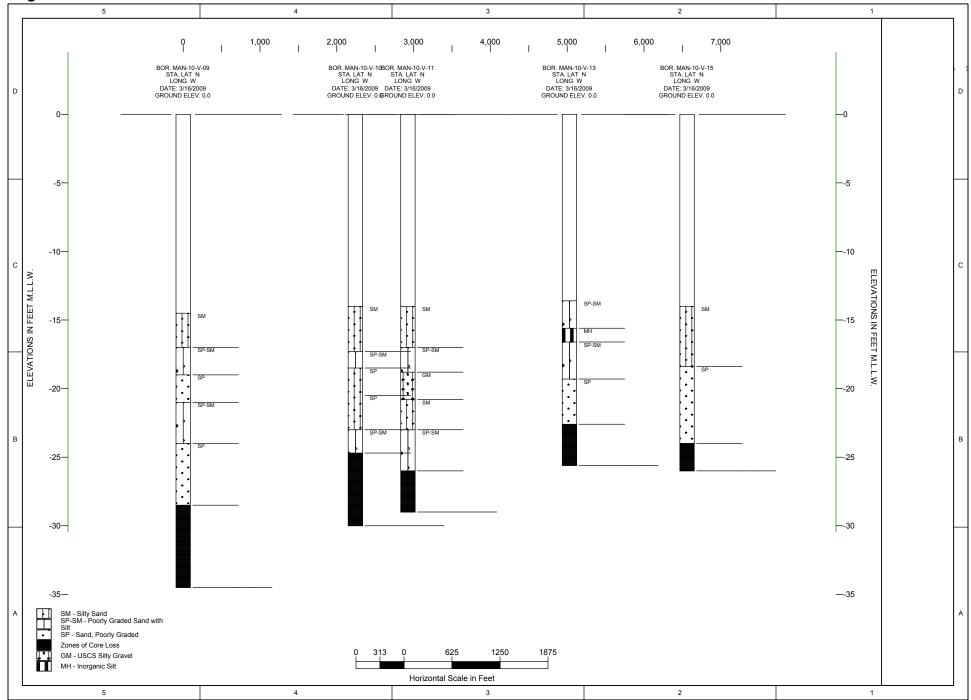


E-13



# Figure E-4b. Recommended Reef Area Soil Profile B - B'

E-14



## Figure E-4c. Unusable Placement Area Soil Profile C - C'

E-15

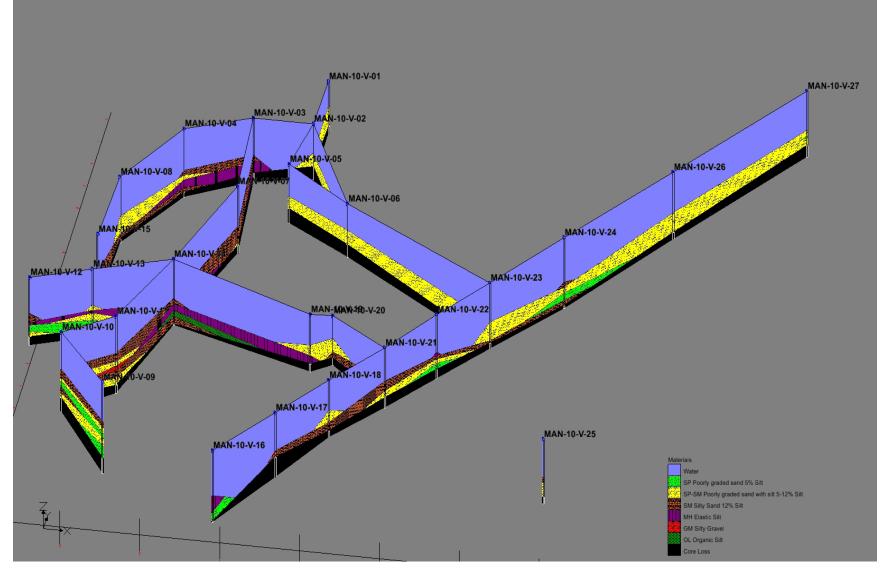


Figure E-6. Fence Diagram of Vibracore Data In Study Area

### Table E-3. Composite Silt Content

Boring ID		Sample	e 1	Sample	2	Sample	9	Sample	e 4	Sample	e 5	Sample	e 6	
	Geographic Location of Vibracore Boring	Thickness Represented (ft)	%Silt	Total Composite Silt (%)										
MAN-10-V-01	Potential Reef Placement Area	2.7	0.9	3.0	0.4	1.8	3.8							1.4
MAN-10-V-02	Potential Reef Placement Area	2.0	1.2	2.0	2.1	1.0	2.7							1.9
MAN-10-V-03	Manteo 204 Study Area	3.0	17.4	2.5	71.2	1.2	90.7							50.6
MAN-10-V-04	Manteo 204 Study Area	2.8	4.1	1.7	10.6	1.9	68.0	2.9	9.7					20.1
MAN-10-V-05	Potential Reef Placement Area	1.8	4.4	2.0	3.0	0.7	9.7							4.6
MAN-10-V-06	Potential Reef Placement Area	2.0	1.9	2.0	2.0	1.3	1.1							1.7
MAN-10-V-07	Manteo 204 Study Area	2.8	37.7	3.2	27.8	1.0	7.3							28.8
MAN-10-V-08	Potential Reef Placement Area	2.2	6.7	2.5	6.4	2.0	4.3	1.8	11.1					7.0
MAN-10-V-09	Manteo 204 Study Area	2.5	7.9	2.0	16.3	2.0	2.3	3.0	2.3	2.5	1.0	2.0	1.6	5.0
MAN-10-V-10	Manteo 204 Study Area	2.0	8.2	1.3	47.2	1.2	5.8	2.0	5.5	2.5	6.2	1.7	2.4	10.8
MAN-10-V-11	Manteo 204 Study Area	2.0	9.1	1.0	35.0	1.8	7.3	2.0	3.4	2.2	23.0	3.0	1.6	10.7
MAN-10-V-12	Manteo 204 Study Area	3.5	11.5	1.0	55.9	2.5	2.5	1.8	6.9					13.0
MAN-10-V-13	Manteo 204 Study Area	2.0	10.6	1.0	52.0	2.7	4.1	3.3	4.0					10.8

Boring ID	Geographic	Sample	e 1	Sample	e 2	Sample	23	Sample	e 4	Sample	e 5	Sample	e 6	
	Location of	Thickness		Thickness		Thickness		Thickness		Thickness		Thickness		Total Composite
	Vibracore Boring	Represented	%Silt	Represented	%Silt	Represented	%Silt	Represented	%Silt	Represented	%Silt	Represented	%Silt	Silt (%)
	VIDIACOLE DOLLING	(ft)		(ft)		(ft)		(ft)		(ft)		(ft)		
MAN-10-V-15	Manteo 204													
WAN-10-V-15	Study Area	2.0	27.8	2.4	49.8	1.6	3.7	2.0	7.7	2.0	4.3			20.5
MAN-10-V-16	Old House													
WAN-10-V-10	Channel Range 2	3.0	58.6	3.3	80.0	1.7	1.4	1.5	2.6					47.0
MAN-10-V-17	Old House													
	Channel Range 2	2.0	38.1	0.5	22.7									35.0
MAN-10-V-18	Old House													
	Channel Range 2	2.0	6.2	2.5	6.2	3.0	35.2							17.8/6.2*
MAN-10-V-19	Manteo 204													
	Study Area	1.9	5.6	2.1	11.2	3.0	81.7							39.9
MAN-10-V-20	Manteo 204													
	Study Area	2.4	2.6	2.6	6.5	2.2	12.9							7.2
MAN-10-V-21	Old House													
	Channel Range 2	2.0	33.1	1.7	24.8	2.5	12.7							22.6/33.1*
MAN-10-V-22	Old House													
	Channel Range 2	1.5	66.4	2.2	13.7	1.6	5.4	2.2	7.7					20.7
MAN-10-V-23	Old House													
	Channel Range 2	2.2	11.5	2.5	5.3	2.3	6.4	0.9	17.9					8.8
MAN-10-V-24	Old House	2.0	c <b>7</b>	4.2		27		1.0	c <b>7</b>					5.4
	Channel Range 2	2.0	6.7	1.3	2.7	2.7	4.0	1.8	6.7					5.1
MAN-10-V-25	Manteo 204 Study Area	1.8	21.3	2.0	4.0	2.0	2.1	1.6	2.8					7.4
	Old House	1.δ	21.3	2.0	4.0	2.0	2.1	1.0	2.ð					/.4
MAN-10-V-26	Channel Range 2	2.2	1.0	1.5	1.5	3.7	2.4							2.7
	Old House	2.2	1.0	1.5	1.3	5.7	2.4							2.1
MAN-10-V-27	Channel Range 2	2.0	3.1	0.8	1.2	1.9	3.5	0.9	9.3					4.0
*	Channel Range Z	2.0	3.1		1.2	1.9	3.3	0.9	9.3					4.0

 Table E-3. Composite Silt Content (cont.)

\* Total Composite Silt Content above authorized dredging depth

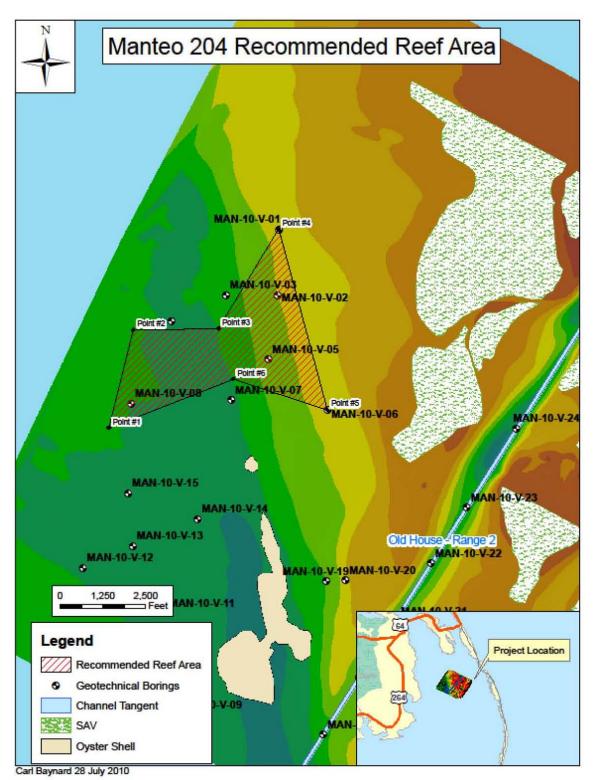


Figure E-5. Recommended Reef Placement Area

**Boring Logs** 

HOLE NO. MAN-10-V-01

	NG LO			INSTALLA			
UKILLI	-10 LU	<u>۲</u>	SOUTH ATLANTIC	10, SI7F	WILM		UDISTRICT OF 1 SHEETS 4" Dia. Vibracore
MANTE	0 204			11. DATU	FOR EL		HOWNTBN or NSL)
2. LOCATION NC CC			» 15 E 2998073 NAD83		LW	S DESIGNA	TION OF DRILL
3. DRILLING WILMI	AGENCY NGTON	DISTRI	CT		BRA CO	_	SNELL DISTURBED UNDISTURBED
4. HOLE NO. and file n	. (As shown umber)	on drawing	MAN-10-V-01	BURDE	NO. OF O	S TAKEN	: 3 : 0
5. NAME OF LESTER		F	CRANE OPERATOR			CORE BO	
6. DIRECTION	N OF HOLE			16. DATE	HOLE	STAR	
7-7			DEG. FROM VERT.	17. ELEV	TION TOP	OF HOLE	
8. DEPTH D			N/A ( 9.3' of Water) 0.0'			COVERY I	FOR BORING N/A Z
9. TOTAL DE	EPTH OF P	HOLE	19.3'	19. SIGNA	CARL I	BAYNA	RD, CIVIL ENGINEER
ELEVATION	ОЕРТН	LEGEND	CLASSIFICATION OF MATERIAL	.s	Z CORE RECOV- ERY	BOX OR SAMPLE NO.	I REMARKS g (Drilling time, water loss, depth of weathering, etc., if significant)
MLLW 0.0	feet 0_	e	● 0.0' TO 9.3' WATER		•	1	Time begin vibracoring:
			0.0 TO 9.3 WATER				1352 hrs.
							Soils described by Larry Benjamin, Civil Engr. Tech.
-9.3	9.0 9.3		OCEAN BOTTOM AT 9.3'			9.3'	NOTE: TOP OF HOLE is de-
9.5	,, I	<b> .</b>	SP-SM Tan, fine, poorly-gr silty sand	aded		1	fined as surface of water and compensation is made
		<b> .</b>	Sirty Sund			9.8'	for the tide such that top of Hole is 0.0 EL MLLW.
		<b> ·</b> ·					VIBRACORE BORING
	11.0	<b> ·</b> ]•]					From 0.0' to 10.0'
		<b> ·</b> ]•]				12.0'	Ran 10.0' Rec: 7.5'
						2	Top of vibracoro soil
						12.5'	Top of vibracore soil sample is logged as be- ginning at Ocean Bottom.
	13.0						When Run is areater than
							Recovery, the difference is depicted as Assumed
		· · ·					Not Recovered.
	15.0	•••				15.0'	
	13.0	•••				3	NOTE: Soils Commercial Lab Classified in Accordance
		•••				15.5'	with ASTM-D2487
		•••		16 91			LAB CLASSIFICATION
	17.0	• •	ASSUMED NOT RECOVE	16.8' RED			Jar Number Classification
	]						1 SP
							2 SP
							з SP
	19.0						
- 19.3	19.3		BOTTOM OF HOLE AT	19.3'			
			SOILS ARE FIELD VISUALLY CLASSIFIED IN ACCORDANCE				NOTE: HOLE TERMINATED AT
			WITH THE UNIFIED SOIL CLASSIFICATION SYSTEM				PREDETERMINED
							DEPTH AT 10.0'
NG FOR	M 1836	PREVIOUS	S EDITIONS ARE OBSOLETE.		PROJECT	MANTE	EO 204 HOLE NO. ECT MAN-10-V-01

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HOLE NO. MAN-10-V-02

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	NG LOG		SOUTH ATLANTIC	INSTALLA		INGTON	I DISTRICT OF 1 SHEETS
NANTE	0 204 Pf	ROJE	СТ		AND TYPE		4" Dia. Vibracore
2. LOCATION	(Coordinates or	Station		ML	LW.		
3. DRILLING					BRA CC	DRE	SNELL
	(As shown on di imber)			BURDE	NO. OF C	S TAKEN	DISTURBED UNDISTURBED
5. NAME OF	DRILLER		CRANE OPERATOR		L NUMBER		1.0.7.
5. DIRECTION	OF HOLE			16. DATE	HOLE	STAR	
<del>~~</del>	S OF OVERBUI		DEG. FROM VERT.		ATION TOP	OF HOLE	0.0' MLLW
	RILLED INTO R		<u>N/A ( 11.0' of Water)</u> 0.0'		L CORE RE		FOR BORING N/A Z
). TOTAL DE	PTH OF HOLE		21.0'		CARL (	BAYNA	RD, CIVIL ENGINEER
		GEND	CLASSIFICATION OF MATERIAL	.S	RECOV-	BOX OR SAMPLE	REMARKS g (Drilling time, water loss, depth of weathering, etc., if significant)
<u>MLLW</u> 0.0	0_	<u>د</u>	● 0.0' TO 11.0' WATER		•		• Time begin vibracoring:
	Ξ						1421 hrs. Soils described by Larry
							Benjamin, Civil Engr. Tech.
-11.0	ц Į		OCEAN BOTTOM AT 11.0'			11.0'	
- 11.0		• <b>[</b> ]	SP-SM Grayish-tan, fine, po graded, silty sand	orly-		1	NOTE: TOP OF HOLE is de- fined as surface of water
	<u> </u>	·	g. dddd, arry adrid			11.5'	fined as surface of water and compensation is made for the tide such that
	÷E	·II					top of Hole is 0.0 EL MLLW.
	13.0	· <b> </b> ]				13.0'	VIBRACORE BORING
	∃·.	•				2 13.5'	From 0.0' to 10.0' Ran 10.0' Rec: 5.0'
	1 · .	•					
	<b>1</b> ••	*					Top of vibracore soil sample is logged as be-
	15.0-].	•				15.0' 3	ginning at Ocean Bottom. When Run is greater than
	3.	11		16.0'		15.5'	Recovery, the difference is depicted as Assumed
		** 11	ASSUMED NOT RECOVE				Not Recovered.
	17.0						NOTE: Soils CommercialLab Classified in Accordance
	=						with ASTM-D2487
							LAB CLASSIFICATION
	19.0						Jar Number Classification
							1 SP
	Ē						2 SP
	Ξ						з SP
-21.0	21.0			21.01			
	Ę		BOTTOM OF HOLE AT 2 SOILS ARE FIELD VISUALLY	21.0			NOTE: HOLE
	ᅴ		CLASSIFIED IN ACCORDANCE WITH THE UNIFIED SOIL				TERMINATED AT PREDETERMINED
	E		CLASSIFICATION SYSTEM				DEPTH AT 10.0'
	Ē						
	_=						
	Ē						
	<u> </u>						
	4						
	三						
	E						
	E						
	<u> </u>		EDITIONS ARE OBSOLETE.		PROJECT		EO_204 HOLE NO. MAN-10-V-02

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DRILL	NG LO	G O	SOUTH ATLANTIC	INSTALLA		INGTON	DISTRIC		ЕТ 1 1 SHEETS
1. PROJECT	0 204	PRO	FCT				4" Dia. \	Vibracore	
2. LOCATION	I (Coordinate	s or Static	ani		NFOREL	EVATION S	HOWN <b>EU</b> or U	SL)	
3. DRILLING	AGENCY		299 E 2996535 NAD83		FACTURER		TION OF DRIL	L SNELL	
WILMI	NGTON				L NO. OF		DISTURBED		
4. HOLE NO and file n 5. NAME OF			MAN-10-V-03			CORE BO		A	0
LESTER	GAUGH		CRANE OPERATOR	15. ELEV/	ATION GRO	UND WATE			
6. DIRECTION	ical 🗌 IN	-	DEG. FROM VERT.	16. DATE			15/2009		/2009
7. THICKNES	S OF OVE		N/A ( 14.0' of Water)			OF HOLE	0.0' N	<u>//LLW</u> N/A	
8. DEPTH D			0.0' 24.0'				RD, CIVIL		
ELEVATION	DEPTH	LEGEND		•	-	BOX OR		REMARKS	•
MLLW	feet	CEGEND c	(Description) d		ERY e	NO.	weath	g tîme, water las erîng, etc., îf siç 9	s, depin or phificant)
0.0	0 =		0.0' TO 14.0' WATER				Time be	gin vibro	coring:
							Soils des	scribed by	Larry
	-						Benjamin	, Civil Engr	. Tech.
-14.0	14.0		OCEAN BOTTOM AT 14.0			14.0'			
		ItItI	SM Dark-gray, fine, silty	sand		1 14.5'	fined as	surface	)LE is de- of water
		+ +				14.5	for the	tide such	that
		† ↓ † Ĭ					·		DEL MLLW
	16.0	† ↓ † ↓						ORE BOF 0.0' to	
		† ↓ † ↓						0.0' to .0' Rec:	
		<u> </u> 	MH Dark grou -lt'- '	17.0'		17.0' 2			
			MH Dark-gray, elastic sil	ι		17.5'	Top of sample	vibracore is logged	; soil 1 as be-
	18.0-						ginning	at Ocean	Bottom. eater thar
	=						Recover	y, the di	ifference Assumed
						10 51		covered.	ssumed
						<u>19.5'</u> 3			
	20.0					20.0'	NOTE: Sc Classifie	oils Comr d in Acc	nercialLa ordance
			ASSUMED NOT RECOVE	20.7'				FM-D248	
			ASSUMED NOT RECUVE	INCU			LAB C		ATION
							Jar	<i></i>	• • • • •
	22.0						Numbe 1	r Class	sification SM
							2		MH
	-						3		MH
-24.0	24.0								
	-		BOTTOM OF HOLE AT 2	24.0'					
			SOILS ARE FIELD VISUALLY					TE: HO	
			CLASSIFIED IN ACCORDANCE WITH THE UNIFIED SOIL					RMINAT EDETEI	
			CLASSIFICATION SYSTEM						T 10.0'
	=								
	-				PROJECT			HOLE N	

						HOLE	NO.	MAN-10-	<u>V-04</u>
DRILLI	NG LO	G Divi	ISION SOUTH ATLANTIC	INSTALLA	WILM		DISTRIC		1 SHEETS
1. PROJECT MANTE	0 204	PROJ	ECT				4" Dia.\ HOWNTBU or W		
2. LOCATION			, 32 E 2994943 NAD83	ML	.LW		TION OF DRILL		
3. DRILLING WILMI	AGENCY	DISTRI	СТ	VI	BRA CO	DRE	S	NELL	
4. HOLE NO. and file nu	. (As shown				NO. OF O		DISTURBED	: 0	
5. NAME OF		IF	CRANE OPERATOR			CORE BO			
6. DIRECTION	N OF HOLI	E		16. DATE	HOLE	STAR	TED 15/2009	COMPLETE	
			DEG. FROM VERT. N/A ( 15.7' of Water)			OF HOLE	0.0' M	ILLW	
8. DEPTH D			0.0'		TURE OF	NSPECTOR		N/A	×
9. TOTAL DE	PTH OF I		25.7'		CARL I	BOX OR		ENGINEER REMARKS o	
ELEVATION MLLW	DEPTH foret	LEGEND د	CLASSIFICATION OF MATERIA (Description) d	.\$	RECOV- ERY	SAMPLE NO.	i Drilling weath	REMARKS g lime, water loss, d ering, etc., if signifi g	epth of icont)
0.0	0 =		0.0' TO 15.7' WATER				Time be 1456 hrs	gin vibraco	oring:
	_						Soils des	cribed by L	
	Ξ						Benjamin	, Civil Engr. T	ech.
	15.0								F
- 15.7	 15.7_		OCEAN BOTTOM AT 15.7			15.7'	fined as	)P OF HOLE surface of pensation is	water
- IJ.7			SM Grayish-tan, fine, silty with trace shell fragme			1	for the	tide such th ole is 0.0 E	nat 🗖
		<b>│</b>				16.2'	·		
	16.0	<b>│</b>					From	0.0' to 10	0.0'
	=	<b>             </b>		17.5'		17.5'	Ran 10.	.0' Rec: 8.	.3'
			SP-SM Tan, fine, poolry-gr	aded		2	Top of y	vibracore s	soil
	18.0	<b></b>	Sirty Sund			18.0'	Isample i	s logged o at Ocean E	as be- 📘
	11.0	<b> </b>					When Ru	ın is great	er than
		<b>  · · ·  </b>		19.2'		19.2'	is depic	y, the diff ted as Ass overed	sumed
			MH Dark-gray, elastic silt	19.2		3		overeu.	Ē
	20.0-					19.7'	NOTE: So	ils. Comme	rcial Lab
								d in Accor M-D2487	dance
							Jar	LASSIFICA	
	22.0-	<b>─</b>	SM Dark-gray, fine, silty so	<u>22.1'</u> and		22.1' 4	Number		
	-		with trace shell fragme	ents		22.6'	23	SI SP-SI	м
		I <del> </del> I   I   I   I   I   I   I   I   I   I					4	MI SP-SI	
	24.0			24.0'					₽
	Ξ		ASSUMED NOT RECOVE	RED				E: HOLE	AT E
	_							DETERMIN	
-25.7	 25.7_						DEP	TH AT 10	0.0'
20.7			BOTTOM OF HOLE AT	25.7'					F
	=		SOILS ARE FIELD VISUAL						Ē
			CLASSIFIED IN ACCORDAN WITH THE UNIFIED SOIL CLASSIFICATION SYSTEM	UL					Ē
			CLASSIFICATION STSTEM						F
									E
									Ē
									Ē
									F
									E
									Ē
									Ē
			EDITIONS ARE OBSOLETE.		PROJECT	MANTE	0 204	HOLE NO.	- 10 - V - 04
MAR 71	M 1030	PREVIOUS	S EDITIONS ARE OBSOLETE.			PROJE		I MAN	-10-V-04

HOLE NO. MAN-10-V-05

DRILLI	NG LO	G Divi	SOUTH ATLANTIC	INSTALLA		INGTON	SHEET 1 I DISTRICT OF 1 SHEETS
1. PROJECT	0 204	PROJE	ст			OF BIT	
2. LOCATION	(Coordinate	s or Station		ML	LW.		
3. DRILLING	AGENCY	DISTRI			BRA CO	DRE	SNELL
4. HOLE NO. and file nu			-	13. TOTA BURDE	no.of ( N Sample)	OVER- IS TAKEN	DISTURBED UNDISTURBED
5. NAME OF	DRILLER		CRANE OPERATOR			CORE BO	1477
6. DIRECTION	I OF HOLE		CRANE OFERATOR	16. DATE		STAR	
7. THICKNES			DEG. FROM VERT.	17. ELEV	TION TOP	OF HOLE	0.0' MLLW
8. DEPTH DR			N/A ( 12.2' of Water) 0.0'			COVERY I	FOR BORING N/A Z
9. TOTAL DE	PTH OF 1	IOLE	22.0'		CARL	BAYNA	RD, CIVIL ENGINEER
ELEVATION MLLW	<sub>DEPTH</sub> feet	LEGEND	CLASSIFICATION OF MATERIAL (Description)	.S	RECOV-	BOX OR SAMPLE NO.	REMARKS & (Driving time, water loss, depth of weathering, etc., if significant)
0.0			0.0' TO 12.2' WATER				Time begin vibracoring:
	1.1						1518 hrs Soils described by Larry
							Benjamin, Civil Engr. Tech.
	12.0 12.2		OCEAN BOTTOM AT 12.2'			12.2'	
-12.2	12.2	••••	SP-SM Tan, fine, poorly-gr	aded		1	NOTE: TOP OF HOLE is de- fined as surface of water and compensation is made
	-	<b></b>	silty sand			12.7'	and compensation is made for the tide such that top of Hole is 0.0 EL MLLW.
		<b>   </b>					
	14.0					14.0' 2	VIBRACORE BORING From 0.0' to 10.0'
		• <b>.</b> • 1				14.5'	Ran 10.0' Rec: 4.5'
		•••				16.0'	Top of vibracore soil sample is logged as be-
	16.0	•••				3	ginning at Ocean Bottom. When Run is greater than
	11	• •	ASSUMED NOT RECOVE	16.7' RED		16.5'	Recovery, the difference is depicted as Assumed
	11		ASSOMED NOT NECOVE	NLD			Not Recovered.
	18.0						NOTE: Soils, Commercial Lab
							Classified in Accordance with ASTM-D2487
	1.1						
							LAB CLASSIFICATION
	20.0						Jar Number Classification
							1 SP 2 SP
	11						3 SP-SM
	-						
-22.2	22.0 22.2 -						
			BOTTOM OF HOLE AT 2	22.2'			NOTE: HOLE
			SOILS ARE FIELD VISUALLY CLASSIFIED IN ACCORDANCE				TERMINATED AT
	_ =		WITH THE UNIFIED SOIL CLASSIFICATION SYSTEM				PREDETERMINED DEPTH AT 10.0'
	-						
	. 1						
	H18.36	PREVIOUS	EDITIONS ARE OBSOLETE.		PROJECT	MANTE	EO 204 HOLE NO. MAN-10-V-05

						HOLE	NO.	MAN-10-V-06
	NG LO	G <sup>DIVI</sup>	SOUTH ATLANTIC	INSTALLA	WILN		DISTRICT	
							4" Dia.Vi HOWNTBU or US	
NC CO			v 53 E 2999495 NAD83			S DESIGNA	TION OF DRILL	
3. DRILLING WILMI	AGENCY NGTON	DISTRI	СТ	VI	BRA CO	DRE		NELL
4. HOLE NO. and file nu					NO. OF O		: 3	UNDISTURBED
5. NAME OF	DRILLER	F	CRANE OPERATOR			CORE BO		
5. DIRECTION		:	DEG. FROM VERT.	16. DATE	HOLE	STAR	TED 15/2009	COMPLETED 3/15/2009
			N/A ( 10.0' of Water)			OF HOLE	0.0' MI	_LW
B. DEPTH DA	RILLED INT	O ROCK	0.0'			INSPECTOR		N/A
9. TOTAL DE			20.0'					ENGINEER REMARKS .
ELEVATION MLLW	DEPTH feet	LEGEND	CLASSIFICATION OF MATERIAL (Description)	.5	RECOV-	BOX OR SAMPLE NO.	(Drilling weather	REMARKS g time, water loss, depth of ring, etc., if significant)
0.0	<u> </u>	-	0.0' TO 10.0' WATER		-			jin vibracoring:
	_						1535 hrs Soils desc	ribed by Larry
	=						Benjamin,	Civil Engr. Tech.
- 10.0	10.0-	• • •	OCEAN BOTTOM AT 10.0'			10.0'		
	=	•.• Í	SP-SM Tan, fine, poorly-gr silty sand	aded		1 10.5'	fined as	P OF HOLE is de- surface of water pensation is made
	-	•••					for the ti	ide such that ble is 0.0 EL MLLV
	Ξ					12.01		DRE BORING
	12.0-					12.0' 2	From C	).0' to 10.0'
	Ξ					12.5'	Ran 10.0	0' Rec: 5.3'
		<b>. * .</b>  †					Top of vi	ibracore soil
	14.0-	·•. †				14.0'	sample is	s logged as be- t Ocean Bottom.
	=					3	When Ru	n is greater than /, the difference
		⊡-HI		15.3'		14.5'	lis depict Not Reco	ed as Assumed
			ASSUMED NOT RECOVE					
	16.0-						NOTE: Soi	ls Commercial Lc in Accordance
	=						with ASTI	
								ASSIFICATION
							Jar	
	18.0						Number	
	_						2	SP SP SP
	=							51
-20.0	20.0-							
	=		BOTTOM OF HOLE AT 2	20.01			NOTE:	HOLE
			SOILS ARE FIELD VISUALLY CLASSIFIED IN ACCORDANCE				TERMI	NATED AT
			WITH THE UNIFIED SOIL CLASSIFICATION SYSTEM					ETERMINED H AT 10.0'
								0.0
	-		EDITIONS ARE OBSOLETE.		PROJECT		0 204	HOLE NO. MAN-10-V-(

HOLE	NO.	MAN-10-	V-07	

DRILLI	NG LO	G DIV	ISION SOUTH ATLANTIC	INSTALLAT		INGTON	N DISTRICT OF 1 SHEETS
NANTE	0 204	PROJ	ECT		AND TYPE		4" Dia. Vibracore
2. LOCATION			ッ 45 E 2996690 NAD83	ML	LW		
3. DRILLING	AGENCY	DISTRI		VIE	BRA CO	DRE	SNELL
4. HOLE NO. and file nu	. (As shown		•	13. TOTAL BURDE	NO. OF ON SAMPLE	S TAKEN	DISTURBED UNDISTURBED
5. NAME OF	ORILLER	F	CRANE OPERATOR			CORE BO	
6. DIRECTION			CRANE OPERATOR	16. DATE		STAR	
			DEG. FROM VERT.	17. ELEVA	TION TOP	OF HOLE	15/2009 : 3/15/2009 0.0' MLLW
7. THICKNES			N/A ( 15.2' of Woter) 0.0'				FOR BORING N/A X
9. TOTAL DE			25.2'		CARL I		RD, CIVIL ENGINEER
ELEVATION MLLW	DEPTH	LEGEND	CLASSIFICATION OF MATERIAL (Description)	S	Z CORE RECOV- ERY	BOX OR SAMPLE NO.	REMARKS a (Dritting time, water loss, depth of weathering, etc., if significant)
0.0	<u>feet</u> 0	<u>د</u>	0.0' TO 15.2' WATER		•		Time begin vibracoring:
	-						1553 hrs. Soils described by Larry
							Benjamin, Civil Engr. Tech.
- 15.2	15 0-		OCEAN BOTTOM AT 15.2'			15 2'	
	15.0- 15.2-		SM Dark-gray, fine, silty so	ind		15.2' 1	NOTE: TOP OF HOLE is de- fined as surface of water
		<b> </b> ↓ <b> </b> ↓	with trace shell fragme	nts		15.7'	fined as surface of water and compensation is made for the tide such that
							top of Hole is 0.0 EL MLLW
	17. <del>0</del>	<b> </b> ↓ <b>†</b> ↓†					VIBRACORE BORING
		┃↓╿↓╿					From 0.0' to 10.0' Ran 10.0' Rec: 7.0'
	_					18.0' 2	
		┃↓╿↓╿				∠ 18.5'	Top of vibracore soil sample is logged as be-
	19.0	╽╷╽╷╽					ginning at Ocean Bottom. When Run is greater than
	11	┃↓╿↓╿					Recovery, the difference is depicted as Assumed
							Not Recovered.
	11	┃↓╿↓╿					
	21.0-			21.2'		21.2'	NOTE: Soils CommercialLat Classified in Accordance
		ŀŀŀ	SP-SM Gray, fine, poorly-gr silty sand	aded,		3	with ASTM-D2487
		•••	·	22.2'		21.7'	LAB CLASSIFICATION
			ASSUMED NOT RECOVE	RED			Jar
	23.0-						Number Classification
							1 SM 2 SM 3 SP-SM
							3 SP-SM
	~ ~ <sup>_</sup>						
-25.2	25:2 -		BOTTOM OF HOLE AT 2	25 21			
				.J.Z			NOTE: HOLE
			SOILS ARE FIELD VISUALLY CLASSIFIED IN ACCORDANCE				TERMINATED AT
	_		WITH THE UNIFIED SOIL CLASSIFICATION SYSTEM				PREDETERMINED DEPTH AT 10.0'
	-						
	. –						

DRILLI	NG LOG	DIV	VISION SOUTH ATLANTIC	INSTALLA	WILN		DISTRICT	SHEET 1 OF 1 SHEETS
PROJECT	0 204 Pf	501	ECT				4" Dia.Vi HOWNTBW or WSL	
LOCATION	Coordinates or	Statio		ML	LW			
. DRILLING	AGENCY			VI	BRA CO	DRE	TION OF DRILL	ELL
	NGTON DIS			13. TOTAL BURDE	NO.OF NSAMPLE	OVER- S TAKEN	DISTURBED	UNDISTURBED
NAME OF	ORILLER					CORE BO	10/6	
ESTER	GAUGHF		CRANE OPERATOR	15. ELEV/		UND WATE	RTED	COMPLETED
	ICAL 🔲 INCLIN	ED	DEG. FROM VERT.			3/	<u>15/2009</u> 0.0' ML	<u>3/15/2009</u>
	S OF OVERBU						0.0 102	N/A
	RILLED INTO R		<u>0.0'</u> 24.8'	19. SIGNA		INSPECTOR BAYNA	RD, CIVIL I	ENGINEER
ELEVATION MLLW		GEND	CLASSIFICATION OF MATERIAL	s	% CORE RECOV- ERY	BOX OR SAMPLE NO.		REMARKS g time, water loss, depth of ing, etc., if significant)
0.0	feet	c	0.0' TO 14.8' WATER		•	<u> </u>	Time beg	in vibracoring:
							1611 hrs. Soils desc	ribed by Larry
								Civil Engr. Tech.
	- 14.0-							
	 -							P OF HOLE is de-
-14.8	14.8	Tt	OCEAN BOTTOM AT 14.8 SP-SM Tan, fine, poorly-arc			14.8' 1	for the ti	surface of water ensation is made de such that
	l <u>I</u> .	]	silty sand	,		15.3'	top of Ho	le is 0.0 EL MLLW
	16.0	]						RE BORING
	E E	.[†						.0' to   10.0' )'  Rec: 8.5'
	_ <b>]</b> .⁺	.[†	1			17.0' 2		
	4.	. †				17.5'	Isample is	bracore soil logged as be-
	18.0	•††					ginning at	t Öcean Bottom. n is greater thar
	<u> </u> .	• 1	ł				Recoverv	, the difference ed as Assumed
	<del> </del> ].	•††	4			19.5'	Not Recc	
	<u> </u>	•††	+			<u>19.5'</u> 3		
	20.0	ᠠ				20.0'		s Commercial La in Accordance
	<b>∃</b> •]	٠Į]	1				with ASTN	
	<u>-</u> ].	٠Į	1	21.5'		21.5'	LAB CL	ASSIFICATION
	22.0	ŢŤ	SM Grayish-tan, fine, silty s and pea-gravel			4	Jar	
		ļţ				22.0'	Number 1	Classification SP-SM
	<u> </u>	łt		07 -			2	SP-SM SP
		ΙĪ	ASSUMED NOT RECOVE	<u>23.3'</u> RED		<u> </u>	4	SW-SM
	24.0							
	E.							
-24.8	24.8		BOTTOM OF HOLE AT 2	24.8'				
			SOILS ARE FIELD VISUALLY					E: HOLE Minated at
			CLASSIFIED IN ACCORDANCE WITH THE UNIFIED SOIL					DETERMINED
			CLASSIFICATION SYSTEM				DEPT	H AT 10.0'
	m							
	. –							

