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October 23, 2008

NAVFAC Mid-Atlantic
Marine Corps North Carolina IPT
Environmental Business Line
Code: OPCEV3MA
Attn: Mr. Melvin Acree
6506 Hampton Boulevard
Building C, Room 314
Norfolk, VA 23508-1278

Re: **UST Site 45 – Soil Summary Letter**
Marine Corps Base, Camp Lejeune, North Carolina
Navy Contract No. N62470-05-D-6200
Delivery Order No. 0061
CATLIN Project No. 208-037

Dear Mr. Acree:

CATLIN Engineers and Scientists (CATLIN) has reviewed the e-mail dated September 15, 2008 from Mr. Bruce Reed of the North Carolina Department of Environment and Natural Resources (NCDENR) requesting a signed and sealed soil summary letter with figures for the above-referenced site. As per the letter, Mr. Reed requested figures that clearly show the former Underground Storage Tank (UST) basins and any transfer piping and dispensers associated with the USTs.

General Site Information and History

The Building 45 site is located on the south side of North Carolina (NC) Highway 24 on the Marine Corps Base (MCB), Camp Lejeune in Onslow County, NC. Building 45 began operation in 1941 as an electric substation. In 1965 the building and site were converted for use as a heavy equipment and maintenance shop. In 1999, the aboveground portion of Building 45 was demolished, with the foundation left in place. The foundation was subsequently removed from the site in 2002. The site vicinity is presented on Figure 1. The project site consists of the former Buildings 45, 780 and S941, a former fueling area and a deactivated remediation system consisting of air sparging and soil vapor extraction wells, as well as a number of groundwater monitoring wells located throughout the site. The UST portion of the Building 45 site consisted of four USTs; UST S941-1, UST S941-2, UST 45-1 and UST 45-2 (See Figure 2). Please note, the exact location of former Building S941 is unknown, however it was located north of USTs S941-1 and S941-2.

The Installation Restoration (IR) Program at MCB Camp Lejeune has identified the Building 45 site under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) program as Operable Unit Number 19, Site 84. Baker Environmental, Inc. (Baker) has performed numerous assessments at IR Site 84. Baker confirmed the presence of PCB contamination in surface soil in 1998. It is CATLIN's understanding that PCB laden oil, from used electric transformers, was sprayed on the site for dust control. Between 2002 and 2006 three phases of remediation were conducted at Site 84 by Baker, OHM Remediation Services Corporation (now Shaw Environment and Infrastructure, Inc.) and Rhea Engineers and Consultants, Inc. (Rhea). A summary of these remedial activities were reported in the November 2007 *Final Project Closeout Report* by Rhea. The focus of the remedial activities at Site 84 under the IR Program was to address the PCB contamination.

A petroleum release from UST S-941-1 and UST S-941-2 in the vicinity of Building 45 was confirmed in the early 1990s. Various site assessments were conducted in the early to mid-1990s to delineate the extent, if applicable, of free-phase product, soil petroleum contamination and groundwater petroleum contamination associated with the release. The reports from these various site assessments were utilized to develop a Corrective Action Plan (CAP) in 1996 which recommended the installation of an Air Sparge/Soil Vapor Extraction (AS/SVE) remediation system. The remediation system was installed and began operation in 1998. The AS/SVE system as installed operated from 1998 until 2002. In 2002 a portion of the AS/SVE system was deactivated and abandoned during IR Site 84 soil excavations. The remaining portion of the AS/SVE system operated from 2002 until November 2006 at which time it was deactivated to facilitate site closure. To CATLIN's knowledge no specific investigations were conducted at UST 45-1 or UST45-2 subsequent to the tank closure activities.

During the IR Site 84 assessment and remediation activities Baker and other consultants installed numerous monitoring wells and soil borings. The IR Program consultants often analyzed soil and groundwater samples for petroleum constituents during their site assessment and removal activities. The available petroleum data (as of 2006) collected by these consultants was incorporated into a *Remedial Action Optimization and Revised Corrective Action Plan* (RAO & RCAP) developed by CATLIN. The purpose of the RAO & RCAP was to compile all available information in order to effectively evaluate the extent of petroleum contamination at the Building 45 site. However, during preparation of the RAO & RCAP CATLIN concluded that additional soil sampling was necessary. Therefore, a soil assessment was conducted by CATLIN in order to aid in the evaluation of the effectiveness of the soil vapor extraction system and the extent of Total Petroleum Hydrocarbons (TPH) impacted soils identified as part of the IR Program work. Specifically, CATLIN collected soil samples from twenty soil borings at the locations of the highest historical TPH concentrations. CATLIN included this soil data into the November 2006 *Final RAO & RCAP* for the Building 45 site. The soil laboratory results indicated no concentrations above the

Industrial/Commercial Maximum Soil Contaminant Concentrations (MSCCs). However, results were above the lowest MSCCs for certain compounds.

