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Site Name: USA RESERVE XVIII AIRBORNE CORPS

Street: 405 FISHER ST

City / State / Zip: MOREHEAD CITY, NC 28557

EPA ID: NC5210022906

EPA Region: 04

County: CARTERET

NPL Status: Not on the NPL

Non-NPL Status: SI Ongoing

Federal Facility: Federal Facility

Incident Category:

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Alias Name / Street / City / State / ZIP
MOREHEAD CITY ARMY RESERVE CENTER
405 FISHER ST
MOREHEAD CITY, NC 36115-2601

USA RESERVE XVIII AIRBORNE CORPS
CARTERET, NC

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| 00 | DISCOVERY | | FF | | 11/16/1988 |
| 00 | PRELIMINARY ASSESSMENT | L | FF | | 08/29/1990 |

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that indicate no signs of contamination. No Preliminary Assessment was completed for this facility.

13. NC9210020732. The Otis Gray Rucker USAR Center, constructed in 1962, is situated on a 4.14-acre parcel located at 3115 Western Boulevard, Raleigh NC 27606. The center consists of a 22,180 ft² training and assembly building, a 3,500 ft² storage building and a 3,854 ft² vehicle maintenance shop. Minor maintenance activities such as oil changes are conducted at the maintenance shop. Numerous internal inspections have been conducted at the facility dating back to 1992 that indicate no signs of contamination. No Preliminary Assessment was completed for this facility.

14. NC8210021624. The Rocky Mount USAR Center, constructed in 1956, is situated on a 5.2-acre parcel located at 804 Fairview Road, Rocky Mount NC 27801. The center consists of 16,700 ft² training and assembly building and a 3,400 ft² vehicle maintenance shop. Minor maintenance activities such as oil changes are conducted at the maintenance shop. Numerous internal inspections have been conducted at the facility dating back to 1993 that indicate no signs of contamination. Four Seasons Industrial Services, Inc. removed a 1500-gallon heating oil UST in FY90. Contamination resulted from leaks in the tanks. Remediation was completed and a Phase I Environmental Investigation Report dated March 1993 was submitted to NCDENR and the 81st Regional Readiness Command requested a finding of NFA at that time. The NCDENR issued a letter 15 July 1996 stating the site had been classified at the lowest priority level and NFA was required. No Preliminary Assessment was completed for this facility.

15. NC5210022047. The Uriah G. Lucas USAR Center, constructed in 1960, is situated on a 5.03-acre parcel located at 1835 Jake Alexander Boulevard, Salisbury NC 28144. The center consists of a 14,286 ft² training and assembly building, a 500 ft² storage building and a 2,528 ft² vehicle maintenance shop. Minor maintenance activities such as oil changes are conducted at the maintenance shop. Numerous internal inspections have been conducted at the facility dating back to 1992 that indicate no signs of contamination. No Preliminary Assessment was completed for this facility.

16. NC0210021929. The Adrian B. Rhodes AFRC, constructed in 1959, is situated on a 4.3-acre parcel located at 2144 West Lakeshore Drive, Wilmington NC 28401. The center consists of 25,200 ft² training and assembly building, a 3,500 ft² storage building and a 3,700 ft² vehicle maintenance shop. Minor maintenance activities such as oil changes are conducted at the maintenance shop. Two 1000-gallon heating oil USTs, one 2000-gallon heating oil UST and one 5000-gallon heating oil UST were removed 1993 by Environmental Technology of North America, Inc. The Closure Report indicated contamination had resulted from leaks in the tanks. Remediation was completed and a Soil Cleanup Report dated 30 September 2000 (attached) was submitted to the NCDENR, at which time the 81st Regional Readiness Command requested a finding of NFA. The NCDENR issued a finding of NFA as documented in a letter dated 6 April 2001. Numerous internal inspections have been conducted at the facility dating back to 1994 that indicate no signs of contamination. No Preliminary Assessment was completed for this facility.

Please let me know if you need additional information on any of these sites.

Michelle Hook, CHMM
81st RRC Environmental Manager
Office: 803.751.6757
Mobile: 803.319.8900

| | |
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| <p>NC007 HW Preliminary Assessment 14Jun90.pdf</p> | <p>Content-Description: NC007 HW Preliminary Assessment 14Jun90.pdf Content-Type: application/octet-stream Content-Encoding: base64</p> |
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State of North Carolina
Department of Environment, Health, and Natural Resources

512 North Salisbury Street • Raleigh, North Carolina 27604

Division of Solid Waste Management

Telephone 919-733-4996

James B. Hunt, Jr., Governor

Jonathan B. Howes, Secretary

March 17, 1993

MEMORANDUM

TO: Melba McGee
Division of Planning and Assessment

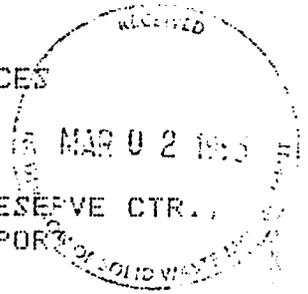
FROM: Pat DeRosa *AD*
Superfund Section

RE: EA/FONSI for the Addition/Alteration of the US Army Reserve Center
Organizational Maintenance Shop and Area
Maintenance Support Activity Shop
405 Fisher Street
Morehead City, NC 28557-6070

The subject site is currently listed on US EPA's inventory of potential waste disposal sites known as CERCLIS. To date, EPA has determined that no further remedial action is required at this site under CERCLA. Assessment of the site is being conducted by DOD in coordination with EPA.

