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Report

Environmental Conditions Sites 5 and 17, U.S. Marine Corps Air Station Cherry Point, North Carolina

Contract No. N47408-92-D-3056
Delivery Order 0011

Prepared for:
Naval Construction Battalion Center
Naval Facilities Engineering Command
NAVFAC Contracts Office, Code 2723, Building 90
Port Hueneme, California 93043-5000



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**ENVIRONMENTAL CONDITIONS REPORT
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Table of Contents

1.0	Introduction	1
2.0	Marine Corps Air Station Cherry Point Description and Background	1
2.1	Regional Setting	1
2.1.1	Topography	1
2.1.2	Climate	2
2.1.3	Geology and Soils	2
2.1.4	Hydrogeology	2
3.0	Site-Specific Description	3
3.1	Site 5	3
3.1.1	Topography	3
3.1.2	Soils	3
3.1.3	Vegetation	4
3.1.3.1	Wetland Area	4
3.1.3.2	Upland Area	4
3.1.4	Groundwater	4
3.2	Site 17	4
3.2.1	Topography	5
3.2.2	Soils	5
3.2.3	Vegetation	5
3.2.4	Groundwater	5
4.0	Preconstruction Site Walk	5
5.0	References	6
	Appendix A - Site Photographs	

1.0 Introduction

IT Corporation (IT) has been contracted to perform a Removal Action at the Marine Corps Air Station (MCAS) Cherry Point, North Carolina. This project is being performed under Contract No. N47408-92-D-3056, Delivery Order 0011. The purpose of this report is to provide information concerning the environmental and physical conditions of the sites prior to the removal action. This report should provide some continuity between previous investigations and activities associated with this removal action. As such, information presented is based on documentation from previous investigations, site photographs, physical observation, and conditions at the initiation of the removal action.

2.0 Marine Corps Air Station Cherry Point Description and Background

MCAS Cherry Point is a military installation located in southeastern Craven County, North Carolina, just north of Havelock. The site is located on an 11,485-acre tract of land bounded on the north by the Neuse River estuary, on the east by Hancock Creek, and on the south by North Carolina Highway 101. The irregular western boundary line lies approximately 1/2 mile west of Slocum Creek.

The MCAS Cherry Point was commissioned in 1942. Continuing construction in 1943 included addition of a massive aircraft assembly and repair shop, which later became the Naval Aviation Depot. The acreage at MCAS Cherry Point increased from 7,582 acres to 11,485 acres (not including bombing ranges and the two outlying Atlantic and Bogue fields) during the 1950's and 1960's. In 1980, Havelock annexed Cherry Point.

2.1 Regional Setting

2.1.1 Topography

The MCAS Cherry Point is located approximately 30 miles inland from Cape Lookout on the Atlantic Ocean, in the Coastal Plain physiographic province. The province may be characterized as an elevated sea bottom environment with low topographic relief, generally below 100 feet in elevation. Subsurface materials consist of Cretaceous, Tertiary, and Quaternary deposits which dip gently seaward.

2.1.2 Climate

The proximity to the Atlantic Ocean significantly influences the climate of Craven County, which is warm and humid with short, mild winters and long, hot summers. Winter temperatures average 46 degrees Fahrenheit (°F); temperatures in summer average 77°F. The average annual temperature is about 64°F. Periods of continuous freezing temperatures seldom last more than a few days. Precipitation is unevenly distributed, with the greatest monthly precipitation occurring during July, August, and September (6 to 8 inches per month). In the other months, rainfall averages 3 to 4 inches. Average annual precipitation in Craven County is approximately 55 inches. In extremely dry years, rainfall may be as low as 35 inches; in very wet years, it may be 80 inches. Tropical hurricanes pass offshore twice in an average year, but infrequently strike the coast with full force. Average annual evapotranspiration is 36.8 inches.

2.1.3 Geology and Soils

MCAS Cherry Point is located on the Atlantic Coastal Plain physiographic province. Soils are developed in deposition areas, and are strongly to very strongly acidic, moderately permeable, and have low natural fertility because they are derived primarily from sand.

The uppermost geologic unit at MCAS Cherry Point is designated as the Flanner Beach Formation. The sediments consist of fine, well-sorted sand to silty sand, and are of middle Pleistocene age. This unit is about 40 to 50 feet thick and is underlain by the James City Formation. The James City Formation is slightly shelly, silty sand about 15 feet thick.

Below the James City Formation lies the Yorktown Formation, which is Pliocene age. The Yorktown consists of fine- to medium-grained quartz sands in the lower portion.

At MCAS Cherry Point, the Pungo River Formation directly overlies the Oligocene age River Bend Formation and the Castle Hayne Formation (Eocene age). Both of these formations also consist of sands, sandy limestone, and cast-and-mold molluscan beds.

2.1.4 Hydrogeology

The unconfined surficial aquifer has a maximum thickness of about 50 feet. The surficial aquifer consists of the Flanner Beach Formation which is underlain by a confining unit (the upper confining unit), which corresponds to the James City Formation.

The hydrogeologic unit known as the Yorktown aquifer was previously called the Pungo River aquifer in earlier studies. The Yorktown aquifer coincides with the Yorktown Formation. The underlying confining unit (the lower confining unit) consists of the clays of the lower portion of the Yorktown Formation and the upper clay and silt beds of the Pungo River Formation.