The purpose of this letter report is to clarify the soil sampling and excavation activities in the areas of the former USTs at the Building 45 site. The information in the remainder of this letter report will focus on the UST systems at the subject site, however; information and data collected as part of the IR Program's investigation has been evaluated and reported (where applicable).

UST S941-1 and UST S941-2

The UST system at this portion of the site originally consisted of two USTs and associated piping, installed in 1941: tank S-941-1 was a 6,000-gallon diesel steel tank and tank S-941-2 was a 1,000-gallon gasoline steel tank. According to a *Leaking UST Site Assessment Report* by Law Environmental, Inc. (LAW), in June 1990, UST S-941-2 failed a leak detection test. A subsequent test of the tank indicated that the leak was from a product pipe associated with the tank. An investigation conducted by ATEC Environmental, Inc. (ATEC) in August 1991 indicated that soil and groundwater at the subject site was contaminated by petroleum hydrocarbons. In October 1992, both UST S-941-1 and UST S-941-2 and their associated piping were excavated and removed from the site by Jones and Frank, Inc. Although not specifically mentioned in the tank closure report, because the dispensers for these USTs were located between the two tanks and the close proximity of the dispensers to the tanks, it is assumed that the dispensers were also removed during the excavation of the USTs and piping.

As previously stated, various site assessments were conducted in the early 1990s to delineate the extent, if applicable, of free-phase product, soil petroleum contamination and groundwater petroleum contamination from the petroleum hydrocarbons released from UST S-941-1 and UST S-941-2 in the vicinity of Building 45. The findings of these previous assessments were summarized in reports submitted to NCDENR in the Wilmington Regional Office (WiRO). The reports from these various site assessments were utilized by LAW to develop a CAP dated February 21, 1996. These site assessment reports were referenced within the CAP. LAW reported that petroleum-impacted soil and groundwater present at the site were suspected to be the result of releases of diesel fuel and gasoline from the former USTs.

The CAP identified the presence of soil and shallow groundwater (surficial aquifer) petroleum contamination. The recommended remediation strategy within the CAP for site restoration was an AS/SVE treatment system. It is our understanding that JA Jones, Inc. (JA Jones) installed an AS/SVE treatment system in 1998 and began operation of the system on April 16, 1998. The air sparge wells were reportedly installed with a 2-inch diameter screen at an interval from 39.5 to 44.5 feet below land surface (BLS). The soil vapor extraction wells were reported to have a diameter of 4-inches and installed vertically to a depth six feet BLS, with a screen interval from 2.5 to

5.5 feet BLS. JA Jones operated the remediation system from start-up into 2002. Prior to June 2002 a portion of the AS/SVE system was shutdown, as it was located in an area planned for excavation by Shaw under the IR Site 84 remedial activities. The portion of the AS/SVE system not in the planned excavation area continued to operate until November 2006.

In June 2002, Shaw initiated and completed excavation activities as part of the IR Site 84 remediation. As shown on the attached Figure 2, Shaw excavated soils in the location of former USTs S941-1 and S941-2. The Shaw excavation was to a depth of approximately 12 feet BLS (two feet below the water table at the time). Therefore, it appears that any vadose zone soil contamination associated with the former S941-1 and S941-2 USTs was removed. Please note, Shaw collected approximately 65 confirmatory samples around the outside of the excavation per TPH – Gasoline Range Organics (GRO) and Diesel Range Organics (DRO). The analytical results revealed several samples with GRO and/or DRO concentrations above the NCDENR action levels. However, the samples were taken at varying depths, many being from zero to four feet BLS, and the outer edge of confirmatory samples were taken over 100 feet from the former UST locations. Therefore, the TPH contamination detected in the confirmatory samples may have been related to historical surface application of petroleum products for dust control, rather than from the release at the USTs.