DRILLI	ING LO	G	DIVIS		INSTALLA			NO.		N-10-V-09
PROJECT		_		SOUTH ATLANTIC	10. SIZE	= :		I DISTRI 4" Dia.	-	OF 2 SHEETS
	0 204 Coordinate			СТ	11. DATU			HOWN BU or		
NC CO	ORD N			E 2994952 NAD83	12. MANU	FACTURER		TION OF DR		
	NGTON					BRACC			SNELI	UNDISTURBED
and file n.		on arow	ng n	<sup>#e</sup> : MAN-10-V-09			CORE BO	<u>. 6</u> «ES N/	/A	: 0
	GAUGH			CRANE OPERATOR	15. ELEV	ATION GRO	UND WATE	R N/	Ά.	
· · ·	n of holi Ical 🔲 🕸			DEG. FROM VERT.	16. DATE			16/2009		COMPLETED 3/16/2009
THICKNES	is of ovi	RBURD	EN	N/A ( 14.5' of Water)			OF HOLE	0.0' FOR BORING	MLLW N/A	
	RILLED IN			0.0' 34.5'		TURE OF	INSPECTOR			
EVATION		LEGE	Ļ	CLASSIFICATION OF MATERIA	.s		BOX OR			MARKS 9 valer loss, depth of ic, if significant)
MLLW	feet	د د	***	(Description) d		ERY	NO.	wee	ning ning, el sihering, el	ic., if significant) 9
0.0	0			0.0' TO 14.8' WATER				Time b 0856 h		vibracoring:
	_							Soils de	escribe	ed by Larry IEngr. Tech.
	=							Denjam		rengr. reen.
	14.0	1								
-14.5	14.5	<u> </u> 	╈	OCEAN BOTTOM AT 14.5 SM Gray, fine, silty sand	כ'		14.5'	fined a	s surf	F HOLE is de- ace of water ation is made
		<b> </b>	$\ $				15.0'	for the	tide	such that s 0.0 EL MLL\
			$\ $					·		BORING
	16.0	╽║╢	$\ $					From	0.0'	to 20.0'
	=	╽╽┤┇	ŧI				17.0'	Kan 2	0.0'	Rec: 14.0'
		•••	Ħ	SP-SM Tan, fine, poorly-gr silty sand	aded,		2	Top of	vibra	icore soil
			†	Sitty Salid			17.5'	Isample	is lo	gged as be- cean Bottom
	=		<b>†</b>					When F	Run is	greater tha ne difference
		· .	Ц		19.0'		19.0'	lis depi Not Re	cted	as Assumed
	=		·	SP Tan, coarse, poorly-gro sand with trace shell	ided,		3 19.5'		.0000	eu.
	20.0-	•••	•	fragments			19.5	NOTE: S	ils (	Commercial Lo Accordance
	=	•••	.					with AS	ed in STM-D	Accordance 2487
	_		뉘	SP-SM Greenish-tan, fine, p	21.0'		<u>21.0'</u> 4			SIFICATION
	=	•.•	ł	-graded, silty sand trace shell fragmen	with		21.5'	L AB Jar	CLAS	SIFICATION
	22.0		łİ	ti dee sheirin dynen				Numb 1	er (	Classification
			ł					23		SP-SM SM SP
			łl					4 5		SP SP
	24.0	<u>.                                    </u>	ł				24.0'	6		SP
		•	•	SP Greenish-tan, medium-c	oarse,		5			
			•	Feel, 9,0000,0000			24.5'			
			•							
	26.0	•••	•	Continued on Sheet 2						
	=	1		Continued on Sheet 2						
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	LOG	(Cont S	Sheet) ELEVATION TOP OF D				Hole No.	N-10-V-09
юјест МА	NTEO	204 P	ROJECT	INSTALLATION WIL		N DISTR		SHEET 2 OF 2SHEETS
e vation	<b>DEPTH</b> 26•0	LEGEND	CLASSIFICATION OF (Description)	MATERIALS	Z CORE RECOV- ERY	BOX OR SAMPLE NO.	(Drilling time, wo weathering, etc	ARKS Her loss, depth of "If significant)
	=	••••	SP Greenish-tan, mea poorly-graded, so	dium-coarse, and		26.5'		
						6		
	=					27.0'		
	28.0	·						
	=		ASSUMED NOT RE	28.5'				
			ASSOMED NOT RE					
	30.0							
	=							
	=							
	32.0							
		1						
	-	1						
	=							
	34.0							
-34.5	34.5		BOTTOM OF HOLE	AT 34.5'				
		1					NOTE: HO TERMINAT	
	_						PREDETE	RMINED
	=		SOILS ARE FIELD V	ISUALLY			DEPTH A	20.0'
	_		CLASSIFIED IN ACC WITH THE UNIFIED CLASSIFICATION SY	SOIL				
	_		CLASSIFICATION ST	STEM				
	=	1						
		1						
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	_							
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	Ξ							
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	-				PROJECT		О 204 н	DLE NO. MAN-10-V-0

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DRILLI		SOUTH ATLANTIC	INSTALLAT			DISTRICT	SHEET 1 OF 1 SHEETS	]
1. PROJECT MANTE	O 204 PROJE	ECT	10. SIZE AND TYPE OF BIT 4" Dia. Vibracore					
2. LOCATION	Coordinates or Station		MLLW					
3. DRILLING			12. MANUFACTURER'S DESIGNATION OF DRILL VIBRA CORE SNELL					
	. (As shown on drowing unber)			N SAMPLE	S TAKEN	DISTURBED	UNDISTURBED	
5. NAME OF		CRANE OPERATOR			CORE BO	.,,,,,,		┨
6. DIRECTION	N OF HOLE		16. DATE		STAR	TED C	OMPLETED 3/16/2009	1
	ICAL INCLINED	DEG. FROM VERT.			OF HOLE	0.0' MLLW	5/10/2003	
	RILLED INTO ROCK	N/A ( 14.0' of Water) 0.0'			COVERY I	FOR BORING N/A	×	-
	PTH OF HOLE	30.0'				RD, CIVIL ENG		-
ELEVATION MLLW	DEPTH LEGEND foret <	CLASSIFICATION OF MATERIAL (Description)	.s	RECOV-	BOX OR SAMPLE NO.	(Dritting time, w weathering, etc	IARKS g ater loss, depth of " if significant) a	I
0.0		0.0' TO 14.0' WATER				Time begin v	vibracoring:	Ē
						0920 hrs. Soils describe		E
						Benjamin, Civil	Engr. lech.	E
-14.0		OCEAN BOTTOM AT 14.0			14.0'			F
	│	SM Gray, fine, silty sand wi trace shell fragments	τn		1 14.5'	NOTE: TOP OI	F HOLE is de- ace of water ation is made	F
	_]					for the tide s	such that s 0.0 EL MLLW.	F
					16.0'	VIBRACORE		E
	16.0				16.0' 2	From 0.0'	to 16.0'	F
	│ ∃↓┼↓┼				16.5'	Ran 16.0'	Rec: 10.7'	F
	│ <sup>─</sup> ┫╨╢╢	SD-SM Ton find another set	17.3'		17.3'	Top of vibra	core soil	E
		SP-SM Tan, fine, poorly-gro silty sand	iuea,		3 17.8'	sample is loo ginning at Oc	core soil gged as be- cean Bottom.	E
			18.5'		18.5'	When Run is	greater than	F
		SP Tan, coarse, poorly-gra sand	ded		4	is depicted Not Recover	e difference as Assumed ed	E
		1			19.0'			E
	20.0	T			00.51	NOTE: Soils C	ommercial Lab Accordance	Ł
		SM Gray, fine, silty sand w	20.5' ith		20.5' 5	with ASTM-D		Ē
	╶╡┇┽┇┽	trace shell fragments			21.0'	LAB CLASS	SIFICATION	ŧ
	22.0					Jar		F
						1	SP-SM	F
			23.0'		23.0'	23	SM SP-SM	E
		SP-SM Tan, fine, poorly-gr silty sand with tra	oded, ce		6	4 5 6	SP-SM SP-SM SP	Ē
	24.0 <u>-</u> •••	shell fragments Continued on Sheet 2			23.5'		31	ŧ
						NOTE: HO		F
						TERMINAT REFUSAL		F
						OF 16.0'		F
								E
								E
								F
								F
								E
								E
								F
								F
								E
								Ē
								F
ENG FOR	M1836 PREVIOUS	EDITIONS ARE OBSOLETE.		PROJECT		EO 204 H	OLE NO. MAN-10-V-10	 )
MAR /1					PROJE	LUI		

	LOG	(Cont S	Sheet) ELEVATION TOP OF I				Hole No.	IAN-10-V-10
ROJECT MA	NTEO	204 P	ROJECT	INSTALLATION WIL		N DISTA		SHEET 2 OF 2SHEETS
LEVATION		LEGEND	CLASSIFICATION OF (Description)	MATERIALS	Z CORE RECOV- ERY	BOX OR SAMPLE NO.	R (Dritting time, weathering,	EMARKS water loss, depth of etc., if significant)
0	<u>2400</u> –		d SP-SM Tan, fine, poo silty sand w∕trace sh	rly-graded,	•	1		9
			silty sand w/trace sr	ell fragments 24.7				
			ASSUMED NOT RE	COVERED				
	=							
	26.0							
	=							
	28.0-							
	=							
	_							
	=							
- 30.0	30.0							
-30.0	50.9-		BOTTOM OF HOLE	E AT 30.0'			NOTE: H	OLE
	=							TED AT
	_		SOILS ARE FIELD N	/ISUALLY			PREDET	ERMINED
	=		CLASSIFIED IN ACC WITH THE UNIFIED	CORDANCE			DEPTH	AT 16.0'
			CLASSIFICATION S					
	=							
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			US EDITIONS ARE OBSOLETE.		PROJECT		0 204	HOLE NO. MAN-10-V-10

						HOLE	NO.	MAN-1(	D-V-11
DRILLI	NG LOO	G <sup>DIV</sup>	ISION SOUTH ATLANTIC	INSTALLA	WILN		DISTRIC	Т оғ	ET 1 1 SHEETS
MANTE	0 204	PROJ	ECT				4" Dia.\ HOWNTBU or W		
NC CO			ນ 54 E 2994758 NAD83			S DESIGNA	TION OF DRIL		
5. DRILLING WILMI	AGENCY NGTON	DISTR	ICT	VI	BRACC	ORE		NELL	ISTURBED
. HOLE NO. and file no	. (As shown ( umber)	on drawing	MAN-10-V-11	BURDE	N SAMPLE	S TAKEN	: 6	:	0
ESTER	DRILLER GAUGHI	F	CRANE OPERATOR			UND WATE			
5. DIRECTION	N OF HOLE		DEG. FROM VERT.	16. DATE	HOLE	:STAF	16/2009	COMPLE	тер / 2009
7. THICKNES						OF HOLE	0.0' N		
B. DEPTH D			0.0'	19. SIGNA	TURE OF	INSPECTOR			
. TOTAL DE			29.0' CLASSIFICATION OF MATERIA		Z CORE	BOX OR	RD, CIVIL		
	осртн feet	LEGEND ¢	(Description)		RECOV- ERY	SAMPLE NO. 1	(Drilling weath	REMARKS ( ) lime, waler los ering, etc., if sig 9	s, depiti of nificanti
0.0			0.0' TO 14.0' WATER				Time be 0939 hrs	gin vibra 3.	coring:
								cribed by , Civil Engr	
	_			יר		44.01	-	-	
-14.0	14.0	1111	OCEAN BOTTOM AT 14.0 SM Gray, fine, silty sand w			14.0'	NOTE: TO	OP OF HO	LE is de-
		IH	traće shell frágments			14.5'	fined as and corr	surface ( pensation	of water is made
		<b>\</b> † <b>\</b> †						tide such Iole is 0.0	
	16.0					16.0'	VIBRAC	ORE BOF	RING
	E	ŦŦŦŢ				2 16.5'		0.0' to 5.0' Rec:	
		ŤĦ	CD CM Tag (inc. acarly an	17.0'		17.0'	-		
	=	•.•	SP-SM Tan, fine, poorly-gro silty sand	laea,		3	Top of v	/ibracore is logged	soil as be-
	18.0						ginning a	at Ocean In is gre	Bottom
				18.8'		18.8'	Recover is depic	y, the di ted as A	fference ssumed
		+	GM Gray, fine, silty gravel			4		overed.	
	20.0	<b>•</b> []+				19.3'			
	20.0	+[]					Classifie	ils Comn d in Acco M-D248	ordance
		<u><u></u> </u>	SM Gray, fine, silty sand w	<u>20.8'</u> ith		20.8' 5		M D2+0	/
	=	IHH	traće shell frágments			21.3'		LASSIFIC	ATION
	22.0-	1111					Jar Numbe		ification
		1111		23.0'		23.0'	1 2 3		-SM SM
		••••	SP-SM Tan, fine, poorly-gr			6	- 3 - 4 	SP	-SM SP
	24.0		silty sand			23.5'	6		SM SP
	27.01		Continued on Sheet 2				NOTE:	HOLF	
	]						TERMI	NATED	
							REFUS OF 15	SAL DEI	ΡΙΗ
								.0	
					_			HOLE N	

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DRILLING	LOG	(Cont S	Sheet) ELEVATION TOP OF 0.0 MLLW	HOLE			Hole No.	AN-10-V-11	1
PROJECT	NTEO	204 P	ROJECT	INSTALLATION WIL	MINGTO	N DISTI		SHEET 2 OF 2SHEETS	
ELEVATION	0€РТН 24∎0	LEGEND	CLASSIFICATION OF (Dascription)	MATERIALS	Z CORE RECOV- ERY	BOX OR SAMPLE NO.	i (Dritting time weathering,	REMARKS & water loss, depth of , etc., if significant)	
•	<u>2490</u> 		● SP-SM Tan, fine, poo silty sand	rly-graded,	•			9	ŧ
	_		,						Ē
	Ξ								Ē
	26.0-	•••	ASSUMED NOT RE	26.0'					Ē
	=		ASSUMED NOT RE	LCOVERED					E
									F
									F
	28.0	1							Ē
-29.0	 29.0								E
	=		BOTTOM OF HOLE	E AT 29.0'			NOTE: H		E
								ATED AT ERMINED	F
	=		SOILS ARE FIELD CLASSIFIED IN ACC	CORDANCE				AT 15.0'	E
	-		WITH THE UNIFIED CLASSIFICATION S	YSTEM					Ē
	=								ŧ
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NG FOR	M 1836	A PREVIO	DUS EDITIONS ARE OBSOLETE.		PROJECT	MANTE	0 204 CT	HOLE NO. MAN-10-V-11	1

HOLE NO. MAN-10-V-12

DRILLI	ING LOG	ISION SOUTH ATLANTIC	INSTALLATION WILMINGTON DISTRICT OF 1 SHEETS					
1. PROJECT MANTE	O 204 PROJ	ECT	10. SIZE AND TYPE OF BIT 4" Dig. Vibrocore 11. Datum for Elevation Shown Bir of MSU					
	( <i>Coordinates or Statio</i> ) ORD N 7353	n) 575 E 2992362 NAD83	MLLW 12. MANUFACTURER'S DESIGNATION OF DRILL					
3. DRILLING WILMI	AGENCY NGTON DISTR	ICT	VIBRA CORE SNELL					
4. HOLE NO. and file no	. (As shown on drowing umber)	MAN-10-V-12	BURDEN	SAMPLE	S TAKEN	4 0		
5. NAME OF LESTER	DRILLER GAUGHF	CRANE OPERATOR	14. TOTAL 15. ELEVAT					
	n of hole Ical ( inclined	DEG. FROM VERT.	16. DATE H	IOLE	:star : 3/	COMPLETED : COMPLETED : 16/2009 : 3/16/20	009	
<del></del>	S OF OVERBURDEN		17. ELEVAT			0.0 MEEN		
	RILLED INTO ROCK	0.0'	19. SIGNAT	URE OF	NSPECTOR			
	OEPTH OF HOLE	25.6' CLASSIFICATION OF MATERIAL				RD, CIVIL ENGINEER		
ELEVATION MLLW	DEPTH LEGEND	(Description)		RECOV- ERY	BOX OR SAMPLE NO. I	REMARKS 9 (Drilling time, water loss, dep weathering, etc., if significa 9	(n or (ni)	
0.0	l ° d	0.0' TO 13.6' WATER				Time begin vibracor 1002 hrs.	ring:	
						Soils described by La Benjamin, Civil Engr. Te	rry	
	E					,,,	F	
	13.0					NOTE: TOP OF HOLE	is de-	
-13.6	13.6	OCEAN BOTTOM AT 13.6 SM Grayish-tan, fine, silty s			13.6' 1	fined as surface of v	water made	
	I ∃III	with trace shell fragmen	nts		14.1	for the tide such tha top of Hole is 0.0 EL	it 🗕	
						VIBRACORE BORING	3 E	
	<sup>,</sup>					From 0.0' to 12 Ran 12.0' Rec: 8.		
	1+1+F						Ĕ	
	I IIIE I					Top of vibracore so sample is logged as	oil s be-	
		MU Dark arou alastia silt	17.1'		17.1'	ginning at Ocean Bo When Run is greate	ottom. 🛛	
	▏▁▋▋▋	MH Dark gray elastic silt	18.1'		2 - <del>17.6'</del> - 18.1'	Recovery, the diffe	rence L	
	▏∃∴	SP Tan, coarse, poorly-gra sand	ded		3	Not Recovered.	E	
		,			18.6'		E	
	19.0	,				NOTE: Soils Commer Classified in Accord with ASTM-D2487		
	<u> </u>						Ę	
			20.6'		20.6'			
	21.0	SP-SM Gray. fine-medium, -graded sand with	shell		4	Jar Number Classific		
	<u>]</u>	fragments and pea	gravei		21.1	1 SP-SM 2 MF 3 SF	i  E	
	_].; }		22.4'			3 SF 4 SP-SM		
	23.0	ASSUMED NOT RECOVE	RED				F	
						NOTE: HOLE	F	
	]					TERMINATED A		
	E					REFUSAL DEPT OF 12.0'	ΗĘ	
	25.0					01 12.0	Ē	
-25.6	25.6	BOTTOM OF HOLE AT	25.6'				<u> </u>	
		SOILS ARE FIELD VISUALLY					Ē	
		CLASSIFIED IN ACCORDANC WITH THE UNIFIED SOIL					F	
		CLASSIFICATION SYSTEM					F	
	ΕI						Ē	
							Ē	
	_]						Ē	
							F	
	-]						F	
	E I						Ē	
ENG FOR	M1836 PREVIOU	S EDITIONS ARE OBSOLETE.	f	PROJECT		O 204 HOLE NO. MAN-	10 - V - 12	
MAR 71			•		PROJE	ICT TOT		

HOLE NO. MAN-10-V-13

DRILL	ING LO	C DIV	ISION	INSTALLA					
1. PROJECT		-	SOUTH ATLANTIC	WILMINGTON DISTRICT OF 1 SHEETS 10. SIZE AND TYPE OF BIT 4" Dia. Vibracore					
MANTE 2. LOCATION	0 204 N (Coordinate			11. DATUM FOR ELEVATION SHOWNTBU OF USLI MLLW					
	ORD N		10 E 2993815 NAD83	IZ. MANUFACTURER'S DESIGNATION OF DRILL VIBRA CORE SNELL					
WILMI	NGTON				L NO. OF (		DISTURBED UNDISTURBED		
4. HOLE NO and file n 5. NAME OF			MAN-10-V-13	14, TOTA	l NU <b>MB</b> ER	CORE BO	XES N/A		
LESTER	GAUGH		CRANE OPERATOR			UND WATE			
			DEC. FROM VERT.	16. DATE			16/2009 : 3/16/2009		
7. THICKNES 8. DEPTH D				18. TOTA	L CORE R	ECOVERY	FOR BORING N/A Z		
9. TOTAL D			<u>0.0'</u> 25.6'	19. SIGNA			ARD, CIVIL ENGINEER		
ELEVATION	ОЕРТН	LEGEND	CLASSIFICATION OF MATERIAL (Description)	.S	Z CORE RECOV- ERY	BOX OR SAMPLE NO.	REMARKS (Dritting time, water loss, depth of weathering, etc., if significant)		
• 0.0	° -	c	• 0.0' TO 13.6' WATER		•	<u>'</u>	• Time begin vibracoring:		
							1018 hrs. Soils described by Larry		
							Benjamin, Civil Engr. Tech.		
	13.0								
-17 C			OCEAN BOTTOM AT 13.6			13.6'	NOTE: TOP OF HOLE is de- fined as surface of water		
-13.6	13.6	•••	SP-SM Gray, fine, poorly-gr silty sand with trace			1	for the tide such that		
		••				14.1'	top of Hole is 0.0 EL MLLW.		
	15.0	·]-  İ					VIBRACORE BORING From 0.0' to 12.0'		
		╞╴┋╽		15.6'		15.6'	Ran 12.0' Rec: 9.0'		
			MH Dark gray elastic silt			2 16.1'			
		<b>▋</b> ┛┤	SP-SM Gray, fine, poorly-gr	16.6'		16.6'	Top of vibracore soil sample is logged as be- ginning at Ocean Bottom.		
	17.0	•••	silty sand with trac shell fragments	e		3	When Run is greater than		
		<b> </b> •• <b> </b>					Recovery, the difference is depicted as Assumed		
							Not Recovered.		
							NOTE: Soils, Commercial Lab		
	19.0		SP Tan, coarse, poorly-gra	<u>19.3'</u>		19.3'	Classified in Accordance with ASTM-D2487		
		••••	sand with shell fragmen			4 · 19.8'			
							LAB CLASSIFICATION		
	21.0		21.0'				Jar <u>Number</u> <u>Classification</u>		
		• • •	trace shell fragments 21.8'				1 MH 2 SP 3 SP		
			no shell fragments				2 SP 3 SP 4 SP		
		••••		22.6'					
	23.0		ASSUMED NOT RECOVE	.KEU					
							NOTE: HOLE TERMINATED AT		
							REFUSAL DEPTH		
	25 0						OF 12.0'		
AF 4	25.0								
-25.6	25.6 -		BOTTOM OF HOLE AT	25.6'					
			SOILS ARE FIELD VISUALLY CLASSIFIED IN ACCORDANCE	_					
			WITH THE UNIFIED SOIL CLASSIFICATION SYSTEM						
	=								
ENG FOR	M 1836	PREVIOU	S EDITIONS ARE OBSOLETE.		PROJECT	MANTE	0 204 · HOLE NO. CT MAN-10-V-13		

\_\_\_\_

	NG LO	G	ISOUTH ATLANTIC	INSTALLA	WILN		DISTRICT	
1. PROJECT MANTE	0 204	PROJ	ECT			OF BIT	4" Dia.V	ibracore su
2. LOCATION			<sup>ກ</sup> 91 E 2995705 NAD83	ML	LW.			
3. DRILLING					BRA CO		TION OF DRILL	NELL
4. HOLE NO	. (As shown		· · ·	13. TOTAL BURDE	NO.OF (	OVER- S TAKEN	DISTURBED	UNDISTURBED
and file n 5. NAME OF	DRILLER	_				CORE BO	10 6	
6. DIRECTION			CRANE OPERATOR	15. ELEV/		UND WATE		COMPLETED
💢 VERT		ICLINED	DEG. FROM VERT.			: 3/	<u>16/2009</u> 0.0' M	<u>3/16/2009</u>
7. THICKNES				18. TOTA	. CORE RE	COVERY	FOR BORING	N/A
8. DEPTH D			<u>0.0'</u> 24.8'	19. SIGNA		INSPECTOR BAYNA		ENGINEER
ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIA	LS	Z CORE RECOV- ERY	BOX OR SAMPLE NO.	ı Drilling weathe	REMARKS g time, water lass, depth of ring, etc., if significant)
<u>MLLW</u> 0.0	<u>feet</u> 0_	c I	0.0' TO 14.8' WATER		•	1		gin vibracoring:
							1041 hrs.	cribed by Larry
							Benjamin,	Civil Engr. Tech.
	14.0							P OF HOLE is de-
-14.8	14.8		OCEAN BOTTOM AT 14.8 SM Grayish-tan, fine, silty			14.8'	and com	surface of water pensation is made ide such that
			with trace shell fragme	ents		1 15.3'	top of Ho	ole is 0.0 EL MLLV
								ORE BORING
		<b> </b> <u> </u>		16.8'		16.8'		D.O' to 10.0' O' Rec: 9.5'
			MH Dark gray elastic silt	0.0		2		
						17.3'	Isample is	ibracore soil s logged as be-
	18.0-						ginning a	it Ocean Bottom n is greater tha
	-						Recovery	y, the difference
				19.3'		19.3'	Not Reco	
			OL Gray organic soil, sligh rust discoloration	t		3		
	20.0-					19.8'	NOTE: Soi Classified	ils CommercialLo 1 in Accordance
							with AST	M-D2487
				21.6'		21.6'	LAB CI	LASSIFICATION
	22.0	╽╽╽╽	SM Gray, fine silty sand w shell fragments			4	Jar Number	Classification
		╽╽╿╽	shell tragments			22.1'	Number 1	
		╽╽╿╽					2 3	SP MH SM
							- Ę	SM
	24.0	╽┥┇┥┇		24.3'			L	
			ASSUMED NOT RECOVE					
-24.8	24.8-		BOTTOM OF HOLE AT	24.8'			NOTE:	HOLE
			SOILS ARE FIELD VISUALLY				TERMI	NATED UPON
			CLASSIFIED IN ACCORDANC WITH THE UNIFIED SOIL	Ε			REFUS 10.0'	SAL DEPTH
			CLASSIFICATION SYSTEM				10.0	
	-							
		1	1					

	ING LO	6	ISION SOUTH ATLANTIC		WILN		DISTRICT	SHEET 1 OF 1 SHEETS
1. PROJECT	0 204	PROJ	ECT				4" Dia. Vi	
2. LOCATION			ッ 45 E 2993679 NAD83	ML	.LW			
3. DRILLING	AGENCY				BRA CO		TION OF DRILL	NELL
4. HOLE NO	NGTON		· ·	13. TOTAL BURDE	NO. OF	OVER- S TAKEN	DISTURBED	
and file n 5. NAME OF			. MAN-10-1-13	14. TOTAL	l number	CORE BO	KES N/A	
LESTER	GAUGH		CRANE OPERATOR			UND WATE		COMPLETED
		-	DEG. FROM VERT.	16. DATE		: 3/	16/2009	3/16/2009
7. THICKNES	S OF OVE	RBURDEN	N/A ( 14.0' of Water)			OF HOLE	0.0	<u>.LW</u> N/A
8. DEPTH D 9. TOTAL D			0.0'				2	-
			26.0' CLASSIFICATION OF MATERIA		Z CORE	BOX OR	RD, CIVIL I	
ELEVATION MLLW	DEPTH feet	LEGEND	(Description)	13	RECOV	SAMPLE NO.	(Dritting) weather	REMARKS g lime, water loss, depth of ing, etc., if significant) g
0.0	0_		0.0' TO 14.0' WATER					in vibracoring:
	=						1101 hrs. Soils desc	ribed by Larry
								Civil Engr. Tech.
			OCEAN BOTTOM AT 14.	)'		14.0'		
-14.0	14.0		SM Tan, fine, silty sand			1		P OF HOLE is de
	=					14.5'	and comp	surface of water ensation is made de such that
							top of Ho	ble is 0.0 EL MLL
	16 0 =						VIBRACC	RE BORING
	16.0	<b>↓†</b> ↓						1.0' to 12.0'
	=	╽╽╿╽╿				16.0'	⊼an 12.0	)' Rec: 10.0'
						2	Top of vi	bracore soil
						16.5'	Isample is	logged as be- t Ocean Bottom
	18.0	IHH		18.4'		18.4'	When Rur	n is greater tho
	=	••••	SP Tan, coarse, poorly -graded sand			3	lis depict	v, the difference ed as Assumed
		••••				18.9'	Not Reco	overed.
	20.0	••••	l T			20.0'		
	20.0	•••••				4	Classified	Is Commercial L in Accordance
		••••	Ì			20.5'	with ASTN	M-D2487
	=	••••	t i i i i i i i i i i i i i i i i i i i				LAB CL	ASSIFICATION
	22.0-	•••	Ī			22.0'	Jar Number	Classification
	=	••••	I			5	1	SM
		•••				22.5'	2 3	SM SP
	=	•••					4 5	SP-SM SP
	24.0	•••		24.0'				
	= = =		ASSUMED NOT RECOVE	RED				
	=							
-26.0	26.0							
			BOTTOM OF HOLE AT	26.0'			NOTE: H	HOL F
			SOILS ARE FIELD VISUALL					ATED UPON
			CLASSIFIED IN ACCORDANC WITH THE UNIFIED SOIL	JC .			REFUSA	AL DEPTH
			CLASSIFICATION SYSTEM				12.0'	
	_							
	=							
	=							
	=		1					

HOLE NO. MAN-10-V-16 INSTALLATION WILMINGTON DISTRICT SHEET 1 OIVISION SOUTH ATLANTIC DRILLING LOG OF SHEETS 10. SIZE AND TYPE OF BIT 4" Dia. Vibracore PROJECT MANTEO 204 PROJECT 11. DATUM FOR ELEVATION SHOWNTBU or USLI 2. LOCATION (Coordinates or Station MLLW NC COORD N 728610 E 2998149 NAD83 12. MANUFACTURER'S DESIGNATION OF DRILL 3. DRILLING AGENCY WILMINGTON DISTRICT **VIBRA CORE** SNELL 13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN DISTURBED UNDISTURBED HOLE NO. (As shown on drawing title and file number) 4 0 MAN-10-V-16 14. TOTAL NUMBER CORE BOXES N/A 5. NAME OF DRILLER LESTER GAUGHF 15. ELEVATION GROUND WATER CRANE OPERATOR N/A 6. DIRECTION OF HOLE STARTED 3/16/2009 :COMPLETED : 3/16/2009 16. DATE HOLE DEG. FROM VERT. VERTICAL INCLINED . 17. ELEVATION TOP OF HOLE 0.0' MLLW 7. THICKNESS OF OVERBURDEN N/A ( 17.0' of Water) 18. TOTAL CORE RECOVERY FOR BORING N/A 8. DEPTH DRILLED INTO ROCK 0.0 19. SIGNATURE OF INSPECTOR 9. TOTAL DEPTH OF HOLE BAYNARD 27.0' ENGINEER CARL CIVII Z CORE RECOV-ERY BOX OR SAMPLE NO. REMARKS g (Dritting time, water loss, depth of weathering, etc., if significant) CLASSIFICATION OF MATERIALS ELEVATION DEPTH LEGEND MLLW <u>feet</u> 0 0.0 0.0' TO 17.0' WATER Time begin vibracoring: 1154 hrs. Soils described by Larry Benjamin, Civil Engr. Tech. OCEAN BOTTOM AT 17.0' 17.0' 17.<del>0</del> -17.0 MH Dark gray elastic silt NOTE: TOP OF HOLE is de-1 fined as surface of water and compensation is made for the tide such that top of Hole is 0.0 EL MLLW 17.5 VIBRACORE BORING 19.0 From 0.0' to 10.0' Ran 10.0' Rec: 9.5' 20.0' 2 Top of vibracore soil sample is logged as be-ginning at Ocean Bottom. When Run is greater than 20.5 21.0 Recovery, the difference is depicted as Assumed Not Recovered. NOTE: Soils CommercialLab Classified in Accordance 23.<del>0</del> 23.3 23.3 SP Grayish-tan, medium-coarse, poorly-graded sand with shell fragments 3 with ASTM-D2487 ٠ 23.8 LAB CLASSIFICATION Jar 25.0 25.<del>0</del>-Number Classification 4 MH 25.5 MH 2 3 4 SP SP . 26.5 ASSUMED NOT RECOVERED 27.<del>0</del>\_ -27.0 BOTTOM OF HOLE AT 27.0 SOILS ARE FIELD VISUALLY CLASSIFIED IN ACCORDANCE WITH THE UNIFIED SOIL CLASSIFICATION SYSTEM NOTE: HOLE TERMINATED AT PREDETERMINED DEPTH AT 10.0' HOLE NO. MAN - 10 - V - 16 PROJECT MANTEO 204 ENG FORM 1836 PREVIOUS EDITIONS ARE OBSOLETE. MAR 71 PROJECT

						HOLE	NO. 1	MAN-10	-V-17
	NG LO	G DIVI	SOUTH ATLANTIC	INSTALLA	WILN		DISTRICT	Sheet Of 1	1 Sheets
MANTE						OF BIT	4" Dia. Vi HOWNTBN or NSI	bracore v	
	ORD N		» 31 E 2999371 NAD83	ML	LW		TION OF DRILL		
ORILLING WILMI	AGENCY NGTON	DISTRI	CT	Vi	BRA CO	ORE			URBED
HOLE NO. and file nu	. (As shown Imber)	on drawing	<sup>ime</sup> : MAN-10-V-17		NO. OF ( N SAMPLE	S TAKEN	: 2		)
NAME OF	DRILLER GAUGH	F	CRANE OPERATOR			UND WATE		<u>.</u>	
	IOFHOLE	-	DEG. FROM VERT.	16. DATE			16/2009	COMPLETE	
THICKNES	S OF OVE	RBURDEN	N/A ( 14.8' of Water)			OF HOLE	0.0	.LW N/A	
DEPTH DE			0.0' 24.3'			INSPECTOR BAYNA	RD, CIVIL I	FNGINFFR	
LEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIAL			BOX OR SAMPLE NO.		REMARKS g time, water loss, c ing, etc., if signif	
<u>MLLW</u> 0.0	<u>feet</u> 0_	¢	ھ 0.0' TO 14.3' WATER		•	1	Time beg	9	
							1216 hrs.	ribed by L	5
								Civil Engr.	
	14.0			7 1					
-14.3	14.3		OCEAN BOTTOM AT 14.3 SM Blackish-gray, fine	) <sup>.</sup>		14.3'	NOTE: TO fined as	POFHOLI surface of ensation is	E is de- water
		<b>│</b> ┇ <u>┥</u> ┇┥	silty sand			14.8'	for the ti	de such th	nat
		╽╽╽╽					·	le is 0.0	
	16.0					16.3'	From 0	RE BORIN .0' to 1	NG 0.0'
		<u> </u> ↓†↓†		16.8'		2		0' Rec: 2	2.5'
			ASSUMED NOT RECOVE	ERED		16.8'	Top of vi	bracore	soil
	18.0						sample is ginning a	loaaed	as be-
	10.0						When Rur	n is great	ter than
							Recovery is depict Not Reco		sumed
	20.0						NOTE: Soil Classified	s Comme	ercial La
							with ASTN		dance
							LAB CL	ASSIFICA	TION
	22. <del>0</del>						Jar Number	Classif	ication
							Number 1	S	м
	_						2	S	Μ
-24.3	24. <del>0</del> 24.3								
27.5			BOTTOM OF HOLE AT				NOTE:		۰. <del>-</del>
			SOILS ARE FIELD VISUALLY CLASSIFIED IN ACCORDANC					IATED TERMINI	
			WITH THE UNIFIED SOIL CLASSIFICATION SYSTEM					AT 10	
	_					1	1		

						HOLE	NO.	MAN-10	_
	NG LO	G DIV	SOUTH ATLANTIC	INSTALLA	WILM		DISTRICT	OF	IT 1 Sheets
MANTE	0 204	PROJ	ECT				4" Dia.V HOWNTBW or WS		
NC CC	0RD N					S DESIGNA	TION OF DRILL		
5. DRILLING WILMI	AGENCY NGTON	DISTR	ICT	<u> </u>	BRA CO	DRE		NELL	STURBED
I. HOLE NO and file n	.(As shown µmber)	on drawing	MAN-10-V-18	BURDE	NO. OF O	S TAKEN	: 3	:	0
S. NAME OF	DRILLER	IF	CRANE OPERATOR			CORE BO			
5. DIRECTION		E	DEG. FROM VERT.	16. DATE	HOLE	STAR	TED 16/2009	COMPLE	
7. THICKNES						OF HOLE	0.0' M	LLW	
B. DEPTH D			0.0'		TURE OF	NSPECTOR		N/A	7
9. TOTAL DI			21.5'	<u>ا</u>	Z CORE	BOX OR	RD, CIVIL		
ELEVATION MLLW	DEPTH foet	LEGEND	CLASSIFICATION OF MATERIAL (Description) d	.5	RECOV- ERY	SAMPLE NO.	(Drilling weathe	REMARKS g lime, water loss ring, etc., if sign g	s, depth of hif icant)
0.0	0		0.0' TO 11.5' WATER				Time beg 1235 hrs.	gin vibra	coring:
							Soils des	cribed by	
							Benjamin,	Givii Engr.	
	11.0-							D 67	
- 11.5	11.5 =	• 14	OCEAN BOTTOM AT 11.5 SP-SM Grayish-tan, fine, po			11.5'	NOTE: TC	P OF HO surface o pensation	LE is de-
		•••	-graded silty sand	JULIY		1	for the t	ide such	that EL MLLW
	-							DRE BOR	
	13.0	.				13.5'		).0' to	10.0'
						2	Ran 10.	O' Rec:	7.5'
						14.0'	Top of y	ibracore	soil
		.•.					Top of v sample in ginning a	s logged	as be-
	15.0	. <sup>.</sup> .					When Ru	n is gree	ater than
		<b> </b> ,		16.0'		16.0'	Recover is depict Not Rec		ssumed
		I I I I I	SM Gray, fine silty sand			3 16.5'			
	17.0-	╡┥╽┥╽				10.5	NOTE: Soi	ls Comm	ner <sub>i</sub> cial Lal
	=	╡╿╷╿╷	17.5' grayish-tan color				Classified with AST		
		]						LASSIFIC	
		▋▋₦┃₦		19.0'			Jar		ATION
	19.0		ASSUMED NOT RECOV	'ERED			Number 1	Class SP-	ification sм
							2	SP-	
	11								511
	21.0						L		
-21.5	21.5 =			04 51			NIG 7 7		
			BOTTOM OF HOLE AT SOILS ARE FIELD VISUALL				NOTE:	HOLE	АТ
			CLASSIFIED IN ACCORDAN WITH THE UNIFIED SOIL					TERMIN	
			CLASSIFICATION SYSTEM				DEPTH	AT 10	).0'
	-								
		1	1						

