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DEPARTMENT OF THE NAVY

ATLANTIC DIVISION, NAVAL FACILITIES ENGINEERING COMMAND

NAVAL STATION, NORFOLK, VIRGINIA

NEESA RAC Contract No.
N47408-92-D-3042

N62470-93-B-3801
NAVFAC Specification No. 05-94-4801
Appropriation: DERA

TIME CRITICAL REMOVAL ACTION, SITE 2, OPERABLE UNIT NO. 5

AT THE

MARINE CORPS BASE, CAMP LEJEUNE, NORTH CAROLINA

Design by:

BAKER ENVIRONMENTAL, INC.
AIRPORT OFFICE PARK, BUILDING 3
420 ROUSER ROAD
CORAOPOLIS, PENNSYLVANIA 15108

Specification Prepared by:

BAKER ENVIRONMENTAL, INC.

Specification Approved by:

Specification Branch Head: _____
M. D. Mutter, P.E.

Engineering and Design Division Director: _____
W. H. Crone, P.E.

Environmental Quality Division Director: _____
W. H. Russell, P.E.

Date: _____

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SECTION 01010

GENERAL PARAGRAPHS

PART 1 GENERAL

1.1 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by the basic designation only.

CORPS OF ENGINEERS (COE)

COE EM-385-1-1	1992 Safety and Health Requirements Manual

MILITARY STANDARDS (MIL STD)

MIL STD 461	(Rev C) (Notice 2) Electromagnetic Emission and Susceptibility Requirements for the Control of Electromagnetic Interference
MIL STD 462	(Notice 6) Measurement of Electromagnetic Interference Characteristics

NATIONAL FIRE PROTECTION ASSOCIATION (NFPA)

NFPA 241	1989 Safeguarding Construction, Alteration, and Demolition Operations

1.2 PRECONSTRUCTION SUBMITTALS

Submit the following in accordance with Section C, Part 7, of the Basic Contract.

1.2.1 SD-18, Records

a. Work Plan G

1.2.1.1 Work Plan

Within 60 days of issuance of the delivery order, submit a work plan consisting of the following elements.

a. Narrative

Provide a brief description of the project objectives, scheduling, sampling and analysis requirements, decontamination procedures, site work and excavation procedures, construction requirements, and storage, transportation, and removal requirements.

b. Technical Specifications

Provide, in an amendment format, any additions and modifications to

the contract specifications required to accurately describe the materials and work procedures envisioned to satisfy the requirements of the delivery order. Contact Code 406, Specifications Branch, Engineering and Design Division, LANTNAVFACENGCOM, (804)444-9906, for availability of guide specification sections for those sections required, but not included in the contract documents.

c. Shop Drawings

Shop drawings shall detail and describe all components of the project not currently indicated on the contract drawings such that the shop drawings and the contract drawings, when taken together, provide a complete representation of the project requirements. Shop drawings shall include; but not be limited to. 1) an Erosion Control Plan in accordance with State and local regulations, consisting of site plans indicating locations of erosion control features during the various states of construction, details of erosion control features, and applicable notes. 2) civil/structural drawings providing details of site work. 3) piping drawings defining all pipe routing at the site, and discharge points (i.e., water, etc.), details on drainage requirements (i.e, sumps, check dams, etc.).

d. Environmental Protection Plan

Within 15 days of issue of delivery order, meet with the Navy's Technical Representative (NTR) to discuss environmental protection requirements for the project. After meeting with the NTR, prepare, and submit an Environmental Protection Plan in accordance with Section C, Part 4.0, of the Basic Contract.

e. Site Health and Safety Plan

Provide a site specific Site Health and Safety Plan in accordance with Section C, Part 3.0, of the Basic Contract.

f. QC Plan

Provide a QC Plan in accordance with Section C, Part 6.0, of the Basic Contract.

(1) Submittal Register

As part of the QC Plan, submit a completed Submittal Register to document quality control for materials, inspection, and testing in accordance with Section C, Part 7.0 of the Basic Contract. A copy of the Submittal Register is provided in attached at the end of this section.

(2) Testing Laboratory Qualifications

As part of the QC Plan, submit qualifications for each laboratory which will be used in accordance with Section C, Part 6.0, of the Basic Contract.

g. Sampling and Analysis Plan

Provide a Sampling and Analysis Plan describing all sampling and analyses requirements and procedures for the delivery order. The Plan shall contain a field sampling plan and a quality assurance plan.

1.2.2 Forwarding Preconstruction Submittals

Within 60 days of issuance of the delivery order, and before procurement, fabrication, or mobilization, submit to the Architect-Engineer: Baker Environmental, Inc., Airport Office Park, Building 3, 420 Rouser Road, Coraopolis, PA 15108, and to distribution as directed, the preconstruction submittals required in this specification. The Architect-Engineer for this project will review the Work Plan for the NTR to determine compliance of the Contractor's Work Plan with the requirements of the contract documents for this delivery order.

1.2.3 Review Comments

The Contractor's Work Plan will be reviewed. The NTR will compile and coordinate all Government review comments, and forward consolidated review comments to the Contractor. Review comments on the Work Plan shall be resolved, and submittals modified as required. After the correction of the submittals, submit one corrected final copy of the Work Plan to the NTR for final review. The Work Plan shall be approved prior to commencement of any other work associated with this delivery order.

1.3 SUBMITTALS

Submit the following in accordance with Section C, Part 7, of the Basic Contract.

1.3.1 SD-18, Records

a. As-Built Records G

b. Environmental Condition Report

c. Network Analysis Diagram

d. Status Reports

e. QC Meeting Minutes

f. Test Results Summary Report

g. Contractor Production Report

h. QC Report

i. Rework Items List

j. Permits

k. Contractor's Closeout Report

1.3.1.1 As Built Records

Maintain two sets of full size contract drawings and two sets of full size approved shop drawings marked to show any deviations which have occurred, including buried or concealed construction and utility features revealed during the course of construction. Record horizontal and vertical locations of buried utilities that differ from the contract drawings. Show the size, manufacturer's name, model number, capacity, and electrical power characteristics of the equipment installed. These drawings shall be available for review by the NTR at any time. At the completion of the work, deliver marked sets of the contract drawings to the NTR. Contractor shall incorporate all shop drawing deviations, and deliver one complete set of reproducible sepias of the shop drawings to the NTR.

1.3.1.2 Environmental Condition Report

Prior to starting work, perform a preconstruction survey with the NTR. Take photographs showing existing environmental conditions on and adjacent to the site. Prior to starting work, submit the results of the survey in an Environmental Condition Report to the NTR.

1.3.1.3 MIS Required Sorts

The MIS system shall be a system able to provide, as a minimum, the activities in sorts or groups as specified in the Basic Contract and any subsequent Delivery Orders.

a. Network Analysis Diagram

Within 30 days of approval of the Contractor's Work Plan, submit a Network Analysis Diagram in accordance with the Basic Contract and any subsequent Delivery Orders.

b. Status Report

All Status Reports shall comply with the Basic Contract and any subsequent Deliver Orders. Submit a Technical Progress Report, Cost Performance Report, Modification Log, Time-Scaled Logic Diagram, Government Materials Tracking Report, Variance Analysis Report, and Waste Materials Report. Submit the first delivery order Status Report approximately 30 days after approval of the Contractor's Work Plan. Thereafter, submit Status Reports every 30 days. Status report periods shall be consistent with the invoice reporting periods.

1.3.1.4 QC Meeting Minutes

The QC Representative shall document all QC meetings by delivering copies of the minutes to the NTR within 3 calendar days after each QC meeting. The submittals shall comply with Section C, Part 6.0 of the Basic Contract.

1.3.1.5 Test Results Summary Report

A summary report of all field tests containing both "required" and "actual" results plus "passed" or "failed" for conforming, non-conforming and repeated test results shall be submitted to the NTR at the end of each

month in accordance with Section C, Part 6.0 of the Basic Contract.

1.3.1.6 Contractor Production Report (CPR)

The CPR shall be prepared and submitted daily to the QC Representative in accordance with Section C, Part 6.0, of the Basic Contract.

1.3.1.7 QC Report

The QC Report shall be submitted by the QC Representative to the NTR every day work is performed, material is delivered, direction is pending, or a labor force is present in accordance with Section C, Part 6.0, of the Basic Contract.

1.3.1.8 Rework Items List

The QC Representative shall deliver a copy of the rework items list to the NTR on a monthly basis in accordance with Section C, Part 6.0, of the Basic Contract.

1.3.1.9 Permits

Fifteen days prior to beginning onsite work, submit draft copies of the following permits required for onsite activities:

a. Excavation Permit; from the Public Works Officer, Utilities Division

1.3.1.10 Contractor's Closeout Report

Submit upon completion of the project. This report shall include: Introduction, Summary of Action, Final Health and Safety Report, Summary of Record Documents, Field Changes and Contract Modification, Final Documents, summary of Chemical and Geotechnical Testing, Offsite Disposition of Materials, and QC Summary report.

1.3.2 Forwarding Submittals

As soon as practicable after award of the contract, and before procurement or fabrication, submit, except as specified otherwise, to the NTR, the submittals required in this specification. The Architect-Engineer for this project will review and provide surveillance for the NTR to determine if Contractor-approved submittals comply with the contract requirements, and will review and approve for the NTR those submittals not permitted to be Contractor approved to determine if submittals comply with the contract requirements. At each "Submittal" paragraph in the individual specification sections, a notation "G", following a submittal item, indicates the NTR is the approving authority for that submittal item. One copy of the transmittal form for submittals shall be forwarded to the NTR.

1.4 GENERAL INTENTION

It is the declared and acknowledged intention and meaning to provide and secure pesticide contaminated soils excavation and disposal at Operable Unit No. 5, Site 2, Marine Corps Base, Camp Lejeune, complete and ready for

use.

1.5 GENERAL DESCRIPTION

The work includes excavation and disposal of pesticide contaminated soils, filling and backfilling, stream diversion, erosion control, site restoration, and incidental related work.

1.6 DESCRIPTION OF CONTAMINANTS PRESENT

Site 2 is located to the northeast of the intersection of Holcomb Boulevard and Brewster Boulevard. The site is divided into two areas. The Mixing Pad Area (MPA) and the Former Storage Area (FSA). The Mixing Pad Area is split into two subareas, the Northern Mixing Pad and the Southern Mixing Pad. The Mixing Pad Areas are bound to the east by the Norfolk Southern Railroad and the west by Building 712. The Former Storage Ares is located to the east of the railroad and south of the water treatment plant.

From 1945 to 1958, Building 712 was used for the storing, handling, and dispensing of pesticides. Chemicals known to have been used include: chlordane, DDT, diazinon, and 2,4-D. Chemicals known to have been stored on site include dieldrin, lindane, malathion, silvex, and 2,4,5-T. The MPA is in a area of suspected contamination. Contamination is believed to have occurred as a result of small spills, washout and excess product disposal.

Site investigations performed to date have identified the presence of pesticides in the surface and subsurface soils and sediments in the MPA and surface soils at FSA. The pesticides detected include 4'4-DDT, 4'4-DDE, 4'4-DDD, Dieldrin, Heptachlor and Chlordane (total).

1.7 LOCATION

The work shall be located at the Marine Corps Base, Camp Lejeune, North Carolina approximately as shown. The exact location will be indicated by the NTR.

1.8 PROJECT INFORMATION

1.8.1 Drawings, Maps and Specifications

Four sets of contract drawings, maps and specifications will be furnished to the Contractor without charge, except applicable publications incorporated into the technical provisions by reference. Additional sets will be furnished on request at no charge. The work shall conform to the following contract drawings and maps, all of which form a part of these specifications and are available in the office of the NTR.

EFD Dwg No.	NAVFAC Dwg No.	Title	Sheet No.
384450	4284450	Cover Sheet and General Notes	T-1
384451	4284451	Soil Contaminant Levels	C-1
384452	4284452	Excavation Plan	C-2

384453	4284453	Site Restoration Plan	C-3
384454	4284454	Details	C-4

1.8.2 Reference Report

The following reference reports are available for examination in the office of the NTR and are intended only to show the existing conditions. The reports and drawings are the property of the Government and shall not be used for any purpose other than that intended by the specification.

Reports

a. Baker Environmental, Inc., 1994. Remedial Investigation Report, for Operable Unit No. 5, (Site 2), Marine Corps Base, Camp Lejeune, (includes Baseline Risk Assessment) Draft Final. April 4, 1994.

b. Baker Environmental, Inc., 1993. Feasibility Study, Operable Unit No. 5, (Site 2), Marine Corps Base, Camp Lejeune, Draft. December 1993.

1.9 PROJECT SCHEDULE AND TIME CONSTRAINTS

The Contractor shall be required to (a) commence work under this contract within 10 calendar days after the date the Contractor receives the notice to proceed, (b) prosecute the work diligently, and (c) complete the entire work ready for use not later than 90 calendar days after the required notice to proceed. The time stated for completion shall include final cleanup of the premises. The time stated for completion does not include the maintenance period for the seeding of disturbed areas.

1.10 SAFETY PROGRAM

In addition to safety requirements in the Basic Contract, the Contractor shall implement a safety program conforming to the requirements of Federal, state, and local laws, rules and regulations as specifically related to contaminated soil removal and treatment operations. The program shall include, but is not limited to, the following:

a. Occupational Safety and Health Standards

b. COE EM-385-1-1

c. NFPA 241

PART 2 PRODUCTS

Not used.

PART 3 EXECUTION

3.1 FACILITIES AND SERVICES

3.1.1 Availability of Utilities Services

Government utilities will be made available without charge. The contractor will be responsible for making connections, providing transformers and meters, and making disconnections; and for providing backflow preventer devices on connections to domestic water lines. Under no circumstances will taps to base fire hydrants be allowed for obtaining domestic water.

3.1.2 Storage in Existing Buildings

Storage in existing buildings will not be allowed.

3.1.3 Open Site Storage Size and Location

The open site available for storage shall be confined to the areas located within lot 203.

3.1.4 Trailers, Storage, and Temporary Buildings

Locate these where directed. Trailers or storage buildings will be permitted, where space is available subject to the approval of the NTR. The trailers or buildings shall be in good condition, free from visible damage, rust and deterioration, and meet all applicable safety requirements. Trailers shall comply with all appropriate state and local vehicle requirements. Failure of the Contractor to maintain the trailers or storage buildings in good condition will be considered sufficient reason to require their removal. A sign not smaller than 24 inches by 24 inches shall be conspicuously placed on the trailer depicting the company name, business phone number, and emergency phone number. Trailers shall be anchored to resist high winds and must meet applicable state or local standards for anchoring mobile trailers.

3.1.4.1 Storage and Office Trailers

Provide a trailer of sufficient size for an office trailer work area and floor area for the exclusive use of the Contractor's Quality Control Representative. Also provide room in the same trailer for the Quality Control Records. Provide the Quality Control representative with a 4-foot by 8-foot plan table, a standard size office desk and chair, and telephone service. Quality control records shall be filed in the office and available at all times to the Government.

a. Trailers must meet state station requirements and must be in good condition.

b. Trailers shall be lockable and shall be locked when not in use.

c. Trailers shall have a sign in the lower left hand corner of left door of trailer with the following information: company name, address, registration number of trailer or vehicle identification number, location on base, duration of contract or stay on-base,

contract number, local on-base phone number, off base phone number of main office, and emergency recall person and phone number.

3.2 RESTRICTIONS ON OPERATIONS

3.2.1 Scheduling

3.2.1.1 General Scheduling Requirements

The Marine Corps Base, Camp Lejeune, North Carolina, will remain in operation during the entire construction period. The Contractor shall schedule the work as to cause the least amount of interference with Base operations. Work schedules shall be subject to the approval of the NTR. Permission to interrupt Base roads shall be requested in writing a minimum of 15 calendar days prior to the desired date of interruption.

3.2.1.2 Regular Work Hours

The regular work hours for the Marine Corps Base, Camp Lejeune, North Carolina, are 0730 to 1530, Monday through Friday.

3.2.1.3 Work Outside Regular Hours

If the Contractor desires to carry on work outside regular hours or on Saturdays, Sundays or holidays, the Contractor shall submit an application to the NTR. The Contractor shall allow ample time to enable satisfactory arrangements to be made by the Government for inspecting the work in progress. At night, the Contractor shall light the different parts of the work in an approved manner.

3.2.1.4 Special Scheduling Requirements

The Contractor shall schedule the work as to cause the least amount of interference with Norfolk Southern Railroad operations. Scheduling the disruption of rail service along Site 2 shall be requested a minimum of 15 calendar days prior to the desired date of interruption. Mr. Ralph Waller (919) 637-4091, Trainmaster, Norfolk Southern Railroad is the point of contact concerning scheduling of the rail service.

3.2.2 Security Requirements

Contractor shall comply with general security requirements in accordance with Section C of the Basic Contract. No employee or representative of the Contractor will be admitted to the work site without satisfactory proof of United States citizenship or is specifically authorized admittance to the work site by the NTR.