As part of the RAO & RCAP completed by CATLIN, 20 soil borings were installed in May 2006 at the locations of the highest historical TPH concentrations across the entire site (Building 45/Site 84). As documented in the CAP, the locations of the former UST S941-1 and UST S941-2 basins were areas of historical soil contamination. However, as previously stated, Shaw removed the soil in this area to the water table in 2002; therefore, vadose zone soil contamination in the area of the former UST S941-1 and UST S941-2 basins was removed. However, in May 2006 CATLIN installed soil boring UST45-SB19 and UST45-SB20 at the former UST S941-1 and UST S941-2 basins. At each boring location one soil sample was submitted for laboratory analysis per Environmental Protection Agency (EPA) Methods 8260, EPA 8270 and Massachusetts Department of Environmental Protection Volatile and Extractable Petroleum Hydrocarbons (MADEP VPH/EPH). The UST45-SB19 soil sample was collected at a depth of six to eight feet BLS and the UST45-SB20 soil sample was collected at a depth of zero to two feet BLS. As expected, the analytical results from these two soil samples revealed no contaminant concentrations above any of the MSCCs as the material collected was most likely clean fill material used by Shaw in 2002 to backfill the excavation. Also, CATLIN installed soil boring UST45-SB18 directly north of the excavation area. The soil sample from this boring was collected at six to eight feet BLS and did not reveal any contaminants above the MSCCs.

UST 45-1

On June 23, 1993, Peele's Pump and Tank Company removed UST 45-1. UST 45-1 was reportedly a 1,000-gallon used oil UST which was connected via a short piping run (approximately five feet) to a concrete wash rack. During the tank removal, signs of soil contamination were evident, therefore an excavation of contaminated soil was conducted which removed approximately 62 tons of material. A soil sample collected at the bottom of the excavation (approximately 10 feet BLS) revealed TPH Oil and Grease at a concentration of 4,500 parts per million (PPM). However, it should be noted that from 2005 to 2008 depth to groundwater was measured as shallow as nine feet BLS in a monitoring well located in close proximity to this former UST basin. Therefore, it could be surmised that the TPH Oil and Grease contamination detected at the bottom of the excavation may be more indicative of "smear zone" groundwater contamination rather than vadose zone soil contamination.

In June 2002, Shaw initiated and completed excavation activities in the area of former UST 45-1 as part of the IR Site 84 remediation. As shown on the attached Figure 2, Shaw excavated soils in the vicinity of former UST 45-1. The Shaw excavation in this area was to a depth of approximately four feet BLS. Also, Shaw collected confirmation soil samples as part of their excavation activities. As illustrated on Figure 2, Shaw collected soil samples 38, 39 and 40 in the vicinity of former UST 45-1. Soil sample 38 was collected at a depth of approximately 10 feet BLS and did not reveal detectable concentrations of TPH-DRO. Soil sample 39 was collected at a depth of approximately four feet BLS and revealed TPH-DRO at a concentration of 280 milligrams per kilograms (mg/kg). Soil sample 40 was collected at a depth of approximately eight feet BLS and revealed TPH-DRO at a concentration of 21 mg/kg.

As previously stated, CATLIN installed 20 soil borings in May 2006 at the locations of the highest historical TPH concentrations across the entire site (Building 45/Site 84). The UST45-SB14 soil boring was located at the former UST 45-1 basin. One soil sample was submitted for laboratory analysis per EPA Methods 8260, EPA 8270 and MADEP VPH/EPH. The UST45-SB14 soil sample was collected at a depth of four to six feet BLS. The analytical results revealed Methylene Chloride at a concentration of 0.0949 mg/kg which was above the Soil-to-Groundwater (STGW) MSCC, but well below the Residential and Industrial/Commercial MSCC. Also it should be noted that, Methylene Chloride is commonly used in laboratory processes and is therefore, suspected to be a laboratory artifact. All other compounds were either not detected or detected at concentrations below the lowest MSCCs.

As stated above, the analytical results for UST45-SB14 revealed no contaminants at concentrations above the Residential MSCCs. This sample was collected in close proximity and at approximately the same depth as sample 39 collected in 2002 by Shaw. Sample 39 revealed TPH-DRO at 280 mg/kg, however, the UST45-SB14 sample collected in close proximity to 39 revealed no compounds at concentrations

above the Residential MSCCs. Therefore, it could be surmised that a TPH-DRO of 280 mg/kg or less would not reveal exceedances of the Residential MSCCs. Therefore, the concentration of 21 mg/kg of TPH-DRO detected at the 2002 Shaw sample 40 should not reveal an exceedance of the Residential MSCCs.

Also of note, the boring log produced in May 2006 for UST45-SB14 indicated that the water table was at approximately 10 feet BLS (See attachment A). This is further evidence that the soil sample collected during the tank closure report at 10' BLS was more indicative of smear zone groundwater contamination than vadose zone soil contamination.