						HOLE	NO.	MAN-10-	V-19
	NG LO	G DIV	ISION SOUTH ATLANTIC	INSTALLA	WILN		DISTRICT		
MANTE	0 204	PROJ	ECT				4" Dia.Vi HOWNTBU or USI		
NC CO			<sup>ນ</sup> 76 E 2999458 NAD83	ML	LW		TION OF DRILL		
. DRILLING WILMI	AGENCY NGTON	DISTR	ICT	VIE	BRA CO	DRE	SN	NELL	
. HOLE NO. and file nu	, (As shown Imber)	on drawing	<sup>////</sup> MAN-10-V-19	BURDE	NO. OF (	S TAKEN	DISTURBED		
S. NAME OF	DRILLER GAUGH	F	CRANE OPERATOR			UND WATE			
5. DIRECTION	I OF HOLE		DEG. FROM VERT.	16. DATE	HOLE	STAF	16/2009	COMPLETED 3/16/2	
7. THICKNES						OF HOLE	0.0' ML	<u>.LW</u> N/A	
3. DEPTH DA			0.0' 21.6'	19. SIGNA	TURE OF	NSPECTOR			
ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIA	•	Z CORF	BOX OR	RD, CIVIL	REMARKS g lime, water lass, de ling, etc., if signifi	nally of
MLLW	feet	6	(Description) d		RECOV- ERY	NO.		9	
0.0			0.0' TO 11.6' WATER				Time beg 1256 hrs.	jin vibracc	oring:
							Soils desc Benjamin,	ribed by L Civil Engr. T	arry ech.
	-						-	-	
	11.0					44.0		P OF HOLE	
- 11.6	11.6		OCEAN BOTTOM AT 11.6' SP-SM Tan, fine, poorly-gro	oded		11.6' 1	fined as and comp	surface of pensation is	water made
			silty sand			12.1'	top of Ho	de such th ble is 0.0 E	L MLLW
	13.0	<b> .•.</b>						RE BORIN	
						13.5'		0.0' to   10 D' Rec: 7.	
						2			
		[•]•]					Top of vi sample is	ibracore s logged c	soil 15 be-
	15.0						lginning a'	t Öcean B n is great	ottom.
		••	MH Dark gray plantic city	.ith		15.6' 3	Recovery is depict	, the diffe ed as Ass	erence
			MH Dark gray elastic silt w large shell fragments	// (//		16.1	Not Reco		
	17.0		<u> </u>						
							Classified	Is Comme in Accor	dance
				18.6'					TION
	19.0		ASSUMED NOT RECOVE	RED			Jar Number	Classifi	cation
	-						1 2	SP-SN SP-SN	1
							- Ĵ	MH	
	21.0								
-21.6	21.6	I	BOTTOM OF HOLE AT	21.6'					
			SOILS ARE FIELD VISUALLY					: HOLE INATED	ΛT
			CLASSIFIED IN ACCORDANCE WITH THE UNIFIED SOIL					ETERMIN	
			CLASSIFICATION SYSTEM					H AT 10	
	_	1	1						

	NG LO	<b>6</b>	SOUTH ATLANTIC	INSTALLA	WILN		DISTRICT	SHEET 1 OF 1 SHEETS
1. PROJECT	0 204	PROJ	ECT				4" Dia. Vit	
2. LOCATION	( <i>Coordinate</i> )					E DEEICHI	ATION OF DRILL	
3. DRILLING				VI	BRA CO	ORE	SN	ELL
4. HOLE NO and file n			•	13. TOTAL BURDE	l no. of ( In sample	OVER- S TAKEN	:DISTURBED	
	000100					CORE BO		
LESTER 6. DIRECTION			CRANE OPERATOR	16. DATE		UND WATE	RTED	COMPLETED
		ICLINED	DEG. FROM VERT.				<u>16/2009</u> 0.0' ML	<u>3/16/2009</u>
7. THICKNES							0.0 101	1/A
8. DEPTH D 9. TOTAL D			<u>0.0'</u> 18.6'	19. SIGNA		INSPECTOR BAYNA	RD, CIVIL E	NGINFFR
ELEVATION	ОЕРТН	LEGEND	E	LS		BOX OR SAMPLE NO.		REMARKS g ime, water loss, depth of ng, etc., if significant)
<u>MLLW</u> 0.0	foet 0_	c	đ		•	1		9
0.0	=		0.0' TO 8.6' WATER				1315 hrs	in vibracoring:
							Soils desci Benjamin, (	ribed by Larry CivilEngr. Tech.
	-							-
	8.0						NOTE: TOP	° OF HOLE is de-
-8.6	8.6	• • •	OCEAN BOTTOM AT 8.6	aded		8.6'	fined as s	surface of water ensation is made
		•.•	SP-SM Tan, fine, poorly-gr silty sand	0080		9.1	for the tic	de such that le is 0.0 EL MLLV
		•.•						RE BORING
	10.0	•••					From 0.	.0' to 10.0'
		<b>*.*</b>				11.0'	Ran 10.0	)' Rec: 7.2'
						2		aracoro soll
						11.5'	Isample is	pracore soil logged as be- Ocean Bottom
	12.0						When Run	is greater tha
	=						lis depicte	, the difference ed as Assumed
				13.6'		13.6'	Not Reco	vered.
	14.0-		SM Gray, fine silty sand	10.0		3		- Commorpial -
		<b> </b>				14.1'	Classified	s CommercialLo in Accordance 1-D2487
		┇╻╿╽						
		1111		15.8'				ASSIFICATION
	16.0-		ASSUMED NOT RECOVE				Jar Number	Classification
							1 2	SP SP-SM
							ź	SM
	-							
	18.0-						L	
-18.6	18.6		BOTTOM OF HOLE AT	18 6'				
			DUTTOM OF MULE AT	10.0			NOTE:	HOLE
			SOILS ARE FIELD VISUALLY CLASSIFIED IN ACCORDANCE				TERMI	NATED AT
			WITH THE UNIFIED SOIL CLASSIFICATION SYSTEM					ETERMINED H AT 10.0'
	-							
	-							
	=							
	. –	1						

HOLE NO. MAN-10-V-21

DRILLI	NG LO	G DIV	SOUTH ATLANTIC	INSTALLA		INGTON	DISTRICT	SHEET 1 OF 1 SHEETS		
	0 204	PROJ	ECT	10. SIZE AND TYPE OF BIT 4" Dio. Vibrocore 11. Datum for Elevation Shown By a VSU						
LOCATION	(Coordinate	es or Statio		MLLW 12. MANFACTURER'S DESIGNATION OF DRILL						
DRILLING				VI	BRA CO	ORE	SNEL			
	, (As shown umber)		•	BURDE	l NO.OF ( IN SAMPLE	S TAKEN	DISTURBED	UNDISTURBED		
NAME OF	DRILLER GAUGH	IF	CRANE OPERATOR		L NUMBER					
DIRECTION		E	DEG. FROM VERT.	16. DATE	HOLE	STAR	RTED 16/2009	COMPLETED 3/16/2009		
7	S OF OVE				ATION TOP		0.0 MEEN			
	RILLED INT		0.0'		TURE OF	INSPECTOR	1477	·		
	DEPTH	LEGEND	24.8' CLASSIFICATION OF MATERIA (Description)	LS		BATNAN BOX OR SAMPLE NO.	RD, CIVIL ENC I RE IDrilling lime, weathering, et	DINCER MARKS g valer loss, depth of ic, if significant)		
0.0	feet 0_	<u>د</u>	0.0' TO 12.5' WATER		•		Time begin	• vibracoring:		
							1337 hrs. Soils describe	ed by Larry		
							Benjamin, Civi	IEngr. lech.		
	12.0									
-12.5	12.5		OCEAN BOTTOM AT 12.5 SM Dark gray, fine silty sc			12.5' 1		F HOLE is de- ace of water sation is made		
		╡┇┥┇┥				13.0'	for the tide	such that s 0.0 EL MLLW.		
		<b>╡</b> <u></u>					VIBRACORE	BORING		
	14.0	╡↓ϯ↓ϯ				14.5'	From 0.0' Ran 10.0'	to 10.0'		
		<u></u> <u></u>   				2 15.0'		Net. U.Z		
		<u></u> 				13.0	Top of vibro	gged as be-		
	16.0					16.2'	ginning at O	gged as be- cean Bottom. greater than		
		•••	SP-SM Tan, fine, poorly-gr silty sand	aded		3	Recovery, th	ne difference as Assumed		
		<b> •</b> ••	Í			16.7'	Not Recover	red.		
		∙ <b>∵</b>  ]								
	18.0			·c =			Classified in			
		•••  	ASSUMED NOT RECOVE	<u>18.7'</u> ERED			with ASTM-D			
		1						SIFICATION		
	20.0	1					Jar Number (	Classification		
		1					1 2	SM SM		
		1					Š	SM		
		1								
	22.0	1								
-22.5	22.5 _	1	BOTTOM OF HOLE AT	22.5'			NOTE: HO			
		1	SOILS ARE FIELD VISUALL CLASSIFIED IN ACCORDAN				TERMINAT REFUSAL			
			WITH THE UNIFIED SOIL CLASSIFICATION SYSTEM				10.0'			
		1								
		1								
		1								
		1								
		1								
		1								
		1								
		1			1	1	1			

HOLE NO. MAN-10-V-22

DRILLI	ING LO	G DIV	SOUTH ATLANTIC	INSTALLAT	WILN		DISTRICT	SHEET 1 OF 1 SHEETS
1. PROJECT MANTE	0 204	PROJ	ECT			OF BIT	4" Dia. Vibi HOWNTBW or WSL)	ocore
2. LOCATION				ML	LW.			
3. DRILLING	AGENCY		05 E 3002518 NAD83		ACTURER		TION OF DRILL	LL
WILMI	NGTON	DISTR		13. TOTA	NO. OF	OVER-	DISTURBED	UNDISTURBED
and file n	umber)		MAN-10-V-22			CORE BO	-	. 0
5. NAME OF LESTER	GAUGH		CRANE OPERATOR	15. ELEVA	ATION GRO	UND WATE		-
6. DIRECTION	N OF HOLI ICAL 🗔 IN	-	DEG. FROM VERT.	16. DATE	HOLE	:star : 3/	16/2009	-completed - 3/16/2009
7. THICKNES	S OF OVE	ERBURDEN	N/A ( 14.0' of Water)			OF HOLE	0.0	
8. DEPTH D	RILLED IN	TO ROCK	0.0'	19. SIGNA	TURE OF	INSPECTOR	147	
9. TOTAL DE		6	24.0'				RD, CIVIL EN	
ELEVATION MLLW	DEPTH foet	LEGEND	CLASSIFICATION OF MATERIA (Dascription) d	.>	RECOV- ERY	BOX OR SAMPLE NO. I	(Dritting tim weathering	REMARKS g s. water loss, depth of , etc., if significant) 9
0.0	0 =		0.0' TO 14.0' WATER				Time begin 1353 hrs.	vibracoring:
	_	]					Soils descri	bed by Larry
	=						Benjamin, Ci	vilEngr. Tech.
-14.0	14.0		OCEAN BOTTOM AT 14.0	)'		14.0'		
			MH Dark gray elastic silt			1	NOTE: TOP fined as su	OF HOLE is de rface of water
						14.5'	for the tide	
		<b>II I I</b>		15.5'		15.5'	top of Hole	is 0.0 EL MLL
	16.0-	╡┥┃┥┃	SM Grayish-tan, fine silty sand			2		
	=	<b>╡</b> <u>╎</u> <u>╎</u>		16.7'		16.0' 16.7'		)' to 10.0' Rec: 6.5'
			SP-SM Tan, fine, poorly-gr silty sand			3	1	
		<b>].'.</b>	Sirty Suria			17.2'	Top of vib	acore soil logged as be-
	18.0-	<b> .'.</b>		18.3'		18.3'	ginning at i	Ucean Bottom
	=		SP Tan, coarse, poorly-gro			4	Recovery,	is greater tho the difference d as Assumed
			sand			18.8'	Not Recov	
	=							
	20.0		20.0' trace shelland pea-gr	avel			NOTE: Soils Classified i	Commercial L n Accordance
			ASSUMED NOT RECOVE	20.5' RED			with ASTM-	
	_						LAB CLA	SSIFICATION
	=						Jar	
	22.0						Number	Classification
	=						2	MH SM
							4	SP-SM SP-SM
-24.0	24 0							
24.0	24.0		BOTTOM OF HOLE AT	24.0'			NOTE: H	
		]	SOILS ARE FIELD VISUALLY CLASSIFIED IN ACCORDANC					TED UPON
			WITH THE UNIFIED SOIL CLASSIFICATION SYSTEM				10.0'	_ DEPTH
	_						1010	
		]						
	-	1						
		1						
		1						
		1						
		1						
	=	1						
		1						
	=	1						

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HOLE NO. MAN-10-V-23

			ISION	INSTALLA	TION		SHEET 1	٦
	NG LO	G [""	SOUTH ATLANTIC		WILN		N DISTRICT OF 1 SHEETS	1
1. PROJECT MANTE	0 204	PROJE	ECT		AND TYPE			
2. LOCATION	(Coordinates	s or Station	υ		N FOR ELI	EVATION S	SHOWNTBW or WSLI	
NC CO 3. DRILLING		73712	28 E 3003565 NAD83	12. MANU			NTION OF DRILL SNELL	1
WILMI	NGTON				INO.OF		DISTURBED UNDISTURBED	
4. HOLE NO. and file nu	, (As shown ( umber)	on drowing	<sup>me</sup> : MAN-10-V-23			CORE BO	<u>: 4 : 0</u>	1
5. NAME OF LESTER		F	CRANE OPERATOR			UND WATE	117.73	
6. DIRECTION				16. DATE		'STAF	RTED COMPLETED	
	ICAL 🔲 IN	CLINED	DEG. FROM VERT.				16/2009 3/16/2009 0.0' MLLW	
			N/A ( 14.8' of Woter)				FOR BORING N/A 2	2
8. DEPTH DE 9. TOTAL DE			0.0'	19. SIGNA				1
			24.8'				RD, CIVIL ENGINEER REMARKS o	
ELEVATION MLLW	DEPTH	LEGEND	CLASSIFICATION OF MATERIAL	.5	RECOV-	BOX OR SAMPLE NO.	REMARKS 9 (Dritting time, water loss, depth of weathering, etc., if significant)	L
0.0	<u>feet</u>	¢			•	<u> </u>	Time begin vibracoring:	ŧ
	=						1410 hrs.	F
							Soils described by Larry Benjamin, Civil Engr. Tech.	E
	_							F
	14.0-							F
	-						NOTE: TOP OF HOLE is de- fined as surface of water	F
-14.8	14.8	• • •	OCEAN BOTTOM AT 14.8			14.8'	and compensation is made for the tide such that	F
	Ξ	·.+	SP-SM Tan, fine, poorly-gro silty sand	1060		1 15.3'	top of Hole is 0.0 EL MLLW	E
		••••				15.5	VIBRACORE BORING	Ē
	16.0	· •					From 0.0' to 10.0'	F
	1	·					Ran 10.0' Rec: 7.9	F
	1	·•••••				17.0'	-	F
		· • ]				2	Top of vibracore soil	E
	18.0					17.5	Top of vibracore soil sample is logged as be- ginning_at Ocean Bottom.	F
			18.6'				When Run is greater than Recovery, the difference	F
	L 1	<b>·■</b> .■'.₩	MH interlayer				is depicted as Assumed	F
		•.•[]				19.5'	Not Recovered.	E
		• • • []				3		Ŧ
	20.0-	•••				20.0'	NOTE: Soils CommercialLat Classified in Accordance	ŧ
	_						with ASTM-D2487	F
								E
		·		21.8'		21.8'	LAB CLASSIFICATION	E
	22.0-	ŢŦĬŦ	SM Gray, fine silty sand	21.0		4	Jar Number Classification	F
	=	Ţ <mark>┼</mark> ┇┽	with shell fragments	22.7'		22.3'	1 SP-SM	F
							2 SP-SM 3 SP-SM	E
			ASSUMED NOT RECOVE	.RED			4 SM	E
								F
	24.0							F
-24.8	24 0							F
-24.0	27.0		BOTTOM OF HOLE AT	24.8'			NOTE: HOLE	E
			SOILS ARE FIELD VISUALL				TERMINATED UPON	F
			CLASSIFIED IN ACCORDANC WITH THE UNIFIED SOIL	CE			REFUSAL DEPTH	F
	=		CLASSIFICATION SYSTEM				10.0'	F
								E
								E
	=							F
								F
								E
								E
								F
								F
	_							F
	_							E
								E
	-							F
	N 18 36	DOFMAN	EDITIONS ARE OBSOLETE.		PROJECT	MANTI	EO 204 HOLE NO. MAN-10-V-2	- <b>- -</b>
MAR 71	OCOI IN	-RE VIOUS	D CUTTUNS ARE UBSULLTE.		1	PROJE	ECT MAN-10-V-2	3

						HOLE	NO. 1	MAN-10-\	/-24
DRILLI	NG LO	G DIVI	ISION SOUTH ATLANTIC	INSTALLA		IINGTON		SHEET 1 OF 1	SHEETS
1. PROJECT MANTE	0 204	PROJ	ECT			OF BIT	4" Dia.Vi HOWNTBW or WSU	bracore u	
2. LOCATION NC CO	(Coordinate					S DESIGNA	TION OF DRILL	-	
3. DRILLING WILMI	agency NGTON	DISTRI	СТ	VI	BRA CO	ORE		UNDISTUR	RFD
4. HOLE NO. and file no	umber)	on drawing	<sup>me</sup> : MAN-10-V-24	BURDE	n sample	S TAKEN	: 4	: 0	
5. NAME OF LESTER	GAUGH		CRANE OPERATOR			UND WATE	147 73		
6. DIRECTION	N OF HOLE		DEG. FROM VERT.	16. DATE			16/2009	COMPLETED	09
7. THICKNES	S OF OVE	RBURDEN	N/A ( 16.7' of Water)			OF HOLE	O.O' ML FOR BORING	<u>.LW</u> N/A	x
B. DEPTH DI 9. TOTAL DE			<u>0.0'</u> 26.7'			NSPECTOR BAYNAI	RD, CIVIL I	ENGINEER	
ELEVATION MLLW	DEPTH feet	LEGEND	CLASSIFICATION OF MATERIAL (Description)	.S	Z CORE RECOV- ERY	BOX OR SAMPLE NO.	i (Drilling) weather	REMARKS g time, water loss, dep ing, etc., if significa	ih of mi)
0.0	0_		0.0' TO 16.7' WATER					in vibracor	ing:
								ribed by La	
							Benjamin,	Civil Engr. Te	cn.
	16.0								ic de
- 16.7	16.7		OCEAN BOTTOM AT 16.7	71		16.7'	fined as s and comp	○ OF HOLE surface of w ensation is	/ater made
		│ <b>┼</b> ┼┼┤	SM Gray, fine, silty sand			1 17.2'	for the ti	de such tha Ile is 0.0 EL	t
	18.0	╽╽╽					VIBRACC	RE BORING	3
	.5.5	<b>↓</b> ↓ <b>↓</b>				18.7'	From 0 Ran 10.	.0' to 10. 0' Rec: 7.9	-
		•••	SP-SM Tan, fine-medium, poorly-graded silty	sand		2			
			with trace shell fra	gments		19.2'	Top of vi sample is	bracore so logged as	oil s_be-
	20.0-						ginning at When Rur	t Océan Bo n is greate	r than
		••••		21.0'		21.0'		, the diffe ed as Assu	rence umed
		• • •	SP Tan, coarse, poorly-gra sand with trace shell fragments	ded		3	Not Reco	overed.	
	22.0		iragments			21.5'	NOTE: Soil	s Commer	cial Lab
		•••					Classified with ASTN	in Accord M-D2487	ance
		••••					LAB CI	ASSIFICATI	ON
		••	SM Grayish-tan, fine, silty :	<u>23.7'</u>		23.7' 4	Jar		
	24.0 _		with shell fragments			4 24.2'	Number 1	Classific SP	
		IHI					23	SP SP-SM	
				25.5'			4	SM	
	26.0		ASSUMED NOT RECOVE	RED			L		
-26.7	26.7 -		BOTTOM OF HOLE AT	26 7					
			SOILS ARE FIELD VISUALLY	20./			NOTE: TERMIN	HOLE IATED UF	PON
			CLASSIFIED IN ACCORDANCI WITH THE UNIFIED SOIL	Ξ			REFUS,	AL DEPT	
			CLASSIFICATION SYSTEM				10.0'		
NG FOR	M 1836	PREVIOUS	EDITIONS ARE OBSOLETE.		PROJECT	MANT	EO 204 ECT	HOLE NO. MAN-	0-1-2

						HOLE	NO.	MAN-10-V-25	5_		
	NG LO	G DIV	SOUTH ATLANTIC	INSTALLA	WILM						
NANTE				10. SIZE AND TYPE OF BIT 4" Dia. Vibracore 11. DATUM FOR ELEVATION SHOWNTBU OF MSLI							
2. LOCATION NC CO			n) 31 E 3006087 NAD83			S DESIGNA	TION OF DRILL		_		
3. ORILLING WILMI	AGENCY NGTON	DISTR	ICT	VI	BRA CO	ORE		NELL UNDISTURBED	_		
4. HOLE NO. and file nu	umber (	on drowing	MAN-10-V-25		l no. of ( 'n sample l number	S TAKEN	: 4	0	_		
5. NAME OF	GAUGH		CRANE OPERATOR	15. ELEV	ATION GRO		r N/A	۱.			
5. DIRECTION		-	DEG. FROM VERT.	16. DATE	HOLE		16/2009	COMPLETED	_		
7. THICKNES 8. DEPTH DF							0.0' M	N/A	z		
9. TOTAL DE			0.0' 24.2'	19. SIGNA	CARL I		RD, CIVIL	ENGINEER			
ELEVATION MLLW	DEPTH foret	LEGEND	CLASSIFICATION OF MATERIAL	LS	Z CORE RECOV- ERY	BOX OR SAMPLE NO.	i iDrilling weathe	REMARKS g time, water loss, depth of pring, elc., if significant)			
0.0	0_		0.0' TO 14.2' WATER			•		gin vibracoring:	Ŧ		
							1447 hrs Soils des Benjamin,	cribed by Larry , Civil Engr. Tech.	E		
				) '		14.01			E		
-14.2	14: <u>9</u>	<b>                   </b>	OCEAN BOTTOM AT 14.2 SM Dark gray, fine, silty so			14.2' 1	fined as	)P OF HOLE is de surface of water	E		
		┋┼┇┥┇				14.7'	for the t	pensation is made tide such that ole is 0.0 EL MLL'			
	 16.0			16.0'		16.0'		ORE BORING	Ē		
	-	·.	SP-SM Tan, fine, poorly-gro silty sand	aded		2 16.5'		0.0' to   10.0' 0' Rec: 7.4'	F		
		][					Top of	vibracore soil	F		
	18.0-	<b> .</b>				18.0'	Isample i	s logged as be- t Ocean Bottom	E		
	10.0	]∙:• İ				3 18.5'	When Ru	in is greater tha y, the difference ted as Assumed	in –		
				21.0'		18.5	is depic <sup>.</sup> Not Rec		E		
	Ξ					20.01			_E		
	20.0					<u>20.0'</u> 4		ils Commercial Lo d in Accordance	ab E		
	_	. <sup>.</sup> .	21.0'			20.5'	with AST	M-D2487	Ē		
	Ξ	ŀŀŀĬ	with shell fragments	21.6'				LASSIFICATION	IE		
	22.0		ASSUMED NOT RECOVE	RED			Jar Number		∣₣		
	Ξ						1 2 3	SM SP SP	IE		
	=	1					4	SP	E		
-24.2	24: <u>9</u>								┘Ē		
-24.2	24.2		BOTTOM OF HOLE AT				NOTE:		E		
		1	SOILS ARE FIELD VISUALL					ATED UPON AL DEPTH	Ē		
			WITH THE UNIFIED SOIL CLASSIFICATION SYSTEM				10.0'		Ē		
									Ē		
									Ē		
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	_	1							E		
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			<u> </u>						Ē		
NG FOR	M 1836	PREVIOU	S EDITIONS ARE OBSOLETE.		PROJECT	MANTI	EO 204 ECT	HOLE NO. MAN - 10 - V -	25		

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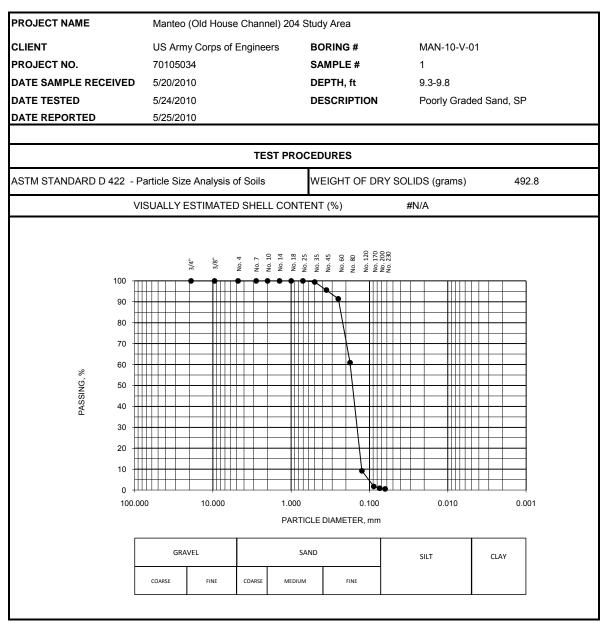
						HOLE	NO. N	AN-10-V-26	_
	NG LO	G DIVI	SOUTH ATLANTIC	INSTALLA	WILN		DISTRICT	SHEET 1 OF 1 SHEETS	
		PROJ			AND TYPE		4" Dia.Vit	oracore	┨
	ORD N	es or Station   7427		12. MANU			TION OF DRILL		-
	NGTON	DISTRI		13. TOTA	BRA CO	OVER-	DISTURBED	UNDISTURBED	-
HOLE NO.		on drawing	MAN-10-V-26		n Sample . Number	S TAKEN	: <u>3</u> (ES N/A	: 0	-
5. NAME OF ESTER 5. DIRECTION	GAUGH		CRANE OPERATOR			UND WATE		COMPLETED	
		-	DEG. FROM VERT.	16. DATE			0.0' MLI	3/16/2009	_
. THICKNES . DEPTH D			N/A ( 15.3' of Water) 0.0'	18. TOTA	CORE RE	COVERY	OR BORING	L W I/A	z
. TOTAL DE			25.3'		CARL		RD, CIVIL E		
ELEVATION <sup>®</sup> MLLW	осртн feet	LEGEND	CLASSIFICATION OF MATERIAL (Description)	.s	Z CORE RECOV- ERY	BOX OR SAMPLE NO.	ı Drilling ti weatherit	REMARKS g me, water loss, depth of ng, etc., if significant) g	
0.0	0_		0.0' TO 15.3' WATER				Time begi 1505 hrs.	n vibracoring:	F
							Soils descr	ribed by Larry CivilEngr. Tech.	F
	Ξ								F
- 15.3	15.0- 15.3 -		OCEAN BOTTOM AT 15.3			15.3'		OF HOLE is de-	F
	_		SP-SM Tan, fine-medium, po -graded silty sand	oorly		1 15.8'	and compe	urface of water ensation is made le such that	E
							top of Hol	e is 0.0 EL MLLV	Ľ
	17.0							RE BORING 0' to 10.0'	E
		<b> .</b>	17.5' fine-grained sand			17.5' 2		' Rec: 7.4'	E
		<b>! · · ·   İ</b>				18.0'	Top of vit	pracore soil	E
	19.0					19.0'	lsample is	logged as be- Ocean Bottom.	
						3 19.5'	When Run Recovery	is greater thar the difference	n I 🛏
						19.0	lis depicte Not Reco	ed as Assumed	
	Ξ	<b> </b> .							
	21.0	<b> ·</b> ··					Classified	s Commercial La in Accordance	b
		<b>!•.•</b>					with ASTM	-D2487	E
	Ξ			22.7'				ASSIFICATION	E
	23.0-		ASSUMED NOT RECOVE	ERED			Jar Number	Classification	E
	=						1 2 3	SP SP SP	E
	=	1						J.	E
	 25. <del>0</del>						L		ŀ
-25.3	25.3		BOTTOM OF HOLE AT	25.3'			NOTE: H	HOL F	Ŧ
	-=		SOILS ARE FIELD VISUALL CLASSIFIED IN ACCORDAN				TERMIN	ATED UPON	F
	<u> </u>		WITH THE UNIFIED SOIL CLASSIFICATION SYSTEM	-			REFUSA 10.0'	AL DEPTH	F
	-								F
		1							E
									E
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	M 1836	PREVIOUS	S EDITIONS ARE OBSOLETE.		PROJECT	PROJE	204 CT	HOLE NO. MAN-10-V-2	26

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DRILL	NG LO	G DIV	ISION SOUTH ATLANTIC	INSTALLA	WILM		N DISTRIC		1 Sheets
1. PROJECT MANTE	0 204	PROJ	ECT				4" Dio. V	/ibracore	
2. LOCATION		s or Station 7468		ML	LW				
3. DRILLING	AGENCY				ACTURER		TION OF DRILI		
4. HOLE NO	. (As shown	DISTR on drawing		13. TOTAL BURDE	NO. OF O	OVER- S TAKEN	DISTURBED		
ond file no			: MAN-10-V-27			CORE BO	-		
<u>LESTER</u> 6. Direction	GAUGH		CRANE OPERATOR			UND WATE		COMPLETE	0
× /			DEG. FROM VERT.	16. DATE		37	16/2009	3/16/2	2009
7. THICKNES			N/A ( 14.8' of Water)				0.0' M FOR BORING	N/A	
8. DEPTH D			<u>0.0'</u> 24.8'			NSPECTOR Rayna		ENGINEER	
ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIAL (Description)		% CORE RECOV- ERY	BOX OR SAMPLE NO.		REMARKS g lime, water loss, a ering, etc., if signif	
MLLW 0.0	feet 0_	с -	● 0.0' TO 14.8' WATER		•	1	Time be	<b>9</b> gin vibraco	orina:
		1					1528 hrs		5
	-							, Civil Engr.	
	ΞΞ								
	14.0	1						OP OF HOLE	
-14.8	14.8-		OCEAN BOTTOM AT 14.8			14.8'	and com	surface of pensation is tide such th	s made
		<b>!∙.</b> •	SP-SM Grayish-tan, fine, po -graded silty sand	orly		1 15.3'	top of H	ole is 0.0 l	EL MLLW
	16.0-	•.•				10.0	VIBRAC	ORE BORIN	١G
		<b>`.'</b>						0.0' to    1 .0'  Rec: 5	
		•••!	SP Tan, coarse, poorly-gra	ded		16.8' 2		.0 Net. 0	.0
	=		sand	17.6'		17.3'	Top of y	vibracore	soil <sub>.</sub>
	 18.0		SP-SM Tan, fine-medium, p -graded silty sand	oorly		<del>- 17.6'</del> - 3	ginning c	s logged at Ocean E	Bottom.
	=		18.6'			18.1'	When Ru Recover	in is great v. the diff	ter thar erence
			fine-grained sand				is depic Not Rec	y, the diff ted as As overed	sumed
	=					19.5'			
	20.0			00.4		4 20.0'	NOTE: So	ils Comme d in Accor	ercial La
	=		ASSUMED NOT RECOVE	<u>20.4'</u> RED				d in Accor M-D2487	aance
	-	]							
		1					LAB C Jar	LASSIFICA	NUN
	22.0	1					Number 1	r Classif S	
	=	]					23	S S	P
		1					4	SP-S	
		1							
	24.0	1							
-24.8	24.8-		BOTTOM OF HOLE AT	24 8'					
	-		SOILS ARE FIELD VISUALLY				NOTE: TFRMI	HOLE NATED U	IPON
			CLASSIFIED IN ACCORDANCE WITH THE UNIFIED SOIL				REFUS	SAL DEP	
	=	]	CLASSIFICATION SYSTEM				10.0'		
	-	1							
	=	1							
	-	1							
	-	1							
	=	1							
	=	]							
			S EDITIONS ARE OBSOLETE.		PROJECT		EO 204	HOLE NO. MAN	

\_

Laboratory Data

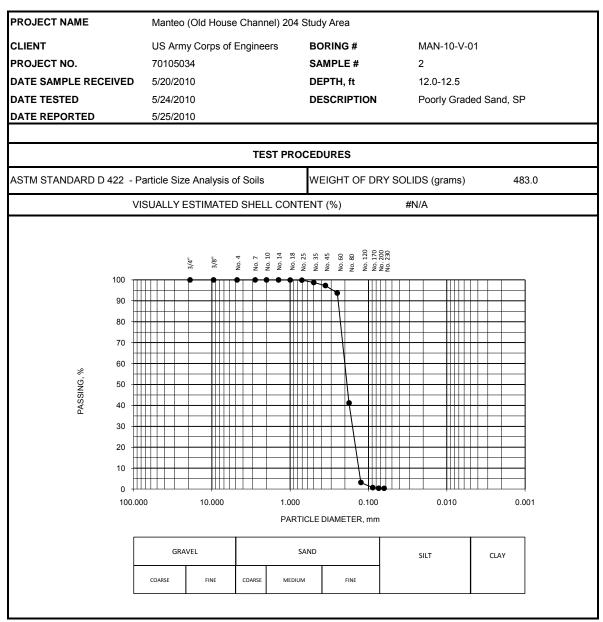


							PERCEN	T FINER (c	Iry weight	basis)						
I		GRAVEL			SE SAND		MEDIU	M SAND				FINE	SAND			SILT / CLAY
ſ	3/4"	3/8"	No. 4	No. 7	No. 10	No. 14	No. 18	No. 25	No. 35	No. 45	No. 60	No. 80	No. 120	No. 170	No. 200	No. 230
	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	99.5	95.6	91.4	60.9	9.2	1.7	0.9	0.6

	VISUALLY ESTIMATED SHELL CONTENT (percent)														
#N/A	#N/A #N/A #N/A #N/A #N/A #N/A #N/A #N/A														

CHECKED BY: S.E. Hardison



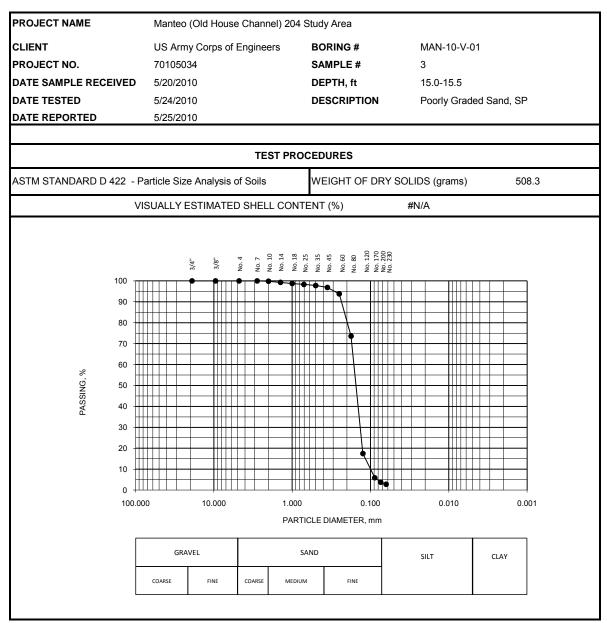


						PERCEN	T FINER (c	Iry weight	basis)						
GRAVEL			COAR	SE SAND		MEDIU	M SAND				FINE	SAND			SILT / CLAY
3/4"	3/8"	No. 4	No. 7	No. 10	No. 14	No. 18	No. 25	No. 35	No. 45	No. 60	No. 80	No. 120	No. 170	No. 200	No. 230
100.0	100.0	100.0	100.0	100.0	100.0	99.9	99.9	98.7	97.3	93.7	41.1	3.1	0.7	0.4	0.4

	VISUALLY ESTIMATED SHELL CONTENT (percent)														
#N/A #N/A	#N/A #N/A #N/A #N/A #N/A #N/A #N/A #N/A														

CHECKED BY: S.E. Hardison



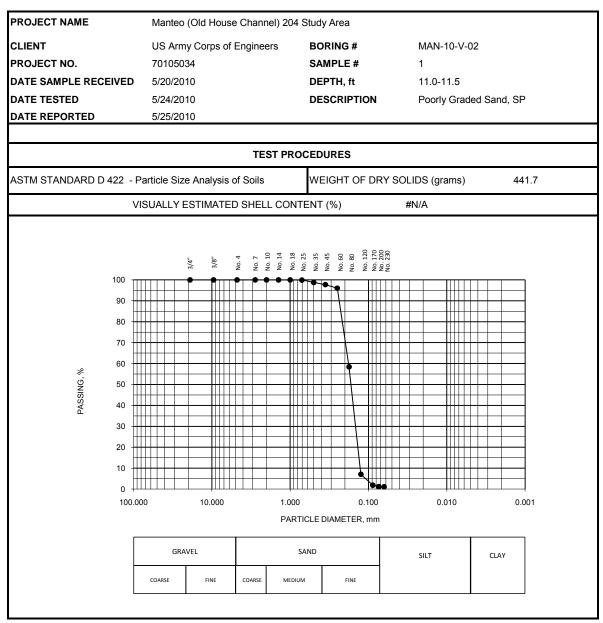


							PERCEN	T FINER (c	Iry weight	basis)						
	GRAVEL			COAR	SE SAND		MEDIU	M SAND				FINE	SAND			SILT / CLAY
	3/4"	3/8"	No. 4	No. 7	No. 10	No. 14	No. 18	No. 25	No. 35	No. 45	No. 60	No. 80	No. 120	No. 170	No. 200	No. 230
1	100.0	100.0	100.0	100.0	99.8	99.3	98.7	98.3	97.8	96.9	93.8	73.6	17.5	5.9	3.8	2.8