3.3 ACTIONS REQUIRED OF THE CONTRACTOR

The Contractor shall comply with all requirements stated in Section C, Part 2.0, of the Basic Contract.

3.3.1 Base Permits

Permits are required for, but not necessarily limited to, welding, digging, and burning. Allow 7 calendar days for processing of the application. One copy of all applicable permits shall be posted at the job site.

3.4 PUBLIC RELEASE OF INFORMATION

The Contractor shall comply with all requirements stipulated in Section C, Part 2.0, of the Basic Contract.

3.5 ENVIRONMENTAL PROTECTION REQUIREMENTS

Provide and maintain, during the life of the contract, environmental protection as defined in Section C of the Basic Contract.

3.6 REQUIRED INSURANCE

Insurance requirements from Section H of the Basic Contract are enforced in their entirety.

-- End of Section --

Contract Number: N62470-93-B-3801 | Project Title: Remediation of Pesticide Contamination

SPEC SECTION NO.	SD NO, AND TYPE OF SUBMITTAL MATERIAL OR PRODUCT	SPEC PARA NO.	CLASSIF/ APPR BY CO *	GOVT OR A/E REVIEWER	TRANS CONTROL NO.	PLANNED SUBMITTAL DATE
(a)	(b)	(c)	(d)	(e)	(f)	(g)
1) 01010	SD-18, Records	1.2.1				
2)	Work Plan	1.2.1.1	G			
3) 01010	SD-18, Records	1.3.1				
4)	As-Built Records	1.3.1.1	G			
5)	Environmental Condition Report	1.3.1.2				
6)	Network Analysis Diagram	1.3.1.3				
7)	Status Reports	1.3.1.3				
8)	QC Meeting Minutes	1.3.1.4				
9)	Test Results Summary Report	1.3.1.5				
10)	Contractor Production Report	1.3.1.6				
11)	QC Report	1.3.1.7				
12)	Rework Items List	1.3.1.8				
13)	Permits	1.3.1.9				
14)	Contractor's Closeout Report	1.3.1.10				
15) 01430	SD-08, Statements	1.2.1				
16)	Sample Log	1.2.1				
17) 01430	SD-12, Field Test Reports	1.2.2				
18)	Confirmatory Sample Analysis	1.2.2				
19)	Results					
20)	Waste Characterization Sample	1.2.2				

* Navy Notes:
Approved by:
G: Contracting Officer
Blank: CQC Manager

* NASA Notes:
Approved by:
Blank: Contracting Officer

* Army Notes:
Classification:
GA: Gov't Approval
FIO: For Information Only

Contract Number: N62470-93-B-3801 | Project Title: Remediation of Pesticide Contamination

SPEC SECTION NO.	SD NO, AND TYPE OF SUBMITTAL MATERIAL OR PRODUCT	SPEC PARA NO.	CLASSIF/ APPR BY CO *	GOVT OR A/E REVIEWER	TRANS CONTROL NO.	PLANNED SUBMITTAL DATE
(a)	(b)	(c)	(d)	(e)	(f)	(g)
1)	Analysis Results					
2) 01560	SD-08, Statements	1.3.1				
3)	Class I ODS prohibition	1.4	G			
4)	MSDS	1.6	G			
5) 01560	SD-18, Records	1.3.2				
6)	Solid waste disposal permit	1.3.2				
7)	Disposal permit for hazardous	1.3.2.1	G			
8)	waste					
9) 02050	SD-08, Statements	1.3.1				
10)	Demolition plan	1.3.1				
11) 02220	SD-04, Drawings	1.3.1				
12) 02220	SD-08, Statements	1.3.2				
13)	Dewatering	1.3.2				
14) 02220	SD-12, Field Test Reports	1.3.3				
15)	Fill and backfill	1.3.3				
16)	Density tests	1.3.3				
17) 02223	SD-08, Statements	1.2.1				
18)	Treatment Facility	1.2.1.1				
19)	Permit*..SUBPART1.2.1.1 *Treatment Facility Permit					
20) 02223	SD-18, Records	1.2.2				

* Navy Notes:
Approved by:
G: Contracting Officer
Blank: CQC Manager

* NASA Notes:
Approved by:
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* Army Notes:
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SUBMITTAL REGISTER (PART A)

Contract Number: N62470-93-B-3801 | Project Title: Remediation of Pesticide Contamination

SPEC SECTION NO.	SD NO, AND TYPE OF SUBMITTAL MATERIAL OR PRODUCT	SPEC PARA NO.	CLASSIF/ APPR BY CO *	GOVT OR A/E REVIEWER	TRANS CONTROL NO.	PLANNED SUBMITTAL DATE
(a)	(b)	(c)	(d)	(e)	(f)	(g)
1)	Shipment manifests	1.2.2.1				
2)	Delivery and disposal	1.2.2.2				
3)	certificates					
4)	Disposal Site Decontamination	1.2.2.3				
5)	certificate					
6)	Work Site Decontamination	1.2.2.4				
7)	certificate					

* Navy Notes:
Approved by:
G: Contracting Officer
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* NASA Notes:
Approved by:
Blank: Contracting Officer

* Army Notes:
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ATTACHMENT A

Operable Unit No. 5, Site 2
TCLP Analyses of Three
Soil Borings

OPERABLE UNIT No.5, SITE 2
TCLP ANALYSES OF THREE SOIL BORINGS

PARAMETER		REPORTING LIMIT	UNIT	SAMPLE 2MPSB28	SAMPLE 2MPSB30	SAMPLE 2MPSB31	MAXIMUM CONCENTRATION FOR TOXICITY CHARACTERISTIC (1)
TCLP	Semivolatiles						
	1,4-dichlorobenzene	0.1	mg/L	ND	ND	ND	7.5
	2,4,5-trichlorophenol	0.5	mg/L	ND	ND	ND	400
	2,4,6-trichlorophenol	0.1	mg/L	ND	ND	ND	2
	2,4-dinitrotoluene	0.1	mg/L	ND	ND	ND	0.13
	2-methylphenol	0.1	mg/L	ND	ND	ND	200
	3-methylphenol	0.1	mg/L	ND	ND	ND	200
	4-methylphenol	0.1	mg/L	ND	ND	ND	200
	hexachlorobenzene	0.1	mg/L	ND	ND	ND	0.13
	hexachlorobutadiene	0.1	mg/L	ND	ND	ND	0.5
	hexachloroethane	0.1	mg/L	ND	ND	ND	3
	nitrobenzene	0.1	mg/L	ND	ND	ND	2
	pentachlorophenol	0.5	mg/L	ND	ND	ND	100
	pyridine	0.1	mg/L	ND	ND	ND	5
TCLP	Organochlorine Pesticides						
	chlordane	0.50	ug/L	ND	<10 *	<2.50 *	0.03
	endrin	0.10	ug/L	ND	<2 *	<0.50 *	0.02
	gamma-BHC (lindane)	0.05	ug/L	ND	<1 *	<0.25 *	0.4
	heptachlor	0.05	ug/L	ND	<1 *	<0.25 *	0.008
	methoxychlor	0.50	ug/L	ND	<10 *	<2.50 *	10
	toxaphene	1.00	ug/L	ND	<20 *	<5.00 *	0.5
TCLP	Toxicity Metals						
	Arsenic	0.10	mg/L	ND	ND	ND	5
	Barium	0.005	mg/L	0.34	0.22	0.38	100
	Cadmium	0.005	mg/L	0.017	0.005	ND	1
	Chromium	0.01	mg/L	ND	ND	ND	5
	Lead	0.05	mg/L	0.13	0.06	ND	5
	Mercury	0.0002	mg/L	ND	ND	ND	0.2
	Selenium	0.10	mg/L	ND	ND	ND	1
	Silver	0.01	mg/L	ND	ND	ND	5
TCLP	Volatiles						
	1,1-dichloroethylene	0.05	mg/L	ND	ND	ND	0.7
	1,2-dichloroethane	0.05	mg/L	ND	ND	ND	0.5
	methylethyl ketone	0.10	mg/L	ND	ND	ND	200
	benzene	0.05	mg/L	ND	ND	ND	0.5
	carbon tetrachloride	0.05	mg/L	ND	ND	ND	0.5
	chlorobenzene	0.05	mg/L	ND	ND	ND	100
	chloroform	0.05	mg/L	ND	ND	ND	6
	tetrachloroethylene	0.05	mg/L	ND	ND	ND	0.7
	trichloroethylene	0.05	mg/L	ND	ND	ND	0.5
	vinyl chloride	0.10	mg/L	ND	ND	ND	0.2
TCLP	Herbicides						
	2,4,5-TP (Silvex)	0.5	ug/L	ND	ND	ND	1
	2,4-D	0.5	ug/L	ND	ND	ND	10
Inorganic Analysis							
	Corrosivity, pH			7.7	7.6	7.7	NA
	Cyanide, Reactive	10	mg/kg	ND	ND	ND	NA
	Sulfide, Reactive	10	mg/kg	61	ND	71	NA
	Flash Point - Pensky-Martens		F	>200	>200	>200	NA

Notes: (1) Reference 40 CFR 261.24

ND - Not Detected

NA - Not Applicable

* The pesticide detection limits are elevated due to the presence of a matrix interference.

ATTACHMENT B

Operable Unit No. 5, Site 2
Soil Boring Logs

Baker

Baker Environmental, Inc.

TEST BORING RECORD

PROJECT: Site 2, Camp Lejeune RI/FS
S.O. NO.: 19174 BORING NO.: 2-MP-SB02
COORDINATES: EAST: 2498142.4 NORTH: 356770.4
ELEVATION: SURFACE: 32.3 TOP OF STEEL CASING:

RIG: R-39	SPLIT SPOON	CASING	AUGERS	CORE BARREL	DATE	PROGRESS (FT)	WEATHER	WATER DEPTH (FT)	TIME
SIZE (DIAM.)	1-3/8"ID		8-1/4"		4-23-93	0.0 to 6.0	Clear, 70's		
LENGTH	2.0'		5.0'						
TYPE	STD.		HSA						
HAMMER WT.	140#								
FALL	30"								
STICK UP									

REMARKS: Advance augers to 6.0' depth (continuous split spoon sampling). Borehole grouted to surface.

SAMPLE TYPE
S = Split Spoon A = Auger
T = Shelby Tube W = Wash
R = Air Rotary C = Core
D = Denison P = Piston
N = No Sample

DEFINITIONS
SPT = Standard Penetration Test (ASTM D-1586) (Blows/0.5')
RQD = Rock Quality Designation (%)
Lab Class. = USCS (ASTM D-2487) or AASHTO (ASTM D-3282)
Lab Moist. = Moisture Content (ASTM D-2216) Dry Weight Basis

Depth (Ft.)	Sample Type and No.	Samp. Rec. Ft. & %	SPT or RQD	Lab. Class. or Pen. Rate	Lab. Moist %	Visual Description	Elevation
0	S-1				2.3	silty SAND, fine grained with root material; dark brown to brown; very loose; damp, *sample collected	
1							
2							
3	S-2	1.3/2.0 65%	9 6 11 7		2.2	same as above with pine needles; dark brown; medium dense; moist	
4							
5	S-3	1.8/2.0 90%	2 3 4 6		2.3	silty SAND, fine grained grading into fine SAND; dark brown to brown; loose to medium dense; *sample collected confirmed water table, moist to wet 6.0'	
6							
7						End of Boring at 6.0'	
8							
9							
10							

DRILLING CO.: Hardin Huber, Inc. BAKER REP.: J. E. Zimmerman
DRILLER: M. Chriswell BORING NO.: 2-MP-SB02 SHEET 1 OF 1

Baker

Baker Environmental, Inc.

TEST BORING RECORD

PROJECT: Site 2, Camp Lejeune RI/FS
S.O. NO.: 19174 BORING NO.: 2-MP-SB03
COORDINATES: EAST: 2498156.8 NORTH: 356778.8
ELEVATION: SURFACE: 31.9 TOP OF STEEL CASING: _____

RIG: R-39	SPLIT SPOON	CASING	AUGERS	CORE BARREL	DATE	PROGRESS (FT)	WEATHER	WATER DEPTH (FT)	TIME
SIZE (DIAM.)			Nom. 4"		4-26-93	0.0 to 6.0	Cloudy, 70's		
LENGTH									
TYPE			Sol. Stem						
HAMMER WT.									
FALL									
STICK UP									

REMARKS: Advance hand held power auger to 6.0' depth. Samples collected from auger cuttings. Borehole grouted to surface.

SAMPLE TYPE
S = Split Spoon A = Auger
T = Shelby Tube W = Wash
R = Air Rotary C = Core
D = Denison P = Piston
N = No Sample

DEFINITIONS
SPT = Standard Penetration Test (ASTM D-1586) (Blows/0.5')
RQD = Rock Quality Designation (%)
Lab Class. = USCS (ASTM D-2487) or AASHTO (ASTM D-3282)
Lab Moist. = Moisture Content (ASTM D-2216) Dry Weight Basis

Depth (Ft.)	Sample Type and No.	Samp. Rec. Ft. & %	SPT or RQD	Lab. Class. or Pen. Rate	Lab. Moist %	Visual Description	Elevation
0	S-1				4.0	silty SAND, fine grained with root and plant material; dark brown; very loose; damp, *sample collected	
1							
2							
3	S-2				4.5	silty SAND, fine grained; grey; very loose; moist, *sample collected	
4							
5	N					no recovery water table probable	
6						6.0'	
7						End of Boring at 6.0'	
8							
9							
10							

DRILLING CO.: Hardin Huber, Inc. BAKER REP.: J. E. Zimmerman
DRILLER: M. Chriswell BORING NO.: 2-MP-SB03 SHEET 1 OF 1

Baker

Baker Environmental, Inc.

TEST BORING RECORD

PROJECT: Site 2, Camp Lejeune RI/FS
S.O. NO.: 19174 BORING NO.: 2-MP-SB04
COORDINATES: EAST: 2498168.3 NORTH: 356770.3
ELEVATION: SURFACE: 31.5 TOP OF STEEL CASING:

RIG: R-39

	SPLIT SPOON	CASING	AUGERS	CORE BARREL	DATE	PROGRESS (FT)	WEATHER	WATER DEPTH (FT)	TIME
SIZE (DIAM.)			Nom. 4"		4-26-93	0.0 to 6.0	Cloudy, 70's		
LENGTH									
TYPE			Sol. Stem						
HAMMER WT.									
FALL									
STICK UP									

REMARKS: Advance hand held power auger to 6.0' depth. Samples collected from auger cuttings. Borehole grouted to surface.

SAMPLE TYPE
S = Split Spoon A = Auger
T = Shelby Tube W = Wash
R = Air Rotary C = Core
D = Denison P = Piston
N = No Sample

DEFINITIONS
SPT = Standard Penetration Test (ASTM D-1586) (Blows/0.5')
RQD = Rock Quality Designation (%)
Lab Class. = USCS (ASTM D-2487) or AASHTO (ASTM D-3282)
Lab Moist. = Moisture Content (ASTM D-2216) Dry Weight Basis

Depth (Ft.)	Sample Type and No.	Samp. Rec. Ft. & %	SPT or RQD	Lab. Class. or Pen. Rate	Lab. Moist %	Visual Description	Elevation
0	S-1				12.1	silty SAND, fine grained with root material; dark brown; very loose; damp, *sample collected	
1							
2							
3	S-2				12.1	silty SAND, fine grained; grey; very loose; moist, *sample collected confirmed water table	
4							
5	S-3				12.1	silty SAND, fine grained grading into fine SAND; grey; very lose; moist to wet	
6						6.0'	
7						End of Boring at 6.0'	
8							
9							
10							

DRILLING CO.: Hardin Huber, Inc. BAKER REP.: J. E. Zimmerman
DRILLER: M. Chriswell BORING NO.: 2-MP-SB04 SHEET 1 OF 1

Baker

Baker Environmental, Inc.

TEST BORING RECORD

PROJECT: Site 2, Camp Lejeune RI/FS
S.O. NO.: 19174 BORING NO.: 2-MP-SB05
COORDINATES: EAST: 2498142.9 NORTH: 356760.4
ELEVATION: SURFACE: 32.5 TOP OF STEEL CASING:

RIG: R-39	SPLIT SPOON	CASING	AUGERS	CORE BARREL	DATE	PROGRESS (FT)	WEATHER	WATER DEPTH (FT)	TIME
SIZE (DIAM.)			Nom. 4"		4-26-93	0.0 to 4.0	Partly cloudy, 60's		
LENGTH									
TYPE			Sol. Stem						
HAMMER WT.									
FALL									
STICK UP									

REMARKS: Used air hammer to penetrate 4" thick cement slab. Advance hand held power auger to 4.0' depth. Samples collected from auger cuttings. Borehole grouted to surface.