UST 45-2

JA Jones removed UST 45-2 in July 1999. UST 45-2 was listed as a 500-gallon tank used for storing heating oil. It is assumed that the former UST historically supplied heating oil to Building 45. As shown on Figure 2, a fuel supply line reportedly ran from the UST to Building 45. The fuel supply lines were most likely either abandoned during the UST removal or during the subsequent Building 45 excavation. The UST excavation dimensions were approximately eight feet by five feet by five feet deep and approximately 1.5 cubic yards of soil was removed for off-site disposal. Inspection of the tank revealed it to be in good condition and field observation of the soils in the tank excavations area appeared not to have been impacted by petroleum constituents. However, laboratory analysis of soil samples was conducted and identified concentrations of TPH-GRO and TPH-DRO above the NCDENR's action levels. Six confirmatory samples indicated the presence of TPH-DRO and TPH-GRO petroleum contamination ranging from non-detect to 13,000 mg/kg and non-detect to 5,800 mg/kg, respectively. In the *UST Closure Report*, JA Jones concluded the detected petroleum hydrocarbon contamination might not be from the UST but rather from the long industrial operation history at Building 45.

In June 2002, Shaw initiated and completed excavation activities in the area of former UST 45-2 as part of the IR Site 84 remediation. As shown on the attached Figure 2, Shaw excavated soils in the vicinity of former UST 45-2. The Shaw excavation in this area was to a depth of approximately five feet BLS. Also, Shaw collected confirmation soil samples as part of their excavation activities. As illustrated on Figure 2, Shaw collected soil samples 31, 32 and 36 in the vicinity of former UST 45-2. Soil sample 31 was collected at a depth of approximately four feet BLS and did not reveal detectable concentrations of TPH-DRO. Soil sample 32 was collected at a depth of approximately four feet BLS and did not reveal detectable concentrations of TPH-DRO. Soil sample 36 was collected at an unknown depth, however did not reveal detectable concentrations of TPH-DRO.

As previously stated, CATLIN installed 20 soil borings in May 2006 at the locations of the highest historical TPH concentrations across the entire site (Building 45/Site 84).

The UST45-SB12 soil boring was located at the former UST 45-2 basin. One soil sample was submitted for laboratory analysis per EPA Methods 8260, EPA 8270 and MADEP VPH/EPH. The UST45-SB12 soil sample was collected at a depth of 10-12 feet BLS. The analytical results revealed Methylene Chloride at a concentration of 0.0573 mg/kg which was above the STGW MSCC, but well below the Residential and Industrial/Commercial MSCC. Also it should be noted that, Methylene Chloride is commonly used in laboratory processes and is therefore, suspected to be a laboratory artifact. All other compounds were either not detected or detected at concentrations below the lowest MSCCs. The boring log for UST45-SB12 (See Attachment A) indicated that the water table in May 2006 was greater than 16 feet BLS which is surprising as historically the water table was no more than approximately 13 feet BLS.

As documented by the 2002 and 2006 analytical results, it appears that the 2002 Shaw excavation removed the remaining vadose zone soil contamination reported in the 1999 closure report.

Conclusions and Recommendations

The Building 45 site historically contained four USTs, all of which were removed from the site in the 1990s. Soil sampling conducted during the closure of the USTs revealed contaminant concentrations above the NCDENR action levels. At the location of former USTs S941-1 and S941-2 Shaw excavated soils to a depth of approximately two feet below the water table at the time. Therefore, CATLIN concludes that vadose zone soil contamination associated with the former S941-1 and S941-2 USTs was removed during this excavation. At the location of former UST 45-1, the analytical results from the 2006 CATLIN soil sample UST45-SB14 revealed no contaminants at concentrations above the Residential MSCCs. At the location of former UST 45-2, the analytical results from the 2006 CATLIN soil sample UST45-SB12 revealed no contaminants at concentrations above the Residential MSCCs.

As previously stated, CATLIN collected 20 soil samples in May 2006 and the analytical results from five of these soil samples have been reported in this letter. The analytical results from the other 15 soil samples collected by CATLIN in May 2006 did reveal MADEP fractions above the Residential MSCCs in three soil samples. Also, the investigations conducted by the IR Program consultants revealed TPH concentrations above NCDENR action levels in several samples. However, the locations of the MADEP and TPH exceedances were spread across the site and not in the areas where known USTs were located. Therefore, CATLIN concludes that this residual soil contamination is not related to the on-site UST systems.

It should be noted that the IR Program has conducted extensive remediation efforts at Site 84/Building 45. The focus of the remediation efforts was to address PCB soil contamination; however, residual TPH soil contamination was also addressed as an ancillary benefit. The IR Program has excavated extensive areas across the subject

site. In areas where excavation was not feasible and/or practical the IR Program installed a soil cap of approximately two feet thick to shield potential exposure to soil contaminants left in place. In addition, the IR Program will be implementing residential land use controls for IR Site 84 as part of the Record of Decision (ROD). It is assumed that the boundary for the IR Site 84 residential land use controls would encompass the locations of the former USTs at the Building 45 site. Also, it should be noted that currently a fence surrounds IR Site 84.