cc: Craig Benedikt, US EPA

DEPARTMENT OF ENVIRONMENT, HEALTH, AND NATURAL RESOURCES
DIVISION OF PLANNING AND ASSESSMENT
PROJECT REVIEW FORM



FILE - EA/FONSI FOR THE ADDITION/ALTERATION OF THE U.S. ARMY RESERVE CTR.,
ORGANIZATION MAINTENANCE SHOP, AND AREA MAINTENANCE SUPPORT
ACTIVITY SHOP IN MOREHEAD CITY

PROJECT NO - 93-0698
COUNTY - CARTERET
DATE - 03/01/93
RESPONSE DUE DATE - 3/12/93

DISTRIBUTION LIST
DIVISION OF MARINE FISHERIES
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WILMINGTON REGIONAL OFFICE
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OTHER -----

MANAGER SIGN-OFF/REGION: DATE:
HOUSE REVIEWER/AGENCY: DATE:

A RESULT OF THIS REVIEW, THE FOLLOWING IS SUBMITTED:

- NO OBJECTION TO PROJECT AS PROPOSED
- NO COMMENT
- INSUFFICIENT INFORMATION
- CONSISTENCY STATEMENT NEEDED NOT NEEDED
- OTHER (SPECIFY AND ATTACH COMMENTS)
- ENVIRONMENTAL DOCUMENT REQUIRED UNDER THE PROVISIONS OF NEPA AND SEPA

RETURN TO MELBA MCGEE, DIVISION OF PLANNING AND ASSESSMENT

**Environmental Assessment
and
No Significant Impact
for**

**Construction - U.S. Army Reserve Center
Regional Maintenance Shop
Maintenance Support Activity Shop
Warrenton County, North Carolina**

10th ARCOM



Ready on Call

February 1993

LEAD AGENCY: 120TH ARCOM

TITLE OF PROPOSED ACTION: Addition/Alteration - U.S. Army Reserve Center (USARC), Organizational Maintenance Shop (OMS), and Area Maintenance Support Activity Shop (AMSA), Morehead City, Carteret County, North Carolina

AFFECTED JURISDICTION: State of North Carolina, Carteret County

PREPARING AGENCY:

Department of the Army
Wilmington District
U.S. Army Corps of Engineers
Post Office Box 1890
Wilmington, North Carolina 28402

PREPARER:

Ms. Trudy Wilder/CESAW-PD-E
Biologist

APPROVED:



Walter S. Tulloch
COL, Corps of Engineers
Commanding



COL R. M. Danielson
Director of Engineering & Housing
Fort Bragg, North Carolina

DOCUMENT DESIGNATION: Environmental Assessment (EA) and Finding of No Significant Impact (FNSI)

ABSTRACT: The proposed improvements and expansion of the U.S. Army Reserve Center at Morehead City comprise a project in the 120th Army Command Military Construction, Army Reserve, Program. The mission of the unit based at the center is water-oriented and improvement and expansion of the existing 150-member U.S. Army Reserve Center (USARC) are required to (1) facilitate command and control, training and administration, and operational supervision of water-oriented activities; (2) provide facilities capable of supporting the maintenance requirements for the vessels under its command; and (3) provide adequate facilities for access, docking, and loading/unloading of watercraft. The project is critical to the unit's ability to support the Army Reserve's mission of augmenting (becoming part of) the combat forces of the United States.

The project will have environmental impacts associated with dredging, disposal of dredged material, and construction activities. The project will require mitigation for loss of wetlands, uplands, and shallow water habitat.

The project is scheduled to be constructed in FY 94.

REVIEW COMMENT DEADLINE: 23 March 1993

ENVIRONMENTAL ASSESSMENT (EA)
 AND FINDING OF NO SIGNIFICANT IMPACT (FNSI)
 FOR
 ADDITION/ALTERATION - U.S. ARMY RESERVE CENTER (USARC)
 ORGANIZATIONAL MAINTENANCE SHOP (OMS)
 AND AREA MAINTENANCE SUPPORT ACTIVITY SHOP (AMSA)
 MOREHEAD CITY, CARTERET COUNTY, NORTH CAROLINA

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ENVIRONMENTAL ASSESSMENT (EA)
AND FINDING OF NO SIGNIFICANT IMPACT (FNSI)
FOR
ADDITION/ALTERATION - U.S. ARMY RESERVE CENTER (USARC)
ORGANIZATIONAL MAINTENANCE SHOP (OMS)
AND AREA MAINTENANCE SUPPORT ACTIVITY SHOP (AMSA)
MOREHEAD CITY, CARTERET COUNTY, NORTH CAROLINA

1.00 PURPOSE AND NEED FOR THE PROPOSED ACTION.

The U.S. Army Reserve Center (USARC) in Morehead City, Carteret County, North Carolina, is located along Calico Creek near the mouth of the Newport River at the terminus of 4th Street (Figure 1). The Center houses the 824th (Heavy Boat) Transportation Company whose mission is to provide and operate landing craft for the transportation of personnel, containers, and outsize cargo in offshore discharge operations and for augmenting lighterage service.