SAMPLE TYPE
S = Split Spoon A = Auger
T = Shelby Tube W = Wash
R = Air Rotary C = Core
D = Denison P = Piston
N = No Sample

DEFINITIONS
SPT = Standard Penetration Test (ASTM D-1586) (Blows/0.5')
RQD = Rock Quality Designation (%)
Lab Class. = USCS (ASTM D-2487) or AASHTO (ASTM D-3282)
Lab Moist. = Moisture Content (ASTM D-2216) Dry Weight Basis

Depth (Ft.)	Sample Type and No.	Samp. Rec. Ft. & %	SPT or RQD	Lab. Class. or Pen. Rate	Lab. Moist %	Visual Description	Elevation
0	S-1				12.2	silty SAND, fine grained; dark brown; very loose; damp, *sample collected	
1							
2							
3	S-2				12.2	grey; very loose; moist, *sample collected	
4						4.0'	
5						End of Boring at 4.0'	
6						*concrete chips are gathered	
7						description: coarse gravel with limestone matrix; light grey to yellow brown to brown; medium dense; concrete slab sitting on top of ground surface	
8							
9							
10							

DRILLING CO.: Hardin Huber, Inc. BAKER REP.: J. E. Zimmerman

Baker

Baker Environmental, Inc.

TEST BORING RECORD

PROJECT: Site 2, Camp Lejeune RI/FS
S.O. NO.: 19174 BORING NO.: 2-MP-SB06
COORDINATES: EAST: 2498136.4 NORTH: 356758.7
ELEVATION: SURFACE: 32.5 TOP OF STEEL CASING: ____

RIG: R-39	SPLIT SPOON	CASING	AUGERS	CORE BARREL	DATE	PROGRESS (FT)	WEATHER	WATER DEPTH (FT)	TIME
SIZE (DIAM.)	1-3/8"ID		8-1/4"		4-23-93	0.0 to 6.0	Clear, 70's		
LENGTH	2.0'		5.0'						
TYPE	STD.		HSA						
HAMMER WT.	140#								
FALL	30"								
STICK UP									

REMARKS: Advance augers to 6.0' depth (continuous split spoon sampling). Borehole grouted to surface.

SAMPLE TYPE
S = Split Spoon A = Auger
T = Shelby Tube W = Wash
R = Air Rotary C = Core
D = Denison P = Piston
N = No Sample

DEFINITIONS
SPT = Standard Penetration Test (ASTM D-1586) (Blows/0.5')
RQD = Rock Quality Designation (%)
Lab Class. = USCS (ASTM D-2487) or AASHTO (ASTM D-3282)
Lab Moist. = Moisture Content (ASTM D-2216) Dry Weight Basis

Depth (Ft.)	Sample Type and No.	Samp. Rec. Ft. & %	SPT or RQD	Lab. Class. or Pen. Rate	Lab. Moist %	Visual Description	Elevation
0	S-1				2.3	silty **SAND**, fine grained with occasional root material; dark brown; very loose; damp, *sample collected	
2							
3	S-2	1.6/2.0 80%	3 1 2 3		2.2	silty **SAND**, fine grained; dark brown to grey; loose; moist	
4							
5	S-3	1.3/2.0 65%	1 3 5 6		2.2	**SAND**, fine grained; grey; loose to medium dense; *sample collected, confirmed water table, moist to wet	▼
6						6.0'	
7						End of Boring at 6.0'	
8							
9							
10							

DRILLING CO.: Hardin Huber, Inc. BAKER REP.: J. E. Zimmerman
DRILLER: M. Chriswell BORING NO.: 2-MP-SB06 SHEET 1 OF 1

Baker

Baker Environmental, Inc.

TEST BORING RECORD

PROJECT: Site 2, Camp Lejeune RI/FS
S.O. NO.: 19174 BORING NO.: 2-MP-SB07
COORDINATES: EAST: 2498171.7 NORTH: 356761.8
ELEVATION: SURFACE: 31.2 TOP OF STEEL CASING:

RIG: R-39									
	SPLIT SPOON	CASING	AUGERS	CORE BARREL	DATE	PROGRESS (FT)	WEATHER	WATER DEPTH (FT)	TIME
SIZE (DIAM.)			Nominal 4"		4-26-93	0.0 to 6.0	Partly Cloudy, 60's		
LENGTH									
TYPE			Sol. Stem						
HAMMER WT.									
FALL									
STICK UP									

REMARKS: Advance hand held power auger to 6.0' depth. Samples collected from auger cuttings. Borehole grouted to surface.

SAMPLE TYPE
S = Split Spoon A = Auger
T = Shelby Tube W = Wash
R = Air Rotary C = Core
D = Denison P = Piston
N = No Sample

DEFINITIONS
SPT = Standard Penetration Test (ASTM D-1586) (Blows/0.5')
RQD = Rock Quality Designation (%)
Lab Class. = USCS (ASTM D-2487) or AASHTO (ASTM D-3282)
Lab Moist. = Moisture Content (ASTM D-2216) Dry Weight Basis

Depth (Ft.)	Sample Type and No.	Samp. Rec. Ft. & %	SPT or RQD	Lab. Class. or Pen. Rate	Lab. Moist %	Visual Description	Elevation
0	S-1				8.0	silty SAND, fine grained with root and plant material; dark brown; very loose; damp, *sample collected	
1							
2							
3	S-2				12.1	silty SAND, fine grained with occasional wood splinters; brown; very loose; moist	
4							
5	S-3				12.1	silty SAND, fine grained grading into fine SAND; grey; very loose; *sample collected confirmed water table; moist to wet 6.0'	▼
6							
7						End of Boring at 6.0'	
8							
9							
10							

DRILLING CO.: Hardin Huber, Inc. BAKER REP.: J. E. Zimmerman
DRILLER: M. Chrismell BORING NO.: 2-MP-SB07 SHEET 1 OF 1

Baker

Baker Environmental, Inc.

TEST BORING RECORD

PROJECT: Site 2, Camp Lejeune RI/FS
S.O. NO.: 19174 BORING NO.: 2-MP-SB08
COORDINATES: EAST: 2498142.6 NORTH: 356738.7
ELEVATION: SURFACE: 32.5 TOP OF STEEL CASING:

RIG: R-39	SPLIT SPOON	CASING	AUGERS	CORE BARREL	DATE	PROGRESS (FT)	WEATHER	WATER DEPTH (FT)	TIME
SIZE (DIAM.)	1-3/8"ID		8-1/4"		4-23-93	0.0 to 6.0	Clear, 70's		
LENGTH	2.0'		5.0'						
TYPE	STD.		HSA						
HAMMER WT.	140#								
FALL	30"								
STICK UP									

REMARKS: Advance augers to 6.0' depth (continuous split spoon sampling). Borehole grouted to surface.

SAMPLE TYPE
S = Split Spoon A = Auger
T = Shelby Tube W = Wash
R = Air Rotary C = Core
D = Denison P = Piston
N = No Sample

DEFINITIONS
SPT = Standard Penetration Test (ASTM D-1586) (Blows/0.5')
RQD = Rock Quality Designation (%)
Lab Class. = USCS (ASTM D-2487) or AASHTO (ASTM D-3282)
Lab Moist. = Moisture Content (ASTM D-2216) Dry Weight Basis

Depth (Ft.)	Sample Type and No.	Samp. Rec. Ft. & %	SPT or RQD	Lab. Class. or Pen. Rate	Lab. Moist %	Visual Description	Elevation
0	S-1				2.2	silty SAND, fine grained with occasional root material; dark brown; very loose; damp, *sample collected	
1							
2							
3	S-2	1.2/2.0 60%	2 3 7 6		2.4	same as above with trace gravel; brown; medium dense; moist	
4							
5	S-3	2.0/2.0 100%	5 10 15 14		1.5	silty SAND, fine grained grading into fine SAND; brown to grey; medium dense; *sample collected confirmed water table; moist to wet 6.0'	▼
6							
7						End of Boring at 6.0'	
8							
9							
10							

DRILLING CO.: Hardin Huber, Inc. BAKER REP.: J. E. Zimmerman
DRILLER: M. Chriswell BORING NO.: 2-MP-SB08 SHEET 1 OF 1

Baker

Baker Environmental, Inc.

TEST BORING RECORD

PROJECT: Site 2, Camp Lejeune RI/FS
S.O. NO.: 19174 BORING NO.: 2-MP-SB09
COORDINATES: EAST: 2498150.9 NORTH: 356737.7
ELEVATION: SURFACE: 32.5 TOP OF STEEL CASING: ____

RIG: R-39

	SPLIT SPOON	CASING	AUGERS	CORE BARREL	DATE	PROGRESS (FT)	WEATHER	WATER DEPTH (FT)	TIME
SIZE (DIAM.)	1-3/8"ID		8-1/4"		4-23-93	0.0 to 6.0	Clear, 70's		
LENGTH	2.0'		5.0'						
TYPE	STD.		HSA						
HAMMER WT.	140#								
FALL	30"								
STICK UP									

REMARKS: Advance augers to 6.0' depth (continuous split spoon sampling). Borehole grouted to surface.

SAMPLE TYPE
S = Split Spoon A = Auger
T = Shelby Tube W = Wash
R = Air Rotary C = Core
D = Denison P = Piston
N = No Sample

DEFINITIONS
SPT = Standard Penetration Test (ASTM D-1586) (Blows/0.5')
RQD = Rock Quality Designation (%)
Lab Class. = USCS (ASTM D-2487) or AASHTO (ASTM D-3282)
Lab Moist. = Moisture Content (ASTM D-2216) Dry Weight Basis

Depth (Ft.)	Sample Type and No.	Samp. Rec. Ft. & %	SPT or RQD	Lab. Class. or Pen. Rate	Lab. Moist %	Visual Description	Elevation
0	S-1				2.7	silty SAND, fine grained with root material; dark brown to brown; very loose; damp, *sample collected	
2							
3	S-2	1.3/2.0	2 2 3 6		2.6	silty SAND, fine grained; brown; loose; moist	
4							
5	S-3	1.7/2.0	6 7 10 8		2.6	silty SAND, fine grained grading into fine SAND; brown to grey; medium dense; *sample collected confirmed water table; moist to wet 6.0'	
6						End of Boring at 6.0'	
7							
8							
9							
10							

DRILLING CO.: Hardin Huber, Inc. BAKER REP.: J. E. Zimmerman
DRILLER: M. Chriswell BORING NO.: 2-MP-SB09 SHEET 1 OF 1

Baker

Baker Environmental, Inc.

TEST BORING RECORD

PROJECT: Site 2, Camp Lejeune RI/FS
S.O. NO.: 19174 BORING NO.: 2-MP-SB10
COORDINATES: EAST: 2498168.9 NORTH: 356758.7
ELEVATION: SURFACE: 32.1 TOP OF STEEL CASING:

RIG: R-39

	SPLIT SPOON	CASING	AUGERS	CORE BARREL	DATE	PROGRESS (FT)	WEATHER	WATER DEPTH (FT)	TIME
SIZE (DIAM.)	1-3/8"ID		8-1/4"		4-23-93	0.0 to 6.0	Clear, 70's		
LENGTH	2.0'		5.0'						
TYPE	STD.		HSA						
HAMMER WT.	140#								
FALL	30"								
STICK UP									

REMARKS: Advance augers to 6.0' depth (continuous split spoon sampling). Borehole grouted to surface.

SAMPLE TYPE
S = Split Spoon A = Auger
T = Shelby Tube W = Wash
R = Air Rotary C = Core
D = Denison P = Piston
N = No Sample

DEFINITIONS
SPT = Standard Penetration Test (ASTM D-1586) (Blows/0.5')
RQD = Rock Quality Designation (%)
Lab Class. = USCS (ASTM D-2487) or AASHTO (ASTM D-3282)
Lab Moist. = Moisture Content (ASTM D-2216) Dry Weight Basis

Depth (Ft.)	Sample Type and No.	Samp. Rec. Ft. & %	SPT or RQD	Lab. Class. or Pen. Rate	Lab. Moist %	Visual Description	Elevation
0	S-1				3.1	silty SAND, fine grained with root material; dark brown to brown; very loose; damp, *sample collected	
1							
2							
3	S-2	1.4 / 2.0 70%	1 4 5 5		2.6	silty SAND, fine grained; brown; medium dense; moist	
4							
5	S-3	1.4 / 2.0 70%	3 4 8 11		2.6	silty SAND, fine grained grading into fine SAND; brownish grey to grey; medium dense; *sample collected confirmed water table; moist to wet 6.0'	
6							
7						End of Boring at 6.0'	
8							
9							
10							

DRILLING CO.: Hardin Huber, Inc. BAKER REP.: J. E. Zimmerman
DRILLER: M. Chriswell BORING NO.: 2-MP-SB10 SHEET 1 OF 1

Baker

Baker Environmental, Inc.

TEST BORING RECORD

PROJECT: Site 2, Camp Lejeune RI/FS
S.O. NO.: 19174 BORING NO.: 2-MP-SB11
COORDINATES: EAST: 2498175.3 NORTH: 356740.3
ELEVATION: SURFACE: 31.7 TOP OF STEEL CASING:

RIG: R-39	SPLIT SPOON	CASING	AUGERS	CORE BARREL	DATE	PROGRESS (FT)	WEATHER	WATER DEPTH (FT)	TIME
SIZE (DIAM.)	1-3/8"ID		8-1/4"		4-23-93	0.0 to 6.0	Clear, 70's		
LENGTH	2.0'		5.0'						
TYPE	STD.		HSA						
HAMMER WT.	140#								
FALL	30"								
STICK UP									

REMARKS: Advance augers to 6.0' depth (continuous split spoon sampling). Borehole grouted to surface.

SAMPLE TYPE
S = Split Spoon A = Auger
T = Shelby Tube W = Wash
R = Air Rotary C = Core
D = Denison P = Piston
N = No Sample

DEFINITIONS
SPT = Standard Penetration Test (ASTM D-1586) (Blows/0.5')
RQD = Rock Quality Designation (%)
Lab Class. = USCS (ASTM D-2487) or AASHTO (ASTM D-3282)
Lab Moist. = Moisture Content (ASTM D-2216) Dry Weight Basis

Depth (Ft.)	Sample Type and No.	Samp. Rec. Ft. & %	SPT or RQD	Lab. Class. or Pen. Rate	Lab. Moist %	Visual Description	Elevation
0	S-1				3.1	silty SAND, fine grained with root material; dark brown to brown; very loose; damp, *sample collected	
1							
2							
3	S-2	1.6/2.0 80%	2 1 1 1		5.0	silty SAND, fine grained; dark brown to yellowish brown; very loose; moist	
4							
5	S-3	1.6/2.0 80%	4 6 8 6		2.9	SAND, fine grained; yellowish brown to grey; medium dense; *sample collected confirmed water table, moist to wet	
6						6.0'	
7						End of Boring at 6.0'	
8							
9							
10							

DRILLING CO.: Hardin Huber, Inc. BAKER REP.: J. E. Zimmerman
DRILLER: M. Chriswell BORING NO.: 2-MP-SB11 SHEET 1 OF 1

Baker

Baker Environmental, Inc.

TEST BORING RECORD

PROJECT: Site 2, Camp Lejeune RI/FS
S.O. NO.: 19174 BORING NO.: 2-MP-SB12
COORDINATES: EAST: 2498182.5 NORTH: 356714.8
ELEVATION: SURFACE: 31.9 TOP OF STEEL CASING: _____

RIG: R-39	SPLIT SPOON	CASING	AUGERS	CORE BARREL	DATE	PROGRESS (FT)	WEATHER	WATER DEPTH (FT)	TIME
SIZE (DIAM.)	1-3/8"ID		8-1/4"		4-23-93	0.0 to 6.0	Clear, 70's		
LENGTH	2.0'		5.0'						
TYPE	STD.		HSA						
HAMMER WT.	140#								
FALL	30"								
STICK UP									

REMARKS: Advance augers to 6.0' depth (continuous split spoon sampling). Borehole grouted to surface.

SAMPLE TYPE
S = Split Spoon A = Auger
T = Shelby Tube W = Wash
R = Air Rotary C = Core
D = Denison P = Piston
N = No Sample

DEFINITIONS
SPT = Standard Penetration Test (ASTM D-1586) (Blows/0.5')
RQD = Rock Quality Designation (%)
Lab Class. = USCS (ASTM D-2487) or AASHTO (ASTM D-3282)
Lab Moist. = Moisture Content (ASTM D-2216) Dry Weight Basis

Depth (Ft.)	Sample Type and No.	Samp. Rec. Ft. & %	SPT or RQD	Lab. Class. or Pen. Rate	Lab. Moist %	Visual Description	Elevation
	S-1				1.5	silty SAND, fine grained with root material; dark brown; very loose; damp, *sample collected	
1							
2							
3	S-2	2.0 / 2.0 100%	3 5 6 6		3.5	silty SAND, fine grained; grey to yellowish brown to grey; medium dense; moist	
4							
5	S-3	1.7 / 2.0 85%	13 14 7 9		5.0	SAND, fine grained grading into fine SAND; grey; medium dense; *sample collected confirmed water table, moist to wet 6.0'	▼
6							
7						End of Boring at 6.0'	
8							
9							
10							

DRILLING CO.: Hardin Huber, Inc. BAKER REP.: J. E. Zimmerman
DRILLER: M. Chriswell BORING NO.: 2-MP-SB12 SHEET 1 OF 1

Baker

Baker Environmental, Inc.