In summary, CATLIN recommends "No Further Action" for soils associated with the UST systems at the Building 45 site.

CATLIN Engineers and Scientists appreciate the opportunity to continue to provide services to NAVFAC Mid-Atlantic and the MCB on your environmental projects.

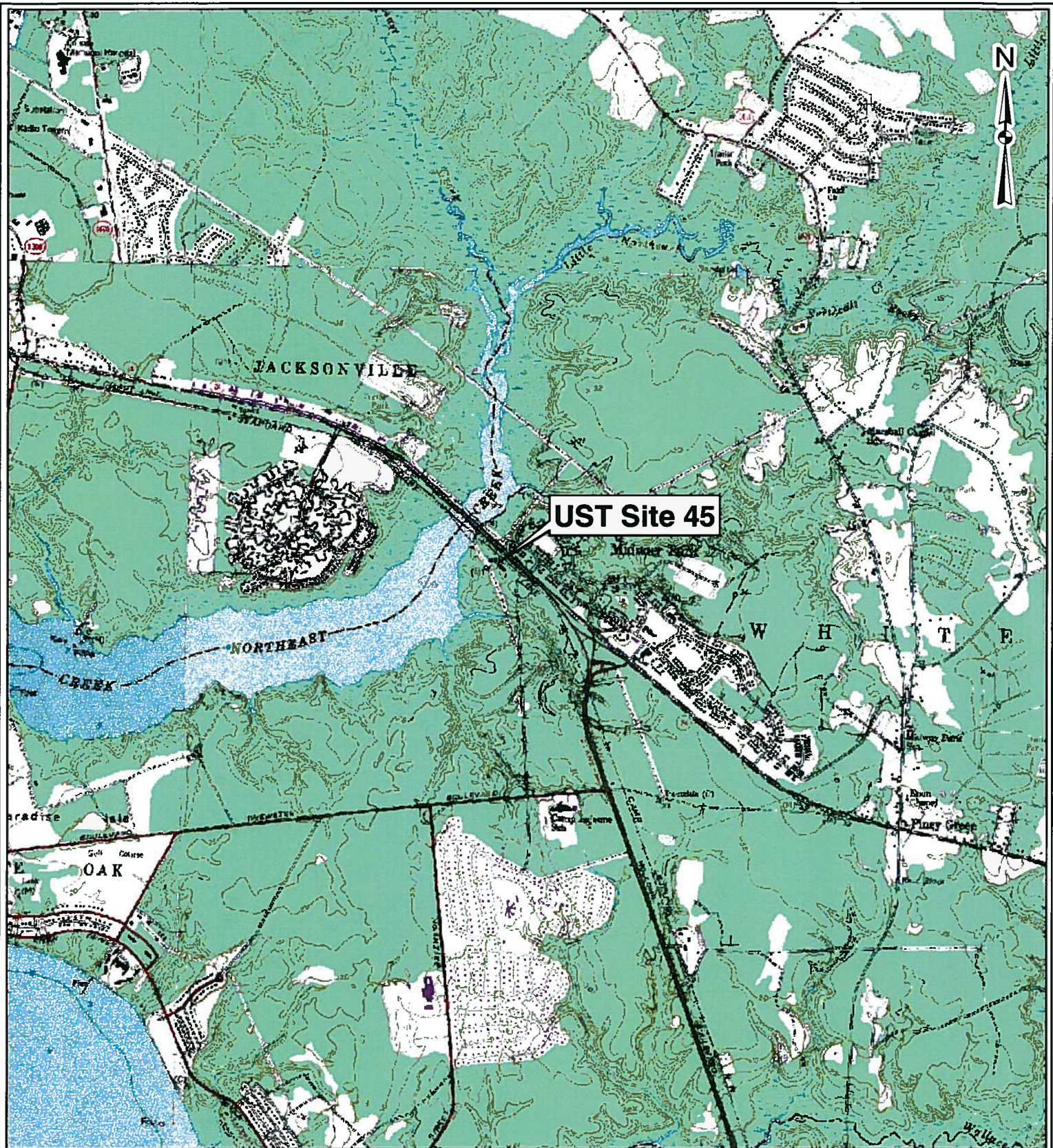
Sincerely,


Shane A. Chasteen
Project Manager


Michael E. Mason, P.E.
Program Manager

cc: Ms. Susan Tsimpinos - NAVFAC Mid-Atlantic Contracts
Commanding Officer - Attn: Director I&E/EMD/EQB (with two copies)