The 824th (Heavy Boat) Transportation Company is a high priority unit for wartime mobilization and, as such, it is critical that the unit maximize its combat readiness level. In order to do this, it is necessary that the existing facilities be expanded, as proposed by this project, to (1) facilitate command and control, training and administration, and operational supervision of water-oriented activities; (2) provide facilities capable of supporting the maintenance requirements for the vessels under its command; and (3) provide adequate facilities for access, docking, and loading/unloading of watercraft. This project is considered to be an essential part of the U.S. Army Reserve's mission of augmenting (becoming part of) the combat forces of the United States during periods of national emergency/war.

The unit is currently authorized ten Landing Craft, Marine Utility (5 LCU-1600 Series, 5 LCU-2000 Series, and 1 Coastal Harbor Inland (CHI) boat). The 1600 series LCU's are 135 feet long, 30 feet wide, and draw 7 feet fully loaded; the 2000 series LCU's are 174 feet long, 42 feet wide, draw 11 feet fully loaded, and are equipped with a water jet bow thruster which provides better maneuverability. The unit is also authorized a 65-foot-long by 17-foot-wide CHI. Presently, the unit has received five of the 1600 series vessels and two of the 2000 series vessels with the remaining three 2000 series vessels scheduled to arrive in FY 94. The project is needed to accommodate the total complement of authorized vessels.

The existing Reserve Center complex (Figure 2) consists of a small residential building which has been converted to a maintenance office, a maintenance building converted into an Administrative/Training Center, a storage building converted to an Area Maintenance Support Activity Shop (AMSA), a storage building converted to a maintenance and supply building, and an AMSA storage building. The complex is cut by Fisher Street, which separates the USARC Administrative/Training Center from the rest of the facility and hinders operational control and supervision of the waterfront and unit activities. With the exception of the existing AMSA storage building, all of the structures are inadequate to meet the current requirements of the unit. No off-street parking is currently provided. In order to meet the needs of the unit and to eliminate parking congestion on public streets, the Reserve Center complex is scheduled to be upgraded as shown on Figure 3.

2.00 REFERENCES.

a. Environmental Assessment and Finding of No Significant Impact, Expansion and Improvements, U.S. Army Reserve Center (USARC), and Area Maintenance Support Activity Shop (AMSA), Morehead City, Carteret County, North Carolina, dated January 1989 (EA/FNSI, Jan., 89). The EA/FNSI was found inconsistent with the North Carolina Coastal Management Program (NCCMP) (Division of Coastal Management letter dated March 3, 1989). The project was inconsistent based on the filling of public trust and estuarine waters for nonwater dependent activities. The January 1989 EA/FNSI was prepared to accommodate ten 1600 Series LCU's and a 200-member reserve unit. The mission of the USARC has been upgraded to include five 2000 Series LCU's, five 1600 Series LCU's, and a 150-member reserve unit; therefore, the January 1989 EA/FNSI is no longer a useable document.

b. Environmental Assessment and Finding of No Significant Impact, U.S. Army Reserve Center (USARC), Dredging and Dredged Material Disposal - Calico Creek, Morehead City, Carteret County, North Carolina, dated September 1989 (EA/FNSI, Sept., 89). The EA/FNSI was prepared to allow the dredging of Calico Creek adjacent to the USARC in 1989/90 to a depth of -14 feet mean low water (m.l.w.) from its intersection with the -14 foot m.l.w. contour in the Newport River, near the most eastern end of the North Carolina State Ports Authority (SPA) bulkhead to the terminus of 5th Street. The dredged material was placed within the existing upland disposal site on the north end of Radio Island.

3.00 PROPOSED ACTION AND ALTERNATIVES.

3.01 Proposed Action.

The proposed action includes upgrading the existing docking and landside facilities at the USARC, Morehead City, North Carolina, to accommodate the ten LCU's and the 150-member Army Reserve Unit (Figures 3, 4, 4a, and 5). This plan was selected based on the needs of the unit, security of personnel, equipment, and facilities. It has been determined that the selected plan will have the least environmental consequences while adequately providing the required project.

The major elements of the plan include the following:

a. Cutting away approximately 0.8 acre of existing upland to allow ample mooring of the LCU's.

b. Construction of two 90-foot-wide by 190-foot-long piers at the eastern end of the project. The piers will be constructed of open piles with a concrete cap. The most eastern pier will only partially be constructed of an open-pile pier structure. The part of the piers constructed on uplands will be bulkheaded (reference Figure 4). The area between the mooring cleats will be used for off and onloading equipment by crane and other heavy equipment during routine maneuvers.

c. Construction of a pier system approximately 250 feet long by 15 feet wide along the western shoreline of the project area, with two floating docks 85 feet long by 10 feet wide extending waterward for the docking of the 1600 series LCU's.

d. Placement of three to seven pile mooring dolphins adjacent to the docking piers and in the turning basin.

e. Dredging of Calico Creek to an average width of 70 feet beginning at the most western point of the North Carolina SPA property to a 320-foot-long by 320-foot-wide turning basin at the western terminus of the project area. The dredging will involve initial dredging of approximately 4 acres, including the turning basin; and maintenance dredging of approximately 6 acres of channel (last dredged in 1989) to the approved depth of -14 foot m.l.w., which includes a -2 foot overdepth. The existing depths in the area to be initially dredged range between 0.1 and 2.5 feet m.l.w. in the turning basin and between 3 to 6 feet m.l.w. in the channel. The 6 acres to be maintenance dredged is currently at an average depth of -11 feet m.l.w. The total 10 acres will be dredged and maintained at a depth of -14 feet (includes 2 feet overdepth) which will remove approximately 150,000 cubic yards of fine sandy material. Future maintenance requirements are estimated to be approximately 40,000 cubic yards of material per maintenance event at a frequency of once every 4 to 5 years.