TEST BORING RECORD

PROJECT: Site 2, Camp Lejeune RI/FS
S.O. NO.: 19174 BORING NO.: 2-MP-SB13
COORDINATES: EAST: 2498185.5 NORTH: 356698.1
ELEVATION: SURFACE: 32.3 TOP OF STEEL CASING: ____

RIG: R-39	SPLIT SPOON	CASING	AUGERS	CORE BARREL	DATE	PROGRESS (FT)	WEATHER	WATER DEPTH (FT)	TIME
SIZE (DIAM.)	1-3/8"ID		8-1/4"		4-23-93	0.0 to 6.0	Clear, 70's		
LENGTH	2.0'		5.0'						
TYPE	STD.		HSA						
HAMMER WT.	140#								
FALL	30"								
STICK UP									

REMARKS: Advance augers to 6.0' depth (continuous split spoon sampling). Borehole grouted to surface.

SAMPLE TYPE
S = Split Spoon A = Auger
T = Shelby Tube W = Wash
R = Air Rotary C = Core
D = Denison P = Piston
N = No Sample

DEFINITIONS
SPT = Standard Penetration Test (ASTM D-1586) (Blows/0.5')
RQD = Rock Quality Designation (%)
Lab Class. = USCS (ASTM D-2487) or AASHTO (ASTM D-3282)
Lab Moist. = Moisture Content (ASTM D-2216) Dry Weight Basis

Depth (Ft.)	Sample Type and No.	Samp. Rec. Ft. & %	SPT or RQD	Lab. Class. or Pen. Rate	Lab. Moist %	Visual Description	Elevation
	S-1				2.3	silty SAND, fine grained with occasional root material; dark brown; very loose; damp, *sample collected	
3	S-2	1.9/2.0 95%	2 3 4 4		2.4	silty SAND, fine grained; loose to medium dense; moist	
5	S-3	1.4/2.0 70%	3 2 5 3		2.4	silty SAND, fine grained grading into fine SAND; loose to medium dense; *sample collected confirmed water table, moist to wet 6.0'	▼
						End of Boring at 6.0'	

DRILLING CO.: Hardin Huber, Inc. BAKER REP.: J. E. Zimmerman
DRILLER: M. Chriswell BORING NO.: 2-MP-SB13 SHEET 1 OF 1

Baker

Baker Environmental, Inc.

TEST BORING RECORD

PROJECT: Site 2, Camp Lejeune RI/FS
S.O. NO.: 19174 BORING NO.: 2-MP-SB14
COORDINATES: EAST: 2498198.1 NORTH: 356653.9
ELEVATION: SURFACE: 32.2 TOP OF STEEL CASING: _____

RIG: R-39

	SPLIT SPOON	CASING	AUGERS	CORE BARREL	DATE	PROGRESS (FT)	WEATHER	WATER DEPTH (FT)	TIME
SIZE (DIAM.)	1-3/8"ID		8-1/4"		4-24-93	0.0 to 6.0	Clear, 70's		
LENGTH	2.0'		5.0'						
TYPE	STD.		HSA						
HAMMER WT.	140#								
FALL	30"								
STICK UP									

REMARKS: Advance augers to 6.0' depth (continuous split spoon sampling). Borehole grouted to surface.

SAMPLE TYPE
S = Split Spoon A = Auger
T = Shelby Tube W = Wash
R = Air Rotary C = Core
D = Denison P = Piston
N = No Sample

DEFINITIONS
SPT = Standard Penetration Test (ASTM D-1586) (Blows/0.5')
RQD = Rock Quality Designation (%)
Lab Class. = USCS (ASTM D-2487) or AASHTO (ASTM D-3282)
Lab Moist. = Moisture Content (ASTM D-2216) Dry Weight Basis

Depth (Ft.)	Sample Type and No.	Samp. Rec. Ft. & %	SPT or RQD	Lab. Class. or Pen. Rate	Lab. Moist %	Visual Description	Elevation
0	S-1				0.9	silty SAND, fine grained with occasional root material; dark brown; very loose; damp, *sample collected	
2	S-2	1.9/2.0 95%	2 1 1 2		0.9	silty SAND, fine grained; brown; very loose; moist, *sample collected	
4	S-3	1.3/2.0 65%	1 2 5 8		0.9	SAND, fine grained; brown to grey; loose; moist to wet, confirmed water table 6.0'	▼
6						End of Boring at 6.0'	
8							
10							

DRILLING CO.: Hardin Huber, Inc. BAKER REP.: J. E. Zimmerman
DRILLER: M. Chriswell BORING NO.: 2-MP-SB14 SHEET 1 OF 1

Baker

Baker Environmental, Inc.

TEST BORING RECORD

PROJECT: Site 2, Camp Lejeune RI/FS
S.O. NO.: 19174 BORING NO.: 2-MP-SB15
COORDINATES: EAST: 2498195.4 NORTH: 356640.6
ELEVATION: SURFACE: 32.4 TOP OF STEEL CASING: ____

RIG: R-39

	SPLIT SPOON	CASING	AUGERS	CORE BARREL	DATE	PROGRESS (FT)	WEATHER	WATER DEPTH (FT)	TIME
SIZE (DIAM.)	1-3/8"ID		8-1/4"		4-24-93	0.0 to 6.0	Clear, 70's		
LENGTH	2.0'		5.0'						
TYPE	STD.		HSA						
HAMMER WT.	140#								
FALL	30"								
STICK UP									

REMARKS: Advance augers to 6.0' depth (continuous split spoon sampling). Borehole grouted to surface.

SAMPLE TYPE
S = Split Spoon A = Auger
T = Shelby Tube W = Wash
R = Air Rotary C = Core
D = Denison P = Piston
N = No Sample

DEFINITIONS
SPT = Standard Penetration Test (ASTM D-1586) (Blows/0.5')
RQD = Rock Quality Designation (%)
Lab Class. = USCS (ASTM D-2487) or AASHTO (ASTM D-3282)
Lab Moist. = Moisture Content (ASTM D-2216) Dry Weight Basis

Depth (Ft.)	Sample Type and No.	Samp. Rec. Ft. & %	SPT or RQD	Lab. Class. or Pen. Rate	Lab. Moist %	Visual Description	Elevation
0	S-1				5.0	silty SAND, fine grained with root material; dark brown; very loose; damp, *sample collected (hydrocarbon odor)	
1							
2							
3	S-2	1.5 / 2.0 75%	1 1 1 1		3.5	silty SAND, fine grained; greenish grey; very loose; moist (hydrocarbon odor)	
4							
5	S-3	1.2 / 2.0 60%	5 5 6 6		2.1	SAND, fine grained; greenish grey to brown; medium dense; *sample collected confirmed water table (hydrocarbon odor), moist to wet 6.0'	▼
6							
7						End of Boring at 6.0'	
8							
9							
10							

DRILLING CO.: Hardin Huber, Inc. BAKER REP.: J. E. Zimmerman
DRILLER: M. Chriswell BORING NO.: 2-MP-SB15 SHEET 1 OF 1

Baker

Baker Environmental, Inc.

TEST BORING RECORD

PROJECT: Site 2, Camp Lejeune RI/FS
S.O. NO.: 19174 BORING NO.: 2-MP-SB16
COORDINATES: EAST: 2498205.0 NORTH: 356646.1
ELEVATION: SURFACE: 32.0 TOP OF STEEL CASING: _____

RIG: R-39	SPLIT SPOON	CASING	AUGERS	CORE BARREL	DATE	PROGRESS (FT)	WEATHER	WATER DEPTH (FT)	TIME
SIZE (DIAM.)	1-3/8"ID		8-1/4"		4-23-93	0.0 to 6.0	Clear, 70's		
LENGTH	2.0'		5.0'						
TYPE	STD.		HSA						
HAMMER WT.	140#								
FALL	30"								
STICK UP									

REMARKS: Advance augers to 6.0' depth (continuous split spoon sampling). Borehole grouted to surface.

SAMPLE TYPE
S = Split Spoon A = Auger
T = Shelby Tube W = Wash
R = Air Rotary C = Core
D = Denison P = Piston
N = No Sample

DEFINITIONS
SPT = Standard Penetration Test (ASTM D-1586) (Blows/0.5')
RQD = Rock Quality Designation (%)
Lab Class. = USCS (ASTM D-2487) or AASHTO (ASTM D-3282)
Lab Moist. = Moisture Content (ASTM D-2216) Dry Weight Basis

Depth (Ft.)	Sample Type and No.	Samp. Rec. Ft. & %	SPT or RQD	Lab. Class. or Pen. Rate	Lab. Moist %	Visual Description	Elevation
1	S-1				0.9	silty **SAND**, fine grained with occasional root and gravel material; dark brown to brown; very loose; damp, *sample collected	
2							
3	S-2	1.3 / 2.0 65%	2 2 4 9		2.5	silty **SAND**, fine grained; yellowish brown to grey; loose; moist (hydrocarbon odor)	
4							
5	S-3	1.2 / 2.0 60%	3 6 7 7		2.0	**SAND**, fine grained; grey; medium dense; *sample collected confirmed water table (hydrocarbon odor), wet	
6						6.0'	
7						End of Boring at 6.0'	
8							
9							
10							

DRILLING CO.: Hardin Huber, Inc. BAKER REP.: J. E. Zimmerman
DRILLER: M. Chriswell BORING NO.: 2-MP-SB16 SHEET 1 OF 1

Baker

Baker Environmental, Inc.

TEST BORING RECORD

PROJECT: Site 2, Camp Lejeune RI/FS
S.O. NO.: 19174 BORING NO.: 2-MP-SB17
COORDINATES: EAST: 2498207.4 NORTH: 356640.4
ELEVATION: SURFACE: 31.9 TOP OF STEEL CASING: _____

RIG: R-39	SPLIT SPOON	CASING	AUGERS	CORE BARREL	DATE	PROGRESS (FT)	WEATHER	WATER DEPTH (FT)	TIME
SIZE (DIAM.)	1-3/8"ID		8-1/4"		4-25-93	0.0 to 6.0	Clear, 50's		
LENGTH	2.0'		5.0'						
TYPE	STD.		HSA						
HAMMER WT.	140#								
FALL	30"								
STICK UP									

REMARKS: Advance augers to 6.0' depth (continuous split spoon sampling). Borehole grouted to surface.

SAMPLE TYPE
S = Split Spoon A = Auger
T = Shelby Tube W = Wash
R = Air Rotary C = Core
D = Denison P = Piston
N = No Sample

DEFINITIONS
SPT = Standard Penetration Test (ASTM D-1586) (Blows/0.5')
RQD = Rock Quality Designation (%)
Lab Class. = USCS (ASTM D-2487) or AASHTO (ASTM D-3282)
Lab Moist. = Moisture Content (ASTM D-2216) Dry Weight Basis

Depth (Ft.)	Sample Type and No.	Samp. Rec. Ft. & %	SPT or RQD	Lab. Class. or Pen. Rate	Lab. Moist %	Visual Description	Elevation
0	S-1				3.4	silty SAND, fine grained with root material; dark brown; very loose; damp, *sample collected	
1							
2							
3	N		4 5 10 10			no recovery; wood lodged inside split spoon	
4							
5	S-3	2.0 2.0 100%	5 15 12 10		4.5	silty SAND, fine grained grading into fine SAND; brown to grey; medium dense; *sample collected confirmed water table, wet	▼
6						6.0'	
7						End of Boring at 6.0'	
8							
9							
10							

DRILLING CO.: Hardin Huber, Inc. BAKER REP.: J. E. Zimmerman
DRILLER: M. Chriswell BORING NO.: 2-MP-SB17 SHEET 1 OF 1

Baker

Baker Environmental, Inc.

TEST BORING RECORD

PROJECT: Site 2, Camp Lejeune RI/FS
S.O. NO.: 19174 BORING NO.: 2-MP-SB17A
COORDINATES: EAST: 2498204.9 NORTH: 356628.1
ELEVATION: SURFACE: 33.0 TOP OF STEEL CASING:

RIG: R-39									
	SPLIT SPOON	CASING	AUGERS	CORE BARREL	DATE	PROGRESS (FT)	WEATHER	WATER DEPTH (FT)	TIME
SIZE (DIAM.)			Nom.4"		4-26-93	0.0 to 4.0	Partly cloudy, 60's		
LENGTH									
TYPE			Sol. Stem						
HAMMER WT.									
FALL									
STICK UP									

REMARKS: Used air hammer to penetrate 4" thick cement slab. Advance hand held power auger to 4.0' depth. Samples collected from auger cuttings. Borehole grouted to surface.

SAMPLE TYPE
S = Split Spoon A = Auger
T = Shelby Tube W = Wash
R = Air Rotary C = Core
D = Denison P = Piston
N = No Sample

DEFINITIONS
SPT = Standard Penetration Test (ASTM D-1586) (Blows/0.5')
RQD = Rock Quality Designation (%)
Lab Class. = USCS (ASTM D-2487) or AASHTO (ASTM D-3282)
Lab Moist. = Moisture Content (ASTM D-2216) Dry Weight Basis

Depth (Ft.)	Sample Type and No.	Samp. Rec. Ft. & %	SPT or RQD	Lab. Class. or Pen. Rate	Lab. Moist %	Visual Description	Elevation
0	S-1				12.0	silty **SAND**, fine grained; dark brown; very loose; damp, *sample collected	
1							
2							
3	S-2				17.0	grey; very loose; moist, *sample collected	
4						4.0'	
5						End of Boring at 4.0'	
6						*concrete chips are gathered	
7						description: coarse gravel with limestone matrix; light grey to yellow brown to brown; medium dense; concrete slab sitting on top of ground surface	
8							
9							
10							

DRILLING CO.: Hardin Huber, Inc. BAKER REP.: J. E. Zimmerman
DRILLER: M. Chriswell BORING NO.: 2-MP-SB17A SHEET 1 OF 1

Baker

Baker Environmental, Inc.

TEST BORING RECORD

PROJECT: Site 2, Camp Lejeune RI/FS
S.O. NO.: 19174 BORING NO.: 2-MP-SB18
COORDINATES: EAST: 2498197.8 NORTH: 356634.5
ELEVATION: SURFACE: 33.0 TOP OF STEEL CASING:

RIG: R-39	SPLIT SPOON	CASING	AUGERS	CORE BARREL	DATE	PROGRESS (FT)	WEATHER	WATER DEPTH (FT)	TIME
SIZE (DIAM.)	1-3/8"ID		8-1/4"		4-25-93	0.0 to 8.0	Clear, 50's		
LENGTH	2.0'		5.0'						
TYPE	STD.		HSA						
HAMMER WT.	140#								
FALL	30"								
STICK UP									

REMARKS: Advance augers to 8.0' depth (continuous split spoon sampling). Borehole grouted to surface.

SAMPLE TYPE
S = Split Spoon A = Auger
T = Shelby Tube W = Wash
R = Air Rotary C = Core
D = Denison P = Piston
N = No Sample

DEFINITIONS
SPT = Standard Penetration Test (ASTM D-1586) (Blows/0.5')
RQD = Rock Quality Designation (%)
Lab Class. = USCS (ASTM D-2487) or AASHTO (ASTM D-3282)
Lab Moist. = Moisture Content (ASTM D-2216) Dry Weight Basis

Depth (Ft.)	Sample Type and No.	Samp. Rec. Ft. & %	SPT or RQD	Lab. Class. or Pen. Rate	Lab. Moist %	Visual Description	Elevation
0	S-1				1.6	silty SAND, fine grained with occasional root material; dark brown; very loose; damp, *sample collected	
1							
2							
3	S-2	0.9 / 2.0 45%	3 2 3 3		1.6	silty SAND, fine grained; dark brown to grey; loose; moist	
4							
5	S-3	1.1 / 2.0 55%	4 5 9 9		1.4	silty SAND, fine grained grading into fine SAND; grey; medium dense; moist, *sample collected	
6							▼
7	S-4	2.0 / 2.0 100%	2 4 6 10		1.1	SAND, fine grained; grey; medium dense; wet, confirmed water table	
8						8.0'	
9						End of Boring at 8.0'	
10							

DRILLING CO.: Hardin Huber, Inc. BAKER REP.: J. E. Zimmerman
DRILLER: M. Chriswell BORING NO.: 2-MP-SB18 SHEET 1 OF 1

Baker

Baker Environmental, Inc.

TEST BORING RECORD

PROJECT: Site 2, Camp Lejeune RI/FS
S.O. NO.: 19174 BORING NO.: 2-MP-SB21
COORDINATES: EAST: 2498192.0 NORTH: 356636.3
ELEVATION: SURFACE: 32.5 TOP OF STEEL CASING:

RIG: R-39

	SPLIT SPOON	CASING	AUGERS	CORE BARREL	DATE	PROGRESS (FT)	WEATHER	WATER DEPTH (FT)	TIME
SIZE (DIAM.)	1-3/8"ID		8-1/4"		4-23-93	0.0 to 8.0	Clear, 70's		
LENGTH	2.0'		5.0'						
TYPE	STD.		HSA						
HAMMER WT.	140#								
FALL	30"								
STICK UP									

REMARKS: Advance augers to 8.0' depth (continuous split spoon sampling). Borehole grouted to surface.