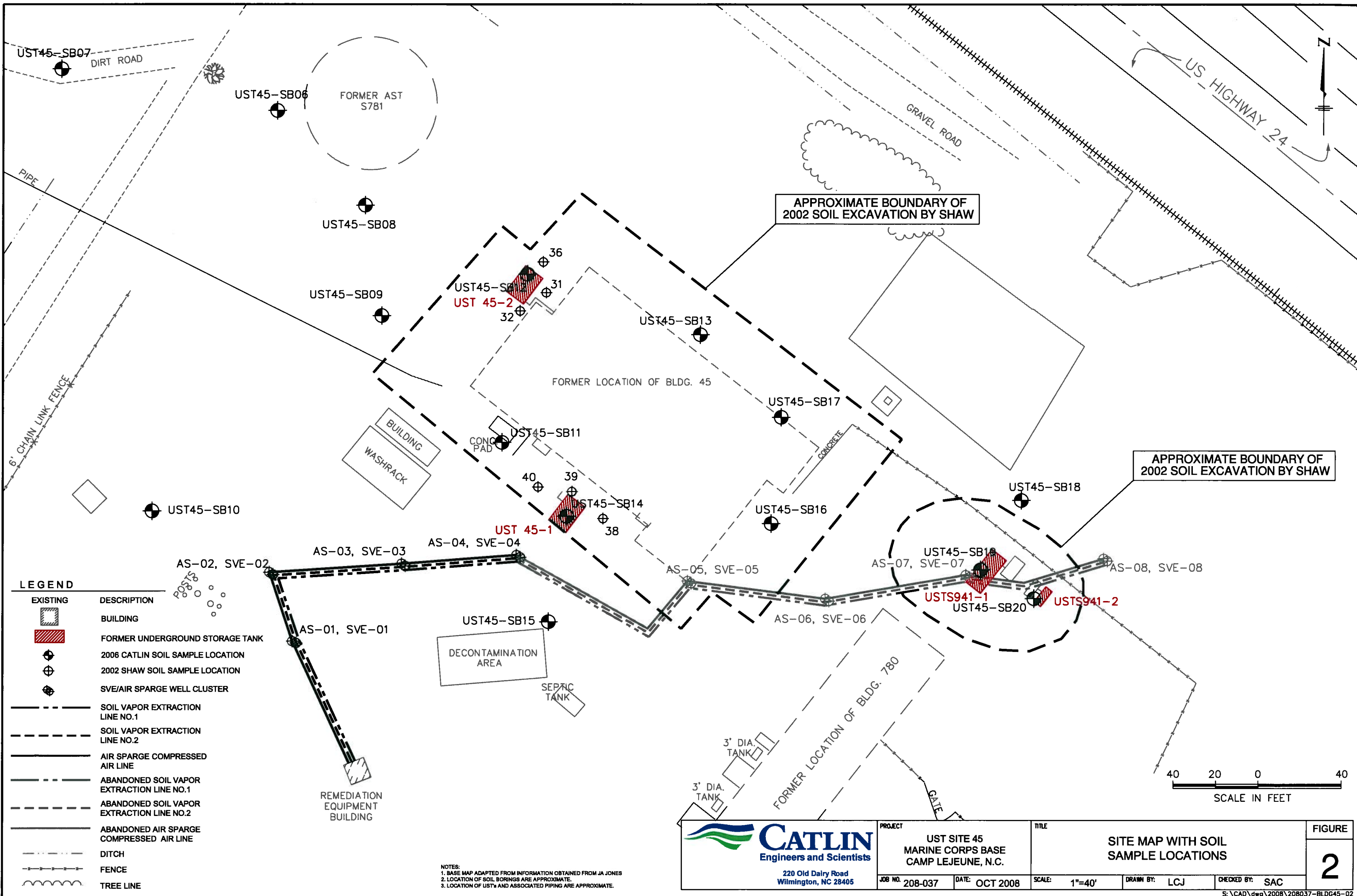
3,000 1,500 0 3,000 Feet



SCALE

Data Sources: Data Layers provided by MCB Camp Lejeune GIS Office.