f. Disposal of the dredged material within a previously used upland diked disposal site located on the north side of Radio Island, adjacent to the causeway. An alternative upland diked disposal site, Brandt Island, is located south of the project area in Bogue Sound and may be used if and when the selected site is unavailable. The dikes of the disposal site will be rebuilt and heightened as required to accommodate the placement of the dredged material from Calico Creek. Both the selected and alternative sites are owned by the North Carolina SPA and an easement to use the selected upland diked disposal site will be obtained from the SPA Property Office prior to use.

g. Demolition/removal of the residential structures within the project area, the existing maintenance office, the bulkhead fronting Calico Creek, the concrete pier extending into Calico Creek, a 50-foot section of the docking pier on the eastern end of the project on the north side of the concrete loading ramp, and the concrete retaining wall on the western end of the project.

h. Construction of a new Organizational Maintenance Shop/Area Maintenance Support Activity Shop (OMS/AMSA), and a new USARC Administrative/Training Center.

i. Mitigation for the loss of approximately 5 acres of estuarine resources within the project area.

3.02 Alternatives.

Several schemes for the proposed project were addressed in the EA/FNSI, Jan. 1989 (reference section 2.00.a.). These schemes were not selected based

on environmental concerns, inconsistency with the NCCMP, and the upgrading of the facility mission to include the 2000 series LCU's.

The alternative of bulkheading and filling the proposed open-pile mooring piers was evaluated. After consultation and preliminary review of this alternative by the North Carolina Division of Coastal Management (NCDQM), it was determined that the structures could be constructed using an open pile and concrete capped structure and still support the vessels during a major storm event.

Several alternative dredged material disposal sites were considered, as part of the EA/FNSI prepared in 1989, and referenced in section 2.00. The selected site is the same site used in 1989. The alternative site, Brandt Island, was not considered previously but is a viable alternative disposal site if the selected site is not available. This site is routinely used for placement of dredged material from the Morehead City Harbor project and is periodically pumped out with placement of material on the beach at Atlantic Beach, North Carolina.

Alternative government-owned sites within North Carolina were examined in 1989 (reference section 2.00.a.) to support construction of the Army Reserve facilities and relocation of the 824th Transportation Company. All of the alternative sites were found to be unacceptable due to excessive development and dredging costs required to support new construction. Alternative privately-owned sites were not considered viable based on cost and time involved in acquiring private lands.

The no-action alternative would result in the relocation of the Army Reserve facility since the existing site cannot accommodate the expected LCU's and 150-member Reserve Unit. The no-action alternative is not a desirable alternative since it would jeopardize retention of personnel in the Army Reserve Program and temporarily disrupt the mission capability of the unit. Relocation of the facility would have an adverse economic impact to the Morehead City area due to the loss of revenues and salaries.

4.00 AFFECTED ENVIRONMENT.

The affected environment includes wetlands, uplands, and shallow water habitat, as discussed below, within the area to be dredged and within the 3 to 1 slope intercept of the dredge cut. Acreage determinations for the habitats effected by the proposed expansion have been broken down and are shown in Table 1 and Figure 6.

Table 1. Preliminary acreage determinations for habitats effected by the proposed expansion of the U.S. Army Reserve Center off Calico Creek.

| <u>Habitat Name</u> | <u>Channel Widening</u> | <u>Mooring Area</u> | <u>Turning Basin</u> | <u>Total</u> |
|--------------------------|-------------------------|---------------------|----------------------|--------------|
| *Wetland | 0.7411 | 0.5680 | --- | 1.3091 |
| **Upland | 0.1623 | --- | --- | 0.1623 |
| ***Shallow Water Habitat | 0.9560 | --- | 2.6520 | 3.6080 |
| Oyster Rock | --- | 0.1360 | --- | 0.1360 |
| Total | 1.8594 | 0.7040 | 2.6520 | 5.2154 |

*Wetland acreage is the area between the shoreline (0 ft msl = 0.91 ft above m.l.w.) and proposed slope intercept that has been delineated as wetland.

**Upland acreage is the area between the shoreline (0 ft msl = 0.91 ft above m.l.w.) and proposed slope intercept that has been delineated as upland.

***Shallow water acreage is the benthic area between the shoreline to a depth less than 4 feet m.l.w.

4.01 Water Quality.

Calico Creek is influenced by lunar tides, which have a mean range of 2.5 feet. Calico Creek is classified as SC by the North Carolina Division of Environmental Management (NCDEM). The best usage of SC waters includes aquatic life propagation and maintenance (including fishing, fish and functioning primary nursery areas, wildlife, secondary recreation, and any other usage except primary recreation or shellfishing for market purposes (North Carolina Department of Environment, Health, and Natural Resources, Division of Environmental Management (NCDEHNR/DEM), Administrative Code 15A NCAC 2B .0200, March 1991). The NCDEHNR/DEM has not designated the project area as Nutrient Sensitive Waters or Outstanding Resource Waters (NCDEHNR, 1991). Also, the NCDEHNR/DEM has not designated the project area as a Primary Nursery Area (NCDEHNR, 1989).