SAMPLE TYPE
S = Split Spoon A = Auger
T = Shelby Tube W = Wash
R = Air Rotary C = Core
D = Denison P = Piston
N = No Sample

DEFINITIONS
SPT = Standard Penetration Test (ASTM D-1586) (Blows/0.5')
RQD = Rock Quality Designation (%)
Lab Class. = USCS (ASTM D-2487) or AASHTO (ASTM D-3282)
Lab Moist. = Moisture Content (ASTM D-2216) Dry Weight Basis

Depth (Ft.)	Sample Type and No.	Samp. Rec. Ft. & %	SPT or RQD	Lab. Class. or Pen. Rate	Lab. Moist %	Visual Description	Elevation
	S-1				1.8		
1–2						silty **SAND**, fine grained with root material and trace gravel; dark brown to brown; very loose; damp, *sample collected	
3–4	S-2	1.4/2.0 70%	2 2 2 4		1.8	silty **SAND**, fine grained with trace of fill material (brick, burnt soil); dark brown to grey; loose; moist	
5–6	S-3	0.3/2.0 15%	3 5 7 8		0.9	silty **SAND**, fine grained with root material, gravel and plant stems; buff; medium dense; dry, *sample collected	
7–8	S-4	1.2/2.0 60%	5 3 4 3		3.0	**SAND**, fine grained; brown; loose; wet, confirmed water table 8.0'	▼
9–10						End of Boring at 8.0'	

DRILLING CO.: Hardin Huber, Inc. BAKER REP.: J. E. Zimmerman
DRILLER: M. Chriswell BORING NO.: 2-MP-SB21 SHEET 1 OF 1

Baker

Baker Environmental, Inc.

TEST BORING RECORD

PROJECT: Site 2, Camp Lejeune RI/FS
S.O. NO.: 19174 BORING NO.: 2-MP-SB22
COORDINATES: EAST: 2498195.9 NORTH: 356627.6
ELEVATION: SURFACE: 32.7 TOP OF STEEL CASING:

RIG: R-39	SPLIT SPOON	CASING	AUGERS	CORE BARREL	DATE	PROGRESS (FT)	WEATHER	WATER DEPTH (FT)	TIME
SIZE (DIAM.)	1-3/8"ID		8-1/4"		4-24-93	0.0 to 6.0	Clear, 70's		
LENGTH	2.0'		5.0'						
TYPE	STD.		HSA						
HAMMER WT.	140#								
FALL	30"								
STICK UP									

REMARKS: Advance augers to 6.0' depth (continuous split spoon sampling). Borehole grouted to surface.

SAMPLE TYPE
S = Split Spoon A = Auger
T = Shelby Tube W = Wash
R = Air Rotary C = Core
D = Denison P = Piston
N = No Sample

DEFINITIONS
SPT = Standard Penetration Test (ASTM D-1586) (Blows/0.5')
RQD = Rock Quality Designation (%)
Lab Class. = USCS (ASTM D-2487) or AASHTO (ASTM D-3282)
Lab Moist. = Moisture Content (ASTM D-2216) Dry Weight Basis

Depth (Ft.)	Sample Type and No.	Samp. Rec. Ft. & %	SPT or RQD	Lab. Class. or Pen. Rate	Lab. Moist %	Visual Description	Elevation
0	S-1				2.5	silty **SAND**, fine grained with root material; dark brown; very loose; damp, *sample collected	
1							
2							
3	S-2	1.5/2.0 75%	2 3 5 7		6.0	silty **SAND**, fine grained; grey; loose; moist (hydrocarbon odor)	
4							
5	S-3	1.5/2.0 75%	4 6 5 4		9.0	**SAND**, fine grained; grey; medium dense; *sample collected confirmed water table, wet (hydrocarbon odor) 6.0'	▼
6							
7						End of Boring at 6.0'	
8							
9							
10							

DRILLING CO.: Hardin Huber, Inc. BAKER REP.: J. E. Zimmerman
DRILLER: M. Chriswell BORING NO.: 2-MP-SB22 SHEET 1 OF 1

Baker

Baker Environmental, Inc.

TEST BORING RECORD

PROJECT: Site 2, Camp Lejeune RI/FS
S.O. NO.: 19174 BORING NO.: 2-MP-SB23
COORDINATES: EAST: 2498203.9 NORTH: 356619.4
ELEVATION: SURFACE: 32.6 TOP OF STEEL CASING:

RIG: R-39

	SPLIT SPOON	CASING	AUGERS	CORE BARREL	DATE	PROGRESS (FT)	WEATHER	WATER DEPTH (FT)	TIME
SIZE (DIAM.)	1-3/8"ID		8-1/4"		4-24-93	0.0 to 8.0	Clear, 70's		
LENGTH	2.0'		5.0'						
TYPE	STD.		HSA						
HAMMER WT.	140#								
FALL	30"								
STICK UP									

REMARKS: Advance augers to 8.0' depth (continuous split spoon sampling). Borehole grouted to surface.

SAMPLE TYPE
S = Split Spoon A = Auger
T = Shelby Tube W = Wash
R = Air Rotary C = Core
D = Denison P = Piston
N = No Sample

DEFINITIONS
SPT = Standard Penetration Test (ASTM D-1586) (Blows/0.5')
RQD = Rock Quality Designation (%)
Lab Class. = USCS (ASTM D-2487) or AASHTO (ASTM D-3282)
Lab Moist. = Moisture Content (ASTM D-2216) Dry Weight Basis

Depth (Ft.)	Sample Type and No.	Samp. Rec. Ft. & %	SPT or RQD	Lab. Class. or Pen. Rate	Lab. Moist %	Visual Description	Elevation
	S-1				3.0	silty SAND, fine grained with root material; dark brown to brown; very loose; damp, *sample collected (hydrocarbon odor)	
1							
2							
3	S-2	1.4/2.0 70%	2 3 4 4		2.0	silty SAND, fine grained; grey; loose; moist (hydrocarbon odor)	
4							
5	S-3	0.4/2.0 20%	3 4 5 10		2.0	grey; medium dense; moist (hydrocarbon odor), *sample collected confirmed water table	
6							
7	S-4	1.5/2.0 75%	5 5 4 6		1.8	SAND, fine grained; grey; medium dense; wet (hydrocarbon odor) 8.0'	
8							
9						End of Boring at 8.0'	
10							

DRILLING CO.: Hardin Huber, Inc. BAKER REP.: J. E. Zimmerman
DRILLER: M. Chriswell BORING NO.: 2-MP-SB23 SHEET 1 OF 1

Baker

Baker Environmental, Inc.

TEST BORING RECORD

PROJECT: Site 2, Camp Lejeune RI/FS
S.O. NO.: 19174 BORING NO.: 2-MP-SB24
COORDINATES: EAST: 2498213.2 NORTH: 356619.6
ELEVATION: SURFACE: 32.3 TOP OF STEEL CASING:

RIG: R-39

	SPLIT SPOON	CASING	AUGERS	CORE BARREL	DATE	PROGRESS (FT)	WEATHER	WATER DEPTH (FT)	TIME
SIZE (DIAM.)	1-3/8"ID		8-1/4"		4-25-93	0.0 to 6.0	Clear, 60's		
LENGTH	2.0'		5.0'						
TYPE	STD.		HSA						
HAMMER WT.	140#								
FALL	30"								
STICK UP									

REMARKS: Advance augers to 6.0' depth (continuous split spoon sampling). Borehole grouted to surface.

SAMPLE TYPE
S = Split Spoon A = Auger
T = Shelby Tube W = Wash
R = Air Rotary C = Core
D = Denison P = Piston
N = No Sample

DEFINITIONS
SPT = Standard Penetration Test (ASTM D-1586) (Blows/0.5')
RQD = Rock Quality Designation (%)
Lab Class. = USCS (ASTM D-2487) or AASHTO (ASTM D-3282)
Lab Moist. = Moisture Content (ASTM D-2216) Dry Weight Basis

Depth (Ft.)	Sample Type and No.	Samp. Rec. Ft. & %	SPT or RQD	Lab. Class. or Pen. Rate	Lab. Moist %	Visual Description	Elevation
0	S-1				1.3	silty SAND, fine grained with root material and occasional gravel; dark brown; very loose; damp, *sample collected	
3	S-2	0.3 / 2.0 15%	1 2 3 3		1.2	silty SAND, fine grained with root material; brown; loose; moist	
5	S-3	1.8 / 2.0 90%	5 9 13 16		1.2	silty SAND, fine grained grading into fine SAND; brown to grey; medium dense; *sample collected confirmed water table, moist to wet 6.0'	
						End of Boring at 6.0'	

DRILLING CO.: Hardin Huber, Inc. BAKER REP.: J. E. Zimmerman
DRILLER: M. Chriswell BORING NO.: 2-MP-SB24 SHEET 1 OF 1

Baker

Baker Environmental, Inc.

TEST BORING RECORD

PROJECT: Site 2, Camp Lejeune RI/FS
S.O. NO.: 19174 BORING NO.: 2-MP-SB25
COORDINATES: EAST: 2498219.1 NORTH: 356597.1
ELEVATION: SURFACE: 32.4 TOP OF STEEL CASING:

RIG: R-39

	SPLIT SPOON	CASING	AUGERS	CORE BARREL	DATE	PROGRESS (FT)	WEATHER	WATER DEPTH (FT)	TIME
SIZE (DIAM.)	1-3/8"ID		8-1/4"		4-25-93	0.0 to 6.0	Clear, 60's		
LENGTH	2.0'		5.0'						
TYPE	STD.		HSA						
HAMMER WT.	140#								
FALL	30"								
STICK UP									

REMARKS: Advance augers to 6.0' depth (continuous split spoon sampling). Borehole grouted to surface.

SAMPLE TYPE
S = Split Spoon A = Auger
T = Shelby Tube W = Wash
R = Air Rotary C = Core
D = Denison P = Piston
N = No Sample

DEFINITIONS
SPT = Standard Penetration Test (ASTM D-1586) (Blows/0.5')
RQD = Rock Quality Designation (%)
Lab Class. = USCS (ASTM D-2487) or AASHTO (ASTM D-3282)
Lab Moist. = Moisture Content (ASTM D-2216) Dry Weight Basis

Depth (Ft.)	Sample Type and No.	Samp. Rec. Ft. & %	SPT or RQD	Lab. Class. or Pen. Rate	Lab. Moist %	Visual Description	Elevation
0	S-1				1.2	silty SAND, fine grained with root material; dark brown; very loose; damp, *sample collected	
1							
2							
3	S-2	0.9 / 2.0 45%	2 2 2 4		1.2	silty SAND, fine grained; brown to grey; loose; moist	
4							
5	S-3	1.5 / 2.0 75%	1 4 4 5		1.2	silty SAND, fine grained grading into fine SAND; grey to brown; loose; moist to wet, *sample collected confirmed water table 6.0'	
6							
7						End of Boring at 6.0'	
8							
9							
10							

DRILLING CO.: Hardin Huber, Inc. BAKER REP.: J. E. Zimmerman
DRILLER: M. Chriswell BORING NO.: 2-MP-SB25 SHEET 1 OF 1

Baker

Baker Environmental, Inc.

TEST BORING RECORD

PROJECT: Site 2, Camp Lejeune RI/FS
S.O. NO.: 19174 BORING NO.: 2-MP-SB26
COORDINATES: EAST: 2498225.7 NORTH: 356572.6
ELEVATION: SURFACE: 32.3 TOP OF STEEL CASING: ____

RIG: R-39	SPLIT SPOON	CASING	AUGERS	CORE BARREL	DATE	PROGRESS (FT)	WEATHER	WATER DEPTH (FT)	TIME
SIZE (DIAM.)	1-3/8"ID		8-1/4"		4-24-93	0.0 to 8.0	Clear, 70's		
LENGTH	2.0'		5.0'						
TYPE	STD.		HSA						
HAMMER WT.	140#								
FALL	30"								
STICK UP									

REMARKS: Advance augers to 8.0' depth (continuous split spoon sampling). Borehole grouted to surface.

SAMPLE TYPE
S = Split Spoon A = Auger
T = Shelby Tube W = Wash
R = Air Rotary C = Core
D = Denison P = Piston
N = No Sample

DEFINITIONS
SPT = Standard Penetration Test (ASTM D-1586) (Blows/0.5')
RQD = Rock Quality Designation (%)
Lab Class. = USCS (ASTM D-2487) or AASHTO (ASTM D-3282)
Lab Moist. = Moisture Content (ASTM D-2216) Dry Weight Basis

Depth (Ft.)	Sample Type and No.	Samp. Rec. Ft. & %	SPT or RQD	Lab. Class. or Pen. Rate	Lab. Moist %	Visual Description	Elevation
0	S-1				4.1	silty **SAND**, fine grained; dark brown; very loose; damp, *sample collected (hydrocarbon odor)	
1							
2							
3	S-2	1.2 / 2.0 60%	3 4 7 6		3.0	dark brown; medium dense; moist (hydrocarbon odor)	
4							
5	S-3	2.0 / 2.0 100%	7 9 8 8		1.1	black; medium dense; moist, *sample collected	
6							
7	S-4	1.4 / 2.0 70%	2 2 3 2		1.1	**SAND**, fine grained; dark brown; loose; wet (hydrocarbon odor), confirmed water table 8.0'	
8							
9						End of Boring at 8.0'	
10							

DRILLING CO.: Hardin Huber, Inc. BAKER REP.: J. E. Zimmerman
DRILLER: M. Chriswell BORING NO.: 2-MP-SB26 SHEET 1 OF 1

Baker

Baker Environmental, Inc.

TEST BORING RECORD

PROJECT: Site 2, Camp Lejeune RI/FS
S.O. NO.: 19174 BORING NO.: 2-MP-SB27
COORDINATES: EAST: 2498237.9 NORTH: 356548.4
ELEVATION: SURFACE: 32.7 TOP OF STEEL CASING: ____

RIG: R-39	SPLIT SPOON	CASING	AUGERS	CORE BARREL	DATE	PROGRESS (FT)	WEATHER	WATER DEPTH (FT)	TIME
SIZE (DIAM.)	1-3/8"ID		8-1/4"		4-24-93	0.0 to 6.0	Clear, 70's		
LENGTH	2.0'		5.0'						
TYPE	STD.		HSA						
HAMMER WT.	140#								
FALL	30"								
STICK UP									

REMARKS: Advance augers to 6.0' depth (continuous split spoon sampling). Borehole grouted to surface.

SAMPLE TYPE
S = Split Spoon A = Auger
T = Shelby Tube W = Wash
R = Air Rotary C = Core
D = Denison P = Piston
N = No Sample

DEFINITIONS
SPT = Standard Penetration Test (ASTM D-1586) (Blows/0.5')
RQD = Rock Quality Designation (%)
Lab Class. = USCS (ASTM D-2487) or AASHTO (ASTM D-3282)
Lab Moist. = Moisture Content (ASTM D-2216) Dry Weight Basis

Depth (Ft.)	Sample Type and No.	Samp. Rec. Ft. & %	SPT or RQD	Lab. Class. or Pen. Rate	Lab. Moist %	Visual Description	Elevation
0	S-1				1.3		
1						silty SAND, fine grained with root material; dark brown; very loose; damp, *sample collected	
2							
3	S-2	0.4 / 2.0 20%	2 2 4 8		1.1	silty SAND, fine grained; dark brown to yellow; loose; moist, *sample collected	
4							
5	S-3	1.2 / 2.0 60%	1 1 5 7		1.3	SAND, fine grained; yellow to light grey; loose, wet, confirmed water table 6.0'	▼
6							
7						End of Boring at 6.0'	
8							
9							
10							

DRILLING CO.: Hardin Huber, Inc. BAKER REP.: J. E. Zimmerman
DRILLER: M. Chriswell BORING NO.: 2-MP-SB27 SHEET 1 OF 1

Baker

Baker Environmental, Inc.

TEST BORING RECORD

PROJECT: Site 2, Camp Lejeune RI/FS
S.O. NO.: 19174 BORING NO.: 2-MP-SB28
COORDINATES: EAST: 2498251.2 NORTH: 356496.2
ELEVATION: SURFACE: 32.0 TOP OF STEEL CASING: _____

RIG: R-39

	SPLIT SPOON	CASING	AUGERS	CORE BARREL	DATE	PROGRESS (FT)	WEATHER	WATER DEPTH (FT)	TIME
SIZE (DIAM.)	1-3/8"ID		8-1/4"		4-25-93	0.0 to 6.0	Clear, 60's		
LENGTH	2.0'		5.0'						
TYPE	STD.		HSA						
HAMMER WT.	140#								
FALL	30"								
STICK UP									

REMARKS: Advance augers to 6.0' depth (continuous split spoon sampling). Borehole grouted to surface. Boring location adjusted 12.0' due north.