	PROJECT UST SITE 45 SOIL SUMMARY REPORT MARINE CORPS BASE CAMP LEJEUNE, NC		TITLE SITE VICINITY MAP		FIGURE 1
	JOB NO. 208-037	DATE OCT 2008	SCALE AS SHOWN	DRAWN BY SAC	



LEGEND

EXISTING	DESCRIPTION
	BUILDING
	FORMER UNDERGROUND STORAGE TANK
	2006 CATLIN SOIL SAMPLE LOCATION
	2002 SHAW SOIL SAMPLE LOCATION
	SVE/AIR SPARGE WELL CLUSTER
	SOIL VAPOR EXTRACTION LINE NO.1
	SOIL VAPOR EXTRACTION LINE NO.2
	AIR SPARGE COMPRESSED AIR LINE
	ABANDONED SOIL VAPOR EXTRACTION LINE NO.1
	ABANDONED SOIL VAPOR EXTRACTION LINE NO.2
	ABANDONED AIR SPARGE COMPRESSED AIR LINE
	DITCH
	FENCE
	TREE LINE

NOTES:
 1. BASE MAP ADAPTED FROM INFORMATION OBTAINED FROM JA JONES
 2. LOCATION OF SOIL BORINGS ARE APPROXIMATE.
 3. LOCATION OF UST'S AND ASSOCIATED PIPING ARE APPROXIMATE.

CATLIN
 Engineers and Scientists
 220 Old Dairy Road
 Wilmington, NC 28405

PROJECT	UST SITE 45 MARINE CORPS BASE CAMP LEJEUNE, N.C.
JOB NO.	208-037
DATE	OCT 2008

TITLE	SITE MAP WITH SOIL SAMPLE LOCATIONS
SCALE	1"=40'
DRAWN BY	LCJ
CHECKED BY	SAC

FIGURE	2
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BORING LOG

CALIN

ENGINEERS and SCIENTISTS
203-063/206-009
Wilmington, NC

SHEET 1 OF 1

PROJECT NO: 203-063/206-009	STATE: NC	COUNTY: Onslow	LOCATION: Jacksonville
PROJECT NAME: Building 45		LOGGED BY: Justin Heter	BORING ID: UST45-SB12
DRILLER: Steve Tyler			
NORTHING: 3,845,815.7	EASTING: 284,738.5	CREW:	
SYSTEM: NCSP NAD 83 (ft)	BORING LOCATION: See Map	LAND ELEV.: NM	
DRILL MACHINE: Power Probe	METHOD: Direct Push	0 HOUR DTW:	BORING DEPTH: 16.0
START DATE: 5/4/06	FINISH DATE: 5/4/06	24 HOUR DTW:	ROCK DEPTH: --

DEPTH	BLOW COUNT 0.5 0.5 0.5 0.5	MOI.	OVA RESULTS (ppm) 0 1000 2000 3000 4000	LAB.	U S C S	L O G	DEPTH	SOIL AND ROCK DESCRIPTION	ELEVATION
0.0							0.0	LAND SURFACE	
2.0	D P D P		▲2.8		SP		2.0	Black organic layers with brown, med. SAND. Dry.	
4.0	D P D P		▲3.1		SP		4.0	Light to med. brown, med. SAND with conglomerate pebbles. Dry.	
6.0	D P D P						6.0	No Return	
8.0	D P D P						8.0		
10.0	D P D P		▲1.5		SM		10.0	Brown, f. to med. SAND with some silt and pebbles. Low plasticity. Dry.	
12.0	D P D P		▲14.6	Sampled	SP		12.0	Brownish-orange med. SAND. Dry. Slight HCO.	
14.0	D P D P		▲2.7		SP		14.0	Light tan, med. SAND. Dry.	
16.0	D P D P		▲2.2		SP		16.0	S.A.A except slight more orange/light brown correlation.	
16.0								Boring Terminated at Depth 16.0 ft	

▽ = 0hr. DTW

▼ = 24hr. DTW

BORING LOG

CATLIN

ENGINEERS and SCIENTISTS
203-063/206-009
Wilmington, NC

SHEET 1 OF 1

PROJECT NO: 203-063/206-009	STATE: NC	COUNTY: Onslow	LOCATION: Jacksonville
PROJECT NAME: Building 45		LOGGED BY: Justin Heter	BORING ID: UST45-SB14
		DRILLER: Steve Tyler	
NORTHING: 3,845,777.1	EASTING: 284,736.2	CREW:	
SYSTEM: NCSP NAD 83 (ft)	BORING LOCATION: See Map	LAND ELEV.: NM	
DRILL MACHINE: Power Probe	METHOD: Direct Push	0 HOUR DTW:	BORING DEPTH: 12.0
START DATE: 5/5/06	FINISH DATE: 5/5/06	24 HOUR DTW:	ROCK DEPTH: --