	VISUALLY ESTIMATED SHELL CONTENT (percent)														
#N/A #N/A	#N/A #N/A #N/A #N/A #N/A #N/A #N/A #N/A														

CHECKED BY: S.E. Hardison



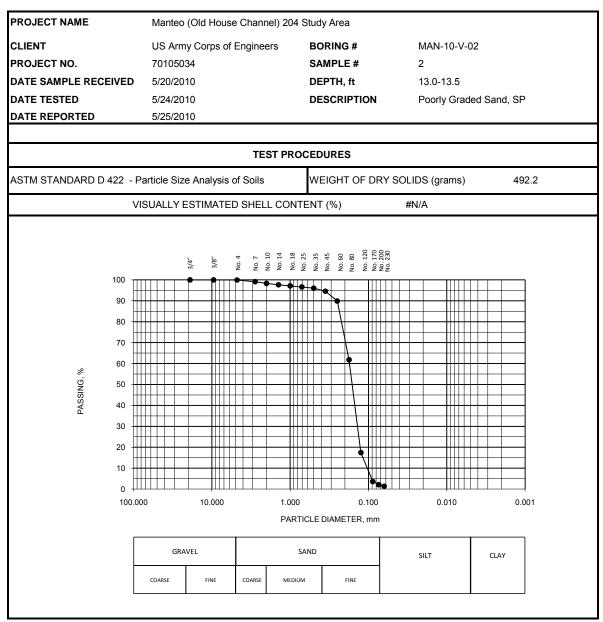


						PERCEN	T FINER (c	Iry weight	basis)						
	GRAVEL			SE SAND		MEDIU	M SAND				FINE	SAND			SILT / CLAY
3/4"	3/8"	No. 4	No. 7	No. 10	No. 14	No. 18	No. 25	No. 35	No. 45	No. 60	No. 80	No. 120	No. 170	No. 200	No. 230
100.0	100.0	100.0	100.0	100.0	100.0	100.0	99.9	98.8	97.7	96.0	58.4	7.0	1.9	1.2	1.1

			VISUALLY ESTIMATED SHELL CONTENT (percent)														
#N/A	#N/A #N/A #N/A #N/A #N/A #N/A #N/A #N/A																

CHECKED BY: S.E. Hardison



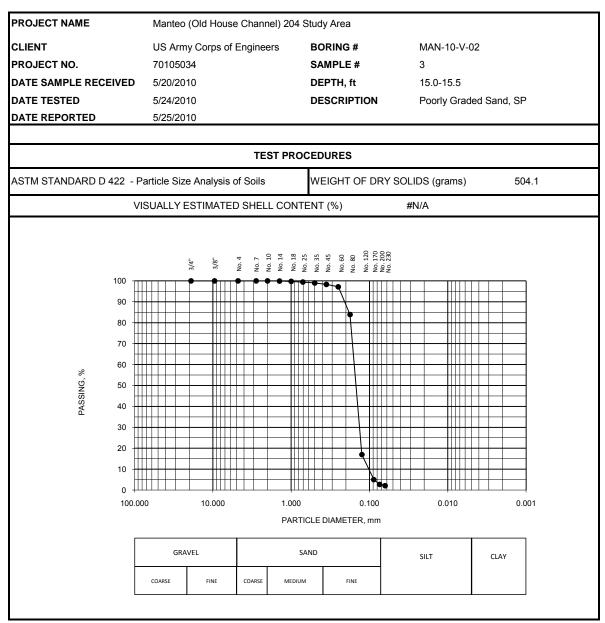


-							PERCEN	Γ FINER (α	Iry weight	basis)						
	GRAVEL			COAR	SE SAND		MEDIU	M SAND				FINE	SAND			SILT / CLAY
	3/4"	3/8"	No. 4	No. 7	No. 10	No. 14	No. 18	No. 25	No. 35	No. 45	No. 60	No. 80	No. 120	No. 170	No. 200	No. 230
	100.0	100.0	99.9	99.1	98.3	97.6	97.1	96.6	96.0	94.6	89.9	61.8	17.4	3.6	2.1	1.4

	VISUALLY ESTIMATED SHELL CONTENT (percent)														
#N/A #N/A	#N/A #N/A #N/A #N/A #N/A #N/A #N/A #N/A														

CHECKED BY: S.E. Hardison



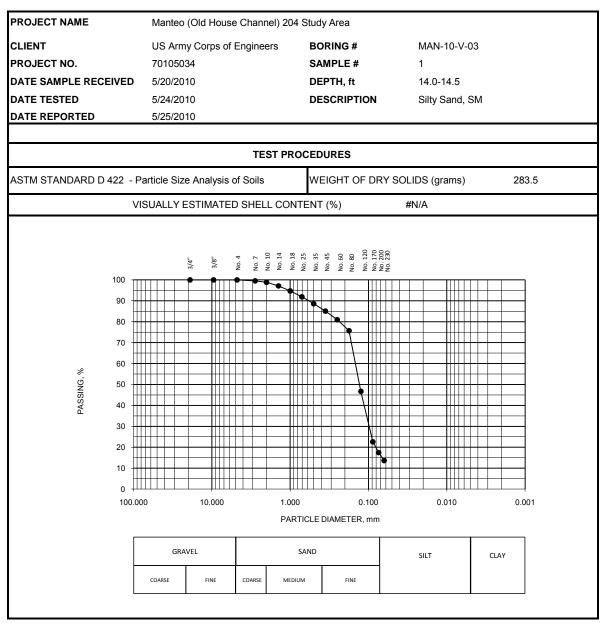


							PERCEN	Γ FINER (α	Iry weight	basis)						
		GRAVEL			SE SAND		MEDIU	M SAND				FINE	SAND			SILT / CLAY
Γ	3/4"	3/8"	No. 4	No. 7	No. 10	No. 14	No. 18	No. 25	No. 35	No. 45	No. 60	No. 80	No. 120	No. 170	No. 200	No. 230
	100.0	100.0	100.0	100.0	100.0	99.9	99.7	99.4	99.0	98.3	97.2	83.9	17.0	5.0	2.7	2.1

	VISUALLY ESTIMATED SHELL CONTENT (percent)														
#N/A #N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	Shell Content <5% (Amount not visually estimated)								

CHECKED BY: S.E. Hardison



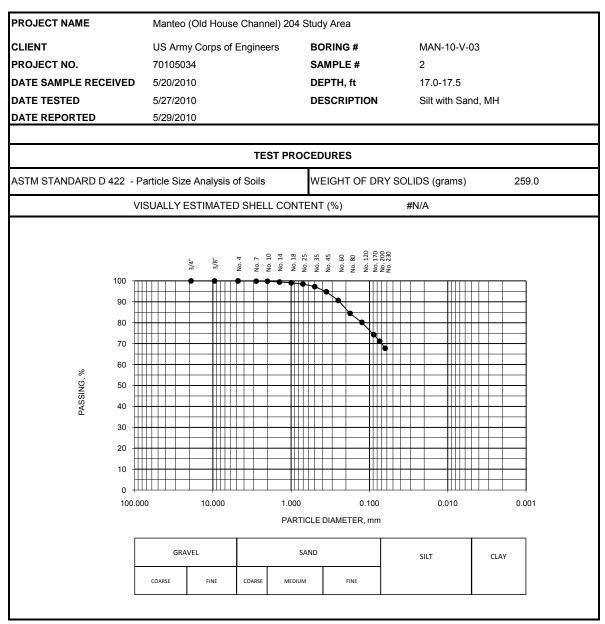


							PERCEN	「FINER (c	Iry weight	basis)						
I		GRAVEL		COAR	SE SAND		MEDIU	M SAND				FINE	SAND			SILT / CLAY
ſ	3/4"	3/8"	No. 4	No. 7	No. 10	No. 14	No. 18	No. 25	No. 35	No. 45	No. 60	No. 80	No. 120	No. 170	No. 200	No. 230
	100.0	100.0	100.0	99.5	98.8	97.1	94.7	91.9	88.6	85.1	81.0	75.7	46.7	22.6	17.4	13.7

	VISUALLY ESTIMATED SHELL CONTENT (percent)														
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	Shell Content <5% (Amount not visually estimated)							

CHECKED BY: S.E. Hardison



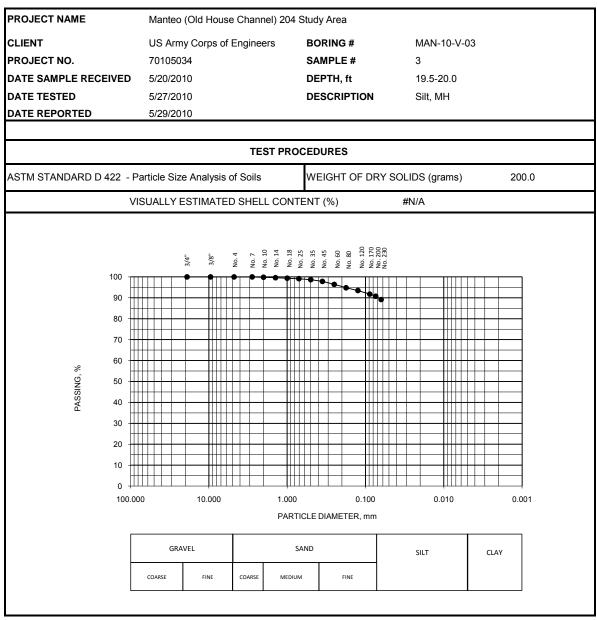


							PERCEN	T FINER (c	Iry weight	basis)						
I	GRAVEL			COAR	SE SAND		MEDIU	M SAND				FINE	SAND			SILT / CLAY
ſ	3/4"	3/8"	No. 4	No. 7	No. 10	No. 14	No. 18	No. 25	No. 35	No. 45	No. 60	No. 80	No. 120	No. 170	No. 200	No. 230
I	100.0	100.0	100.0	99.8	99.8	99.5	99.1	98.5	97.2	94.8	90.7	84.4	80.2	74.2	71.2	67.8

	VISUALLY ESTIMATED SHELL CONTENT (percent)														
#N/A #N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	Shell Content <5% (Amount not visually estimated)								

CHECKED BY: S.E. Hardison



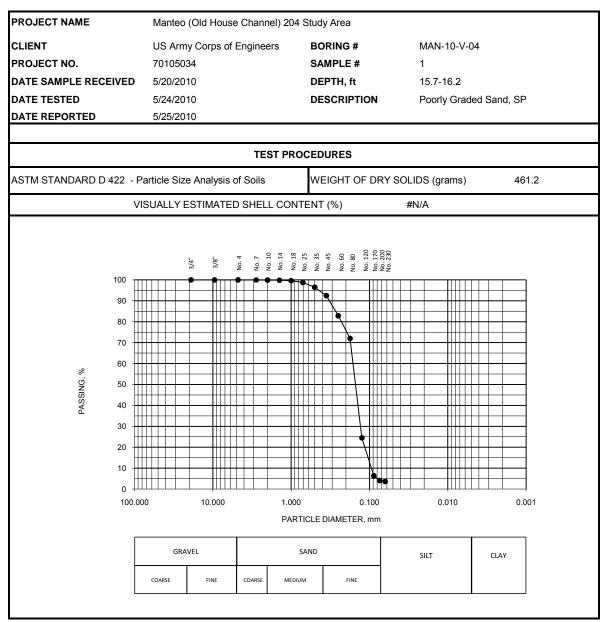


							PERCEN	T FINER (c	Iry weight	basis)						
I	GRAVEL			COAR	SE SAND		MEDIU	M SAND				FINE	SAND			SILT / CLAY
	3/4"	3/8"	No. 4	No. 7	No. 10	No. 14	No. 18	No. 25	No. 35	No. 45	No. 60	No. 80	No. 120	No. 170	No. 200	No. 230
	100.0	100.0	100.0	100.0	99.8	99.6	99.4	99.1	98.7	97.9	96.4	94.8	93.5	91.8	90.7	89.2

	VISUALLY ESTIMATED SHELL CONTENT (percent)														
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	Shell Content <5% (Amount not visually estimated)							

CHECKED BY: S.E. Hardison



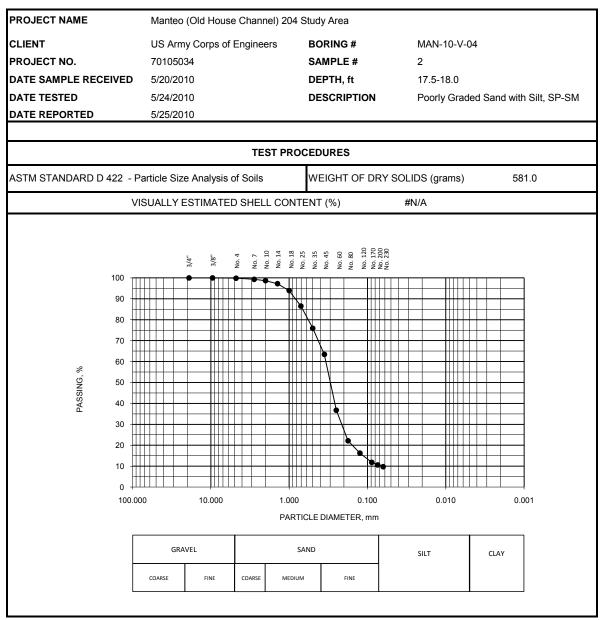


						PERCEN	Γ FINER (α	Iry weight	basis)						
GRAVEL			COAR	SE SAND		MEDIU	M SAND				FINE	SAND			SILT / CLAY
3/4"	3/8"	No. 4	No. 7	No. 10	No. 14	No. 18	No. 25	No. 35	No. 45	No. 60	No. 80	No. 120	No. 170	No. 200	No. 230
100.0	100.0	100.0	99.9	99.9	99.8	99.6	98.8	96.4	92.5	82.9	72.0	24.5	6.4	4.1	3.6

	VISUALLY ESTIMATED SHELL CONTENT (percent)														
#N/A #N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	Shell Content <5% (Amount not visually estimated)								

CHECKED BY: S.E. Hardison



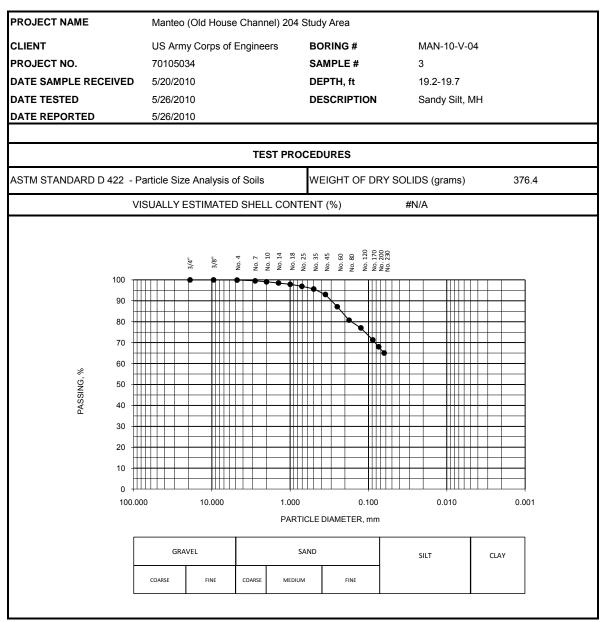


-						PERCEN	T FINER (c	Iry weight	basis)						
	GRAVEL		COAR	SE SAND		MEDIU	M SAND				FINE	SAND			SILT / CLAY
3/4"	3/8"	No. 4	No. 7	No. 10	No. 14	No. 18	No. 25	No. 35	No. 45	No. 60	No. 80	No. 120	No. 170	No. 200	No. 230
100.0	100.0	99.8	99.3	98.6	97.2	93.9	86.5	75.9	63.4	36.7	22.1	16.3	11.8	10.6	9.7

	VISUALLY ESTIMATED SHELL CONTENT (percent)														
#N/	/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	Shell Content <5% (Amount not visually estimated)						

CHECKED BY: S.E. Hardison



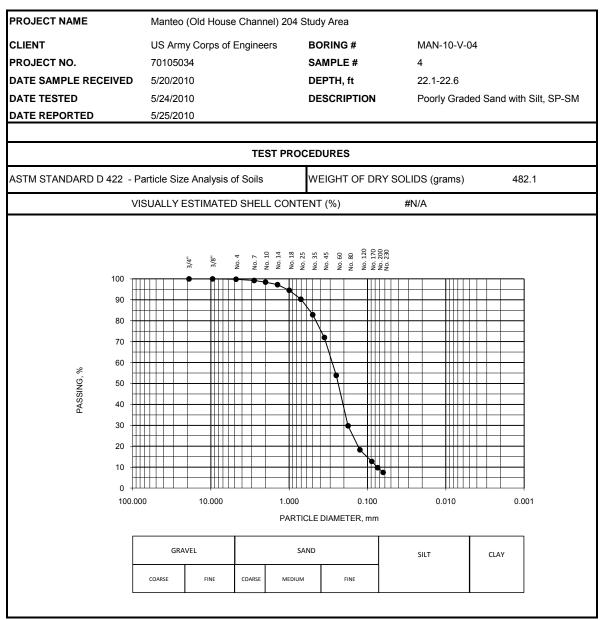


							PERCEN	Γ FINER (α	Iry weight	basis)						
		GRAVEL		COAR	SE SAND		MEDIU	M SAND				FINE	SAND			SILT / CLAY
Γ	3/4"	3/8"	No. 4	No. 7	No. 10	No. 14	No. 18	No. 25	No. 35	No. 45	No. 60	No. 80	No. 120	No. 170	No. 200	No. 230
	100.0	100.0	99.9	99.5	99.1	98.5	97.9	96.9	95.6	93.0	87.2	80.7	77.0	71.3	68.0	65.0

	VISUALLY ESTIMATED SHELL CONTENT (percent)														
#N/A #N/A #N/A #N/A #N/A #N/A #N/A #N/A															

CHECKED BY: S.E. Hardison



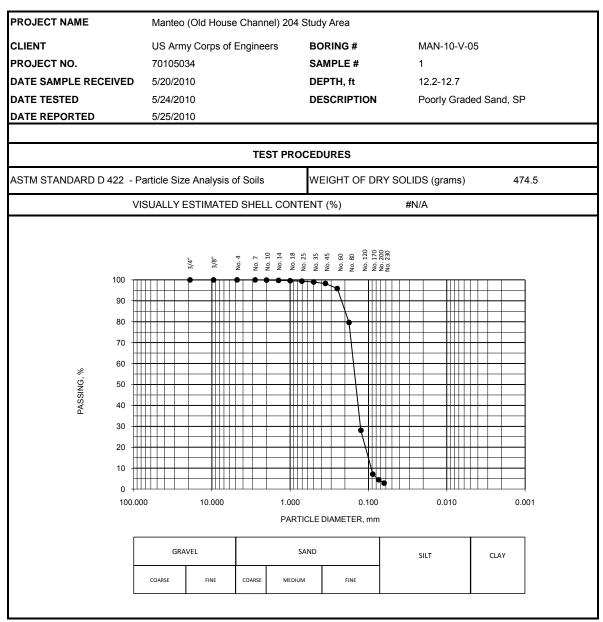


-						PERCEN	T FINER (c	lry weight	basis)						
	GRAVEL		COAR	SE SAND		MEDIU	M SAND				FINE	SAND			SILT / CLAY
3/4"	3/8"	No. 4	No. 7	No. 10	No. 14	No. 18	No. 25	No. 35	No. 45	No. 60	No. 80	No. 120	No. 170	No. 200	No. 230
100.0	100.0	99.8	99.2	98.4	97.2	94.5	90.3	82.8	72.0	53.8	29.8	18.3	12.8	9.7	7.5

					VISUALL	Y ESTIMA	TED SHEL	L CONTENT (percent)
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	Shell Content <5% (Amount not visually estimated)

CHECKED BY: S.E. Hardison



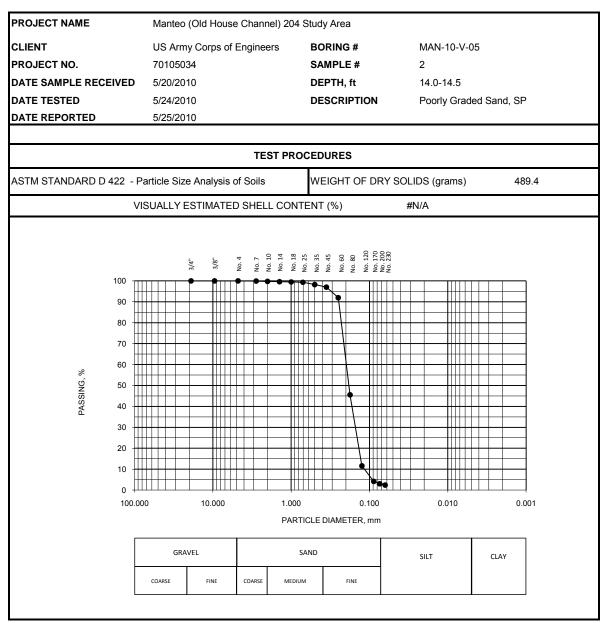


							PERCEN	T FINER (c	Iry weight	basis)						
		GRAVEL		COAR	SE SAND		MEDIU	M SAND				FINE	SAND			SILT / CLAY
ſ	3/4"	3/8"	No. 4	No. 7	No. 10	No. 14	No. 18	No. 25	No. 35	No. 45	No. 60	No. 80	No. 120	No. 170	No. 200	No. 230
ĺ	100.0	100.0	100.0	100.0	99.9	99.7	99.6	99.4	99.0	98.3	95.8	79.6	28.1	7.2	4.4	2.9

	VISUALLY ESTIMATED SHELL CONTENT (percent)														
#N/A #N/A #N/A #N/A #N/A #N/A #N/A #N/A															

CHECKED BY: S.E. Hardison



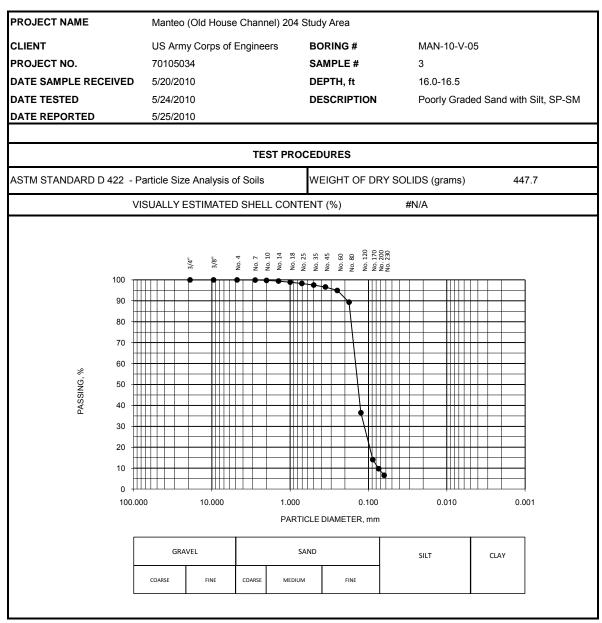


-							PERCEN	Γ FINER (α	Iry weight	basis)						
		GRAVEL		COAR	SE SAND		MEDIU	M SAND				FINE	SAND			SILT / CLAY
Γ	3/4"	3/8"	No. 4	No. 7	No. 10	No. 14	No. 18	No. 25	No. 35	No. 45	No. 60	No. 80	No. 120	No. 170	No. 200	No. 230
	100.0	100.0	100.0	99.9	99.7	99.6	99.5	99.3	98.2	97.0	91.9	45.5	11.6	4.1	3.0	2.4

	VISUALLY ESTIMATED SHELL CONTENT (percent)														
#N/A #N/A #N/A #N/A #N/A #N/A #N/A #N/A															

CHECKED BY: S.E. Hardison



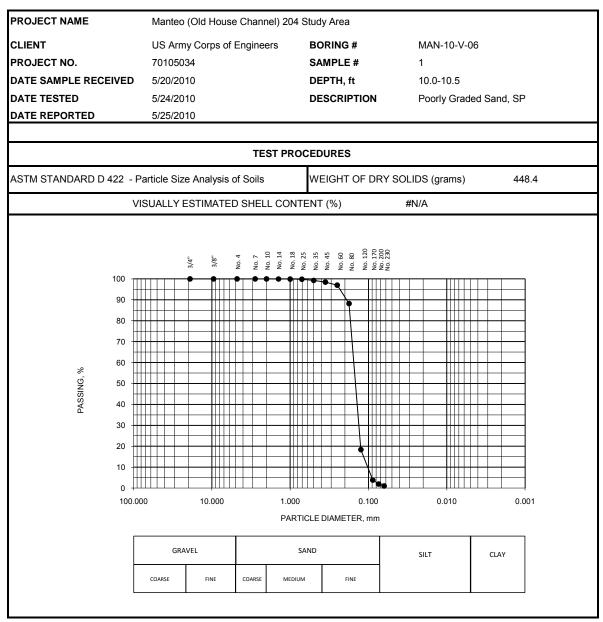


						PERCEN	T FINER (c	Iry weight	basis)						
	GRAVEL		COAR	SE SAND		MEDIU	M SAND				FINE	SAND			SILT / CLAY
3/4"	3/8"	No. 4	No. 7	No. 10	No. 14	No. 18	No. 25	No. 35	No. 45	No. 60	No. 80	No. 120	No. 170	No. 200	No. 230
100.0	100.0	100.0	99.9	99.8	99.4	98.9	98.3	97.5	96.6	94.9	89.3	36.5	14.1	9.7	6.6

	VISUALLY ESTIMATED SHELL CONTENT (percent)														
#N/A #N/A #N/A #N/A #N/A #N/A #N/A #N/A															

CHECKED BY: S.E. Hardison

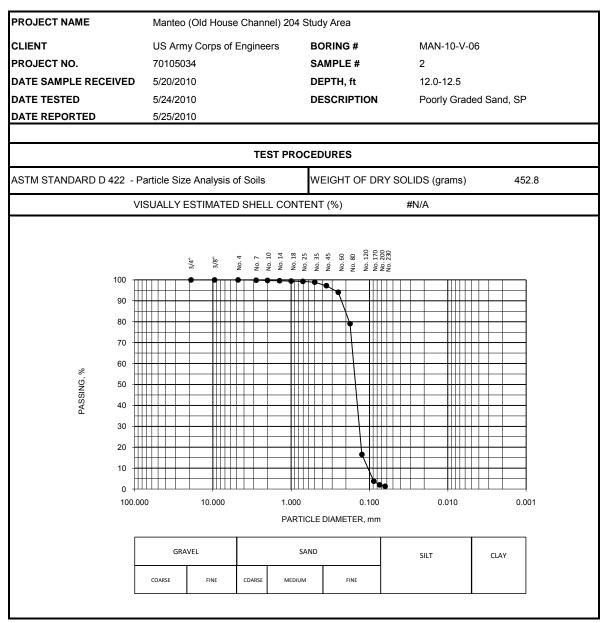




						PERCEN	「FINER (c	lry weight	basis)						
	GRAVEL			SE SAND		MEDIU	M SAND				FINE	SAND			SILT / CLAY
3/4"	3/8"	No. 4	No. 7	No. 10	No. 14	No. 18	No. 25	No. 35	No. 45	No. 60	No. 80	No. 120	No. 170	No. 200	No. 230
100.0	100.0	100.0	100.0	100.0	99.9	99.9	99.8	99.2	98.5	97.0	88.2	18.4	3.8	1.9	1.0

					VISUALL	Y ESTIMA	TED SHEL	L CONTENT (percent)
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	Shell Content <5% (Amount not visually estimated)

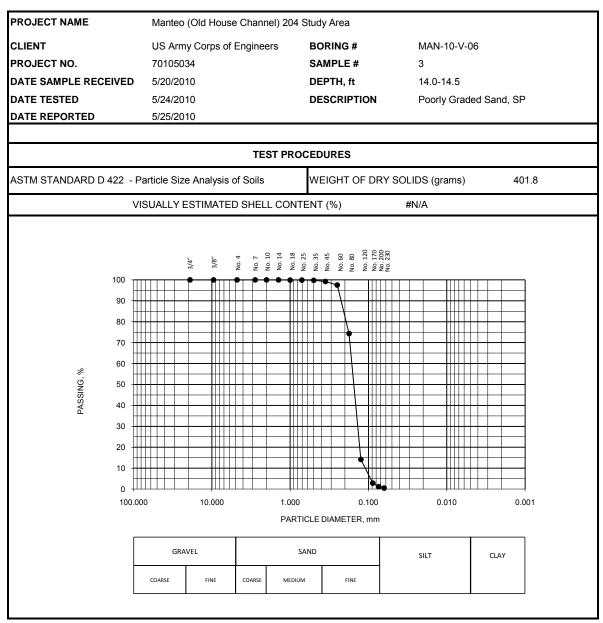




							PERCEN	T FINER (c	Iry weight	basis)						
		GRAVEL		COAR	SE SAND		MEDIU	M SAND				FINE	SAND			SILT / CLAY
ſ	3/4"	3/8"	No. 4	No. 7	No. 10	No. 14	No. 18	No. 25	No. 35	No. 45	No. 60	No. 80	No. 120	No. 170	No. 200	No. 230
ĺ	100.0	100.0	100.0	99.8	99.7	99.6	99.4	99.3	98.9	97.2	94.1	79.1	16.6	3.8	2.0	1.3

	VISUALLY ESTIMATED SHELL CONTENT (percent)												
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	Shell Content <5% (Amount not visually estimated)					

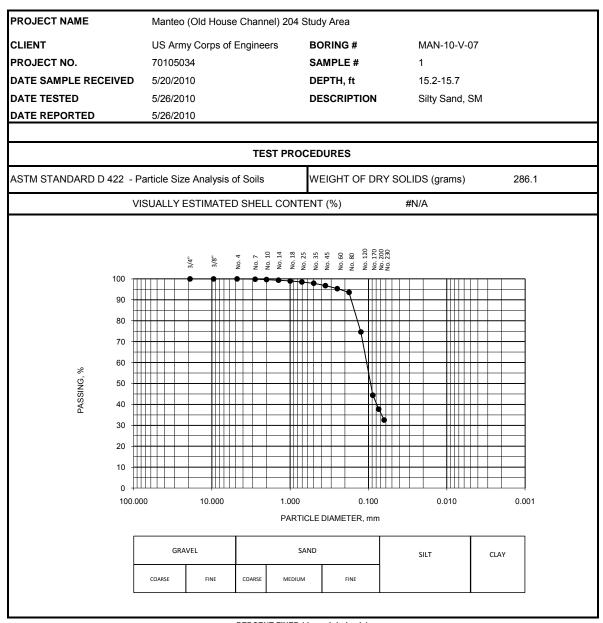




						PERCEN	Γ FINER (c	Iry weight	basis)						
	GRAVEL		COAR	SE SAND		MEDIU	M SAND		FINE SAND						SILT / CLAY
3/4"	3/8"	No. 4	No. 7	No. 10	No. 14	No. 18	No. 25	No. 35	No. 45	No. 60	No. 80	No. 120	No. 170	No. 200	No. 230
100.0	100.0	100.0	100.0	100.0	100.0	99.9	99.9	99.8	99.2	97.5	74.4	14.2	2.8	1.1	0.5

	VISUALLY ESTIMATED SHELL CONTENT (percent)												
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	Shell Content <5% (Amount not visually estimated)					

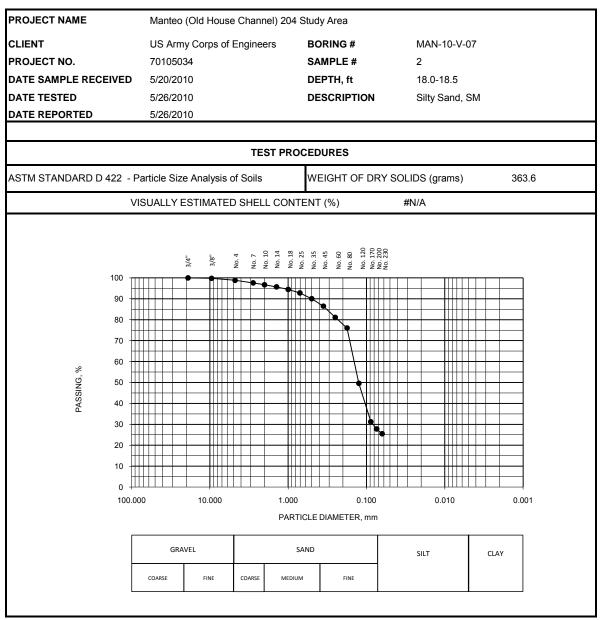




						PERCEN	Γ FINER (α	lry weight	basis)						
	GRAVEL		COAR	SE SAND		MEDIU	M SAND		FINE SAND						SILT / CLAY
3/4"	3/8"	No. 4	No. 7	No. 10	No. 14	No. 18	No. 25	No. 35	No. 45	No. 60	No. 80	No. 120	No. 170	No. 200	No. 230
100.0	100.0	100.0	99.8	99.7	99.3	99.0	98.5	97.9	96.8	95.3	93.5	74.6	44.4	37.7	32.5

	VISUALLY ESTIMATED SHELL CONTENT (percent)												
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	Shell Content <5% (Amount not visually estimated)					

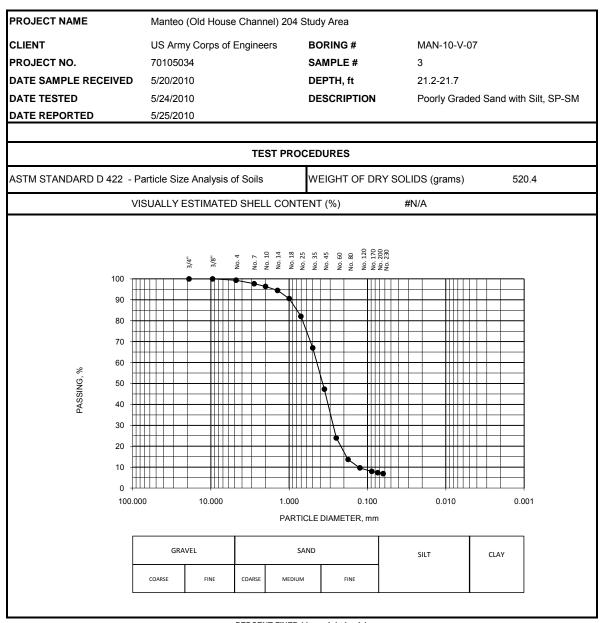




-							PERCEN	T FINER (c	Iry weight	basis)						
		GRAVEL		COAR	SE SAND		MEDIUM SAND				FINE SAND					
	3/4"	3/8"	No. 4	No. 7	No. 10	No. 14	No. 18	No. 25	No. 35	No. 45	No. 60	No. 80	No. 120	No. 170	No. 200	No. 230
	100.0	99.8	98.8	97.6	96.7	95.7	94.5	92.8	90.0	86.5	81.1	76.0	49.6	31.2	27.8	25.5

	VISUALLY ESTIMATED SHELL CONTENT (percent)												
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	Shell Content <5% (Amount not visually estimated)					

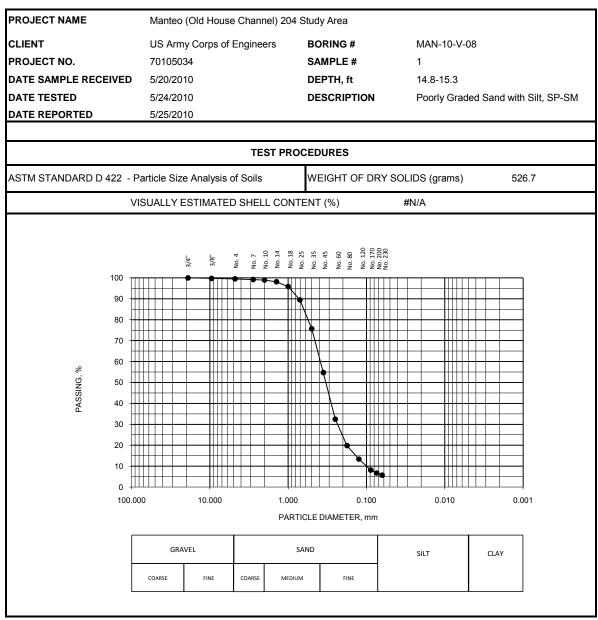




						PERCEN	r FINER (d	Iry weight	basis)						
	GRAVEL		COAR	SE SAND		MEDIU	M SAND				FINE	SAND			SILT / CLAY
3/4"	3/8"	No. 4	No. 7	No. 10	No. 14	No. 18	No. 25	No. 35	No. 45	No. 60	No. 80	No. 120	No. 170	No. 200	No. 230
100.0	100.0	99.3	97.7	96.3	94.5	90.6	82.1	67.0	47.3	24.0	13.7	9.6	8.0	7.3	6.9

					VISUALL	Y ESTIMA	TED SHEL	L CONTENT (percent)
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	Shell Content <5% (Amount not visually estimated)