SAMPLE TYPE
S = Split Spoon A = Auger
T = Shelby Tube W = Wash
R = Air Rotary C = Core
D = Denison P = Piston
N = No Sample

DEFINITIONS
SPT = Standard Penetration Test (ASTM D-1586) (Blows/0.5')
RQD = Rock Quality Designation (%)
Lab Class. = USCS (ASTM D-2487) or AASHTO (ASTM D-3282)
Lab Moist. = Moisture Content (ASTM D-2216) Dry Weight Basis

Depth (Ft.)	Sample Type and No.	Samp. Rec. Ft. & %	SPT or RQD	Lab. Class. or Pen. Rate	Lab. Moist %	Visual Description	Elevation
	S-1				1.0	silty SAND, fine grained; dark brown; very loose; damp, *sample collected	
1							
2							
3	S-2	2.0 / 2.0 100%	1 2 2 4		0.9	dark brown to brown; loose; moist, *sample collected	
4							
5	S-3	1.5 / 2.0 75%	2 5 6 4		0.9	silty SAND, fine grained grading into fine SAND; brown to grey; medium dense; moist to wet, confirmed water table	▼
6						6.0'	
7						End of Boring at 6.0'	
8							
9							
10							

DRILLING CO.: Hardin Huber, Inc. BAKER REP.: J. E. Zimmerman
DRILLER: M. Chriswell BORING NO.: 2-MP-SB28 SHEET 1 OF 1

Baker

Baker Environmental, Inc.

TEST BORING RECORD

PROJECT: Site 2, Camp Lejeune RI/FS
S.O. NO.: 19174 BORING NO.: 2-FSA-SB06
COORDINATES: EAST: 2498494.3 NORTH: 356351.7
ELEVATION: SURFACE: 32.4 TOP OF STEEL CASING: _____

RIG: R-39	SPLIT SPOON	CASING	AUGERS	CORE BARREL	DATE	PROGRESS (FT)	WEATHER	WATER DEPTH (FT)	TIME
SIZE (DIAM.)	1-3/8"ID		8-1/4"		4-23-93	0.0 to 8.0	Clear, 50's		
LENGTH	2.0'		5.0'						
TYPE	STD.		HSA						
HAMMER WT.	140#								
FALL	30"								
STICK UP									

REMARKS: Advance augers to 8.0' depth (continuous split spoon sampling). Borehole grouted to surface.

SAMPLE TYPE
S = Split Spoon A = Auger
T = Shelby Tube W = Wash
R = Air Rotary C = Core
D = Denison P = Piston
N = No Sample

DEFINITIONS
SPT = Standard Penetration Test (ASTM D-1586) (Blows/0.5')
RQD = Rock Quality Designation (%)
Lab Class. = USCS (ASTM D-2487) or AASHTO (ASTM D-3282)
Lab Moist. = Moisture Content (ASTM D-2216) Dry Weight Basis

Depth (Ft.)	Sample Type and No.	Samp. Rec. Ft. & %	SPT or RQD	Lab. Class. or Pen. Rate	Lab. Moist %	Visual Description	Elevation
	S-1				0.4		
1						silty SAND, fine grained with root material; dark brown to brown; very loose; damp, *sample collected	
2							
3	S-2	1.8/2.0 90%	4 3 2 3		0.4	silty SAND, fine grained with trace clay; brown; loose to medium stiff; moist	
4							
5	S-3	1.7/2.0 85%	4 5 7 10		3.5	silty SAND, fine grained; brown; medium dense; moist	
6							
7	S-4	2.0/2.0 100%	2 7 10 9		1.3	silty SAND, fine grained grading into fine SAND; brown; medium dense; *sample collected confirmed water table, wet 8.0'	▼
8							
9						End of Boring at 8.0'	
10							

DRILLING CO.: Hardin Huber, Inc. BAKER REP.: J. E. Zimmerman
DRILLER: M. Chriswell BORING NO.: 2-FSA-SB06 SHEET 1 OF 1

Baker

Baker Environmental, Inc.

TEST BORING RECORD

PROJECT: Site 2, Camp Lejeune RI/FS
S.O. NO.: 19174 BORING NO.: 2-MP-SB01
COORDINATES: EAST: 2498154.4 NORTH: 356804.7
ELEVATION: SURFACE: 29.7 TOP OF STEEL CASING:

RIG: R-39									
	SPLIT SPOON	CASING	AUGERS	CORE BARREL	DATE	PROGRESS (FT)	WEATHER	WATER DEPTH (FT)	TIME
SIZE (DIAM.)			Nom. 4"		4-26-93	0.0 to 6.0			
LENGTH									
TYPE			Sol. Stem						
HAMMER WT.									
FALL									
STICK UP									

REMARKS: Advance hand held power auger to 6.0' depth. Samples collected from auger cuttings. Borehole grouted to surface. Location moved 5' due south.

SAMPLE TYPE
S = Split Spoon A = Auger
T = Shelby Tube W = Wash
R = Air Rotary C = Core
D = Denison P = Piston
N = No Sample

DEFINITIONS
SPT = Standard Penetration Test (ASTM D-1586) (Blows/0.5')
RQD = Rock Quality Designation (%)
Lab Class. = USCS (ASTM D-2487) or AASHTO (ASTM D-3282)
Lab Moist. = Moisture Content (ASTM D-2216) Dry Weight Basis

Depth (Ft.)	Sample Type and No.	Samp. Rec. Ft. & %	SPT or RQD	Lab. Class. or Pen. Rate	Lab. Moist %	Visual Description	Elevation
0	S-1				4.0	silty SAND, fine grained with root material; brown; very loose; damp, *sample collected	
1							
2							
3	S-2				4.0	silty SAND, fine grained; brown to grey; very loose; moist *sample collected	
4							
5	S-3				4.0	silty SAND, fine grained grading into fine SAND; grey; very loose; moist to wet; confirmed water table 6.0'	▼
6						End of Boring at 6.0'	
7							
8							
9							
10							

DRILLING CO.: Hardin Huber, Inc. BAKER REP.: J. E. Zimmerman
DRILLER: M. Chriswell BORING NO.: 2-MP-SB01 SHEET 1 OF 1

SECTION 01430

WASTE SAMPLING REQUIREMENTS

PART 1 GENERAL

1.1 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY (USEPA)

EPA/540/P-91/008	Compendium of ERT Waste Sampling Procedures, 1991
EPA SW-846	Test Methods for Evaluating Solid Wastes (Nov. 1986)

NAVAL ENERGY AND ENVIRONMENTAL SUPPORT ACTIVITY (NEESA)

NEESA 20.2-047B	Sampling and Chemical Analysis Quality Assurance Requirements for the Navy Installation Restoration Program (June 1988)

1.2 SUBMITTALS

Submit the following in accordance with Section C, Part 7.0, of the Basic Contract.

1.2.1 SD-08, Statements

a. Sample Log

1.2.2 SD-12, Field Test Reports

a. Confirmatory Sample Analysis Results

b. Waste Characterization Sample Analysis Results

1.3 DEFINITIONS

1.3.1 Contractor Generated Wastes

Contractor generated wastes shall include all materials which become contaminated with wastes as defined in the Basic Contract as a result of Contractor activity at the site after the commencement of contract work.

1.3.2 Government Generated Wastes

Government generated wastes shall include all contaminated materials existing at the site prior to the commencement of contract work.

1.3.3 Confirmation Sampling

Confirmation sampling shall include all sampling conducted in the open excavations during the post-removal stage to confirm the removal of all contaminated soil.

1.3.4 Waste Characterization Sampling

Waste characterization sampling shall include all sampling of the excavated soils to characterize the soils for disposal.

1.4 DESCRIPTION OF WORK

1.4.1 Contractor Generated Wastes

Collect and analyze environmental samples from each Contractor generated waste stream to determine applicable transportation and disposal requirements.

1.4.2 Government Generated Waste

Collect and analyze environmental samples from the excavated areas after Government generated waste has been removed to confirm the removal of all contaminated soil.

1.5 QUALITY ASSURANCE

1.5.1 Waste Sampling

Adhere to all sample acquisition, handling, custody documentation, decontamination, and quality assurance/quality control (QA/QC) requirements and procedures as required by federal, state and local regulations.

1.5.2 Analytical Laboratory

The Contractor shall be solely responsible for the execution and accuracy of the waste stream analyses. The Contractor shall use a NEESA-certified laboratory for all soil and waste analyses. All analytical standard methods shall meet, at a minimum, NEESA 20.2-047B QA/QC Level C requirements for confirmation sampling and Level C requirements for waste characterization sampling and shall also be in accordance with federal, local and state regulations.

1.5.3 Data Validation

An independent firm shall be subcontracted for data validation. Samples collected shall be evaluated using Level C quality control. Data review procedures specified by NEESA 20.2-047B and the Functional Guidelines established by EPA Region IV shall be followed to ensure that raw data are not altered and that an audit trail is developed for those data which require reduction. Specific Quality Assurance/Quality Control (QA/QC) procedures shall be included in the Sampling and Analysis Plan indicated in Section 01010. Data validation results shall be provided in the Contractor's Closeout Report as indicated in Section 01010, "General Paragraphs."

PART 2 PRODUCTS

Not Used.

PART 3 EXECUTION

3.1 GENERAL

Supply all personnel, equipment, and facilities to collect and analyze the environmental samples required to characterize the wastes.

3.1.1 Sample Acquisition

Sampling procedures shall be consistent with NEESA 20.2-047B Guidelines.

After the excavation has been completed:

a. Visually inspect the area for stained or discolored soil.

b. Field screen the area using an organic vapor analyzer.

c. If no stained or discolored soil is visible, and the organic vapors are below 50 ppm, collect one confirmation sample for every part of or every 500 square feet of excavation, and one sample for any portion of or every 50 linear feet of each sidewall of the excavation along the perimeter of the site.

d. Place the sample in an appropriate sample container for shipment for off-site confirmation analyses.

e. If stained soils are visible, or if organic vapor levels are greater than 50 ppm, or if contamination is suspected, notify the Navy's Technical Representative (NTR).

3.1.1.1 Confirmation Samples

Confirmation samples shall be collected from the walls and the bottom of the open excavations. One sample for every 500 square feet or fraction thereof of soil along the bottom of the excavation and one sample for every 50 linear feet or fraction thereof of soil along each wall of the excavation shall be collected and analyzed for pesticides by EPA Method 8080.

If detected concentrations exceed the following levels, notify the NTR. If the concentrations are less than the following levels, no further excavation is required.

	Soils	Sediments
4,4'-DDT	3000	15,000
4,4'-DDD	4000	21,000
4,4'-DDE	3000	15,000
Chlordane (Total)	621	4,000
Heptachlor	179	

Dieldrin	50

All concentrations are in parts per billion (ppb).

3.1.1.2 Waste Characterization Samples

Waste characterization samples shall be collected for the purposes of determining handling, transportation, and disposal requirements and for determining personal and environmental protection and monitoring requirements.

Characterization samples shall be collected from the soils to be disposed of. One thoroughly mixed composite sample shall be collected for every 100 cubic yards or fraction thereof of material.

The composite sample shall consist of six grab samples representative of the material being sampled. The grab samples shall be thoroughly mixed to obtain a relatively homogeneous mixture.

The characterization samples shall be analyzed for the following parameters:

1. TCLP Metals - EPA Methods 6010, 7060, 7080, 7131, 7191, 7421, 7470, 7760, 7740
2. TCLP Volatiles - EPA Method 3550/EPA Method 8240
3. TCLP Semi-Volatiles - EPA Method 3550/EPA Method 8270
4. TCLP Pesticides - EPA Method 3550/EPA Method 8080
5. TCLP Herbicides - EPA Method 3550/EPA Method 8080
6. TCL PCBs - EPA Method 8080
7. RCRA Characteristics - SW-846 9010, 1010, 9012, 9030
8. Moisture Content - ASTM D 2216

The soil shall contain no free liquid as demonstrated by EPA SW-846 Method 9095, paint filter liquids test.

3.1.1.3 Contractor Generated Waste Samples

Collect samples from Contractor generated waste to determine applicable transportation and disposal requirements. Analyze Contractor generated waste samples for the following parameters:

1. TCLP Metals - EPA Methods 6010, 7060, 7080, 7131, 7191, 7421, 7470, 7760, 7740
2. TCLP Volatiles - EPA Method 3550/EPA Method 8240
3. TCLP Semi-Volatiles - EPA Method 3550/EPA Method 8270
4. TCLP Pesticides - EPA Method 3550/EPA Method 8080
5. TCLP Herbicides - EPA Method 3550/EPA Method 8080
6. TCL PCBs - EPA Method 8080
7. RCRA Characteristics - SW-846 9010, 1010, 9012, 9030

3.1.2 Sample Handling

Sampling, sample handling, and sampling containers must be consistent with the chemicals expected, the matrix of the sample, and planned analytical

procedures. Precleaned glass sample containers with teflon lids are required.

The Contractor shall describe in the Sampling and Analysis Plan strict chain-of-custody procedures to be used during collection, transport, and analysis of all samples.

3.1.3 Sampling Documentation

Maintain a sample log containing, at a minimum, the following information:

a. Date and Time of Sampling

b. Sample Locations

c. Sample Matrix

d. Sample Identification Number

e. QA/QC Sample Identification

f. Analyses to be Performed

g. Type and Number of Sample Containers

h. Signatures of Individuals Performing Sampling

-- End of Section --

SECTION 01560

TEMPORARY CONTROLS

PART 1 GENERAL

1.1 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by the basic designation only.

CODE OF FEDERAL REGULATIONS (CFR)

29 CFR 1926-SUBPART V	Power Transmission and Distribution
40 CFR 261	Identification and Listing of Hazardous Waste
40 CFR 262	Generators of Hazardous Waste
40 CFR 300	National Oil and Hazardous Substances Pollution Contingency Plan
49 CFR 178	Shipping Container Specification

CORPS OF ENGINEERS (COE)

COE EM-385-1-1	1992 Safety and Health Requirements Manual

NATIONAL FIRE PROTECTION ASSOCIATION (NFPA)

NFPA 101	1991 Code for Safety to Life from Fire in Building and Structures
NFPA 241	1989 Safeguarding Construction, Alteration, and Demolition Operations

1.2 DEFINITIONS

1.2.1 Sediment

Soil and other debris that have eroded and have been transported by runoff water or wind.

1.2.2 Solid Waste

Rubbish, debris, garbage, and other discarded solid materials, except hazardous waste as defined in paragraph entitled "Hazardous Waste," resulting from industrial, commercial, and agricultural operations and from community activities.

1.2.3 Rubbish

Combustible and noncombustible wastes such as paper, boxes, glass, crockery, metal, lumber, cans, and bones.

1.2.4 Debris

Combustible and noncombustible wastes such as ashes and waste materials resulting from construction or maintenance and repair work, leaves, and tree trimmings.

1.2.5 Chemical Wastes

This includes salts, acids, alkalies, herbicides, pesticides, and organic chemicals.

1.2.6 Garbage

Refuse and scraps resulting from preparation, cooking, dispensing, and consumption of food.

1.2.7 Hazardous Waste

Hazardous substances as defined in 40 CFR 261 or as defined by applicable state and local regulations.

1.2.8 Oily Waste

Petroleum products and bituminous materials.

1.2.9 Class I Ozone Depleting Substance (ODS)

Class I ODS is defined in Section 602(a) of The Clean Air Act and includes the following chemicals:

chlorofluorocarbon-11 (CFC-11)	chlorofluorocarbon-213 (CFC-213)
chlorofluorocarbon-12 (CFC-12)	chlorofluorocarbon-214 (CFC-214)
chlorofluorocarbon-13 (CFC-13)	chlorofluorocarbon-215 (CFC-215)
chlorofluorocarbon-111 (CFC-111)	chlorofluorocarbon-216 (CFC-216)
chlorofluorocarbon-112 (CFC-212)	chlorofluorocarbon-217 (CFC-217)
chlorofluorocarbon-113 (CFC-113)	halon-1211
chlorofluorocarbon-114 (CFC-114)	halon-1301
chlorofluorocarbon-115 (CFC-115)	halon-2402
chlorofluorocarbon-211 (CFC-211)	carbon tetrachloride
chlorofluorocarbon-212 (CFC-212)	methyl chloroform

1.3 SUBMITTALS

Submit the following in accordance with Section C, Part 4 of the Basic Contract

1.3.1 SD-08, Statements

a. Class I ODS prohibition G

b. MSDS G

1.3.2 SD-18, Records

a. Solid waste disposal permit

b. Disposal permit for hazardous waste G

1.3.2.1 Disposal Permit for Hazardous Waste

Submit a copy of the applicable EPA and state permits, manifests, or licenses for transportation, treatment, storage, and disposal of hazardous waste by permitted facilities.