The Castle Hayne aquifer consists of all water-bearing zones beneath the upper Pungo River Formation (including the River Bend and Castle Hayne Formations). The Castle Hayne aquifer lies at depths of 110 feet below the ground surface and extends to a depth of at least 300 feet and is the major aquifer at MCAS Cherry Point from which all water supplies are drawn.

Groundwater in the Surficial and Yorktown aquifers flows toward Slocum Creek and the Neuse River on the west side of the MCAS Cherry Point runway, and toward Hancock Creek on the east side of the MCAS Cherry Point runway.

3.0 Site-Specific Description

3.1 Site 5

Site 5 is located along the eastern side of Slocum Creek in the northwest portion of MCAS Cherry Point, between a dismantled steam generation plant and Slocum Creek. The area to be excavated is within Slocum Creek's 100 year floodplain. Site 5 was contaminated by discharge of polychlorinated biphenyl (PCB)-laden storm water runoff from the secondary contaminant of Tank 1771 which was taken out of commission in 1990.

3.1.1 Topography

The ground surface of Site 5 is generally smooth, with no sharp changes in grade ranging in elevation from 14 to 2 feet mean sea level (msl). The area slopes gradually to the north toward Slocum Creek with the area adjacent to the creek classified as wetland fringe.

3.1.2 Soils

Based on investigations conducted by IT in November 1993, the surface soils are classified as a light brown fine sand with silt, with a Unified Soil Classification System (USCS) classification of SP-SM. Soils in the wetland area are black to grey sandy loams.

3.1.3 Vegetation

Site 5 has two types of vegetation: a wetland fringe adjacent to Slocum Creek and an upland deciduous forest, as discussed in the following sections.

3.1.3.1 Wetland Area

IT conducted a wetland investigation in November 1993, and, based on the findings, the area immediately adjacent to Slocum Creek is identified as a palustrine broad-leafed deciduous forested wetland. The canopy of wetland was dominated by sweetgum (*Liquidambar styraciflua*) and pond cypress (*Taxodium distichum*), with groundsel trees (*Baccharis hamifolia*) common in the understory (Photos 1, 2, and 3).

3.1.3.2 Upland Area

The vegetation within the upland area has underbrush consistent with a deciduous forest, with several large oaks and few pines (Photo 4).

3.1.4 Groundwater

Based on soil borings completed by Haliburton NUS in 1990, groundwater at Site 5 ranges from approximately 2 feet below the ground surface near Slocum Creek, to approximately 9 feet below the ground surface as the distance from the creek increases.

3.2 Site 17

Site 17 is adjacent to the Defense Reutilization and Marketing Office (DRMO) which is located in the southwest portion of MCAS Cherry Point, southeast of Building 155. Site 17 includes an open area of approximately one acre which drains to a swale. This swale drains the DRMO hazardous waste storage area, (a Resource Conservation and Recovery Act [RCRA] regulated treatment, storage and disposal facility [TDSF] under the approved MCAS RCRA Part B permit). The swale flows into Schoolhouse Branch, which in turn flows into Slocum Creek.

The DRMO is used as a storage area, including the storage of transformers. It was reported that PCB-containing transformers were emptied into the drainage swale from 1961 to 1968.

3.2.1 Topography

The ground surface of Site 17 is generally smooth, with no sharp changes in grade ranging in elevation from 17 to 14 msl. The area slopes gradually to a swale which flows into Schoolhouse Branch, which in turn flows into Slocum Creek.

3.2.2 Soils

Based on investigations conducted by IT in November 1993, the surface soils are classified as a light brown fine sand with silt, with a USCS classification of SP-SM.

3.2.3 Vegetation

Site 17 is a grassed open area with no other vegetation (Photo 5).

3.2.4 Groundwater

Based on soil borings completed by Haliburton NUS in 1990, groundwater at Site 17 ranges from approximately 6 feet to approximately 12 feet below the ground surface.

4.0 Preconstruction Site Walk

On December 15, 1994, IT and the Navy's Remedial Project Manager (RPM) visually inspected each of the sites and discussed the protection of the natural features. Each area proposed for clearing was noted. The RPM identified the trees that were to be preserved during the removal action. IT photographed the areas prior to disturbance. These photos are presented in Appendix A.

IT and the RPM discussed how cleared and chipped materials would be handled. It was agreed that chipped materials would be spread among the wooded area at Site 5. Felled trees would be cut into wood and staged adjacent to the work area for Navy personnel to remove. Stumps and other roots were to be disposed with the soils.

Erosion and sedimentation controls were also discussed during this meeting. All parties had an understanding as to what structures were to be installed. All parties agreed that a turbidity curtain would be installed in Slocum Creek for added protection against sediment runoff.

On March 6, 1995, a preconstruction meeting was held and all parties revisited Sites 5 and 17. Erosion and sedimentation controls, clearing and grubbing, and other IT activities were

discussed. All parties were in agreement as to what environmental protection would be implemented during the removal action.

5.0 References

IT Corporation, 1994, "Final Construction Work Plan, Sites 5 and 17."

Halliburton NUS, 1992, "Final RCRA Facility Investigation Report, Units 5 and 17."

APPENDIX A
SITE PHOTOGRAPHS



Photo 1 Wetland Vegetation, Slocum Creek in the Background (Site 5)



Photo 2 Wetland Vegetation, Slocum Creek in the Background (Site 5)



Photo 3 Wetland Vegetation (Site 5)



Photo 4 Upland Vegetation, PCB Spill Area in Front of Personnel (Site 5)



Photo 5 Grassy Area, the Areas of Spill are to the Left of the Swale Along the DRMO Concrete Pad (Site 17)