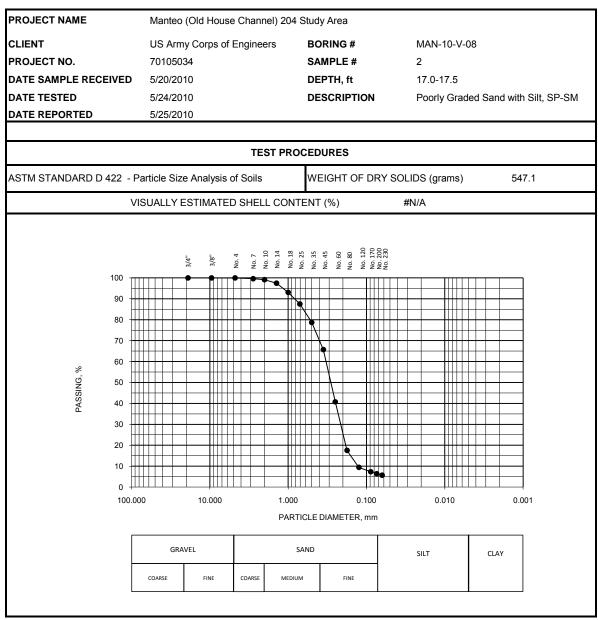




							PERCEN	T FINER (c	Iry weight	basis)						
	(	GRAVEL		COAR	SE SAND		MEDIU	M SAND				FINE	SAND			SILT / CLAY
3/4	."	3/8"	No. 4	No. 7	No. 10	No. 14	No. 18	No. 25	No. 35	No. 45	No. 60	No. 80	No. 120	No. 170	No. 200	No. 230
100	.0	99.8	99.5	99.2	98.9	98.1	95.8	89.5	75.6	54.7	32.4	19.8	13.4	8.1	6.7	5.7

					VISUALL	Y ESTIMA	TED SHEL	L CONTENT (percent)
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	Shell Content <5% (Amount not visually estimated)

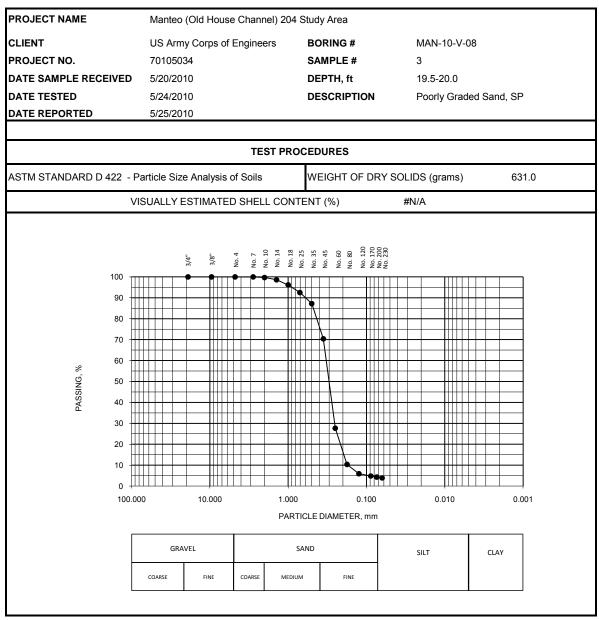




_						PERCEN	T FINER (c	Iry weight	basis)						
	GRAVE	-	COAR	SE SAND		MEDIU	M SAND				FINE	SAND			SILT / CLAY
3/4"	3/8"	No. 4	No. 7	No. 10	No. 14	No. 18	No. 25	No. 35	No. 45	No. 60	No. 80	No. 120	No. 170	No. 200	No. 230
100.0	100.0	99.9	99.6	99.1	97.5	93.1	87.5	78.7	65.7	40.7	17.5	9.4	7.3	6.4	5.7

					VISUALL	Y ESTIMA	TED SHEL	L CONTENT (percent)
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	Shell Content <5% (Amount not visually estimated)

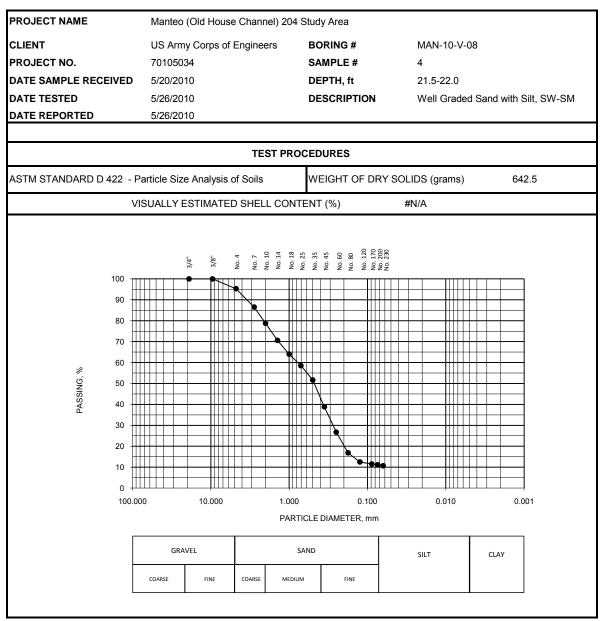




						PERCEN	T FINER (c	Iry weight	basis)						
	GRAVEL		COAR	SE SAND		MEDIU	M SAND				FINE	SAND			SILT / CLAY
3/4"	3/8"	No. 4	No. 7	No. 10	No. 14	No. 18	No. 25	No. 35	No. 45	No. 60	No. 80	No. 120	No. 170	No. 200	No. 230
100.0	100.0	100.0	100.0	99.7	98.6	96.1	92.5	87.2	70.4	27.7	10.3	5.9	4.8	4.3	3.9

					VISUALL	Y ESTIMA	TED SHEL	L CONTENT (percent)
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	Shell Content <5% (Amount not visually estimated)

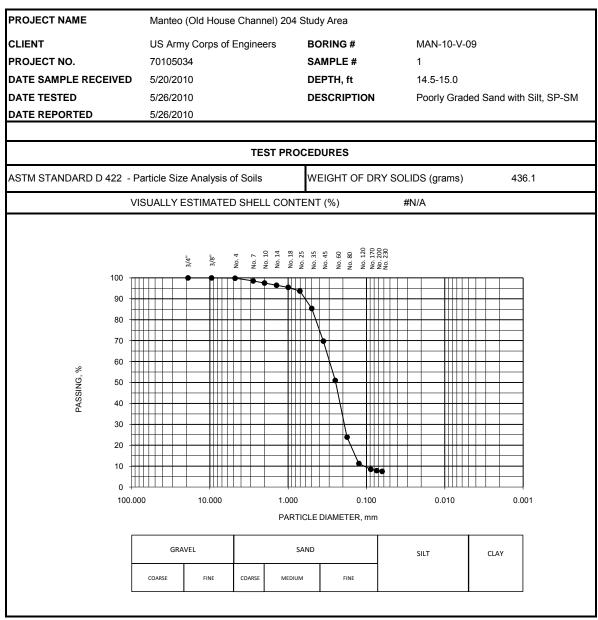




-						PERCEN	T FINER (c	Iry weight	basis)						
	GRAVEL	-	COAR	SE SAND		MEDIU	M SAND				FINE	SAND			SILT / CLAY
3/4"	3/8"	No. 4	No. 7	No. 10	No. 14	No. 18	No. 25	No. 35	No. 45	No. 60	No. 80	No. 120	No. 170	No. 200	No. 230
100.0	100.0	95.3	86.5	78.8	70.6	64.0	58.6	51.6	38.8	26.7	16.9	12.5	11.5	11.1	10.6

					VISUALL	Y ESTIMA	TED SHEL	L CONTENT (percent)
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	Shell Content <5% (Amount not visually estimated)

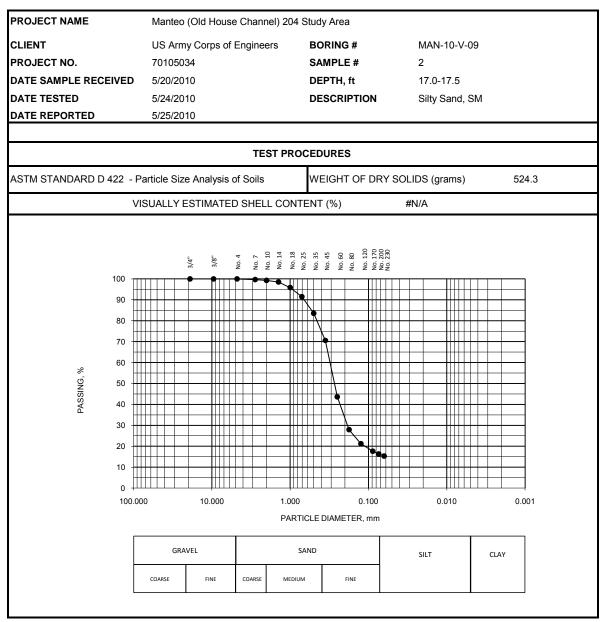




							PERCEN	T FINER (c	lry weight	basis)						
		GRAVEL		COAR	SE SAND		MEDIU	M SAND				FINE	SAND			SILT / CLAY
3	3/4"	3/8"	No. 4	No. 7	No. 10	No. 14	No. 18	No. 25	No. 35	No. 45	No. 60	No. 80	No. 120	No. 170	No. 200	No. 230
10	00.0	100.0	99.8	98.5	97.5	96.5	95.4	93.7	85.3	69.8	50.9	23.9	11.3	8.5	7.9	7.5

					VISUALL	Y ESTIMA	TED SHEL	L CONTENT (percent)
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	Shell Content <5% (Amount not visually estimated)

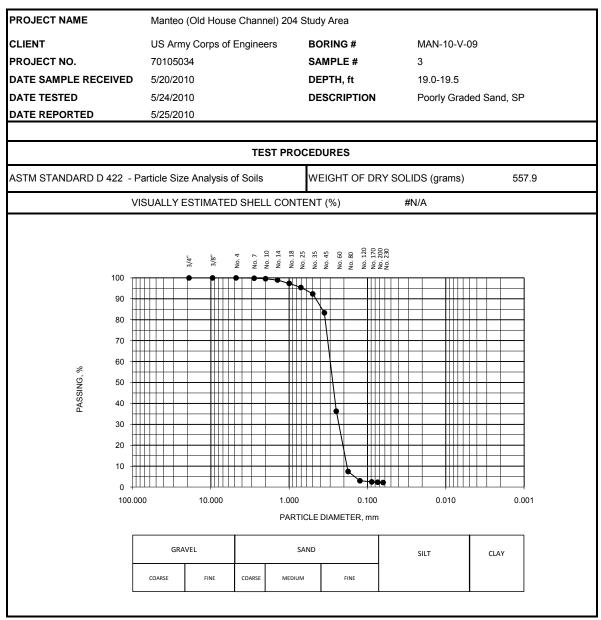




							PERCEN	Γ FINER (c	Iry weight	basis)						
		GRAVEL		COAR	SE SAND		MEDIU	M SAND				FINE	SAND			SILT / CLAY
ſ	3/4"	3/8"	No. 4	No. 7	No. 10	No. 14	No. 18	No. 25	No. 35	No. 45	No. 60	No. 80	No. 120	No. 170	No. 200	No. 230
	100.0	100.0	99.9	99.6	99.3	98.5	95.8	91.5	83.5	70.6	43.6	27.9	21.2	17.6	16.3	15.3

					VISUALL	Y ESTIMA	TED SHEL	L CONTENT (percent)
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	Shell Content <5% (Amount not visually estimated)

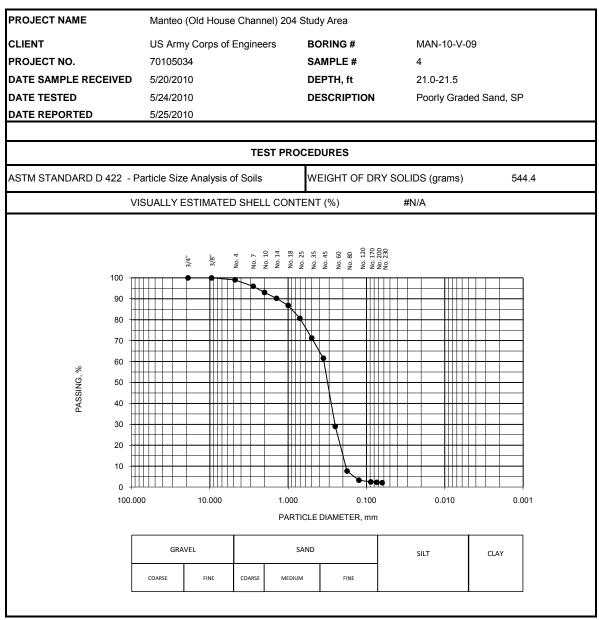




_							PERCEN	T FINER (c	Iry weight	basis)						
		GRAVEL		COAR	SE SAND		MEDIUM SAND					FINE	SAND			SILT / CLAY
Γ	3/4"	3/8"	No. 4	No. 7	No. 10	No. 14	No. 18	No. 25	No. 35	No. 45	No. 60	No. 80	No. 120	No. 170	No. 200	No. 230
	100.0	100.0	100.0	99.8	99.6	98.9	97.3	95.4	92.3	83.3	36.3	7.5	3.0	2.5	2.3	2.2

					VISUALL	Y ESTIMA	TED SHEL	L CONTENT (percent)
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	Shell Content <5% (Amount not visually estimated)

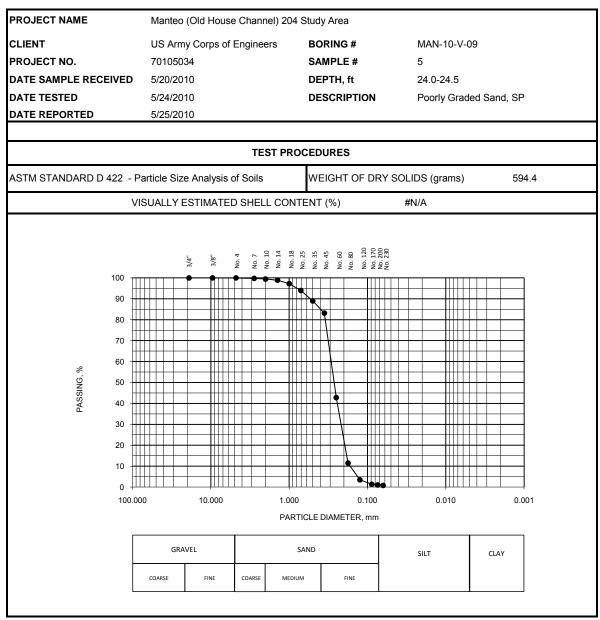




							PERCEN	T FINER (c	dry weight	basis)						
		GRAVEL		COAR	SE SAND		MEDIUM SAND					FINE	SAND			SILT / CLAY
	3/4"	3/8"	No. 4	No. 7	No. 10	No. 14	No. 18	No. 25	No. 35	No. 45	No. 60	No. 80	No. 120	No. 170	No. 200	No. 230
1	00.0	100.0	99.0	96.0	93.0	90.2	86.8	80.7	71.2	61.6	29.0	7.7	3.3	2.5	2.3	2.1

					VISUALL	Y ESTIMA	TED SHEL	L CONTENT (percent)
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	Shell Content <5% (Amount not visually estimated)

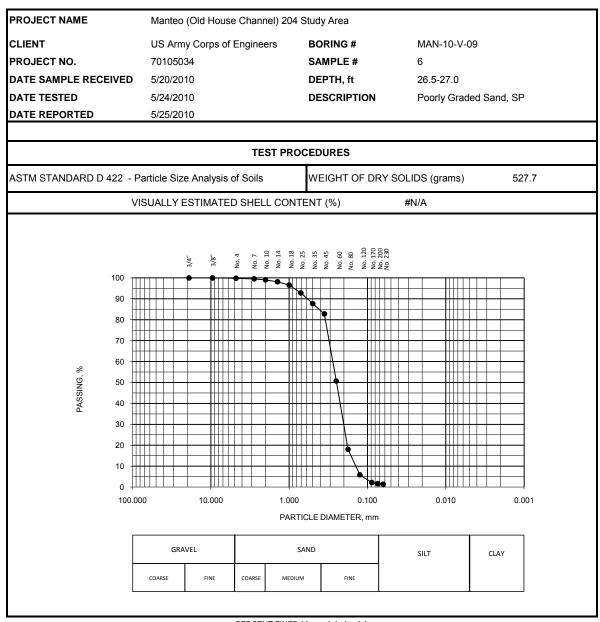




						PERCEN	T FINER (c	Iry weight	basis)						
	GRAVEL		COAR	SE SAND		MEDIUM SAND					FINE	SAND			SILT / CLAY
3/4"	3/8"	No. 4	No. 7	No. 10	No. 14	No. 18	No. 25	No. 35	No. 45	No. 60	No. 80	No. 120	No. 170	No. 200	No. 230
100.0	100.0	99.9	99.7	99.4	98.9	97.2	93.9	89.0	83.1	42.7	11.5	3.5	1.3	1.0	0.8

					VISUALL	Y ESTIMA	TED SHEL	L CONTENT (percent)
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	Shell Content <5% (Amount not visually estimated)

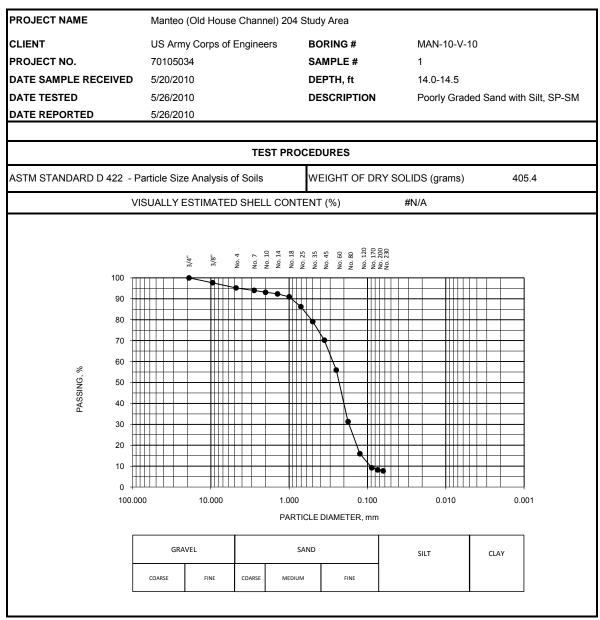




						PERCEN	T FINER (c	Iry weight	basis)						
	GRAVEL		COAR	SE SAND		MEDIUM SAND					FINE	SAND			SILT / CLAY
3/4"	3/8"	No. 4	No. 7	No. 10	No. 14	No. 18	No. 25	No. 35	No. 45	No. 60	No. 80	No. 120	No. 170	No. 200	No. 230
100.0	100.0	99.8	99.5	99.1	98.1	96.5	92.8	87.7	82.8	50.7	18.0	5.9	2.1	1.6	1.3

					VISUALL	Y ESTIMA	TED SHEL	L CONTENT (percent)
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	Shell Content <5% (Amount not visually estimated)

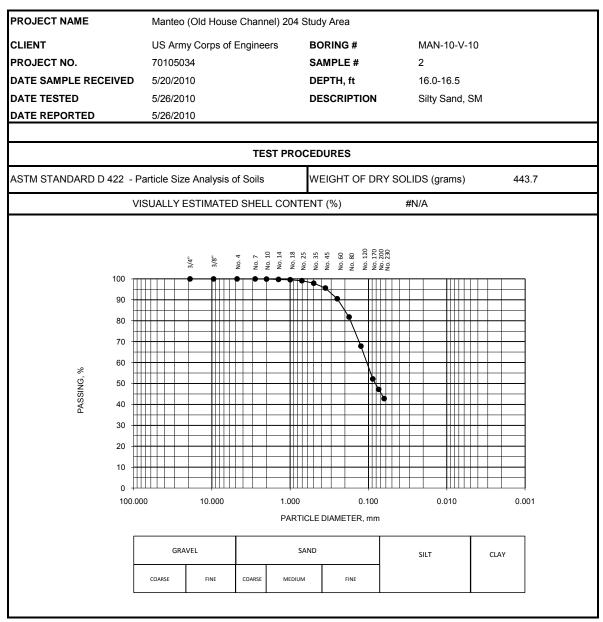




_						PERCEN	T FINER (c	Iry weight	basis)						
	GRAVEL	-	COAR	SE SAND		MEDIU	M SAND				FINE	SAND			SILT / CLAY
3/4"	3/8"	No. 4	No. 7	No. 10	No. 14	No. 18	No. 25	No. 35	No. 45	No. 60	No. 80	No. 120	No. 170	No. 200	No. 230
100.0	97.7	95.2	94.0	93.1	92.4	90.9	86.2	79.1	70.2	55.9	31.3	16.0	9.2	8.2	7.8

					VISUALL	Y ESTIMA	TED SHEL	L CONTENT (percent)
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	Shell Content <5% (Amount not visually estimated)

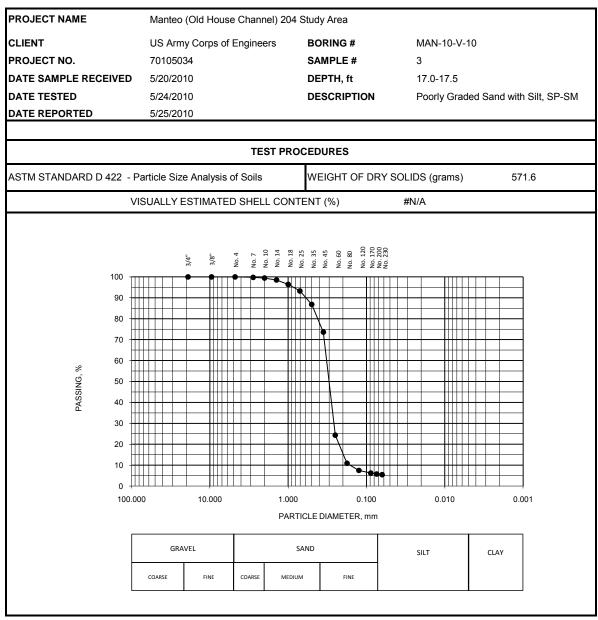




						PERCEN	T FINER (c	Iry weight	basis)						
	GRAVEL		COAR	SE SAND		MEDIU	M SAND				FINE	SAND			SILT / CLAY
3/4"	3/8"	No. 4	No. 7	No. 10	No. 14	No. 18	No. 25	No. 35	No. 45	No. 60	No. 80	No. 120	No. 170	No. 200	No. 230
100.0	100.0	100.0	100.0	99.9	99.7	99.6	99.1	97.9	95.6	90.5	81.7	67.9	52.2	47.2	42.8

					VISUALL	Y ESTIMA	TED SHEL	L CONTENT (percent)
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	Shell Content <5% (Amount not visually estimated)

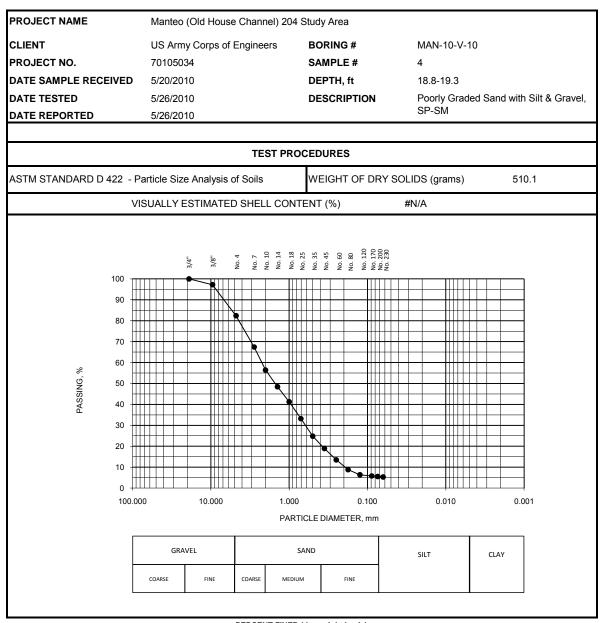




						PERCEN	Γ FINER (α	Iry weight	basis)						
	GRAVEL		COAR	SE SAND		MEDIU	M SAND				FINE	SAND			SILT / CLAY
3/4"	3/8"	No. 4	No. 7	No. 10	No. 14	No. 18	No. 25	No. 35	No. 45	No. 60	No. 80	No. 120	No. 170	No. 200	No. 230
100.0	100.0	100.0	99.8	99.4	98.5	96.4	93.2	86.8	73.6	24.3	10.9	7.5	6.2	5.8	5.5

					VISUALL	Y ESTIMA	TED SHEL	L CONTENT (percent)
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	Shell Content <5% (Amount not visually estimated)

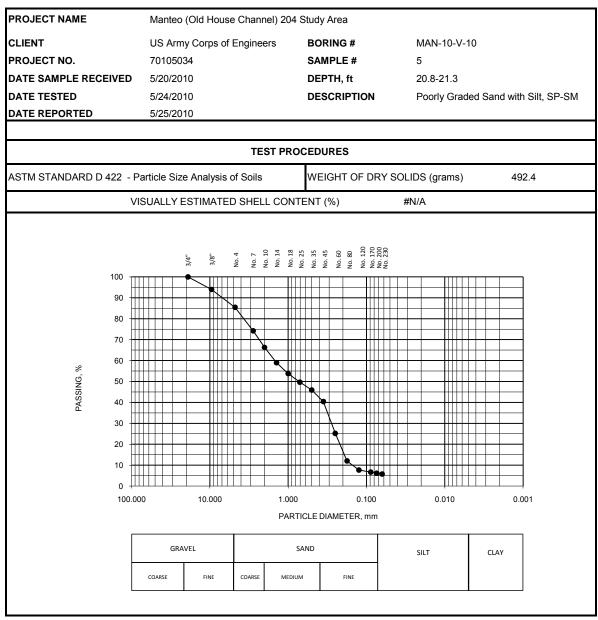




						PERCEN	r finer (c	Iry weight	basis)						
	GRAVEL		COAR	SE SAND		MEDIU	M SAND				FINE	SAND			SILT / CLAY
3/4"	3/8"	No. 4	No. 7	No. 10	No. 14	No. 18	No. 25	No. 35	No. 45	No. 60	No. 80	No. 120	No. 170	No. 200	No. 230
100.0	97.2	82.4	67.4	56.4	48.4	41.3	33.2	24.8	18.9	13.5	8.8	6.4	5.8	5.5	5.3

					VISUALL	Y ESTIMA	TED SHEL	L CONTENT (percent)
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	Shell Content <5% (Amount not visually estimated)

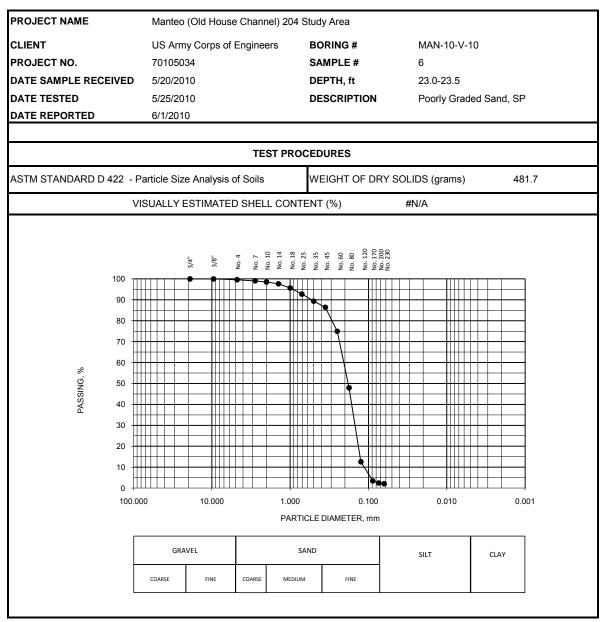




						PERCEN	T FINER (c	Iry weight	basis)						
	GRAVEL		COAR	SE SAND		MEDIU	M SAND				FINE	SAND			SILT / CLAY
3/4"	3/8"	No. 4	No. 7	No. 10	No. 14	No. 18	No. 25	No. 35	No. 45	No. 60	No. 80	No. 120	No. 170	No. 200	No. 230
100.0	94.0	85.4	74.2	66.3	59.0	53.8	49.7	45.9	40.4	25.2	12.0	7.7	6.7	6.2	5.8

					VISUALL	Y ESTIMA	TED SHEL	L CONTENT (percent)
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	Shell Content <5% (Amount not visually estimated)

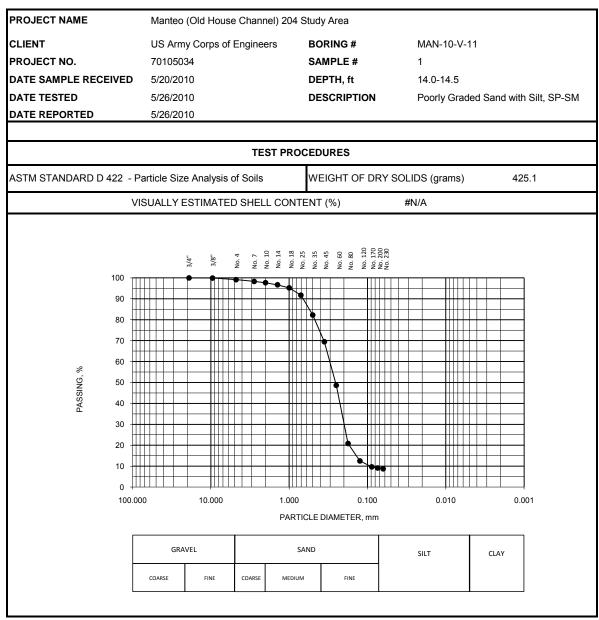




							PERCEN	「FINER (c	Iry weight	basis)						
I		GRAVEL		COAR	SE SAND		MEDIU	M SAND				FINE	SAND			SILT / CLAY
ſ	3/4"	3/8"	No. 4	No. 7	No. 10	No. 14	No. 18	No. 25	No. 35	No. 45	No. 60	No. 80	No. 120	No. 170	No. 200	No. 230
	100.0	100.0	99.6	99.0	98.5	97.6	95.6	92.7	89.4	86.3	74.9	48.0	12.6	3.4	2.4	2.1

					VISUALL	Y ESTIMA	TED SHEL	L CONTENT (percent)
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	Shell Content <5% (Amount not visually estimated)

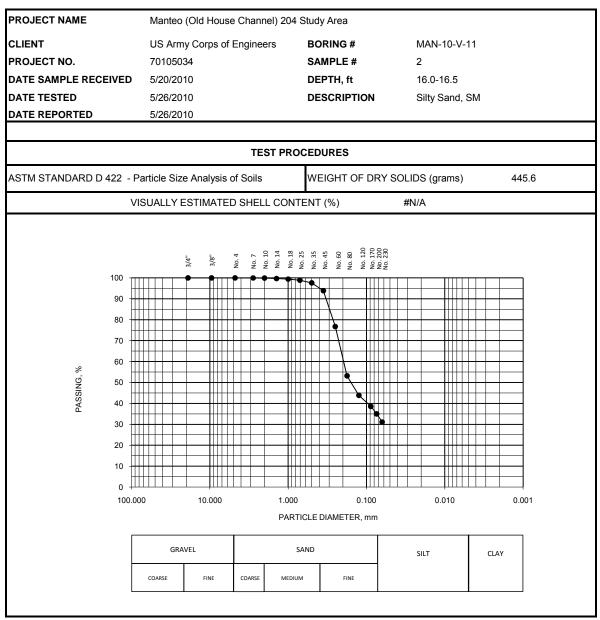




-							PERCEN	T FINER (c	Iry weight	basis)						
		GRAVEL		COAR	SE SAND		MEDIU	M SAND				FINE	SAND			SILT / CLAY
	3/4"	3/8"	No. 4	No. 7	No. 10	No. 14	No. 18	No. 25	No. 35	No. 45	No. 60	No. 80	No. 120	No. 170	No. 200	No. 230
	100.0	99.9	99.2	98.3	97.6	96.7	95.2	91.7	82.2	69.5	48.6	20.8	12.5	9.6	9.1	8.8

					VISUALL	Y ESTIMA	TED SHEL	L CONTENT (percent)
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	Shell Content <5% (Amount not visually estimated)

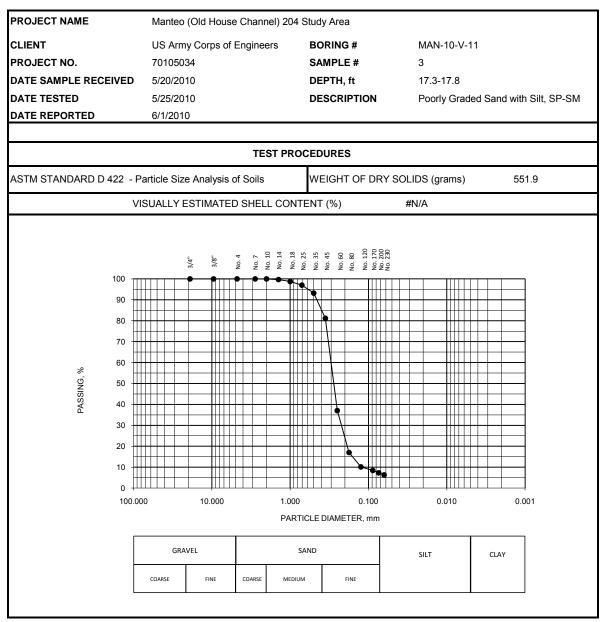




_							PERCEN	T FINER (c	Iry weight	basis)						
		GRAVEL		COAR	SE SAND		MEDIUM SAND					FINE	SAND			SILT / CLAY
	3/4"	3/8"	No. 4	No. 7	No. 10	No. 14	No. 18	No. 25	No. 35	No. 45	No. 60	No. 80	No. 120	No. 170	No. 200	No. 230
	100.0	100.0	100.0	99.9	99.9	99.7	99.4	98.9	97.6	93.9	76.7	53.1	43.9	38.6	35.0	31.1

					VISUALL	Y ESTIMA	TED SHEL	L CONTENT (percent)
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	Shell Content <5% (Amount not visually estimated)

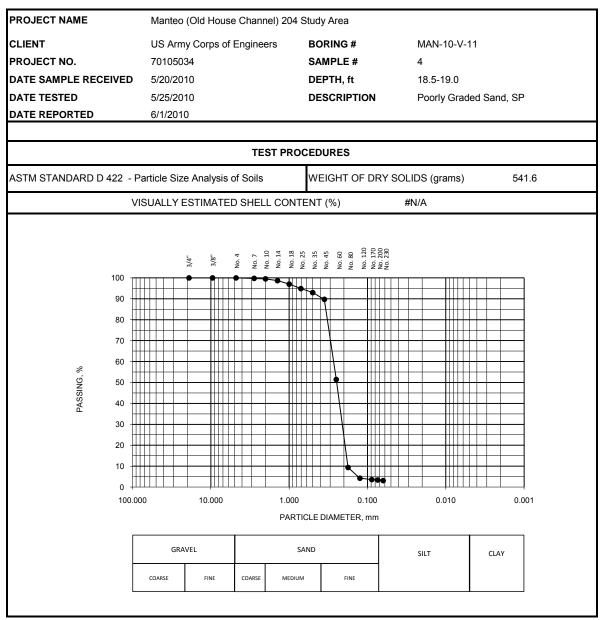




						PERCEN	T FINER (c	Iry weight	basis)						
	GRAVEL		COAR	SE SAND		MEDIU	M SAND				FINE	SAND			SILT / CLAY
3/4"	3/8"	No. 4	No. 7	No. 10	No. 14	No. 18	No. 25	No. 35	No. 45	No. 60	No. 80	No. 120	No. 170	No. 200	No. 230
100.0	100.0	100.0	100.0	99.9	99.7	98.8	97.0	93.2	81.1	37.1	17.0	10.1	8.4	7.3	6.3

					VISUALL	Y ESTIMA	TED SHEL	L CONTENT (percent)
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	Shell Content <5% (Amount not visually estimated)

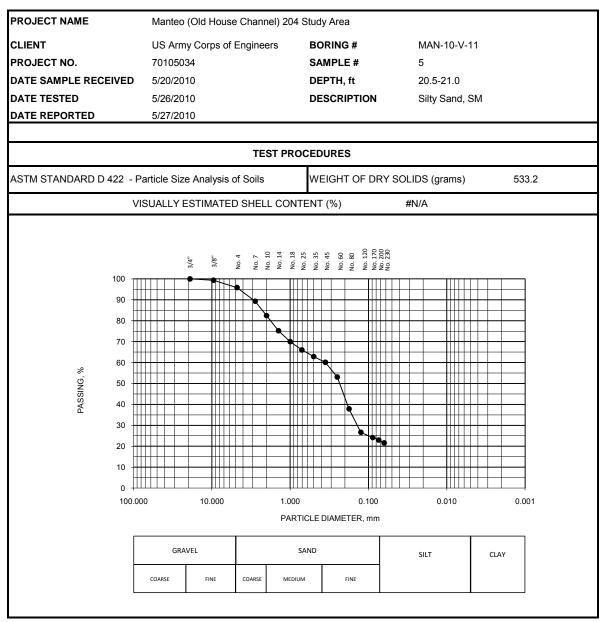




-							PERCEN	T FINER (c	Iry weight	basis)						
		GRAVEL		COAR	SE SAND		MEDIU	M SAND				FINE	SAND			SILT / CLAY
Γ	3/4"	3/8"	No. 4	No. 7	No. 10	No. 14	No. 18	No. 25	No. 35	No. 45	No. 60	No. 80	No. 120	No. 170	No. 200	No. 230
	100.0	100.0	100.0	99.7	99.5	98.7	97.0	94.9	92.9	89.7	51.4	9.4	4.2	3.6	3.4	3.1