1.4 CLASS I ODS PROHIBITION

Class I ODS as defined and identified herein shall not be used in the performance of this contract, nor be provided as part of the equipment. This prohibition shall be considered to prevail over any other provision, specification, drawing, or referenced documents.

1.5 ENVIRONMENTAL PROTECTION REQUIREMENTS

Provide and maintain, during the life of the contract, environmental protection as defined. Plan for and provide environmental protective measures to control pollution that develops during normal construction practice. Plan for and provide environmental protective measures required to correct conditions that develop during the construction of permanent or temporary environmental features associated with the project. Comply with Federal, state, and local regulations pertaining to the environment, including but not limited to water, air, and noise pollution.

1.5.1 Preconstruction Survey

Perform a preconstruction survey of the project site with the Navy's Technical Representative (NTR), and take photographs showing existing environmental conditions in and adjacent to the site.

1.6 SAFETY PROGRAM

The Contractor shall implement a safety program conforming to the requirements of Federal, State and local laws, rules, and regulations. The program shall include:

a. Occupational Safety and Health Standards

b. COE EM-385-1-1

c. Contract Clause "FAR 52.236-1, Accident Prevention." In this clause, the date of COE EM-385-1-1 should be 1 October 1992.

d. NFPA 241

e. NFPA 101

f. 29 CFR 1926-SUBPART V, tagout and lockout procedures

g. MSDS, supply Material Safety Data Sheet for all hazardous materials brought on-site.

1.6.1 Station Permits

Permits are required for, but are not necessarily limited to, welding, digging, and burning. Allow 7 calendar days for processing of the application.

1.6.2 Unforeseen hazardous Material

All known hazardous materials are indicated on the drawings. If additional material that is not indicated on the drawings is encountered that may be dangerous to human health upon disturbance during construction operations, stop that portion of work and notify the NTR immediately. Intent is to identify materials such as PCB, lead paint, and friable and nonfriable asbestos. Within 14 calendar days the Government will determine if the material is hazardous. If the material is not hazardous or poses no danger, the Government will direct the Contractor to proceed without change. If the material is hazardous and handling of the material is necessary to accomplish the work, the Government will issue a modification pursuant to "FAR 52.234-4, Changer" and "FAR 52.236-2, Differing Site Conditions."

PART 2 PRODUCTS

Not used.

PART 3 EXECUTION

3.1 PROTECTION OF NATURAL RESOURCES

Preserve the natural resources within the project boundaries and outside the limits of permanent work. Restore to an equivalent or improved condition upon completion of work. Confine construction activities to within the limits of the work indicated or specified.

3.1.1 Land Resources

Except in areas to be cleared, do not remove, cut, deface, injure, or destroy trees or shrubs without the NTR's permission. Do not fasten or attach ropes, cables, or guys to existing nearby trees for anchorages unless authorized by the NTR. Where such use of attach ropes, cables, or guys is authorized, the Contractor shall be responsible for any resultant damage.

3.1.1.1 Protection

Protect existing trees which are to remain and which may be injured, bruised, defaced, or otherwise damaged by construction operations. Remove displaced rocks from uncleared areas. By approved excavation, remove trees with 30 percent or more of their root systems destroyed.

3.1.1.2 Replacement

Remove trees and other landscape features scarred or damaged by equipment operations, and replace with equivalent, undamaged trees and landscape features. Obtain NTR's approval before replacement.

3.1.2 Water Resources

3.1.2.1 Stream Crossings

In areas where frequent crossings are required, install temporary culverts or bridges. Remove temporary culverts or bridges upon completion of work, and repair the area to its original condition.

3.1.2.2 Oily Wastes

Prevent oily or other hazardous substances from entering the ground, drainage areas, or local bodies of water. Surround all temporary fuel oil or petroleum storage tanks with a temporary earth berm of sufficient size and strength to contain the contents of the tanks in the event of leakage or spillage.

3.1.3 Fish and Wildlife Resources

Do not disturb fish and wildlife. Do not alter water flows or otherwise significantly disturb the native habitat adjacent to the project and critical to the survival of fish and wildlife, except as indicated or specified.

3.2 HISTORICAL AND ARCHAEOLOGICAL RESOURCES

Carefully protect in-place and report immediately to the NTR historical and archaeological items or human skeletal remains discovered in the course of work. Stop work in the immediate area of the discovery until directed by the NTR to resume work.

3.3 EROSION AND SEDIMENT CONTROL MEASURES

3.3.1 Burnoff

Burnoff of the ground cover is not permitted.

3.3.2 Borrow Pit Areas

Manage and control borrow pit areas to prevent sediment from entering nearby streams or lakes. Restore areas, including those outside the borrow pit, disturbed by borrow and haul operations. Restoration includes grading, replacement of topsoil, and establishment of a permanent vegetative cover. Uniformly grade side slopes of borrow pit to not more than a slope of 1 part vertical to 2 parts horizontal. Uniformly grade the bottom of the borrow pits to provide a flat bottom and drain by outfall ditches or other suitable means. Stockpile topsoil removed during the borrow pit operation, and use as part of restoring the borrow pit area.

3.3.3 Protection of Erodible Soils

Immediately finish the earthwork brought to a final grade, as indicated or specified. Immediately protect the side slopes and back slopes upon completion of rough grading. Plan and conduct earthwork to minimize the duration of exposure of unprotected soils.

3.3.4 Temporary Protection of Erodible Soils

Use the following methods to prevent erosion and control sedimentation:

3.3.4.1 Mechanical Retardation and Control of Runoff

Mechanically retard and control the rate of runoff from the construction site. This includes construction of diversion ditches, benches, berms, and use of silt fences and strawbales to retard and divert runoff to protected drainage courses.

3.3.4.2 Vegetation and Mulch

Provide temporary protection on sides and back slopes as soon as rough grading is completed or sufficient soil is exposed to require erosion protection. Protect slopes by accelerated growth of permanent vegetation, temporary vegetation, mulching, or netting. Stabilize slopes by hydroseeding, anchoring mulch in place, covering with anchored netting, sodding, or such combination of these and other methods necessary for effective erosion control.

a. Seeding: Provide new seeding where ground is disturbed. Include topsoil or nutriment during the seeding operation necessary to reestablish a suitable stand of grass. The seeding operation shall be as specified in Section 0220, "General Excavation, Filling, and Backfilling.

3.4 CONTROL AND DISPOSAL OF SOLID WASTES

Pick up solid wastes, and place in covered containers which are regularly emptied. Do not prepare or cook food on the project site. Prevent contamination of the site or other areas when handling and disposing of wastes. At project completion, leave the areas clean.

3.4.1 Disposal of Rubbish and Debris

Dispose of rubbish and debris in accordance with the requirements specified below:

3.4.1.1 Removal From Government Property

Remove and dispose rubbish and debris from Government property.

3.4.2 Garbage Disposal

Place garbage in approved containers, and move to a pickup point or disposal area, where directed.

3.5 CONTROL AND DISPOSAL OF HAZARDOUS WASTE

3.5.1 Hazardous Waste Generation

Handle generated hazardous waste in accordance with 40 CFR 262.

3.5.2 Hazardous Waste Storage

Store hazardous waste in containers in accordance with 49 CFR 178. Hazardous waste shall be identified in accordance with 40 CFR 261 and 40 CFR 262.

3.5.3 Spills of Oil and Hazardous Materials

Take precautions to prevent spills of oil and hazardous material. In the event of a spill, immediately notify the NTR. Spill response shall be in accordance with 40 CFR 300 and applicable state regulations.

3.6 DUST CONTROL

Keep dust down at all times, including during nonworking periods. Sprinkle or treat, with dust suppressants, the soil at the site, haul roads, and other areas disturbed by operations. Dry power brooming will not be permitted. Instead, use vacuuming, wet mopping, wet sweeping, or wet power brooming. Air blowing will be permitted only for cleaning nonparticulate debris such as steel reinforcing bars. Only wet cutting will be permitted for cutting concrete blocks, concrete, and bituminous concrete. Do not unnecessarily shake bags of cement, concrete mortar, or plaster.

3.7 NOISE

Make the maximum use of low-noise emission products, as certified by the EPA. Blasting or use of explosives will not be permitted without written permission from the NTR, and then only during the designated times.

3.8 RESTRICTIONS ON EQUIPMENT

3.8.1 Radio Transmitter Restrictions

Conform to the restrictions and procedures for the use of radio transmitting equipment, as directed. Do not use transmitters without prior approval.

3.9 FIRE PROTECTION

3.9.1 Compliance

COE EM-385-1-1, NFPA 241, and activity fire regulations. Obtain approval from the activity Fire Chief prior to commencement of hot work operations.

3.9.2 Notification of Fire

Post the activity fire poster in conspicuous locations and at telephones in construction shacks.

3.10 QUARANTINE FOR IMPORTED FIRE ANT (4/82)

Onslow, Jones, and Cartaret Counties and portions of Duplin and Craven Counties have been declared a generally infested area by the United States Department of Agriculture (USDA) for the imported fire ant. Compliance with the quarantine regulations established by this authority as set forth in USDA Quarantine No. 81 dated 9 October 1970, and USDA Publication 301.81-2A of 23 July 1976, is required for operations hereunder. Pertinent requirements of the quarantine for materials originating on the Camp Lejeune reservation, the Marine Corps Air Station (Helicopter), New River and the Marine Corps Air Station, Cherry Point, which are to be transported outside Onslow County or adjacent suppression areas, include the following:

a. Certification is required for the following articles and they shall not be moved from the reservation to any point outside Onslow County and adjacent designated areas unless accompanied by a valid inspection certificate issued by an Officer of the Plant Protection and Quarantine Program of the U.S. Department of Agriculture.

(1) Bulk Soil,

(2) Used mechanized soil-moving equipment. (Used mechanized soil-moving equipment is exempt if cleaned of loose noncompacted soil).

(3) Other products, articles, or means of conveyances, if it is determined by an inspector that they present a hazard of transporting spread of the imported fire ant and the person in possession thereof has been so notified.

b. Authorization for movement of equipment outside the imported fire and regulated area shall be obtained from USDA, APHIS, PPQ, Box 83, Goldsboro, North Carolina, 27530, Attn: Mr. Haywood Cox, telephone (919) 735-1941. Requests for inspection shall be made sufficiently in advance of the date of movement to permit arrangements for the services of authorized inspectors. The equipment shall be prepared and assembled so that it may be readily inspected. Soil on or attached to equipment, supplies, and materials shall be removed by washing with water or such other means as necessary to accomplish complete removal. Resulting spoil shall be wasted as necessary and as directed.

-- End of Section --

SECTION 02050

DEMOLITION AND REMOVAL

PART 1 GENERAL

1.1 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by the basic designation only.

AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI)

ANSI A70.6	1983 Demolition Operations - Safety Requirements

CODE OF FEDERAL REGULATIONS (CFR)

40 CFR 261	Identification and Listing of Hazardous Waste

1.2 GENERAL REQUIREMENTS

Do not begin demolition until authorization is received from the Navy's Technical Representative (NTR). Remove rubbish and debris from the station daily; do not allow accumulations outside the building. Store materials that cannot be removed daily in areas specified by the NTR.

1.3 SUBMITTALS

Submit the following in accordance with Section C, Part 7 of the Basic Contract.

1.3.1 SD-08, Statements

a. Demolition plan

Submit proposed demolition and removal procedures to the NTR for approval before work is started.

1.3.1.1 Required Data

Demolition Plan shall include procedures for removal and disposition of materials, coordination with other work in progress, a detailed description of methods and equipment to be used for each operation and the sequence of operations.

1.4 REGULATORY AND SAFETY REQUIREMENTS

Comply with Federal, State, and local hauling and disposal regulations. In addition to the requirements of the "Contract Clauses," safety requirements shall conform with ANSI A70.6, "Demolition Operations - Safety Requirements."

1.4.1 Notifications

Furnish timely notification of demolition and renovation projects to Federal, State, regional, and local authorities in accordance with 40 CFR 61-SUBPART M. Notify the regional office of the United States Environmental Agency (USEPA), the state's environmental protection agency, and the NTR in writing 10 days prior to the commencement of work in accordance with 40 CFR 61-SUBPART M.

1.5 DUST AND DEBRIS CONTROL

Prevent the spread of dust and debris and avoid the creation of a nuisance or hazard in the surrounding area. Do not use water if it results in hazardous or objectionable conditions such as, but not limited to, ice, flooding, or pollution.

1.6 PROTECTION

1.6.1 Traffic Control Signs

Where pedestrian and driver safety is endangered in the area of removal work, use traffic barricades with flashing lights. Notify the Contracting Officer prior to beginning such work.

1.6.2 Existing Work

Protect existing work which is to remain in place, be reused, or remain the property of the Government. Repair items which are to remain and which are damaged during performance of the work to their original condition, or replace with new. Provide new supports and reinforcement for existing construction weakened by demolition or removal work. Repairs, reinforcement, or structural replacement must have NTR approval.

1.6.3 Trees

Conform to Section 01560, "Temporary Controls," for protection of natural resources.

1.6.4 Facilities

Protect electrical and mechanical services and utilities. Where removal of existing utilities and pavement is specified or indicated, provide approved barricades, temporary covering of exposed areas, and temporary services or connections for electrical and mechanical utilities.

1.7 BURNING

Burning will not be permitted.

PART 2 PRODUCTS

Not used.

PART 3 EXECUTION

3.1 EXISTING FACILITIES TO BE REMOVED

3.1.1 Structures

Remove indicated existing structures to grade.

3.1.2 Concrete Mixing Pads and Curbing

Remove the northern and southern concrete mixing pads and concrete curbing as indicated. Decontaminate the concrete pads and curbing prior to disposal and dispose of at an appropriate disposal facility.

3.2 DISPOSITION OF MATERIAL

3.2.1 Salvaged Materials and Equipment

All fallen trees greater than 3 inches in diameter will be removed by the Contractor and remain the property of the Government, and delivered to a storage site, as directed by the Director of Forestry, Mr. Peter Black, (910)-451-2195.

3.3 DISPOSITION OF MATERIAL

Except where specified in other sections, all materials and equipment removed, and not reused, shall become the property of the Contractor and shall be removed from Government property. Title to materials resulting from demolition, and materials and equipment to be removed, is vested in the Contractor upon approval by the NTR of the Contractor's demolition and removal procedures, and authorization by the NTR to begin demolition. The Government shall not be responsible for the condition or loss of, or damage to, such property after notice to proceed. Materials and equipment shall not be viewed by prospective purchasers or sold on the site.

3.4 CLEANUP

3.4.1 Debris and Rubbish

Remove and transport debris and rubbish in a manner that will prevent spillage on pavements, streets or adjacent areas. Clean up spillage from pavements, streets and adjacent areas. Conform to other applicable requirements, under Section 01560, "Temporary Controls."

-- End of Section --

SECTION 02220

GENERAL EXCAVATION, FILLING, AND BACKFILLING

PART 1 GENERAL

1.1 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by the basic designation only.

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

ASTM C 136	1992 Sieve Analysis of Fine and Coarse Aggregates
ASTM D 698	1991 Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft (600 kN-m/m))
ASTM D 1140	1992 Amount of Material in Soils Finer Than the No. 200 (75-Micrometer) Sieve
ASTM D 1557	1991 Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/ft (2,700 kN-m/m))
ASTM D 2487	1992 Classification of Soils for Engineering Purposes
ASTM D 4318	1984 Liquid Limit, Plastic Limit, and Plasticity Index of Soils

COMMERCIAL ITEM DESCRIPTIONS (CID)

CID A-A-1909	Fertilizer

1.2 DEFINITIONS

1.2.1 Cohesive Materials

Materials ASTM D 2487 classified as GC, SC, ML, CL, MH, and CH. Materials classified as GM and SM will be identified as cohesive only when the fines have a plasticity index greater than zero.

1.2.2 Cohesionless Materials

Materials ASTM D 2487 classified as GW, GP, SW, and SP. Materials classified as GM and SM will be identified as cohesionless only when the fines have a plasticity index of zero.

1.2.3 Aggregate

Coarse aggregate designates clean, well-graded aggregate of particle sizes within the range of (3/16 to 1 1/2 inches), or any size or range of sizes within such limits. Coarse aggregate shall consist of natural gravel and crushed rock. Coarse aggregate shall have no more than 30 percent particles with a maximum to minimum dimension of 3 to 1.

1.2.4 Soils

The materials to be excavated outside the limits of the drainage ditch as indicated.

1.2.5 Sediment

Soil and other debris that have eroded and have been transported by runoff water or wind. The materials to be excavated within the limits of the drainage ditch as indicated.

1.2.6 Contaminated Soils/Cleanup Levels

Soils having contaminant concentrations, in parts per billion (ppb), greater than the following as determined by Contract Laboratory Program/Statement of Work.

SOILS

4,4'-DDE	3000
4,4'-DDD	4000
4,4'-DDT	3000
Chlordane (total)	621
Heptachlor	179
Dieldrin	50

1.2.7 Contaminated Sediments/Cleanup Levels

Sediments having contaminated concentrations, in parts per billion (ppb), greater than the following as determined by Contract Laboratory Program/Statement of Work.