Calico Creek sediments to be dredged in the proposed project area are predominantly fine sands (U.S. Army Corps of Engineers, Wilmington District, Grain Analyses, August 1980). Sandy materials are typically less effective in retaining metal and organic chemical contaminants than sediments which are mostly silts and clays. Sandy sediments do not tend to accumulate chemicals of concern unless a contaminant discharge is located nearby.

Sediments containing elevated heavy metal concentrations have been sampled in Calico Creek (Whaling, et al. 1977). These contaminants were thought to be associated with the Morehead City Sewage Treatment Plant effluent. The

sediments tested in that area of Calico Creek were clays, silts, and organic materials. However, Whaling, et al. (1977) reported that approximately 4,225 feet downstream (east) from the sewage outfall in Calico Creek sediment (about 4,225 feet upstream of the project area) heavy metals concentrations were very similar to those found in the middle of the Newport River estuary, an area that receives no point source inputs of metals. Testing of Calico Creek sediments (elutriate testing) and surface waters, sampled approximately 1000 feet east of the proposed project area was performed by the North Carolina Phosphate Corporation in 1983. These tests did not indicate elutriate concentrations of cadmium, copper, lead, mercury, or zinc above detection limits (See Table 2).

Table 2. Metals Concentrations in Calico Creek Sediments (Elutriate Analyses) and Water. N.C. Water Quality Standards are also given. All units are ug/l.

| Parameter | NCPC (1983)* | | COE (1980)** | | N.C. Water *** Quality Std. |
|-----------|--------------|-----------|--------------|-----------|--------------------------------|
| | Water | Elutriate | Water | Elutriate | |
| Cadmium | <5.0 | <5.0 | <1.0 | 16.5 | 5.0 |
| Copper | <10.0 | <10.0 | <10.0 | 653.0 | 10.0 |
| Lead | <5.0 | <5.0 | 1.0 | 6.0 | 25.0 |
| Mercury | <0.5 | <0.5 | 0.38 | 13.5 | 0.10 |
| Zinc | <10.0 | <10.0 | 34.0 | 580.0 | 50.0 |

* All concentrations were below detection limits given.

** Samples were taken from project area (sample number CC-7).

*** Standards for tidal saltwaters, 15 NCAC 2B .0200 effective 1 February 1986. The mercury water quality standard was 0.5 ug/l at the time of the analyses.

The mercury concentrations reported by Whaling (1981) in clams and oysters taken from the proposed project area in 1981 ranged from <.005 to .29 mg/kg (wet weight) (three samples, no means given). These results are "unpolluted" locations in the Newport River estuary and other locations (Hall, et al. 1978; Sidwell, et al. 1978; and Wenzloof, et al. 1979 in Whaling, et al. 1981). The oyster and clam tissue mercury concentrations reported for Calico Creek are below the Food and Drug Administration's mercury action level of 1.0 mg/kg for shellfish tissues.

The results of Corps of Engineers' (COE) elutriate tests on Calico Creek sediments in 1980 are inconsistent with the above sediment, tissue, and water measures of contamination in the project area. The COE 1980 analyses of project area sediments and water (Table 2) indicate that the elutriate exceeded the mercury, cadmium, copper, and lead detection limits used for the NCPC analyses. The mercury concentrations in the COE elutriate data were 26 times greater than those found in the NCPC results. The COE laboratory analyses are so inconsistent with the other data given that they are believed to have been flawed.

4.02 Aquatic Resources.

The area seasonally supports good salt-water fishing and the species most commonly taken in the area are weakfish (Cynoscion regalis), spotted seatrout (Cynoscion nebulosus), blue fish (Pomatomus saltatrix), spot (Leiostomus xanthurus), Atlantic croaker (Micropogon undulatus), and flounder (Paralichthys spp.) (Davis et al, 1965). In addition, anadromous species may use the aquatic habitats through the project area as a travel corridor between the ocean and freshwater habitats used for spawning. Species of shad (Alosa spp.), striped bass (Morone saxatilis), herring (Alosa spp.), and sturgeon (Acipenser spp.) are important (Baker, 1968). American eel (Anguilla rostrata) is an important catadromous species found throughout the estuary and its tributary streams.

The most recent study of benthic organisms applicable to the project area was performed by Mr. James R. Davis and Mr. Edward G. McCoy, Fishery Biologists with the North Carolina Wildlife Resources Commission (1965). Among the most abundant species in sandy substrates were the polchaeta, the decapoda, the gastropoda, and the pelecypoda.

The N.C. Division of Health Services, Shellfish Sanitation Office has "closed" Calico Creek and the nearby waters of the Newport River to the harvesting of oysters and clams. However, as part of the N. C. Division of Marine Fisheries (NCDMF) Shellfish Relay Program, the area is opened for 6 weeks per year to allow harvesting (by hand and by mechanical means) of clams and oysters from polluted waters for transplanting to non-polluted waters. The naturally occurring clam and oyster populations in the creek are considered a highly productive and valuable resource to the local fisherman. (Communication with Mr. Mike Marshall, N.C. Department of Natural Resources and Community Development, Division of Marine Fisheries, Morehead City, North Carolina and Mr. Charles Jones, Division of Coastal Management, Morehead City, North Carolina).

4.03 Estuarine Wetlands.

The following analysis of the estuarine wetlands which would be affected by the proposed work is discussed separately for each project component. Although no formal functional analysis or habitat evaluation procedures or quantifying of the ecological functions and social values of the wetlands have been performed, qualitative and somewhat less regimented evaluations are provided based on evidence gained during the field surveys.