					VISUALL	Y ESTIMA	TED SHEL	L CONTENT (percent)
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	Shell Content <5% (Amount not visually estimated)

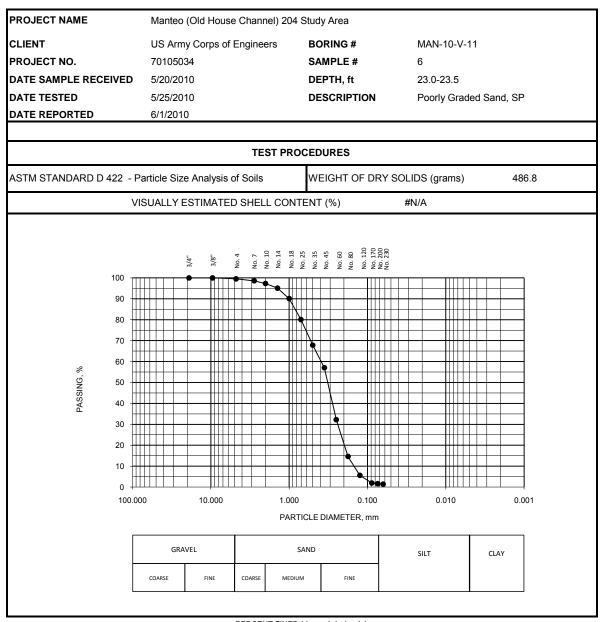




	PERCENT FINER (dry weight basis)														
	GRAVEL		COAR	SE SAND		MEDIUM SAND					FINE	SAND			SILT / CLAY
3/4"	3/8"	No. 4	No. 7	No. 10	No. 14	No. 18	No. 25	No. 35	No. 45	No. 60	No. 80	No. 120	No. 170	No. 200	No. 230
100.0	99.3	95.8	89.3	82.4	75.2	70.0	66.0	62.8	60.1	53.1	37.8	26.6	24.2	23.0	21.6

					VISUALL	Y ESTIMA	TED SHEL	L CONTENT (percent)
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	Shell Content <5% (Amount not visually estimated)

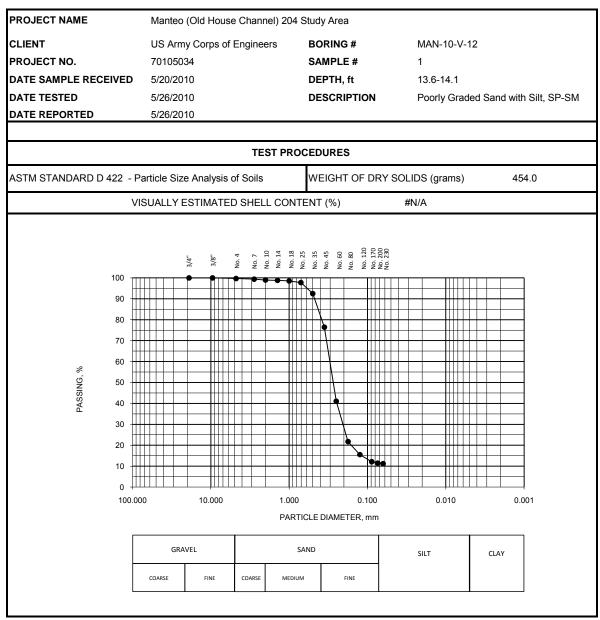




						PERCEN	T FINER (c	Iry weight	basis)						
	GRAVEL		COAR	SE SAND		MEDIU	M SAND				FINE	SAND			SILT / CLAY
3/4"	3/8"	No. 4	No. 7	No. 10	No. 14	No. 18	No. 25	No. 35	No. 45	No. 60	No. 80	No. 120	No. 170	No. 200	No. 230
100.0	100.0	99.5	98.6	97.3	95.1	90.1	80.1	67.8	57.1	32.2	14.6	5.6	2.0	1.6	1.4

					VISUALL	Y ESTIMA	TED SHEL	L CONTENT (percent)
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	Shell Content <5% (Amount not visually estimated)

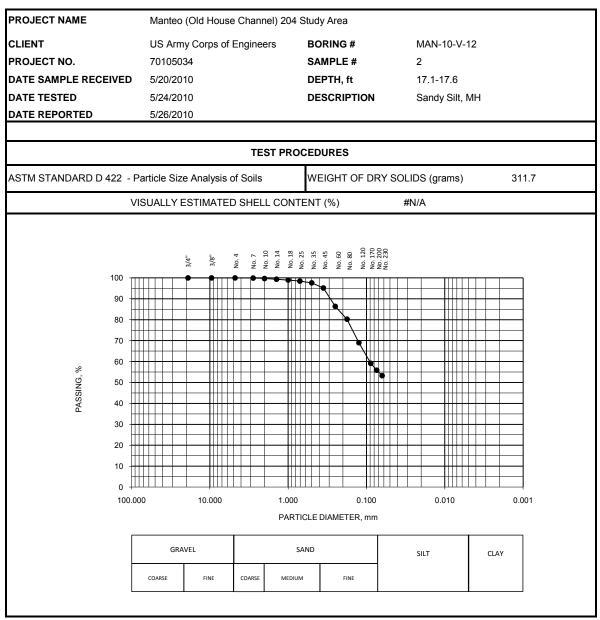




-						PERCEN	T FINER (c	Iry weight	basis)						
	GRAVEL		COAR	SE SAND		MEDIU	M SAND				FINE	SAND			SILT / CLAY
3/4"	3/8"	No. 4	No. 7	No. 10	No. 14	No. 18	No. 25	No. 35	No. 45	No. 60	No. 80	No. 120	No. 170	No. 200	No. 230
100.0	100.0	99.7	99.4	99.0	98.8	98.5	97.8	92.5	76.4	41.0	21.7	15.5	12.1	11.5	11.2

					VISUALL	Y ESTIMA	TED SHEL	L CONTENT (percent)
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	Shell Content <5% (Amount not visually estimated)

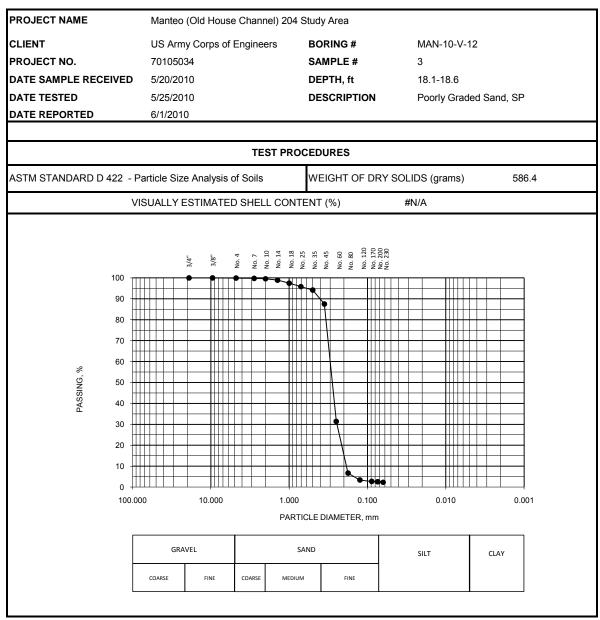




						PERCEN	T FINER (c	dry weight	basis)						
	GRAVEL		COAR	SE SAND		MEDIU	M SAND				FINE	SAND			SILT / CLAY
3/4"	3/8"	No. 4	No. 7	No. 10	No. 14	No. 18	No. 25	No. 35	No. 45	No. 60	No. 80	No. 120	No. 170	No. 200	No. 230
100.0	100.0	100.0	99.9	99.7	99.4	98.9	98.5	97.6	95.2	86.3	80.2	69.0	59.1	55.9	53.3

					VISUALL	Y ESTIMA	TED SHEL	L CONTENT (percent)
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	Shell Content <5% (Amount not visually estimated)

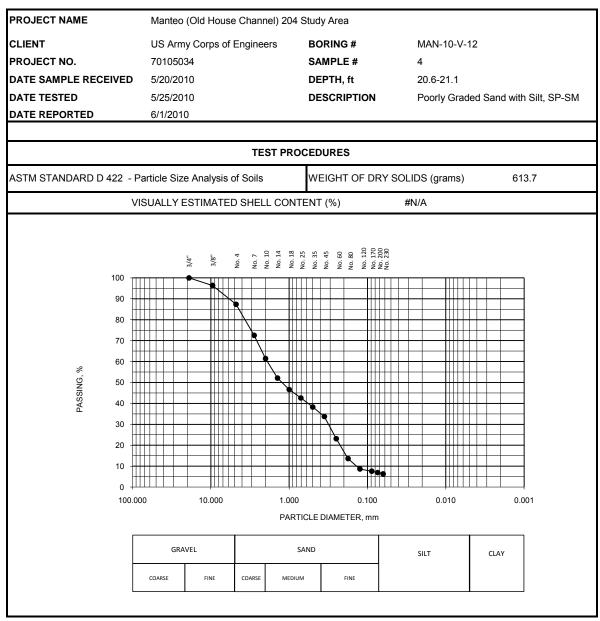




-							PERCEN	T FINER (c	Iry weight	basis)						
		GRAVEL		COAR	SE SAND		MEDIU	M SAND				FINE	SAND			SILT / CLAY
	3/4"	3/8"	No. 4	No. 7	No. 10	No. 14	No. 18	No. 25	No. 35	No. 45	No. 60	No. 80	No. 120	No. 170	No. 200	No. 230
	100.0	100.0	99.9	99.8	99.6	98.9	97.5	95.8	94.1	87.5	31.4	6.7	3.4	2.7	2.5	2.3

					VISUALL	Y ESTIMA	TED SHEL	L CONTENT (percent)
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	Shell Content <5% (Amount not visually estimated)

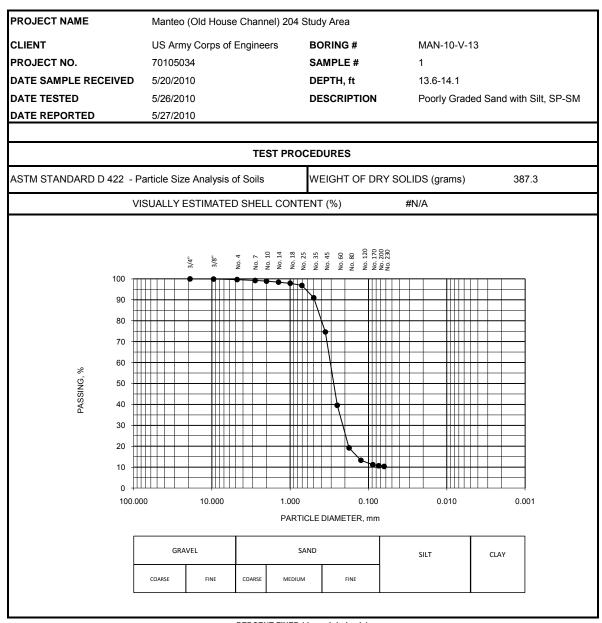




						PERCEN	T FINER (c	Iry weight	basis)						
	GRAVEL		COAR	SE SAND		MEDIU	M SAND				FINE	SAND			SILT / CLAY
3/4"	3/8"	No. 4	No. 7	No. 10	No. 14	No. 18	No. 25	No. 35	No. 45	No. 60	No. 80	No. 120	No. 170	No. 200	No. 230
100.0	96.4	87.4	72.5	61.4	52.1	46.6	42.6	38.3	33.7	23.1	13.6	8.6	7.6	6.9	6.3

					VISUALL	Y ESTIMA	TED SHEL	L CONTENT (percent)
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	Shell Content <5% (Amount not visually estimated)

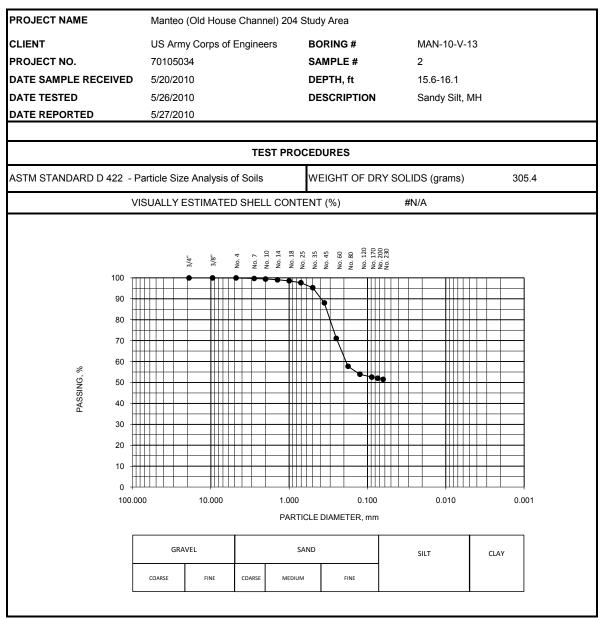




						PERCEN	r FINER (d	lry weight	basis)						
	GRAVEL		COAR	SE SAND		MEDIU	M SAND				FINE	SAND			SILT / CLAY
3/4"	3/8"	No. 4	No. 7	No. 10	No. 14	No. 18	No. 25	No. 35	No. 45	No. 60	No. 80	No. 120	No. 170	No. 200	No. 230
100.0	99.9	99.6	99.2	98.9	98.4	97.9	96.8	90.9	74.6	39.6	19.2	13.3	11.2	10.6	10.3

					VISUALL	Y ESTIMA	TED SHEL	L CONTENT (percent)
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	Shell Content <5% (Amount not visually estimated)

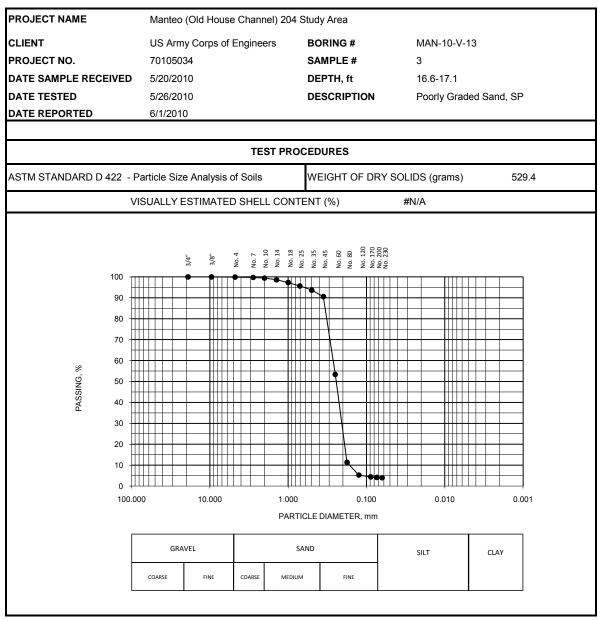




							PERCEN	T FINER (c	Iry weight	basis)						
		GRAVEL		COAR	SE SAND		MEDIU	M SAND				FINE	SAND			SILT / CLAY
3	/4"	3/8"	No. 4	No. 7	No. 10	No. 14	No. 18	No. 25	No. 35	No. 45	No. 60	No. 80	No. 120	No. 170	No. 200	No. 230
10	0.00	100.0	100.0	99.7	99.4	99.1	98.6	97.7	95.3	88.0	71.1	57.7	53.9	52.6	52.0	51.5

					VISUALL	Y ESTIMA	TED SHEL	L CONTENT (percent)
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	Shell Content <5% (Amount not visually estimated)

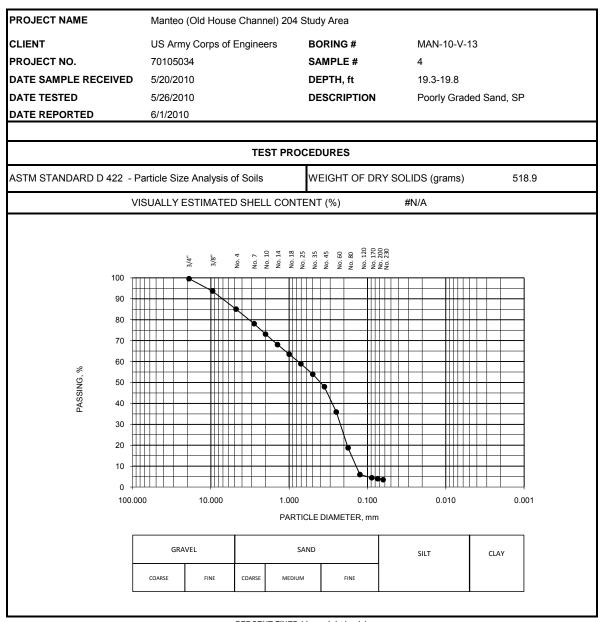




						PERCEN	T FINER (c	Iry weight	basis)						
	GRAVEL		COAR	SE SAND		MEDIU	M SAND				FINE	SAND			SILT / CLAY
3/4"	3/8"	No. 4	No. 7	No. 10	No. 14	No. 18	No. 25	No. 35	No. 45	No. 60	No. 80	No. 120	No. 170	No. 200	No. 230
100.0	100.0	99.9	99.7	99.4	98.6	97.3	95.6	93.6	90.5	53.4	11.3	5.3	4.4	4.1	4.0

					VISUALL	Y ESTIMA	TED SHEL	L CONTENT (percent)
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	Shell Content <5% (Amount not visually estimated)

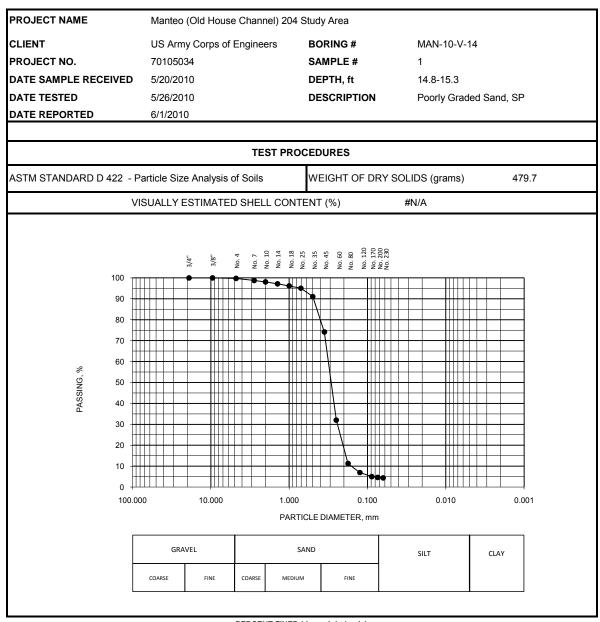




						PERCEN	T FINER (c	Iry weight	basis)						
	GRAVEL		COAR	SE SAND		MEDIU	M SAND				FINE	SAND			SILT / CLAY
3/4"	3/8"	No. 4	No. 7	No. 10	No. 14	No. 18	No. 25	No. 35	No. 45	No. 60	No. 80	No. 120	No. 170	No. 200	No. 230
99.6	93.7	85.0	78.1	73.1	68.1	63.5	58.9	53.9	48.0	35.9	18.8	6.0	4.4	4.0	3.5

					VISUALL	Y ESTIMA	TED SHEL	L CONTENT (percent)
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	Shell Content <5% (Amount not visually estimated)

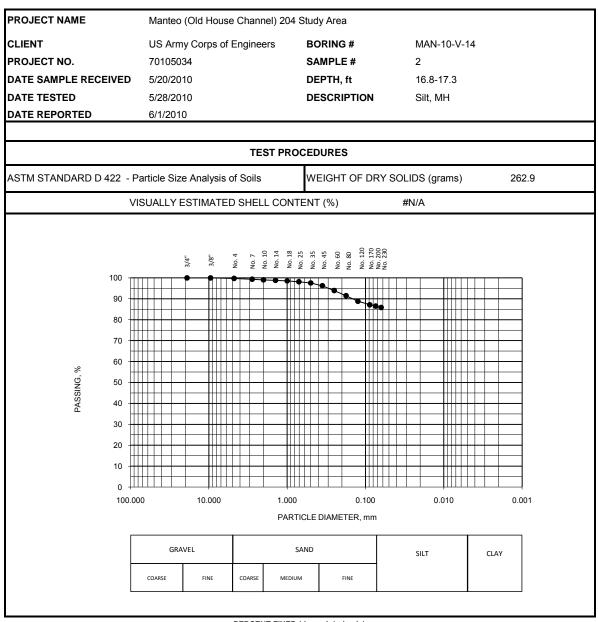




						PERCEN	Γ FINER (α	Iry weight	basis)						
	GRAVEL		COAR	SE SAND		MEDIU	M SAND				FINE	SAND			SILT / CLAY
3/4"	3/8"	No. 4	No. 7	No. 10	No. 14	No. 18	No. 25	No. 35	No. 45	No. 60	No. 80	No. 120	No. 170	No. 200	No. 230
100.0	100.0	99.7	98.8	98.0	97.2	96.1	95.0	91.1	74.1	32.0	11.3	6.9	5.0	4.6	4.4

					VISUALL	Y ESTIMA	TED SHEL	L CONTENT (percent)
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	Shell Content <5% (Amount not visually estimated)

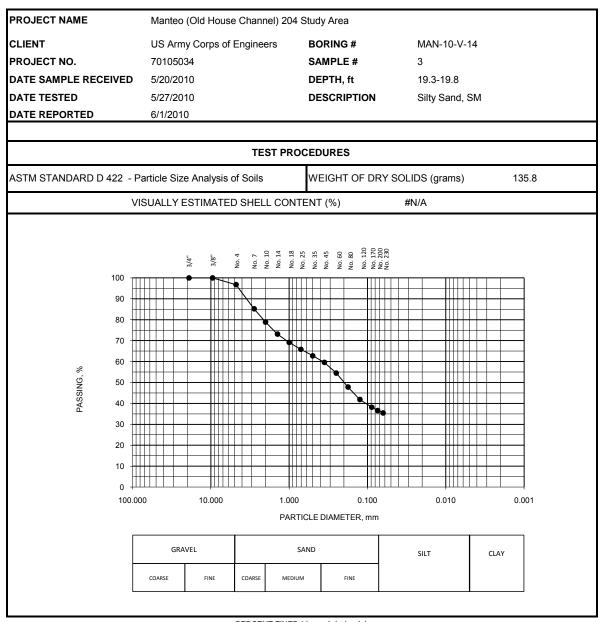




						PERCEN	T FINER (c	iry weight	basis)						
	GRAVEL		COAR	SE SAND		MEDIU	M SAND				FINE	SAND			SILT / CLAY
3/4"	3/8"	No. 4	No. 7	No. 10	No. 14	No. 18	No. 25	No. 35	No. 45	No. 60	No. 80	No. 120	No. 170	No. 200	No. 230
100.0	100.0	99.7	99.4	99.0	98.8	98.6	98.1	97.6	96.2	93.9	91.5	88.8	87.1	86.5	85.8

					VISUALL	Y ESTIMA	TED SHEL	L CONTENT (percent)
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	Shell Content <5% (Amount not visually estimated)

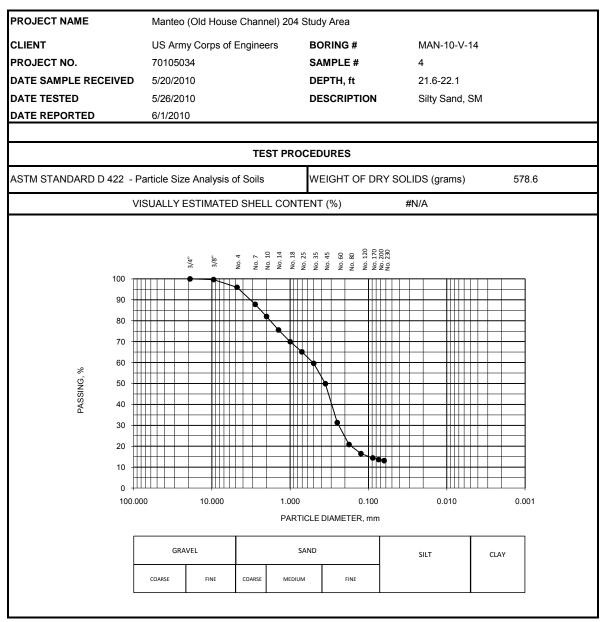




						PERCEN	T FINER (c	Iry weight	basis)						
	GRAVEL		COAR	SE SAND		MEDIU	M SAND				FINE	SAND			SILT / CLAY
3/4"	3/8"	No. 4	No. 7	No. 10	No. 14	No. 18	No. 25	No. 35	No. 45	No. 60	No. 80	No. 120	No. 170	No. 200	No. 230
100.0	100.0	96.8	85.2	78.9	73.1	69.1	65.8	62.7	59.6	54.5	47.8	41.8	38.1	36.6	35.4

					VISUALL	Y ESTIMA	TED SHEL	L CONTENT (percent)
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	Shell Content <5% (Amount not visually estimated)

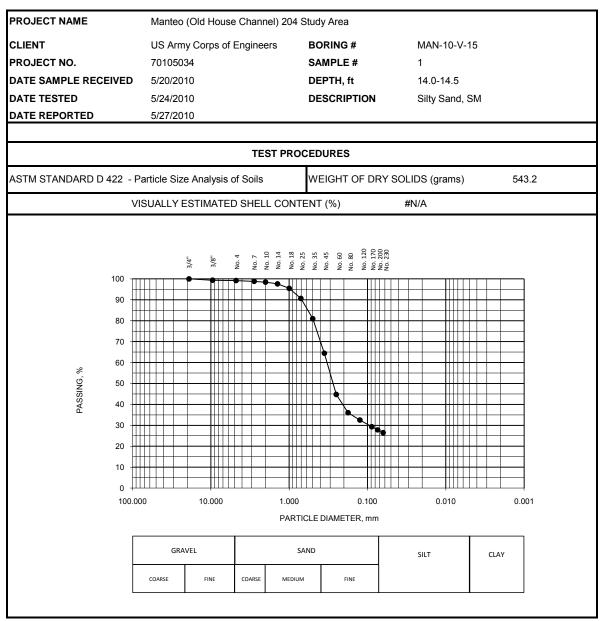




						PERCEN	Γ FINER (c	Iry weight	basis)						
	GRAVEL		COAR	SE SAND		MEDIU	M SAND				FINE	SAND			SILT / CLAY
3/4"	3/8"	No. 4	No. 7	No. 10	No. 14	No. 18	No. 25	No. 35	No. 45	No. 60	No. 80	No. 120	No. 170	No. 200	No. 230
100.0	99.7	96.0	87.8	82.0	75.6	70.0	65.1	59.6	49.9	31.3	20.8	16.5	14.4	13.6	13.1

					VISUALL	Y ESTIMA	TED SHEL	L CONTENT (percent)
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	Shell Content <5% (Amount not visually estimated)

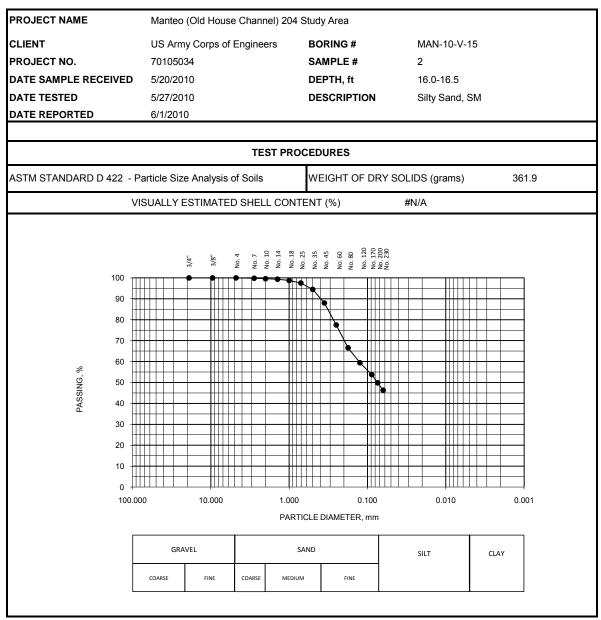




-							PERCEN	T FINER (c	Iry weight	basis)						
		GRAVEL		COAR	SE SAND		MEDIU	M SAND				FINE	SAND			SILT / CLAY
	3/4"	3/8"	No. 4	No. 7	No. 10	No. 14	No. 18	No. 25	No. 35	No. 45	No. 60	No. 80	No. 120	No. 170	No. 200	No. 230
	100.0	99.3	99.2	98.8	98.4	97.6	95.5	90.6	80.9	64.5	44.7	36.1	32.5	29.3	27.8	26.5

					VISUALL	Y ESTIMA	TED SHEL	L CONTENT (percent)
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	Shell Content <5% (Amount not visually estimated)

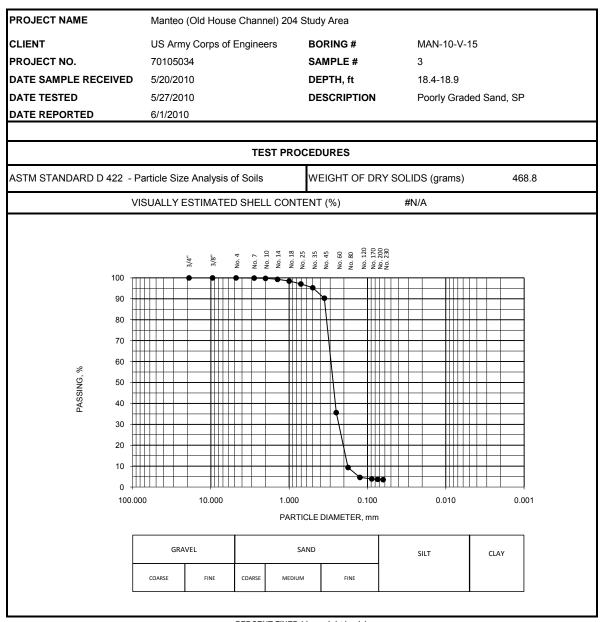




							PERCEN	T FINER (c	dry weight	basis)						
		GRAVEL		COAR	SE SAND		MEDIU	M SAND				FINE	SAND			SILT / CLAY
ſ	3/4"	3/8"	No. 4	No. 7	No. 10	No. 14	No. 18	No. 25	No. 35	No. 45	No. 60	No. 80	No. 120	No. 170	No. 200	No. 230
	100.0	100.0	100.0	99.8	99.6	99.3	98.8	97.5	94.4	88.0	77.5	66.6	59.5	53.7	49.8	46.3

					VISUALL	Y ESTIMA	TED SHEL	L CONTENT (percent)
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	Shell Content <5% (Amount not visually estimated)

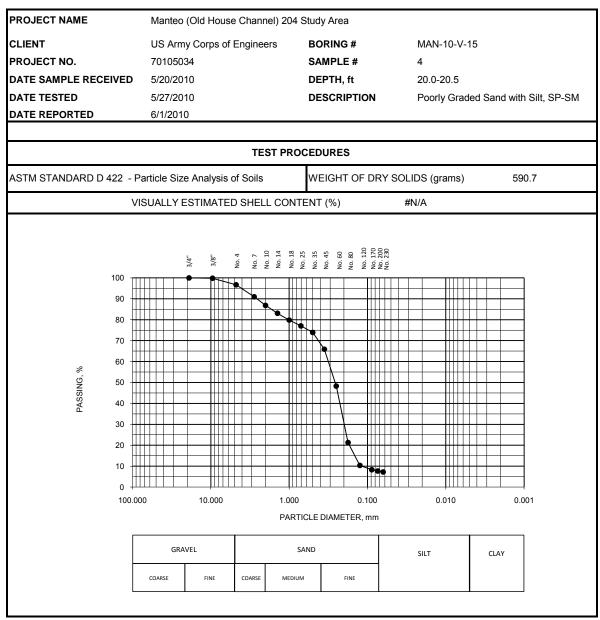




							PERCEN	r finer (c	Iry weight	basis)						
		GRAVEL		COAR	SE SAND		MEDIU	M SAND				FINE	SAND			SILT / CLAY
ſ	3/4"	3/8"	No. 4	No. 7	No. 10	No. 14	No. 18	No. 25	No. 35	No. 45	No. 60	No. 80	No. 120	No. 170	No. 200	No. 230
ĺ	100.0	100.0	100.0	99.9	99.8	99.3	98.4	97.1	95.3	90.2	35.6	9.4	4.6	3.9	3.7	3.5

					VISUALL	Y ESTIMA	TED SHEL	L CONTENT (percent)
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	Shell Content <5% (Amount not visually estimated)

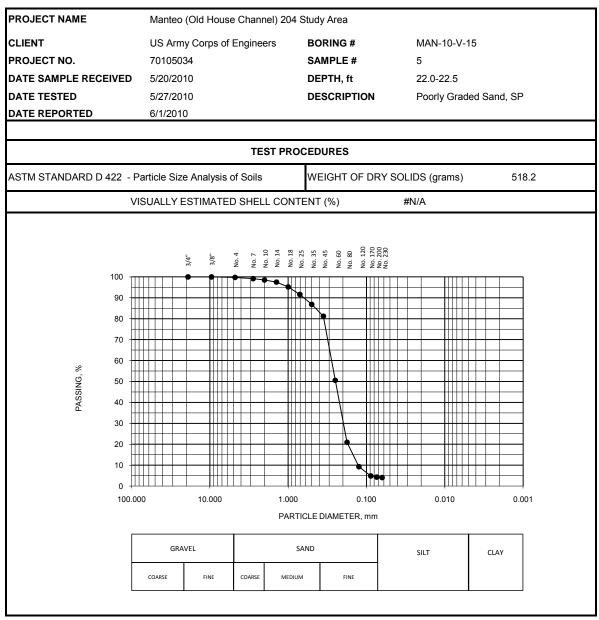




							PERCEN	Γ FINER (α	Iry weight	basis)						
		GRAVEL		COAR	SE SAND		MEDIU	M SAND				FINE	SAND			SILT / CLAY
3/4	/4"	3/8"	No. 4	No. 7	No. 10	No. 14	No. 18	No. 25	No. 35	No. 45	No. 60	No. 80	No. 120	No. 170	No. 200	No. 230
100	0.0	99.8	96.7	91.0	86.8	83.1	79.8	77.1	73.9	65.9	48.3	21.3	10.3	8.3	7.7	7.2

					VISUALL	Y ESTIMA	TED SHEL	L CONTENT (percent)
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	Shell Content <5% (Amount not visually estimated)

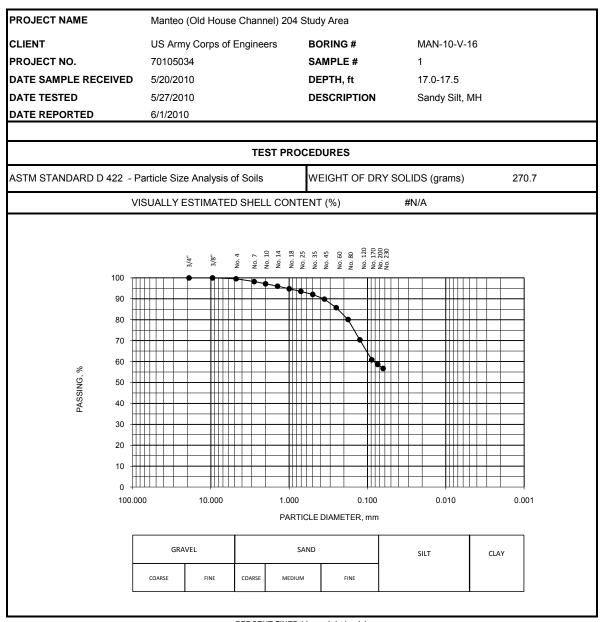




						PERCEN	T FINER (c	dry weight	basis)						
	GRAVEL		COAR	SE SAND		MEDIU	M SAND				FINE	SAND			SILT / CLAY
3/4"	3/8"	No. 4	No. 7	No. 10	No. 14	No. 18	No. 25	No. 35	No. 45	No. 60	No. 80	No. 120	No. 170	No. 200	No. 230
100.0	100.0	99.7	99.2	98.5	97.5	95.2	91.5	86.8	81.2	50.5	20.9	9.3	4.8	4.3	4.1

					VISUALL	Y ESTIMA	TED SHEL	L CONTENT (percent)
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	Shell Content <5% (Amount not visually estimated)

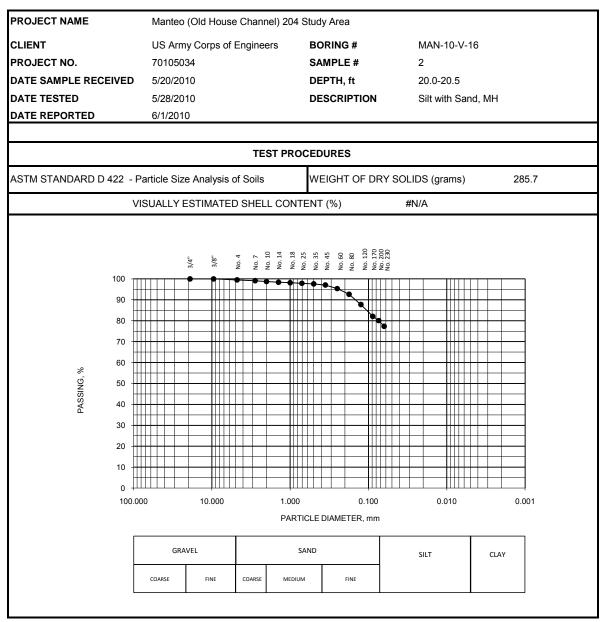




						PERCEN	Γ FINER (α	lry weight	basis)						
	GRAVEL		COAR	SE SAND		MEDIU	M SAND				FINE	SAND			SILT / CLAY
3/4"	3/8"	No. 4	No. 7	No. 10	No. 14	No. 18	No. 25	No. 35	No. 45	No. 60	No. 80	No. 120	No. 170	No. 200	No. 230
100.0	100.0	99.6	98.2	97.2	96.0	94.8	93.5	92.1	89.8	85.7	80.1	70.4	60.8	58.6	56.7