DEPTH	BLOW COUNT 0.5 0.5 0.5 0.5	MOI.	OVA RESULTS (ppm) 0 1000 2000 3000 4000	LAB.	U S C S	L O G	SOIL AND ROCK DESCRIPTION	
							DEPTH	ELEVATION
0.0							0.0	LAND SURFACE
	D P D P		▲0.4		SM		2.0	Brown to dark brown, organic layer and med. SAND.
2.0	D P D P		▲0.5					
	D P D P		▲1.1	Sampled	SC			Light brown, f. to med. SAND with some clayey silt. Low plasticity. Moist.
4.0	D P D P		▲0.5					
6.0	D P D P		▲0.8		SM		8.0	Brown, f. to med. SAND with some silt. Moist.
8.0	D P D P				SC		10.0	Brown, f. to med. SAND with clayey silt and med. plasticity. Wet.
10.0	D P D P						12.0	Boring Terminated at Depth 12.0 ft

▽ = 0hr. DTW

▼ = 24hr. DTW

BORING LOG

CATLIN

ENGINEERS and SCIENTISTS
203-063/206-009
Wilmington, NC

SHEET 1 OF 1

PROJECT NO: 203-063/206-009	STATE: NC	COUNTY: Onslow	LOCATION: Jacksonville
PROJECT NAME: Building 45	LOGGED BY: Justin Heter	BORING ID: UST45-SB19	
	DRILLER: Steve Tyler		
NORTHING: 3,845,768.2	EASTING: 284,798.6	CREW:	
SYSTEM: NCSP NAD 83 (ft)	BORING LOCATION: See Map	LAND ELEV.: NM	
DRILL MACHINE: Power Probe	METHOD: Direct Push	0 HOUR DTW:	BORING DEPTH: 8.0
START DATE: 5/4/06	FINISH DATE: 5/4/06	24 HOUR DTW:	ROCK DEPTH: --

DEPTH	BLOW COUNT 0.5 0.5 0.5 0.5	MOI.	OVA RESULTS (ppm) 0 1000 2000 3000 4000	LAB.	U S C S	L O G	DEPTH	SOIL AND ROCK DESCRIPTION	ELEVATION
0.0							0.0	LAND SURFACE	
	D P D P				SP			Brown to light gray, organic layers and med. SAND. Dry.	
2.0							2.0		
	D P D P				SP			Brown, med. SAND with some silt. Dry. Oderless.	
4.0							4.0		
	D P D P				SC			Brown, f. SAND with clayey silt. Med. plasticity. No odor.	
6.0							6.0		
	D P D P			Sampled	SP			Light gray, med. SAND. Moist. No odor.	
8.0							8.0		
								Boring Terminated at Depth 8.0 ft	

▽ = 0hr. DTW

▼ = 24hr. DTW

BORING LOG

CALVIN

ENGINEERS and SCIENTISTS
203-063/206-009
Wilmington, NC

SHEET 1 OF 1

PROJECT NO: 203-063/206-009	STATE: NC	COUNTY: Onslow	LOCATION: Jacksonville
PROJECT NAME: Building 45		LOGGED BY: Justin Heter	BORING ID: UST45-SB20
DRILLER: Steve Tyler			
NORTHING: 3,845,757.4	EASTING: 284,801.1	CREW:	
SYSTEM: NCSP NAD 83 (ft)	BORING LOCATION: See Map	LAND ELEV.: NM	
DRILL MACHINE: Power Probe	METHOD: Direct Push	0 HOUR DTW:	BORING DEPTH: 8.0
START DATE: 5/4/06	FINISH DATE: 5/4/06	24 HOUR DTW:	ROCK DEPTH: --

DEPTH	BLOW COUNT 0.5 0.5 0.5 0.5	MOI.	OVA RESULTS (ppm) 0 1000 2000 3000 4000	LAB.	U S C S	L O G	SOIL AND ROCK DESCRIPTION	
							DEPTH	ELEVATION
0.0							0.0	LAND SURFACE
	D P D P		▲2.4	Sampled	SP		2.0	Black, organic layer and med. SAND. Dry.
2.0					SC		4.0	Brown, med. SAND with some clayey silt. Low plasticity. Dry. Oderless.
	D P D P		▲1.1				6.0	Light brown, med. SAND. Dry. Oderless.
4.0					SP		8.0	Brown, med. SAND with some silt and small amounts of clay. HCO.
	D P D P		▲1.9					
6.0					SM			
	D P D P		▲1.4					
8.0								Boring Terminated at Depth 8.0 ft

▽ = 0hr. DTW

▼ = 24hr. DTW