4.03.1 Entrance Channel.

Soils and Hydrology: Wetland soil and hydrologic conditions are prevalent throughout this portion of the project area considering the soils are subject to regular tidal inundation up to and including the base of the upland areas. Original soils of these wetlands are sands of the Carteret Series, a Typic Psammaquent (Carteret County Soil Survey, 1984). Deposition of dredged material is responsible for filling of some of the pre-existing wetlands along the northern portion of the channel, and constitute a modification of the Carteret series. Soils seen in wetlands were both undisturbed and disturbed. Undisturbed soils are generally dark gray (2.5 Y 4/2 to N 4/0; Munsell notation) sands. Disturbed soils containing fill

materials consisting of sand can be detected by inclusions of brighter colors and coarser textures in the upper soil profile. Some of the sandy dredge fill materials have been in place for a sufficiently long period of time to gain a gray color of their own or because of close contact with the dark sands. The upland area soils are predominantly old dredged material and have been classified as Newhan Series, a Typic Quartzipsamment (Carteret County Soil Survey). The upland soil consists of light brownish gray fine sand and/or light gray fine sand (10 YR 6/2; Munsell notation). Shell fragments are found in most layers.

Vegetation: Two salt marsh islands border Calico Creek within the project area. One is directly across (north) from the Reserve Center and one is at the terminus of the proposed turning basin. Most of the tidal marsh presently found between the upland and the water is dominated by smooth cordgrass (*Spartina alterniflora*). Cedar (*Chamaecyparis spp.*), wax myrtle (*Myrica cerifera*), saltmeadow hay (*Spartina patens*), and some sea-oats (*Uniola spp.*) grow within the upland area found within the 3 to 1 slope intercept of the dredge cut. The shallow water habitat (less than 4 feet m.l.w.) to be deepened is devoid of submerged aquatic vegetation (SAV).

Some wetlands along the northern edge of the entrance channel have been filled over the course of earlier dredging activities not related to this project. Natural unfilled wetlands remain along the shoreline of the State Port property and the two small islands. Other wetlands remain at the western edge of the project. Wetland habitats in the project area have also been degraded as a result of dredged material disposal and a long history of State Port facility support enterprises and commercial/industrial establishments constructed along the edge of the wetlands bordering the waters of Calico Creek.

4.03.2 Turning Basin.

Soils and Hydrology: The entire turning basin is below m.l.w. and is permanently inundated. No wetland soils exist in this area.

Vegetation: The shallow water habitat (less than 4 feet m.l.w.) to be deepened is devoid of SAV. Wetlands along the western end of the project and the two small islands are not as heavily disturbed as those at the State Port property.

4.03.3 Mooring Area.

Soils and Hydrology: The soils and hydrology are the same as indicated in section 3.03.1. A small area (0.136 acre) of oyster shell exists along the shoreline, directly in front of the smooth cordgrass marsh (see Figure 6).

Vegetation: Plant species associated with the regularly flooded portion of the area were predominantly smooth cordgrass. The transition zone was vegetated with saltgrass (*Distichlis spicata*), saltmeadow hay (*Spartina patens*), marsh pennywort, (*Hydrocotyle umbellata*), sea ox-eye, (*Borrichia frutescens*), and marsh fimbriatylis (*Fimbristylis spadicea*). The upland is predominantly developed and is either paved or consists of residential lawns. The remainder of the shoreline has been bulkheaded and therefore, supports little or no vegetation.

4.03.4 Ecological Functions and Social Values of Wetlands.

Several functions and values of wetland habitats have been recognized as important and have been incorporated into the wetland evaluation technique prepared by Waterways Experiment Station (Adamus, et al. 1987). These will be listed here and reviewed briefly with respect to the two wetland sites in the project area (mooring and channel areas). Each function or value can be assigned a relative value based on the opinion of the field observer. Informal field-based assessments of each function or value are given below and are followed by a tabular summary of the evaluations (Table 3).

Ground water recharge--there is no opportunity for ground water to recharge so close to a tidal system at either site.

Ground water discharge--There is no opportunity for ground water to discharge within a tidal system at either site.

Floodflow alteration--The opportunity for floodflow alteration to occur regularly at either site is low and likely only during the onset of a falling tide.

Sediment stabilization--The movement of sediment into and out of Calico Creek is a likely event since regular tidal flux covers the area.

Sediment/toxicant retention--Toxicants retained by sediments at the Calico Creek site would be those leached from dredged materials or adsorbed from tidal river waters.

Nutrient removal/transformation--Removal of nutrients by tidal waters at Calico Creek are assumed to be of moderate importance because of regular tidal flooding.

Production export--Export of biomass from the Calico Creek site is assumed to be of moderate value.

Wildlife diversity/abundance--Low habitat diversity at each site is largely responsible for low wildlife diversity.

Aquatic diversity/abundance--Low aquatic diversity can be attributed to the disturbed character of the habitat.

Recreation--Calico Creek is closed for shellfishing; however, the area is opened periodically for the removal of shellfish as part of the North Carolina Shellfish Relay Program. The creek also serves as a local fishery resource and for navigation to the upper limits of Calico Creek. The recreational value is low to moderate.

Uniqueness/heritage--No properties of architectural, historical, or archaeological significance will be affected by the project. No unique organisms are known to be associated with either site.