					VISUALL	Y ESTIMA	TED SHEL	L CONTENT (percent)
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	Shell Content <5% (Amount not visually estimated)

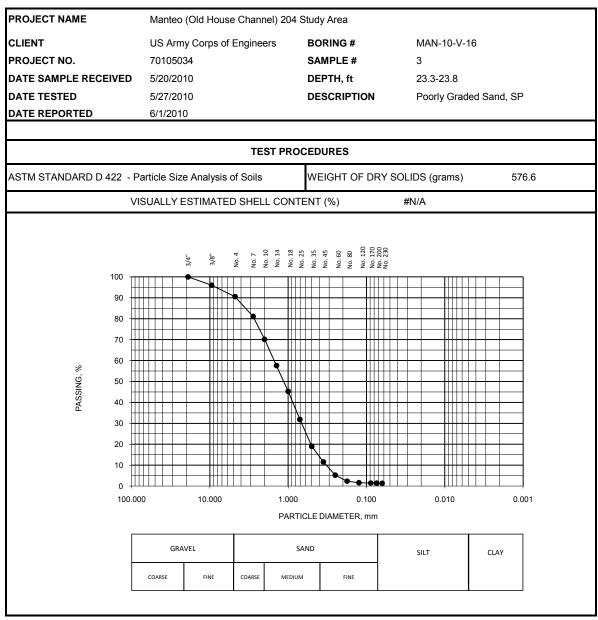




						PERCEN	Γ FINER (c	Iry weight	basis)						
	GRAVEL		COAR	SE SAND		MEDIU	M SAND				FINE	SAND			SILT / CLAY
3/4"	3/8"	No. 4	No. 7	No. 10	No. 14	No. 18	No. 25	No. 35	No. 45	No. 60	No. 80	No. 120	No. 170	No. 200	No. 230
100.0	100.0	99.5	99.1	98.7	98.4	98.1	97.9	97.6	97.1	95.3	92.6	87.7	82.1	80.0	77.3

					VISUALL	Y ESTIMA	TED SHEL	L CONTENT (percent)
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	Shell Content <5% (Amount not visually estimated)

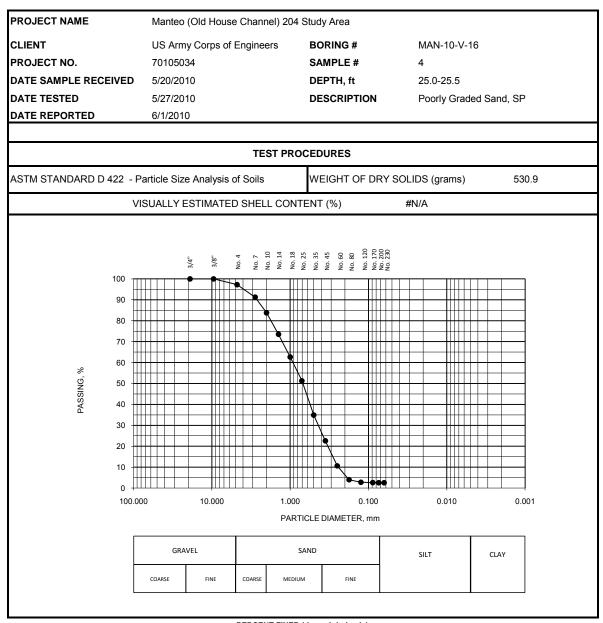




						PERCEN	T FINER (c	dry weight	basis)						
	GRAVEL		COAR	SE SAND		MEDIU	M SAND				FINE	SAND			SILT / CLAY
3/4"	3/8"	No. 4	No. 7	No. 10	No. 14	No. 18	No. 25	No. 35	No. 45	No. 60	No. 80	No. 120	No. 170	No. 200	No. 230
100.0	96.0	90.6	81.1	70.2	57.6	45.3	31.8	19.0	11.6	5.2	2.4	1.6	1.4	1.4	1.3

					VISUALL	Y ESTIMA	TED SHEL	L CONTENT (percent)
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	Shell Content <5% (Amount not visually estimated)

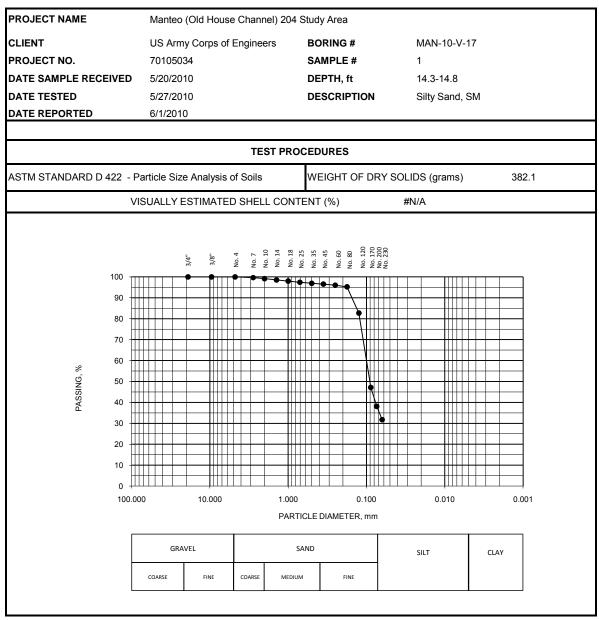




						PERCEN	Γ FINER (α	Iry weight	basis)						
	GRAVEL		COAR	SE SAND		MEDIU	M SAND				FINE	SAND			SILT / CLAY
3/4"	3/8"	No. 4	No. 7	No. 10	No. 14	No. 18	No. 25	No. 35	No. 45	No. 60	No. 80	No. 120	No. 170	No. 200	No. 230
100.0	100.0	97.2	91.2	83.8	73.5	62.7	51.3	34.9	22.6	10.6	4.0	2.8	2.6	2.6	2.5

					VISUALL	Y ESTIMA	TED SHEL	L CONTENT (percent)
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	Shell Content <5% (Amount not visually estimated)

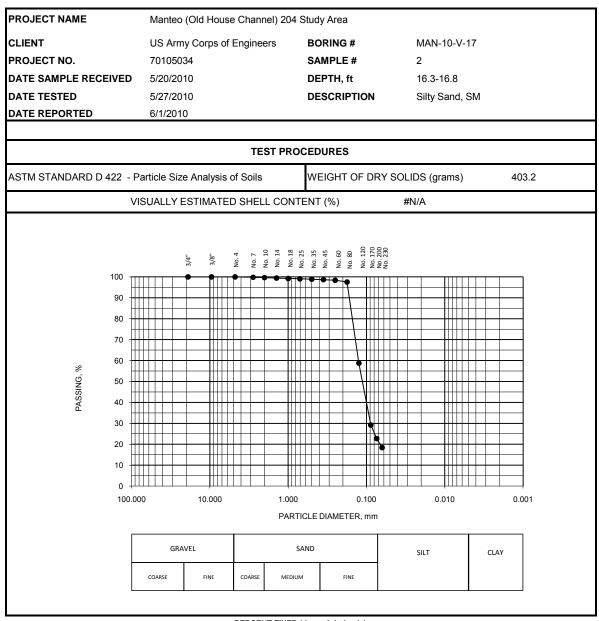




						PERCEN	T FINER (c	Iry weight	basis)						
	GRAVEL		COAR	SE SAND		MEDIU	M SAND				FINE	SAND			SILT / CLAY
3/4"	3/8"	No. 4	No. 7	No. 10	No. 14	No. 18	No. 25	No. 35	No. 45	No. 60	No. 80	No. 120	No. 170	No. 200	No. 230
100.0	100.0	100.0	99.6	99.1	98.5	98.0	97.4	96.9	96.5	96.0	95.2	82.7	47.1	38.1	31.7

					VISUALL	Y ESTIMA	TED SHEL	L CONTENT (percent)
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	Shell Content <5% (Amount not visually estimated)

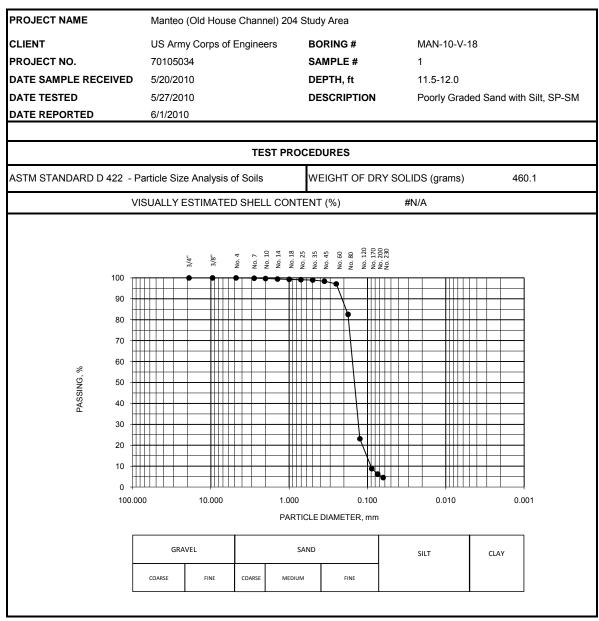




						PERCEN	T FINER (c	dry weight	basis)						
	GRAVEL		COAR	SE SAND		MEDIU	M SAND				FINE	SAND			SILT / CLAY
3/4"	3/8"	No. 4	No. 7	No. 10	No. 14	No. 18	No. 25	No. 35	No. 45	No. 60	No. 80	No. 120	No. 170	No. 200	No. 230
100.0	100.0	100.0	99.8	99.6	99.4	99.2	99.1	98.9	98.7	98.4	97.5	58.7	29.2	22.7	18.4

					VISUALL	Y ESTIMA	TED SHEL	L CONTENT (percent)
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	Shell Content <5% (Amount not visually estimated)

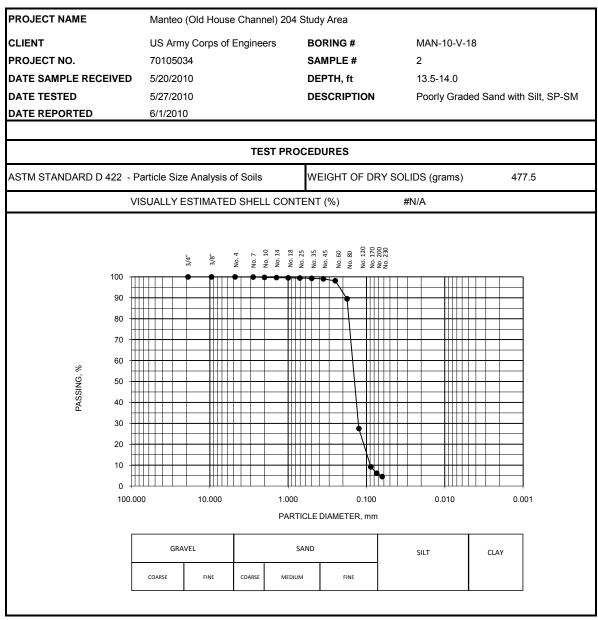




						PERCEN	T FINER (c	Iry weight	basis)						
	GRAVEL		COAR	SE SAND		MEDIU	M SAND				FINE	SAND			SILT / CLAY
3/4"	3/8"	No. 4	No. 7	No. 10	No. 14	No. 18	No. 25	No. 35	No. 45	No. 60	No. 80	No. 120	No. 170	No. 200	No. 230
100.0	100.0	100.0	99.8	99.7	99.5	99.3	99.1	98.9	98.4	97.1	82.5	23.1	8.8	6.2	4.6

					VISUALL	Y ESTIMA	TED SHEL	L CONTENT (percent)
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	Shell Content <5% (Amount not visually estimated)

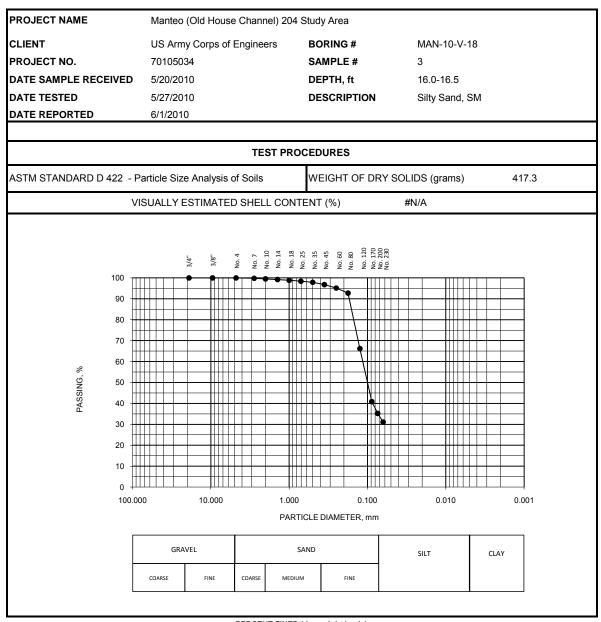




						PERCEN	Γ FINER (α	Iry weight	basis)						
	GRAVEL		COAR	SE SAND		MEDIU	M SAND				FINE	SAND			SILT / CLAY
3/4"	3/8"	No. 4	No. 7	No. 10	No. 14	No. 18	No. 25	No. 35	No. 45	No. 60	No. 80	No. 120	No. 170	No. 200	No. 230
100.0	100.0	100.0	99.9	99.8	99.6	99.5	99.4	99.3	99.0	98.1	89.5	27.5	9.2	6.2	4.5

					VISUALL	Y ESTIMA	TED SHEL	L CONTENT (percent)
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	Shell Content <5% (Amount not visually estimated)

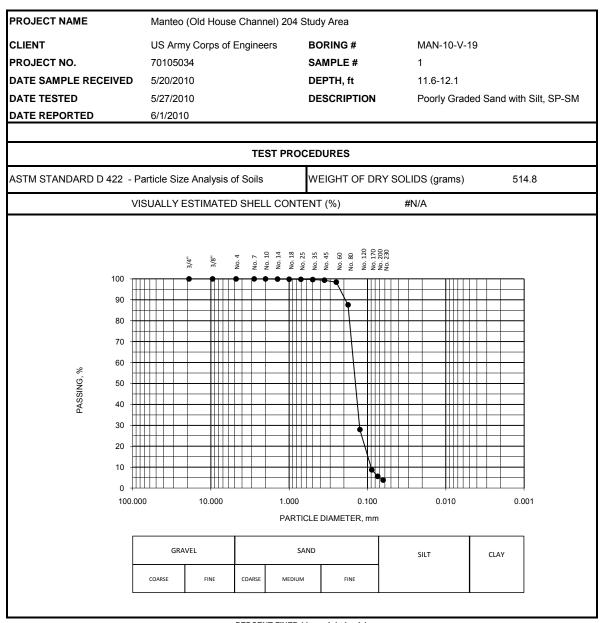




						PERCEN	Γ FINER (α	Iry weight	basis)						
	GRAVEL		COAR	SE SAND		MEDIU	M SAND				FINE	SAND			SILT / CLAY
3/4"	3/8"	No. 4	No. 7	No. 10	No. 14	No. 18	No. 25	No. 35	No. 45	No. 60	No. 80	No. 120	No. 170	No. 200	No. 230
100.0	100.0	100.0	99.8	99.5	99.2	98.8	98.4	97.9	96.8	95.1	92.7	66.2	40.9	35.2	31.1

					VISUALL	Y ESTIMA	TED SHEL	L CONTENT (percent)
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	Shell Content <5% (Amount not visually estimated)

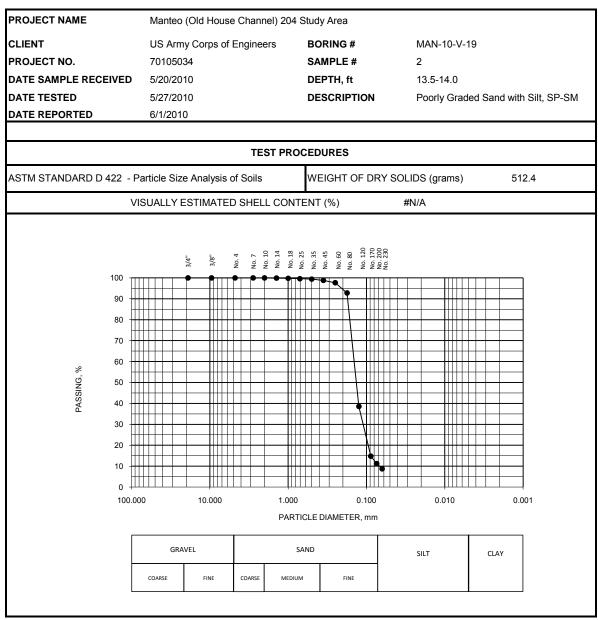




						PERCEN	r FINER (d	lry weight	basis)						
	GRAVEL		COAR	SE SAND		MEDIU	M SAND				FINE	SAND			SILT / CLAY
3/4"	3/8"	No. 4	No. 7	No. 10	No. 14	No. 18	No. 25	No. 35	No. 45	No. 60	No. 80	No. 120	No. 170	No. 200	No. 230
100.0	100.0	100.0	100.0	99.9	99.9	99.8	99.8	99.7	99.4	98.4	87.6	28.0	8.7	5.6	3.9

					VISUALL	Y ESTIMA	TED SHEL	L CONTENT (percent)
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	Shell Content <5% (Amount not visually estimated)

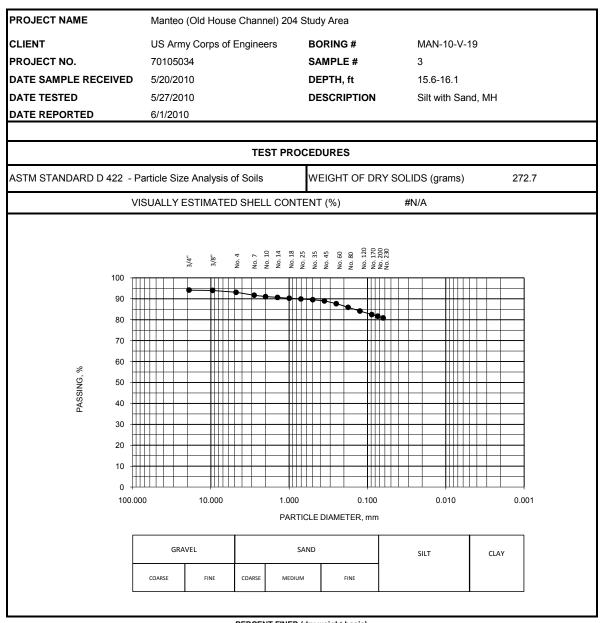




_							PERCEN	T FINER (c	Iry weight	basis)						
		GRAVEL		COAR	SE SAND		MEDIU	M SAND				FINE	SAND			SILT / CLAY
3/4	4"	3/8"	No. 4	No. 7	No. 10	No. 14	No. 18	No. 25	No. 35	No. 45	No. 60	No. 80	No. 120	No. 170	No. 200	No. 230
100	0.0	100.0	100.0	100.0	99.9	99.9	99.8	99.6	99.4	98.8	97.7	92.8	38.6	14.8	11.2	8.7

					VISUALL	Y ESTIMA	TED SHEL	L CONTENT (percent)
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	Shell Content <5% (Amount not visually estimated)

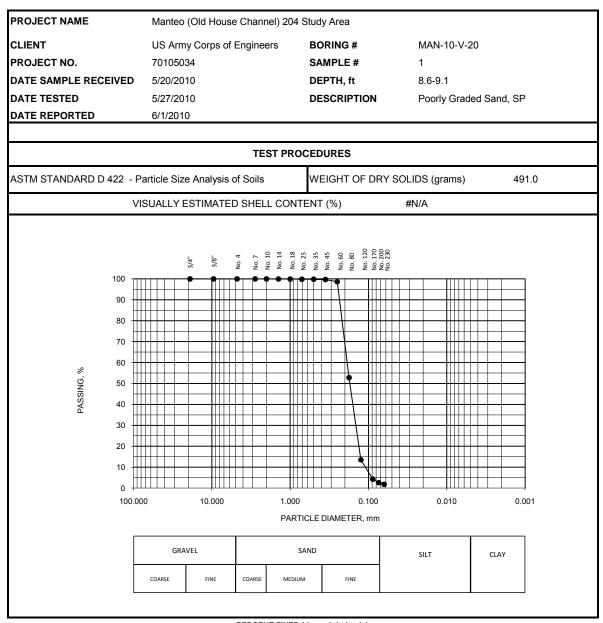




							PERCEN	I FINER (C	iry weight	basis)						
		GRAVEL		COAR	SE SAND		MEDIUM SAND					FINE	SAND			SILT / CLAY
ſ	3/4"	3/8"	No. 4	No. 7	No. 10	No. 14	No. 18	No. 25	No. 35	No. 45	No. 60	No. 80	No. 120	No. 170	No. 200	No. 230
ĺ	94.1	94.0	93.1	91.7	91.1	90.6	90.2	89.9	89.5	89.0	87.7	85.9	84.2	82.4	81.7	80.9

					VISUALL	Y ESTIMA	TED SHEL	L CONTENT (percent)
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	Shell Content <5% (Amount not visually estimated)

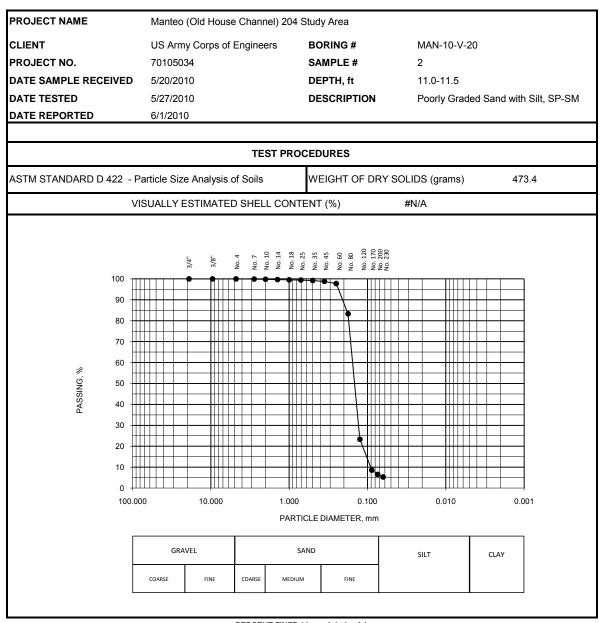




						PERCEN	Γ FINER (α	Iry weight	basis)						
	GRAVEL		COAR	SE SAND		MEDIU	M SAND				FINE	SAND			SILT / CLAY
3/4"	3/8"	No. 4	No. 7	No. 10	No. 14	No. 18	No. 25	No. 35	No. 45	No. 60	No. 80	No. 120	No. 170	No. 200	No. 230
100.0	100.0	100.0	100.0	100.0	99.9	99.9	99.8	99.8	99.7	98.6	52.8	13.5	4.3	2.6	1.8

					VISUALL	Y ESTIMA	TED SHEL	L CONTENT (percent)
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	Shell Content <5% (Amount not visually estimated)

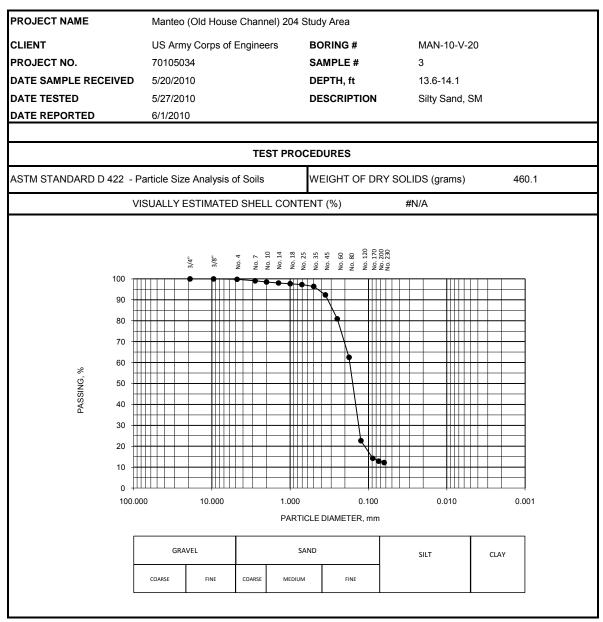




						PERCEN	T FINER (c	lry weight	basis)						
	GRAVEL		COAR	SE SAND		MEDIU	M SAND				FINE	SAND			SILT / CLAY
3/4"	3/8"	No. 4	No. 7	No. 10	No. 14	No. 18	No. 25	No. 35	No. 45	No. 60	No. 80	No. 120	No. 170	No. 200	No. 230
100.0	100.0	100.0	99.9	99.8	99.7	99.5	99.4	99.2	98.8	97.7	83.3	23.3	8.6	6.5	5.3

					VISUALL	Y ESTIMA	TED SHEL	L CONTENT (percent)
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	Shell Content <5% (Amount not visually estimated)

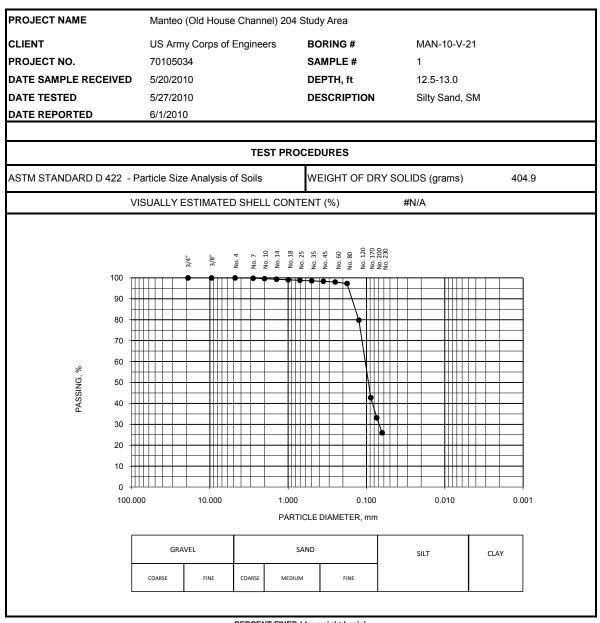




							PERCEN	Γ FINER (c	Iry weight	basis)						
		GRAVEL		COAR	SE SAND		MEDIU	M SAND				FINE	SAND			SILT / CLAY
	3/4"	3/8"	No. 4	No. 7	No. 10	No. 14	No. 18	No. 25	No. 35	No. 45	No. 60	No. 80	No. 120	No. 170	No. 200	No. 230
I	100.0	100.0	99.8	99.1	98.5	98.0	97.7	97.3	96.3	92.3	80.9	62.5	22.7	14.2	12.9	12.2

					VISUALL	Y ESTIMA	TED SHEL	L CONTENT (percent)
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	Shell Content <5% (Amount not visually estimated)

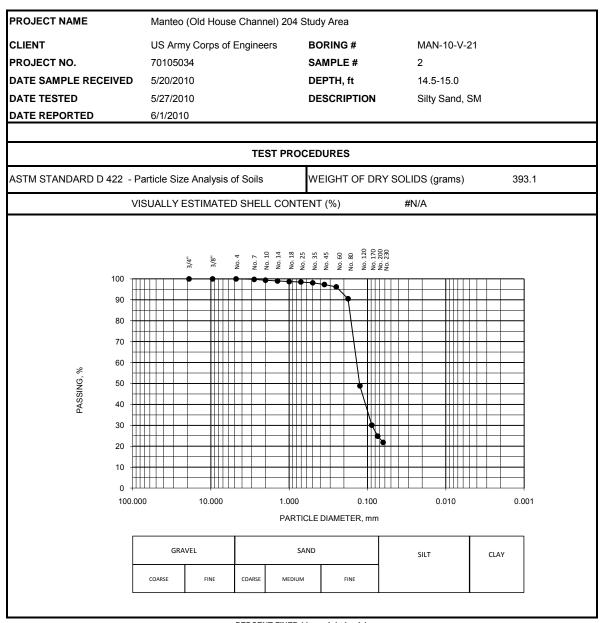




						PERCEN	I FINER (C	iry weight	basis)						
	GRAVEL		COAR	SE SAND		MEDIUM SAND					FINE	SAND			SILT / CLAY
3/4"	3/8"	No. 4	No. 7	No. 10	No. 14	No. 18	No. 25	No. 35	No. 45	No. 60	No. 80	No. 120	No. 170	No. 200	No. 230
100.0	100.0	100.0	99.8	99.6	99.3	99.1	98.8	98.6	98.3	98.0	97.3	79.8	42.8	33.1	26.0

					VISUALL	Y ESTIMA	TED SHEL	L CONTENT (percent)
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	Shell Content <5% (Amount not visually estimated)

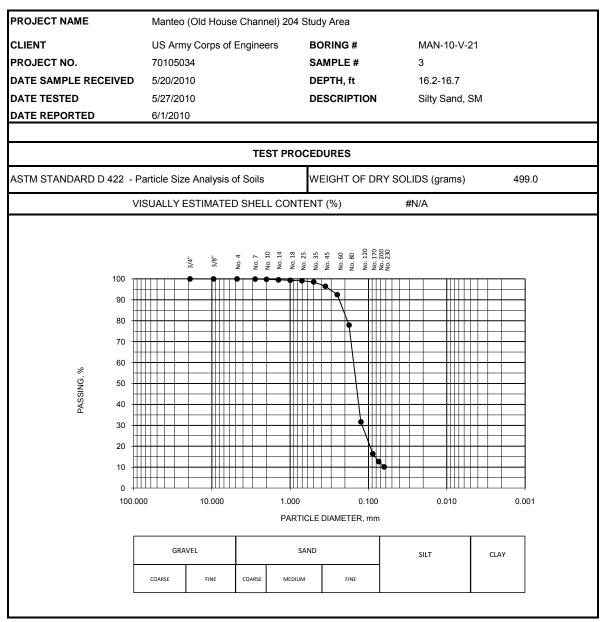




						PERCEN	Γ FINER (α	Iry weight	basis)						
	GRAVEL		COAR	SE SAND		MEDIU	M SAND				FINE	SAND			SILT / CLAY
3/4"	3/8"	No. 4	No. 7	No. 10	No. 14	No. 18	No. 25	No. 35	No. 45	No. 60	No. 80	No. 120	No. 170	No. 200	No. 230
100.0	100.0	100.0	99.7	99.3	99.0	98.7	98.5	98.1	97.3	96.1	90.5	48.9	30.1	24.8	21.8

					VISUALL	Y ESTIMA	TED SHEL	L CONTENT (percent)
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	Shell Content <5% (Amount not visually estimated)

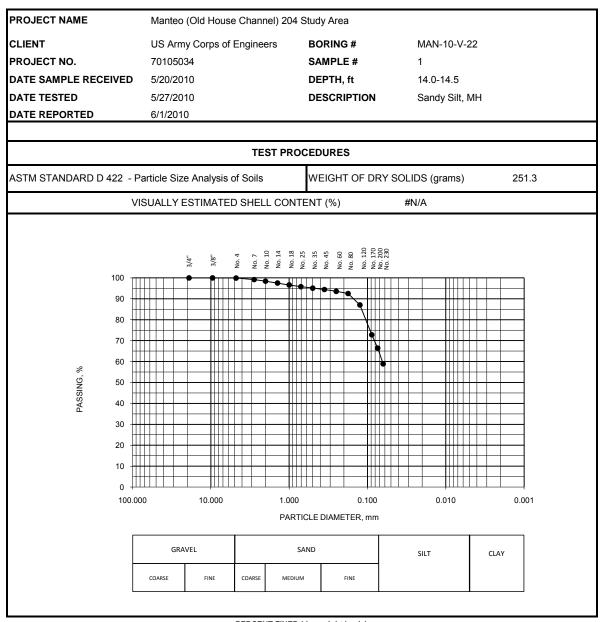




							PERCEN	T FINER (c	Iry weight	basis)						
		GRAVEL		COAR	SE SAND		MEDIU	M SAND				FINE	SAND			SILT / CLAY
ſ	3/4"	3/8"	No. 4	No. 7	No. 10	No. 14	No. 18	No. 25	No. 35	No. 45	No. 60	No. 80	No. 120	No. 170	No. 200	No. 230
ĺ	100.0	100.0	100.0	99.9	99.8	99.5	99.3	99.1	98.5	96.5	92.4	77.9	31.6	16.4	12.7	10.1

					VISUALL	Y ESTIMA	TED SHEL	L CONTENT (percent)
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	Shell Content <5% (Amount not visually estimated)

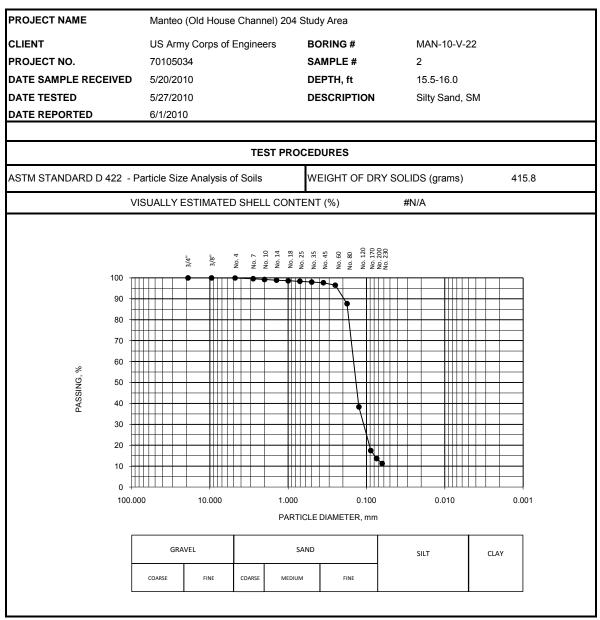




						PERCEN	Γ FINER (α	Iry weight	basis)						
	GRAVEL		COAR	SE SAND		MEDIU	M SAND				FINE	SAND			SILT / CLAY
3/4"	3/8"	No. 4	No. 7	No. 10	No. 14	No. 18	No. 25	No. 35	No. 45	No. 60	No. 80	No. 120	No. 170	No. 200	No. 230
100.0	100.0	99.9	99.2	98.4	97.5	96.6	95.8	95.1	94.4	93.6	92.5	87.1	72.8	66.4	58.9

					VISUALL	Y ESTIMA	TED SHEL	L CONTENT (percent)
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	Shell Content <5% (Amount not visually estimated)

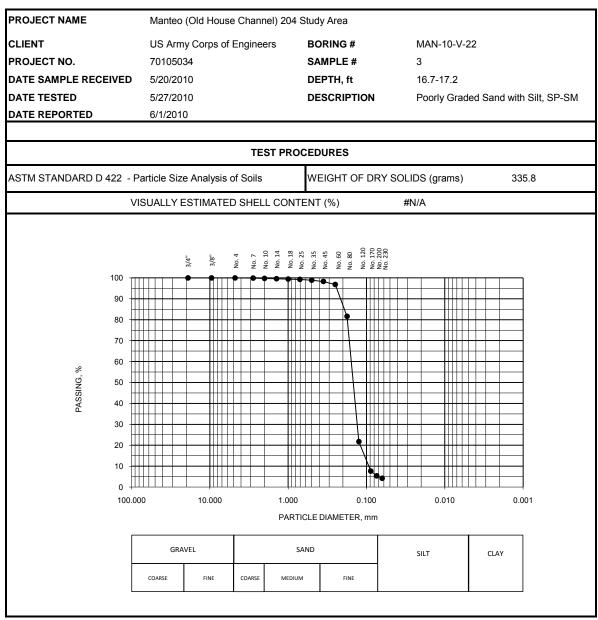




							PERCEN	T FINER (c	Iry weight	basis)						
		GRAVEL		COAR	SE SAND		MEDIU	M SAND				FINE	SAND			SILT / CLAY
	3/4"	3/8"	No. 4	No. 7	No. 10	No. 14	No. 18	No. 25	No. 35	No. 45	No. 60	No. 80	No. 120	No. 170	No. 200	No. 230
1	100.0	100.0	99.9	99.6	99.2	98.9	98.6	98.4	98.0	97.7	96.5	87.6	38.4	17.5	13.7	11.3

					VISUALL	Y ESTIMA	TED SHEL	L CONTENT (percent)
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	Shell Content <5% (Amount not visually estimated)

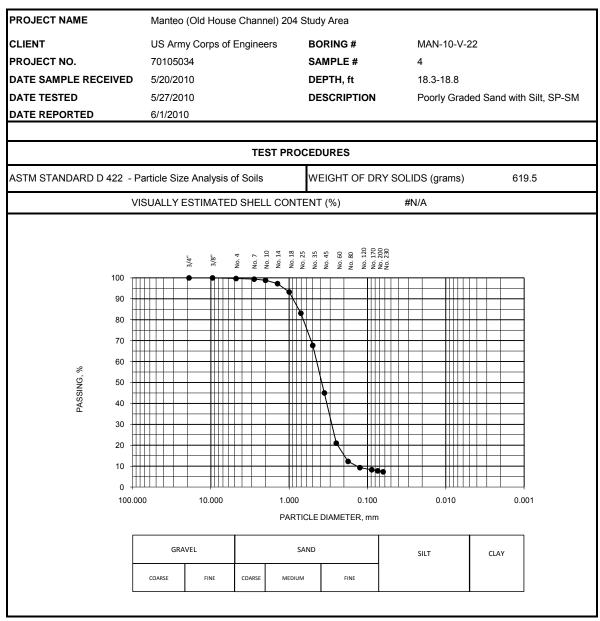




-							PERCEN	T FINER (c	lry weight	basis)						
		GRAVEL		COAR	SE SAND		MEDIU	M SAND				FINE	SAND			SILT / CLAY
3/	/4"	3/8"	No. 4	No. 7	No. 10	No. 14	No. 18	No. 25	No. 35	No. 45	No. 60	No. 80	No. 120	No. 170	No. 200	No. 230
10	0.00	100.0	100.0	99.9	99.7	99.6	99.4	99.3	98.9	98.3	96.8	81.6	21.7	7.7	5.4	4.3