SEDIMENTS

4,4'-DDD	21000
4,4'-DDE	15000
4,4'-DDT	15000
Chlordane (total)	4000

1.3 SUBMITTALS

Submit the following in accordance with Section C, Part 7, of the Basic Contract.

1.3.1 SD-04, Drawings

1.3.2 SD-08, Statements

a. Dewatering work plan

Submit before starting work.

1.3.3 SD-12, Field Test Reports

a. Fill and backfill test

b. Density tests

1.4 DELIVERY, STORAGE, AND HANDLING

Perform in a manner to prevent contamination or segregation of materials.

1.5 PESTICIDE CONTAMINATED SOILS

Transmission and disposal of pesticide contaminated soils shall be in accordance with Section 02223, "Transportation and Disposal of Contaminated Material". Assume for the purposes of on site handling and stockpiling that all soils indicated for removal are pesticide contaminated.

PART 2 PRODUCTS

2.1 SOIL MATERIALS

Free of debris, roots, wood, scrap material, vegetation, refuse, soft unsound particles, and deleterious, or objectionable materials. Unless specified otherwise, the maximum particle diameter shall be one-half the lift thickness at the intended location.

2.1.1 Common Fill

Approved, unclassified soil material with the characteristics required to compact to the soil density specified for the intended location. Moisture content shall be adjusted as necessary compaction requirements.

2.1.2 Backfill and Fill Material

ASTM D 2487, classification GW, GP, GM, SW, SP, SM, with a maximum ASTM D 4318 liquid limit of 35 maximum ASTM D 4318 plasticity index of 12 and a maximum of 25 percent by weight passing ASTM D 1140, No. 200 sieve.

2.1.3 Topsoil

Natural, friable soil representative of productive, well-drained soils in the area, free of subsoil, stumps, rocks larger than one inch diameter, brush, weeds, toxic substances, and other material detrimental to plant growth. Amend topsoil pH range to obtain a pH of 5.5 to 7.

2.2 BORROW

Obtain borrow materials conforming to common fill and backfill material from the Government borrow pit as directed by the Navy's Technical Representative (NTR). The Government borrow pit is located as indicated within a haul distance of 5 miles from the work site. If the Government borrow pit is used, the Contractor shall perform clearing, grubbing, and stripping required for providing access to suitable borrow material. Dispose of materials from clearing and grubbing operations off Government property. Strip top 12 inches of soil material from borrow area and stockpile. After removal of borrow material, regrade borrow pit using stockpiled soil material to contours which will blend in with adjacent topography. Maximum side slopes shall be two horizontal to one vertical. Excavation and backfilling of borrow pit shall ensure proper drainage.

2.3 AGGREGATE

Provide to conform with North Carolina Department of Transportation Standard Specifications for Roads and Structures. Use No. 57 aggregate in the parking area as indicated.

PART 3 EXECUTION

3.1 SURFACE PREPARATION

3.1.1 Clearing and Grubbing

Unless indicated otherwise, remove trees, stumps, logs, shrubs, and brush within the clearing limits. Remove stumps entirely. Grub out matted roots and roots over 2 inches in diameter to at least 18 inches below existing surface.

3.1.2 Unsuitable Material

Remove vegetation, debris, decayed vegetable matter, sod, mulch, and rubbish underneath paved areas or concrete slabs.

3.2 PROTECTION

3.2.1 Protection Systems

Provide shoring, bracing, sheeting, or proper sloping of the excavation in accordance with COW EM-385-1-1 and all applicable regulations if required as indicated. Properly brace shoring to eliminate any hazard or possibility of movement of existing buildings or existing utilities during the excavation. The Contractor is responsible for structural stability of existing structures during excavation and for a time of one year after acceptance by the Government.

3.2.2 Site Drainage

Provide for the collection and disposal of surface and subsurface water encountered during construction.

3.2.2.1 Surface Drainage

So that construction operations progress successfully, completely drain construction site during periods of construction to keep soil materials sufficiently dry. Provide temporary ditches, swales, and other drainage features and equipment as required to maintain dry soils. When unsuitable working platforms for equipment operation and unsuitable soil support for subsequent construction features develop, remove unsuitable material and provide new soil material as specified herein.

3.2.2.2 Subsurface Drainage

Dewatering will not be required or permitted.

3.2.3 Underground Utilities

Location of the existing utilities indicated is approximate. The Contractor shall physically verify the location and elevation of the existing utilities indicated prior to starting construction. The Contractor shall scan the construction site with electromagnetic and sonic equipment and mark the surface of the ground where existing underground utilities are discovered.

3.2.4 Machinery and Equipment

Movement of construction machinery and equipment over pipes during construction shall be at the Contractor's risk. Repair, or remove and provide new pipe for existing or newly installed pipe that has been displaced or damaged.

3.3 GENERAL EXCAVATION

Excavate to contours, elevation, and dimensions indicated. Reuse excavated materials that meet the specified requirements for the material type required at the intended location. Keep excavations free from water. Excavate soil disturbed or weakened by Contractor's operations, soils softened or made unsuitable for subsequent construction due to exposure to weather. Refill with backfill and fill material and compact to 95 percent of ASTM D 698 maximum density. Unless specified otherwise, refill excavations cut below indicated depth with backfill and fill material and compact to 95 percent of ASTM D 698 maximum density.

3.4 EXCAVATION OF CONTAMINATED MATERIALS

3.4.1 Materials and Equipment

3.4.1.1 General

a. Provide all labor, materials, and equipment necessary to accomplish the work specified in these paragraphs.

b. The Contractor shall notify the NTR at least 48 hours prior to the start of excavation of contaminated soils. The Contractor shall stage his/her operations to minimize the time the contaminated soil

is exposed to the weather. Provide protection measures around the area of contaminated soils to divert runoff of water within the excavation boundaries.

3.4.1.2 Unclassified Excavation

Excavation is unclassified. All excavation shall be completed regardless of the type, nature, or condition of the materials encountered.

3.4.2 Limits of Excavation

a. Excavations shall be to the depths shown on the construction drawings or until groundwater is encountered or until the soils from the limits of the excavations pass TAL Pesticide analysis. A 48 hour turnaround time shall be required to prevent the excavations from remaining open for extended periods of time. All soils removed shall be placed in the appropriate stockpiles.

b. Once the Contractor has excavated to the specified limits of the excavation, an on-site analysis consisting of a visual inspection will be performed on the surrounding soil. If the visual inspection reveals evidence of visibly contaminated soil, the Contractor will consult with the NTR to determine the extent of additional excavation. When the exposed excavation surfaces do not contain visual evidence of contaminated soil, confirmation samples will be collected and sent to an analytical laboratory for analysis.

c. Following initial soil excavation activities and passive visual inspection of on-site analysis, confirmation soil samples shall be collected and submitted to a laboratory for analysis as specified in Section 01430, "Waste Sampling Requirements."

d. Final excavation areas shall be governed by field conditions and determined by the NTR.

e. Construct a small berm around the top perimeter of the excavation areas to prevent surface waters from entering the pits. Remove and contain any ponded water collected in the excavations.

f. Utilize the temporary containment areas at Storage Lot 203. Place excavated contaminated soil to be disposed of on the impervious barrier and cover with 40 mil polyethylene sheeting. Provide a berm around the outer limits of the containment areas and cover with polyethylene sheeting. Secure the edges of the sheeting.

g. Transfer all soil to the designated storage areas for processing, testing, and disposal.

h. One characterization soil sample shall be collected and submitted to a laboratory for analysis as specified in Section 01430, "Waste Sampling Requirements."

i. Contaminated soil and debris to be disposed must not contain free liquids. The Contractor may be required to dewater the soil by

applying a drying agent such as kiln dust to the excavated material.

j. Contaminated materials shall be loaded into covered containers or vehicles designed to transport such materials without spillage. Care shall be taken during loading operations to minimize the potential for spillage, tracking, or other means of deposition of contaminated materials outside the work area. Contaminated materials which become spilled on roads, street, or other areas outside the limits of excavation during the loading operation shall be immediately cleaned up to the satisfaction of the NTR.

k. Backfilling of excavated areas will begin only after the approval of the NTR.

l. The Contractor and the NTR shall work together closely to coordinate excavation, sampling, and analyses to minimize downtime. The Contractor shall schedule work to minimize downtime.

3.4.3 Method of Measurement

a. The solid wasted shall be separated according to their final disposal requirements. The quantity of work done under this paragraph will be measured in tons, which shall be the actual weight of the solid waste removed. Quantity shall be verified by the certified delivery tickets provided by the treatment/disposal facility.

b. No separate measurements will be made for control of water, protection of obstructions, or other work associated with the excavation and loading of materials at the site. These tasks are considered to be incidental to and part of the work specified.

3.5 FILLING AND BACKFILLING

Fill and backfill to contours, elevations, and dimensions indicated. Compact each lift before placing overlaying lift.

3.5.1 Common Fill Placement

Provide for general site. Place in 12-inch lifts. Compact areas not accessible to rollers or compactors with mechanical hand tampers. Aerate material excessively moistened by rain to a satisfactory moisture content. Finish to a smooth surface by blading, rolling with a smooth roller, or both.

3.5.2 Backfill and Fill Material Placement

Provide for contaminated soil removal area. Place in 12-inch lifts.

3.5.3 Method of Measurement

a. The quantity of work done under this paragraphs will be measured in cubic yards of backfill compacted in place as specified herein. Quantities of backfill /fill shall be computed from the cross

sections taken before and during the work of the excavation prior to and after backfilling. Field measurements, in cubic yards, and quantity computations shall be performed by a state licensed surveyor and submitted to the NTR for approval. Measurement shall not include yardage excavated without authorization, or yardage of materials used for purposed other than those specified.

b. No separate measurement will be made for grading or finishing the site. These tasks are considered to be incidental to and part of the work specified for "Replacement of Soil and Site Restoration".

3.6 COMPACTION

Expressed as a percentage of maximum density. Determine in-place density of existing subgrade; if required density exists, no compaction of existing subgrade will be required. Density requirements specified herein are for cohesionless materials. When cohesive materials are encountered or used, density requirements may be reduced by 5 percent.

3.6.1 General Site

Compact underneath areas designated for vegetation and areas outside the 5-foot line of the structure to 85 percent of ASTM D 698.

3.6.2 Adjacent Area

Compact areas within 5 feet of structures to 90 percent of ASTM D 698.

3.6.3 Paved Areas

Compact top 12 inches of subgrades to 95 percent of ASTM D 698.
Compact fill and backfill materials to 95 percent of ASTM D 698.

3.7 FINISH OPERATIONS

3.7.1 Grading

Finish grades to match existing and as indicated within one-tenth of one foot. Grade areas to drain water away from structures. For existing grades that will remain but which were disturbed by Contractor's operations, grade as directed.

3.7.2 Seed

Scarify existing subgrade. Provide 4 inches of topsoil for newly graded finish earth surfaces and areas disturbed by the Contractor.
If there is insufficient on-site topsoil meeting specified requirements for topsoil, provide topsoil required in excess of that available. Seed shall match existing vegetation. Provide seed at 5 pounds per 1000 square feet. Provide CID A-A-1909, Type I, Class 2, 10-10-10 analysis fertilizer at 25 pounds per 1000 square feet. Provide commercial agricultural limestone of 94-80-14 analysis at 70 pounds per 1000 square feet. Provide mulch and water to establish an acceptable stand of grass.

3.7.3 Protection of Surfaces

Provide an erosion control matting to keep soils in place while allowing turf to be established. Protect newly graded areas from traffic, erosion, and settlements that may occur. Repair or reestablish damaged grades, elevations, or slopes.

3.8 DISPOSITION OF SURPLUS MATERIAL

Remove from Government property surplus or other soil material not required or suitable for filling or backfilling, and brush, refuse, stumps, roots, and timber.

3.9 FIELD QUALITY CONTROL

3.9.1 Sampling

Take the number and size of samples required to perform the following tests.

3.9.2 Testing

Perform the following test for each material used. Provide additional tests for each source change.

3.9.2.1 Fill and Backfill Material Testing

Test fill and backfill material in accordance with ASTM C 136 for conformance to ASTM D 2487 gradation limits; ASTM D 1140 for material finer than the No. 200 sieve; ASTM D 4318 for liquid limit and for plastic limit; ASTM D 698 or ASTM D 1557 for moisture density relations, as applicable.

-- End of Section --

SECTION 02223

TRANSPORTATION AND DISPOSAL OF CONTAMINATED MATERIAL

PART 1 GENERAL

1.1 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

CODE OF FEDERAL REGULATIONS 40 CFR Part 148

40 CFR Parts 260 to 280	Standards Applicable to Generators of Hazardous Waste
49 CFR Parts 100 to 199	Transportation

1.2 SUBMITTALS

1.2.1 SD-08, Statements

a. Treatment Facility Permit

1.2.1.1 Treatment Facility Permit

a. Written verification that the proposed disposal site is permitted to accept the contaminated materials specified, prior to the start of excavation. All treatment and disposal facilities shall be identified. Permitting and licensing information shall be provided for each facility along with a contact person, address, and a telephone number. The specific waste types to be treated and disposed must be clearly identified.

1.2.2 SD-18, Records

a. Shipment manifests

b. Delivery and disposal certificates

c. Disposal Site Decontamination certificate

d. Work Site Decontamination certificate

1.2.2.1 Shipment Manifests

Copies of manifests and other documentation required for shipment of waste materials within 24 hours after removal of waste from the site.

1.2.2.2 Delivery and Disposal Certificates

Verification that the wastes were actually delivered and disposed of at the disposal site, within 7 days of disposal.

1.2.2.3 Disposal Site Decontamination Certificate

Verification that all vehicles and containers were decontaminated prior to leaving the disposal site, within 3 days of disposal.

1.2.2.4 Work Site Decontamination Certificate

Verification that all vehicles and containers were decontaminated prior to leaving Site 2, were properly operating, and were covered, within 24 hours after removal of waste from the site.

1.3 DEFINITIONS

The following definitions shall apply, in addition to the definitions for the various waste types described in Part 4 of the Basic Contract.

1.3.1 Government Generated Waste

Government generated waste shall include all contaminated soils at the site prior to the commencement of contract work.

1.3.2 Contractor Generated Waste

Contractor generated waste shall include all materials which become contaminated with wastes as defined in the Basic Contract as a result of contractor activity at the site after the commencement of contract work.

PART 2 PRODUCTS

Not used.

PART 3 EXECUTION

3.1 GENERAL

3.1.1 Materials and Equipment

Furnish all labor, materials, and equipment necessary to transport and dispose of contaminated soils in accordance with applicable Federal, State, and local requirements.

3.1.2 Waste Disposal

3.1.2.1 Processing Sampling Wastes

Wastes generated during hazard characterization and compatibility testing, which shall include but not be limited to, all surplus samples, glass jars, sampling devices, and chemical materials, shall be packed in overpack drums and labeled for off-site disposal.

3.1.2.2 Processing Rinsate Solutions

Containerize in compatible drums all rinsate solutions for sampling and disposal. The drums containing rinsate solution shall be placed in the

final staging area.

3.1.3 Transportation and Disposal Records

Provide and prepare all waste shipment records/manifests for hazardous and nonhazardous wastes, required by the Resource Conservation and Recovery Act (RCRA) and the U.S. Department of Transportation (DOT). The Contractor shall complete all labels, profile sheets, and disposal restriction forms as necessary, including all DOT, USEPA, and state classifications. The Contractor shall provide a 48 hour notification to MCB Environmental Management Division for required signatures on waste manifests. Following completion of all paperwork, the Contractor shall submit this material and supporting documentation to the Navy's Technical Representative.

3.1.4 Transportation

The Contractor shall be solely responsible for complying with all federal, state, and local requirements for transporting hazardous materials through the applicable jurisdictions and shall bear all responsibility and cost for any noncompliance. In addition to those requirements, the Contractor shall do the following:

a. The Contractor shall weigh all containers for disposal prior to leaving MCB Camp Lejeune. The Contractor may use MCB landfill scales if the scales operator is provided with a 24 hour notification. The existing scales in Storage Lot 203 may be used. The Contractor shall provide certified accuracy of the scales at Lot 203 to $\pm$10 percent.

b. Inspect and document all vehicles and containers for proper operation and covering.

c. Inspect all vehicles and containers for proper markings, manifest documents, and other requirements for waste shipment.

d. Perform and document decontamination procedures prior to leaving the worksite and again before leaving the disposal site.

3.1.5 Disposal

All contaminated materials classified as hazardous under RCRA (40 CFR Part 261) that are removed from the site shall be disposed of in a RCRA hazardous waste treatment/disposal facility permitted to accept such materials.

All decontaminated metal material shall be taken to an on station metal recycling facility.

3.2 Treatment Facilities

The proposed treatment methods for the contaminated soils is incineration. The Contractor shall select a permitted facility for the treatment and disposal of the contaminated soil.

-- End of Section --