Table 3. Summary evaluation of functions and values of portions of Mooring and Channel Areas wetlands proposed for conversion during new construction at the USARC project site.

| <u>Function/Value</u> | <u>Wetland Site Evaluation</u> | |
|---------------------------------|--------------------------------|---------------------|
| | <u>Mooring Area</u> | <u>Channel Area</u> |
| Ground Water Recharge | none | none |
| Ground Water Discharge | none | none |
| Floodflow Alteration | low | low |
| Sediment Stabilization | low | moderate |
| Sediment/Toxicant Retention | low | low |
| Nutrient Removal/Transformation | low | moderate |
| Production Export | low | moderate |
| Wildlife Diversity/Abundance | low | low |
| Aquatic Diversity/Abundance | low | low |
| Recreation | low | moderate |
| Uniqueness/Heritage | none | none |

The functional aspects of aquatic habitat are the provision of cover and food to young or larval fishery resources. These functional entities of the estuary are provided through adequate benthic substrate, ample nektonic medium, and a varied littoral environment where the deeper water habitats interface with local wetlands. The project as planned would remove or modify areas of benthic substrate that have been documented as being of low quality, and wetland fringe that is here suggested to be of moderate-to-low functional value. Both of these habitat complexes are components of an already degraded natural system.

4.04 Terrestrial Resources.

The upland area that is not developed consists of bare sand, scattered shrubs including marsh elder, groundsel tree (Baccharis halmifolia) and eastern red cedar. Seaside goldenrod (Solidago sempervirens) predominates in the herbaceous layer, interspersed with some sea-rocket (Cakile edentula) and saltmeadow cordgrass (Spartina patens). Between 50 and 60 percent of the area supports a variety of upland grasses and herbaceous plants (e.g., Panicum spp.).

Few animal species were noted at the project site, since the upland areas are heavily developed. No formal detailed survey was performed. Considering the low abundance of seed-producing grasses, the habitat is not suitable for song birds and small mammals. Indications of rabbits, most likely marsh rabbits (common names follow those used in Burt and Grossenheider 1976), were noted frequently. Reptiles and amphibians are probably largely absent from the area.

The proposed disposal area on Radio Island is predominantly bare sand and vegetated dikes. The disposal site is surrounded by Spartina marsh. Since the site is frequently used for disposal of dredged material, it is not likely that it supports a population of small mammals. Some nesting by colonial waterbirds may occur.

4.05 Archaeological/Historical Resources.

The upland acquisition area contains five single family domestic structures. The area to be cut away to provide berthing for the 2000 Series LCU's has been previously filled and bulkheaded and the mitigation site is in an area previously used as an upland disposal site. The entire area appears to have a very low potential for containing intact significant archaeological deposits. The project, excluding the uplands to be acquired, was reviewed as part of the EA/FONSI prepared in January 1989. A response received from the N.C. Division of Archives and History on October 16, 1987, stated that no known archaeological and/or historical resources occur in the project area. Field inspection by an archaeologist indicates that all of the structures to be acquired were constructed prior to 1940 and all have undergone extensive renovation or rehabilitation. There is evidence of cutting, filling, and excavation for underground utilities throughout the area.

4.06 Endangered and Threatened Species.

The following endangered and threatened species are under the jurisdiction of the U.S. Department of Commerce and/or the U.S. Department of the Interior and may occur in the project region. This list was coordinated with the U.S. Fish and Wildlife Service, Raleigh, North Carolina, and the National Marine Fisheries Service, St. Petersburg, Florida, in 1989 (reference section 2.00).

Shortnose sturgeon (Acipenser brevirostrum)
Leatherback turtle (Dermochelys coriacea)
Kemp's ridley turtle (Lepidochelys kempii)
Green turtle (Chelonia mydas)
Loggerhead turtle (Caretta caretta)
Hawksbill turtle (Eretmochelys imbricata)
Piping plover (Charadrius melodus)
Bald eagle (Haliaeetus leucocephalus)
Red-cockaded woodpecker (Picoides borealis)

No wetland dependent, threatened or endangered plant, or animal species are known to regularly use the wetlands, intertidal wetlands, and deep water areas within the immediate project area.

4.07 Recreational and Aesthetics Resources.

The USARC is bordered by public streets, private and business property, and Calico Creek. Calico Creek is used for fishing and navigational purposes by the locals and for shellfish propagation by the State of North Carolina. The proposed mitigation site and the upland diked disposal site are both previously used disposal sites. Calico Creek is not a Congressionally authorized navigation channel and no record of navigation improvements can be found. However, the creek is used by small fishing boats which navigate the

creek from its confluence with the Newport River up to the headwaters of the creek. Several private piers have been constructed along the creek west of the project area.

4.08 Hazardous and Toxic Waste.

The project was reviewed for potential hazardous and toxic waste sites and a Preliminary Assessment Screening (PAS) was prepared for the project by the Department of the Army, XVIII Airborne Corps and Fort Bragg, Directorate of Engineering and Housing, on October 29, 1992. The October 29, 1992, PAS was updated on January 19, 1993, by the U.S. Army Corps of Engineers, Environmental Resources Branch, to include two additional real estate tracts, including the proposed mitigation site. There is no visual evidence of any discarded drums, containers, stained soils, odors, stressed vegetation, etc., or any other unusual features or signs indicating that hazardous waste material had been released or discarded on the site. The PAS has been furnished to the Cary Real Estate Office.