					VISUALL	Y ESTIMA	TED SHEL	L CONTENT (percent)
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	Shell Content <5% (Amount not visually estimated)

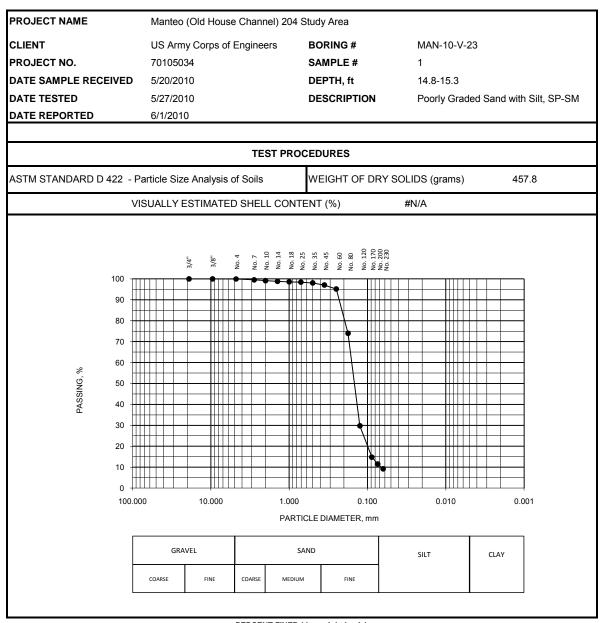




						PERCEN	Γ FINER (α	Iry weight	basis)						
	GRAVEL		COAR	SE SAND		MEDIU	M SAND				FINE	SAND			SILT / CLAY
3/4"	3/8"	No. 4	No. 7	No. 10	No. 14	No. 18	No. 25	No. 35	No. 45	No. 60	No. 80	No. 120	No. 170	No. 200	No. 230
100.0	100.0	99.7	99.4	98.8	97.2	93.3	83.1	67.7	45.0	21.0	12.3	9.3	8.3	7.7	7.3

					VISUALL	Y ESTIMA	TED SHEL	L CONTENT (percent)
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	Shell Content <5% (Amount not visually estimated)

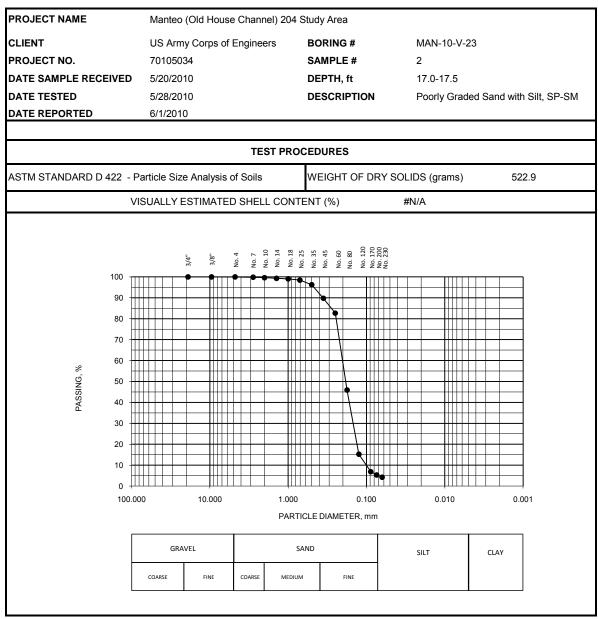




						PERCEN	r finer (c	lry weight	basis)						
	GRAVEL		COAR	SE SAND		MEDIUM SAND					FINE	SAND			SILT / CLAY
3/4"	3/8"	No. 4	No. 7	No. 10	No. 14	No. 18	No. 25	No. 35	No. 45	No. 60	No. 80	No. 120	No. 170	No. 200	No. 230
100.0	100.0	99.9	99.5	99.1	98.8	98.6	98.4	98.1	97.1	95.1	74.0	29.8	14.8	11.5	9.2

					VISUALL	Y ESTIMA	TED SHEL	L CONTENT (percent)
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	Shell Content <5% (Amount not visually estimated)

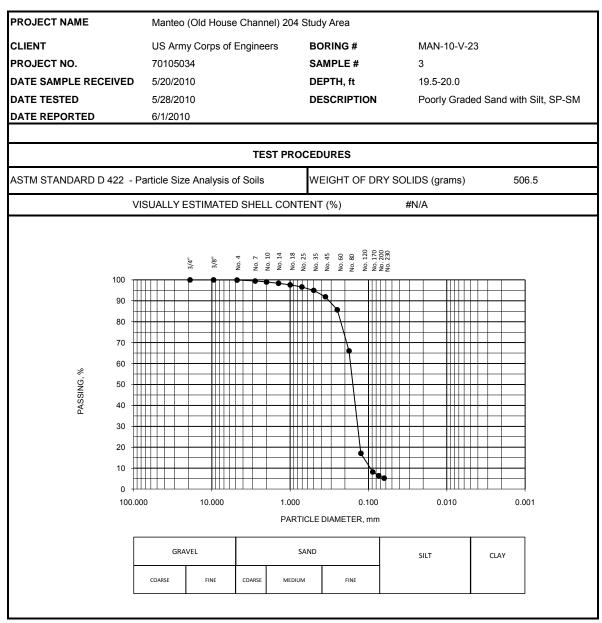




_							PERCEN	T FINER (c	lry weight	basis)						
		GRAVEL		COAR	SE SAND		MEDIU	M SAND				FINE	SAND			SILT / CLAY
3/4	4"	3/8"	No. 4	No. 7	No. 10	No. 14	No. 18	No. 25	No. 35	No. 45	No. 60	No. 80	No. 120	No. 170	No. 200	No. 230
100	0.0	100.0	100.0	99.8	99.6	99.3	99.0	98.5	96.2	89.8	82.7	45.9	15.2	6.9	5.3	4.2

					VISUALL	Y ESTIMA	TED SHEL	L CONTENT (percent)
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	Shell Content <5% (Amount not visually estimated)

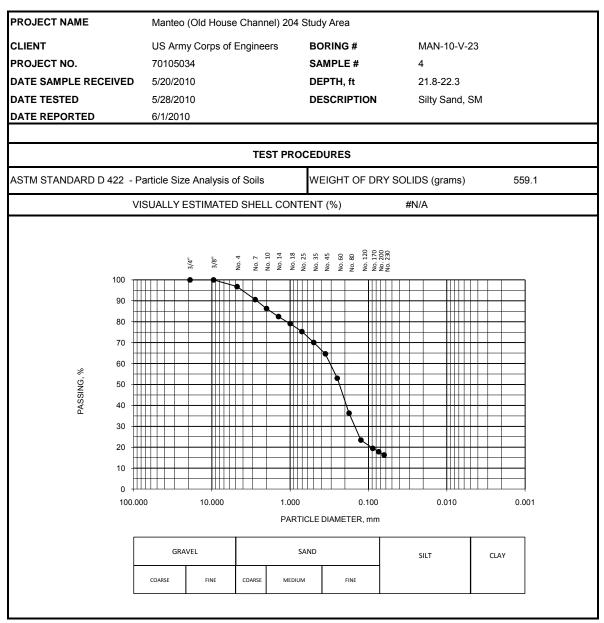




						PERCEN	T FINER (c	Iry weight	basis)						
	GRAVEL		COAR	SE SAND		MEDIU	M SAND				FINE	SAND			SILT / CLAY
3/4"	3/8"	No. 4	No. 7	No. 10	No. 14	No. 18	No. 25	No. 35	No. 45	No. 60	No. 80	No. 120	No. 170	No. 200	No. 230
100.0	100.0	99.9	99.5	99.0	98.4	97.6	96.6	95.0	91.9	85.7	66.1	17.1	8.2	6.4	5.2

					VISUALL	Y ESTIMA	TED SHEL	L CONTENT (percent)
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	Shell Content <5% (Amount not visually estimated)

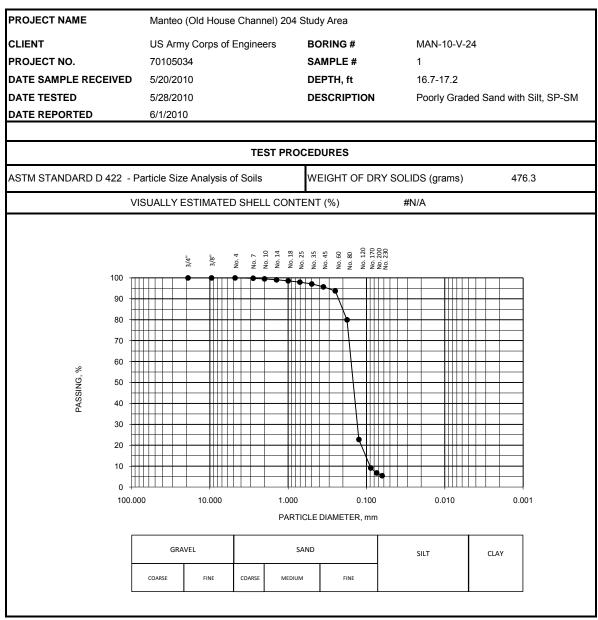




							PERCEN	Γ FINER (c	Iry weight	basis)						
		GRAVEL		COAR	SE SAND		MEDIU	M SAND				FINE	SAND			SILT / CLAY
ſ	3/4"	3/8"	No. 4	No. 7	No. 10	No. 14	No. 18	No. 25	No. 35	No. 45	No. 60	No. 80	No. 120	No. 170	No. 200	No. 230
ĺ	100.0	100.0	96.8	90.6	86.3	82.5	79.1	75.3	70.1	64.6	53.0	36.3	23.4	19.5	17.9	16.3

					VISUALL	Y ESTIMA	TED SHEL	L CONTENT (percent)
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	Shell Content <5% (Amount not visually estimated)

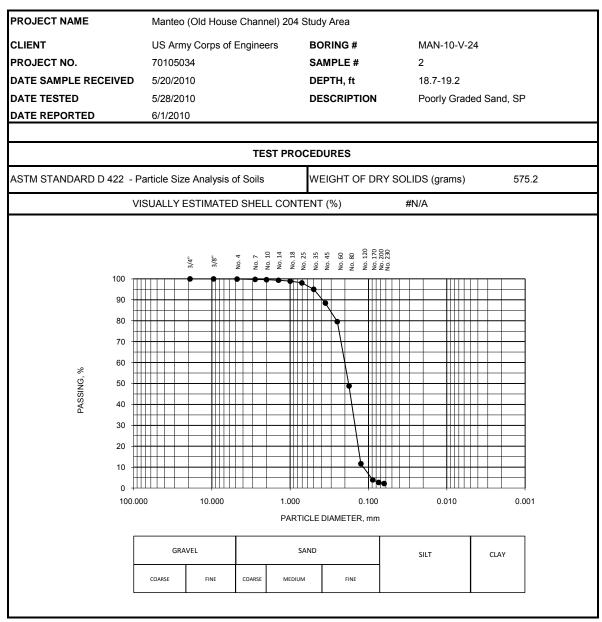




_							PERCEN	T FINER (c	Iry weight	basis)						
		GRAVEL		COAR	SE SAND		MEDIU	M SAND				FINE	SAND			SILT / CLAY
3/4	4"	3/8"	No. 4	No. 7	No. 10	No. 14	No. 18	No. 25	No. 35	No. 45	No. 60	No. 80	No. 120	No. 170	No. 200	No. 230
100	0.0	100.0	100.0	99.8	99.5	99.1	98.6	97.9	97.1	95.7	93.7	79.9	22.8	9.1	6.7	5.4

					VISUALL	Y ESTIMA	TED SHEL	L CONTENT (percent)
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	Shell Content <5% (Amount not visually estimated)

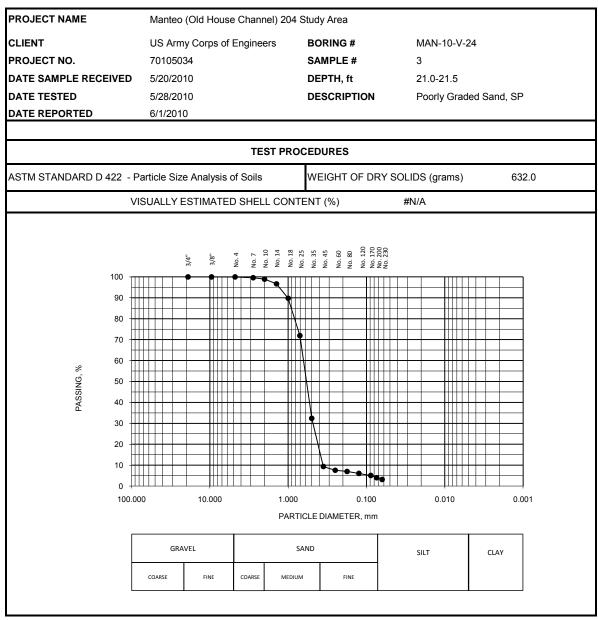




						PERCEN	T FINER (c	Iry weight	basis)						
	GRAVEL		COAR	SE SAND		MEDIU	M SAND				FINE	SAND			SILT / CLAY
3/4"	3/8"	No. 4	No. 7	No. 10	No. 14	No. 18	No. 25	No. 35	No. 45	No. 60	No. 80	No. 120	No. 170	No. 200	No. 230
100.0	100.0	99.9	99.7	99.6	99.3	98.9	98.1	95.0	88.4	79.6	48.8	11.6	3.9	2.7	2.2

					VISUALL	Y ESTIMA	TED SHEL	L CONTENT (percent)
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	Shell Content <5% (Amount not visually estimated)

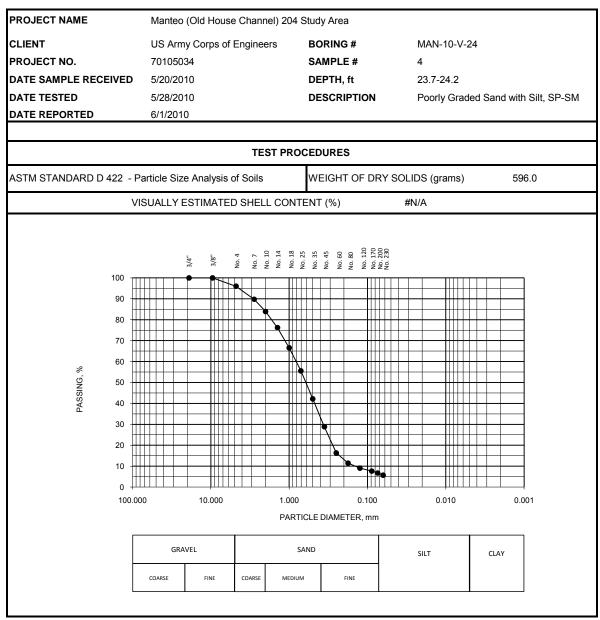




						PERCEN	Γ FINER (c	Iry weight	basis)						
	GRAVEL		COAR	SE SAND		MEDIU	M SAND				FINE	SAND			SILT / CLAY
3/4"	3/8"	No. 4	No. 7	No. 10	No. 14	No. 18	No. 25	No. 35	No. 45	No. 60	No. 80	No. 120	No. 170	No. 200	No. 230
100.0	100.0	100.0	99.6	98.9	96.6	89.8	71.9	32.3	9.3	7.6	7.0	6.1	5.0	4.0	3.1

					VISUALL	Y ESTIMA	TED SHEL	L CONTENT (percent)
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	Shell Content <5% (Amount not visually estimated)

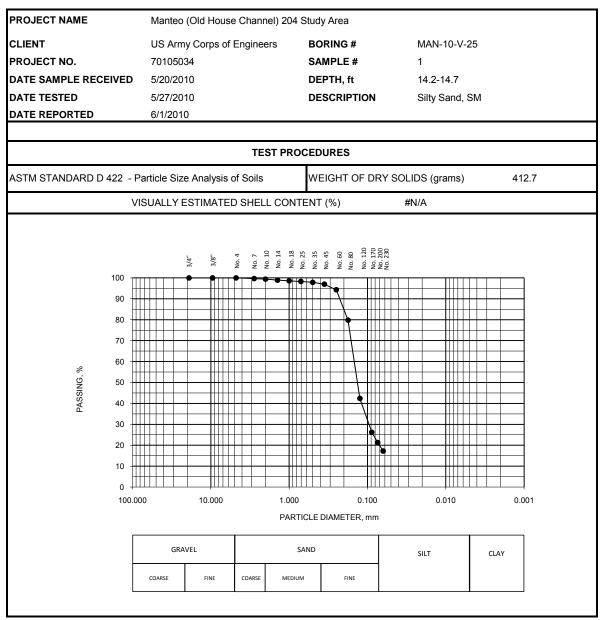




-							PERCEN	T FINER (c	Iry weight	basis)						
		GRAVEL		COAR	SE SAND		MEDIU	M SAND				FINE	SAND			SILT / CLAY
	3/4"	3/8"	No. 4	No. 7	No. 10	No. 14	No. 18	No. 25	No. 35	No. 45	No. 60	No. 80	No. 120	No. 170	No. 200	No. 230
	100.0	100.0	96.0	89.8	83.9	76.2	66.6	55.6	42.1	28.8	16.3	11.4	9.1	7.6	6.7	5.7

					VISUALL	Y ESTIMA	TED SHEL	L CONTENT (percent)
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	Shell Content <5% (Amount not visually estimated)

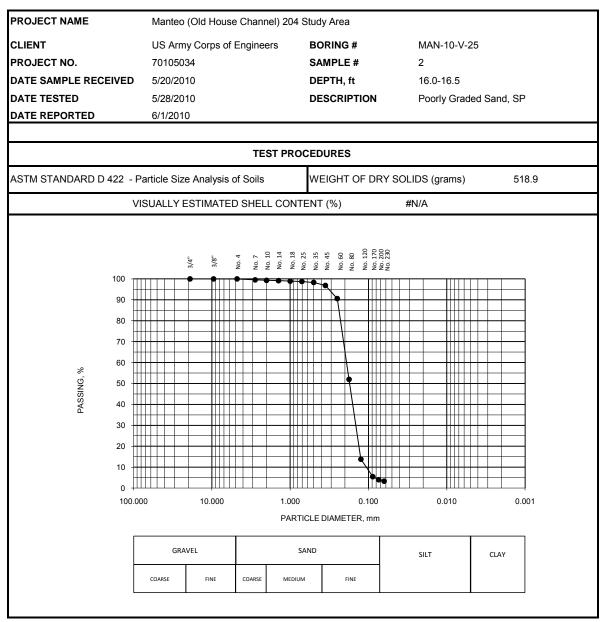




							PERCEN	T FINER (c	dry weight	basis)						
		GRAVEL		COAR	SE SAND		MEDIUM SAND					FINE	SAND			SILT / CLAY
Γ	3/4"	3/8"	No. 4	No. 7	No. 10	No. 14	No. 18	No. 25	No. 35	No. 45	No. 60	No. 80	No. 120	No. 170	No. 200	No. 230
	100.0	100.0	100.0	99.7	99.4	98.9	98.6	98.3	97.8	97.0	94.3	79.8	42.4	26.2	21.3	17.3

					VISUALL	Y ESTIMA	TED SHEL	L CONTENT (percent)
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	Shell Content <5% (Amount not visually estimated)

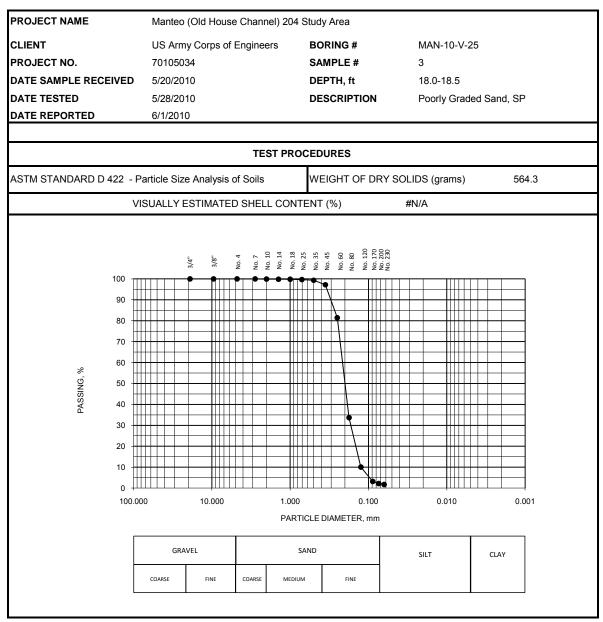




						PERCEN	T FINER (c	Iry weight	basis)						
	GRAVEL		COAR	SE SAND		MEDIU	M SAND				FINE	SAND			SILT / CLAY
3/4"	3/8"	No. 4	No. 7	No. 10	No. 14	No. 18	No. 25	No. 35	No. 45	No. 60	No. 80	No. 120	No. 170	No. 200	No. 230
100.0	100.0	99.9	99.5	99.3	99.1	98.9	98.7	98.3	96.8	90.6	51.9	13.8	5.5	4.0	3.3

					VISUALL	Y ESTIMA	TED SHEL	L CONTENT (percent)
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	Shell Content <5% (Amount not visually estimated)

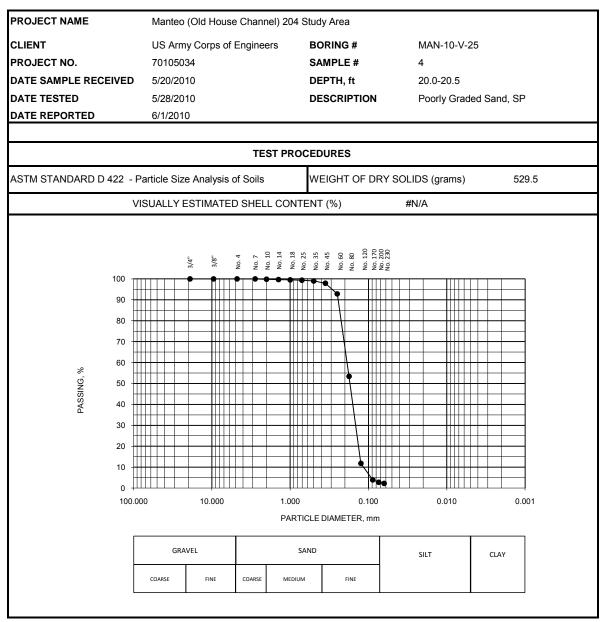




						PERCEN	Γ FINER (c	Iry weight	basis)						
	GRAVEL		COAR	SE SAND		MEDIU	M SAND				FINE	SAND			SILT / CLAY
3/4"	3/8"	No. 4	No. 7	No. 10	No. 14	No. 18	No. 25	No. 35	No. 45	No. 60	No. 80	No. 120	No. 170	No. 200	No. 230
100.0	100.0	100.0	99.9	99.9	99.8	99.8	99.6	99.3	97.2	81.4	33.7	10.0	3.2	2.1	1.7

					VISUALL	Y ESTIMA	TED SHEL	L CONTENT (percent)
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	Shell Content <5% (Amount not visually estimated)

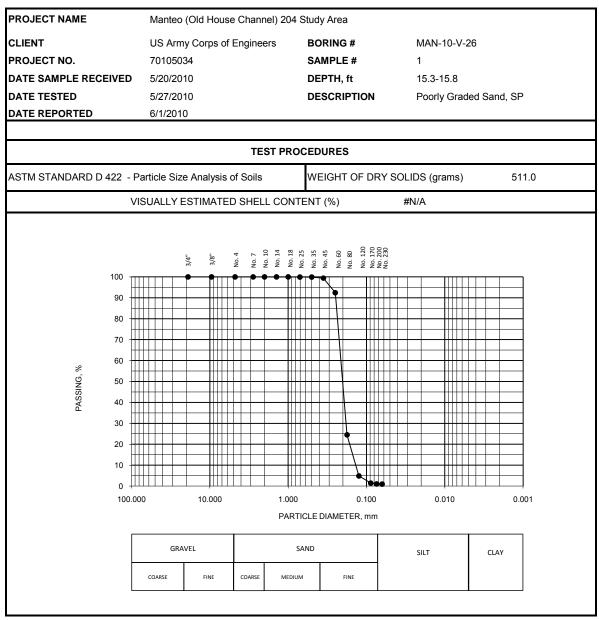




						PERCEN	Γ FINER (c	lry weight	basis)						
	GRAVEL		COAR	SE SAND		MEDIU	M SAND				FINE	SAND			SILT / CLAY
3/4"	3/8"	No. 4	No. 7	No. 10	No. 14	No. 18	No. 25	No. 35	No. 45	No. 60	No. 80	No. 120	No. 170	No. 200	No. 230
100.0	100.0	100.0	99.9	99.8	99.6	99.5	99.3	99.0	97.9	92.8	53.4	11.8	3.9	2.8	2.2

					VISUALL	Y ESTIMA	TED SHEL	L CONTENT (percent)
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	Shell Content <5% (Amount not visually estimated)

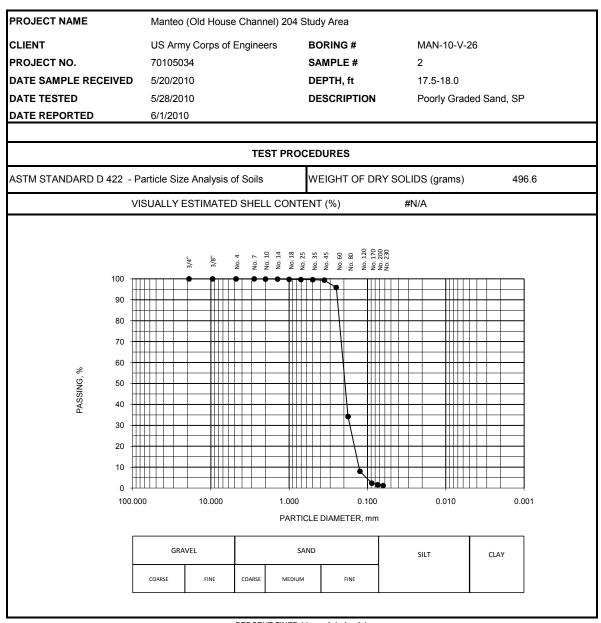




						PERCEN	T FINER (c	Iry weight	basis)						
	GRAVEL		COAR	SE SAND		MEDIU	M SAND				FINE	SAND			SILT / CLAY
3/4"	3/8"	No. 4	No. 7	No. 10	No. 14	No. 18	No. 25	No. 35	No. 45	No. 60	No. 80	No. 120	No. 170	No. 200	No. 230
100.0	100.0	100.0	100.0	100.0	100.0	99.9	99.9	99.9	99.4	92.4	24.5	4.9	1.4	1.0	0.9

					VISUALL	Y ESTIMA	TED SHEL	L CONTENT (percent)
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	Shell Content <5% (Amount not visually estimated)

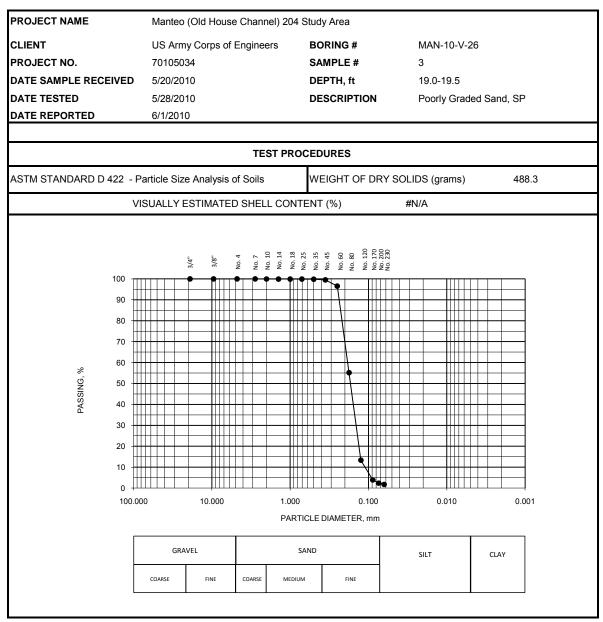




						PERCEN	T FINER (c	Iry weight	basis)						
	GRAVEL		COAR	SE SAND		MEDIU	M SAND				FINE	SAND			SILT / CLAY
3/4"	3/8"	No. 4	No. 7	No. 10	No. 14	No. 18	No. 25	No. 35	No. 45	No. 60	No. 80	No. 120	No. 170	No. 200	No. 230
100.0	100.0	100.0	100.0	99.9	99.9	99.8	99.7	99.6	99.4	95.9	34.2	8.0	2.3	1.5	1.2

					VISUALL	Y ESTIMA	TED SHEL	L CONTENT (percent)
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	Shell Content <5% (Amount not visually estimated)

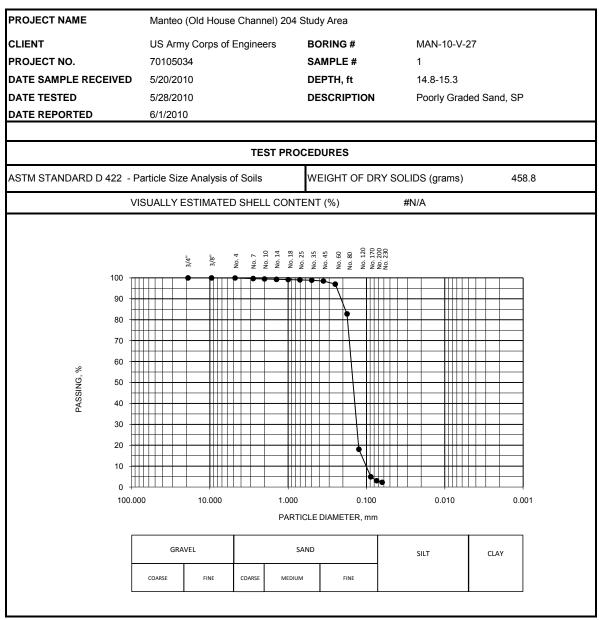




						PERCEN	Γ FINER (c	Iry weight	basis)						
	GRAVEL		COAR	SE SAND		MEDIU	M SAND				FINE	SAND			SILT / CLAY
3/4"	3/8"	No. 4	No. 7	No. 10	No. 14	No. 18	No. 25	No. 35	No. 45	No. 60	No. 80	No. 120	No. 170	No. 200	No. 230
100.0	100.0	100.0	100.0	99.9	99.9	99.9	99.9	99.8	99.5	96.6	55.2	13.3	3.9	2.4	1.7

					VISUALL	Y ESTIMA	TED SHEL	L CONTENT (percent)
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	Shell Content <5% (Amount not visually estimated)

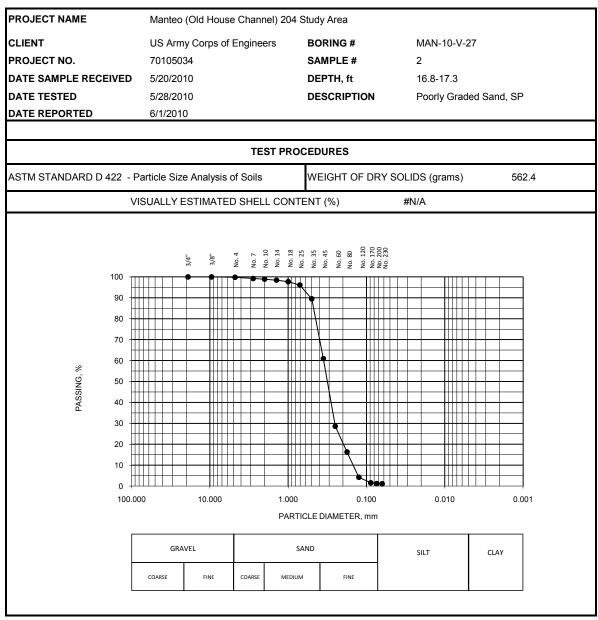




							PERCEN	T FINER (c	Iry weight	basis)						
		GRAVEL		COAR	SE SAND		MEDIU	M SAND				FINE	SAND			SILT / CLAY
:	3/4"	3/8"	No. 4	No. 7	No. 10	No. 14	No. 18	No. 25	No. 35	No. 45	No. 60	No. 80	No. 120	No. 170	No. 200	No. 230
1	00.0	100.0	99.9	99.7	99.5	99.3	99.2	99.0	98.9	98.5	97.0	82.7	18.1	4.9	3.1	2.3

					VISUALL	Y ESTIMA	TED SHEL	L CONTENT (percent)
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	Shell Content <5% (Amount not visually estimated)

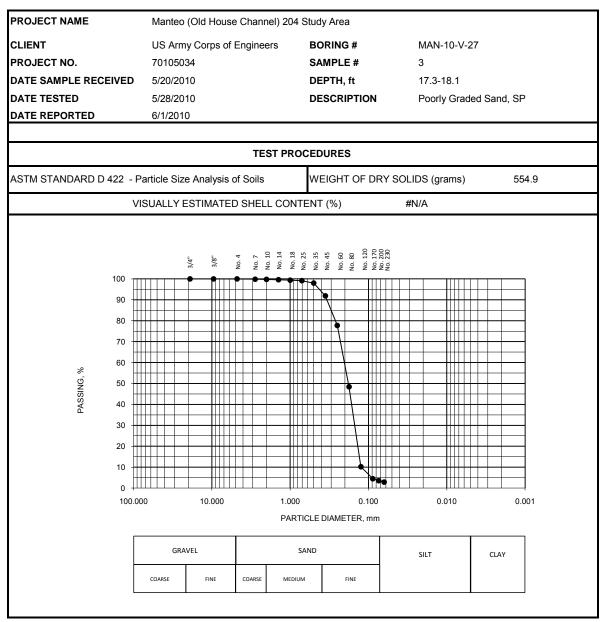




						PERCEN	T FINER (c	Iry weight	basis)						
	GRAVEL		COAR	SE SAND	MEDIUM SAND				FINE SAND						SILT / CLAY
3/4"	3/8"	No. 4	No. 7	No. 10	No. 14	No. 18	No. 25	No. 35	No. 45	No. 60	No. 80	No. 120	No. 170	No. 200	No. 230
100.0	100.0	99.8	99.2	98.9	98.4	97.7	96.1	89.5	60.9	28.6	16.3	4.2	1.6	1.2	1.1

					VISUALL	Y ESTIMA	TED SHEL	L CONTENT (percent)
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	Shell Content <5% (Amount not visually estimated)

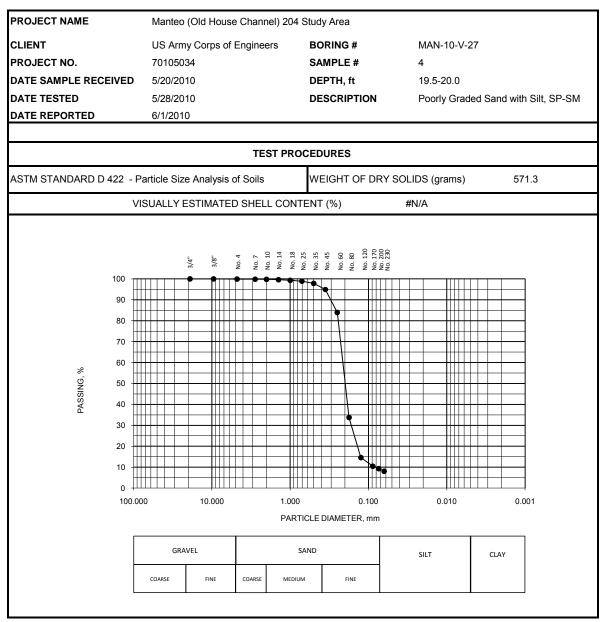




							PERCEN	Γ FINER (c	Iry weight	basis)						
		GRAVEL		COAR	SE SAND	MEDIUM SAND					SILT / CLAY					
ſ	3/4"	3/8"	No. 4	No. 7	No. 10	No. 14	No. 18	No. 25	No. 35	No. 45	No. 60	No. 80	No. 120	No. 170	No. 200	No. 230
ĺ	100.0	100.0	99.9	99.8	99.7	99.6	99.4	99.1	98.0	91.8	77.7	48.4	10.2	4.5	3.5	2.8

					VISUALL	Y ESTIMA	TED SHEL	L CONTENT (percent)
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	Shell Content <5% (Amount not visually estimated)





						PERCEN	T FINER (c	dry weight	basis)						
GRAVEL COARSE SAND				SE SAND		MEDIU	M SAND			SILT / CLAY					
3/4"	3/8"	No. 4	No. 7	No. 10	No. 14	No. 18	No. 25	No. 35	No. 45	No. 60	No. 80	No. 120	No. 170	No. 200	No. 230
100.0	100.0	99.9	99.8	99.8	99.6	99.3	98.9	97.8	94.9	83.9	33.7	14.6	10.4	9.3	8.1

					VISUALL	Y ESTIMA	TED SHEL	L CONTENT (percent)
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	Shell Content <5% (Amount not visually estimated)