5.00 ENVIRONMENTAL EFFECTS.

5.01 Water Quality.

Turbidity due to dredging may cause short-term decrease in light penetration and dissolved oxygen. These effects should be unnoticed as turbidity is experienced continually in Calico Creek when the LCU's and private fishing vessels navigating the creek stir up bottom sediments with their propellers.

Effluent from upland diked disposal sites is permitted under Sections 404 and 401 of the Clean Water Act of 1977, as amended, by existing Nationwide Permit 33 CFR 330.5(a)(16) and General Water Quality Certificate No. 1273, dated November 10, 1978.

5.02 Aquatic Resources.

Aquatic habitat which may be affected by the project consists of both deep and shallow estuarine bottoms. Initial dredging of the 4 acres at the western end of the project to a depth of -14 feet m.l.w. will result in shallow aquatic habitat being converted to deep water habitat. The remaining 6 acres will be maintenance dredged to a previous depth of -14 feet m.l.w. Dredging of the 4 acres of shallow estuarine bottoms will adversely impact on areas currently used as part of the N.C. Shellfish Relay Program. Although the area should recolonize with deep water organisms soon after dredging is complete, the new depths would prevent further hand-harvesting of shellfish. The -14 foot m.l.w. depth could be used as part of the mechanical harvesting area; however, very few mechanical harvesters are available to work at these depths. The conversion of 4 acres of shallow estuarine bottoms to deep water habitat will be mitigated as described in section 6.05.

Bottom sediments in the area will be disturbed by initial and maintenance dredging and by continued use of Calico Creek by the LCU's, and the fishing boats navigating the creek. Any sessile or slow moving organisms present in the area will be lost during dredging operations. Motile organisms should be

able to avoid the dredge cutterhead and escape harm but may be forced to temporarily leave the area. Initial and maintenance dredging events will be performed between October 1 and March 31 to avoid adverse impacts to aquatic resources unless prior approval from the NCDMF is obtained. The NCDMF will be contacted prior to initial construction and maintenance to allow adequate time to harvest the relay areas in the vicinity of the project.

5.03 Estuarine Wetlands.

Impacts to estuarine wetlands include the loss of about 1.3 acre of salt marsh (Spartina alterniflora and Spartina patens) due to the impacts of dredging. The loss of these resources will be mitigated for as described in the Mitigation Plan, section 6.05.

5.04 Terrestrial Resources.

The proposed expansion and improvements to the existing USARC are not expected to have an adverse impact on terrestrial resources since the majority of the site is currently being used by the USARC and is, therefore, highly disturbed.

The use of the existing upland diked disposal site on Radio Island for disposal of dredged material during initial and maintenance dredging will not have an adverse impact on terrestrial resources since the site is continuously used for disposal of dredged material.

5.05 Archaeological/Historical Resources.

No properties of architectural, historical, or archaeological significance will be affected by the project. Based on a review of the draft "Real Estate Planning Report" prepared by the U.S. Army Corps of Engineers, Savannah District, dated December 1989; the Supplement to the Real Estate Planning Report, dated October 30, 1992, and an onsite visit on January 8, 1993; it has been determined that the structures within the project area are not likely to meet significant criteria of the National Register of Historic Places (36 CFR 800). Each is in poor condition either on the interior, exterior, or both, and each is sided in either plywood or a mix of clapboard and asbestos shingles. In addition, there is evidence of cutting, filling, and excavation for underground utilities throughout the area. No further archaeological investigation is recommended. The mitigation lands are in an area considered sensitive for historic small craft. However, the previously disturbed nature of this area and the limited nature of the proposed work makes it unlikely that such sites will be affected. If a small craft site is encountered during removal of disposal material, the site will be avoided until documentation and coordination is undertaken by the project proponent or the U.S. Army Corps of Engineers per provisions of the Abandoned Shipwreck Act of 1987.

5.06 Endangered and Threatened Species.

No impacts to listed endangered and threatened species will occur as a result of the proposed work. The shortnose sturgeon has not been documented to occur in the project area and is not known to inhabit small coastal rivers such as the Newport River. All North Carolina records of the leatherback and hawksbill sea turtles are from oceanic situations.

The loggerhead, green and Kemp's ridley sea turtles have all been reported from estuarine environments in the state. None of these species is known to over-winter in the State; therefore, as dredging is scheduled to occur sometime between October 1 and March 31, construction of the project will not affect these species. The piping plover is a rare resident of the beaches in the project region, however, it is not known to use developed estuarine environments such as that found in the project area. The bald eagle occurs in the project area only as a migrant and will not be affected due to the limited areal extent of project impacts. The red-cockaded woodpecker is a resident of mature pine forests of the project region. No pine forest habitat occurs in the project area.

5.07 Recreational and Aesthetic Resources.

No significant adverse impacts on the aesthetics of the surrounding area should occur. Visual effects of the proposed work will be confined to the USARC site and along Calico Creek. Approximately 10 acres of Calico Creek will be initially or maintenance dredged to a depth of -14 feet m.l.w. This dredging will improve the navigability of the creek within the project area. No adverse impacts to navigation in the upper reaches of the creek or to the private piers located west of the project area are expected to occur.

5.08 Hazardous and Toxic Waste.

No specific or unusual environmental concerns have been identified that would significantly affect the use of the area as part of the Morehead City Army Reserve Center.

6.00 ENVIRONMENTAL REQUIREMENTS.

6.01 Consistency Determination, NCCMP.

Although the USARC property is Federal lands and is, therefore, excluded from the coastal zone, pursuant to 15 CFR 930.33(c), the project has been reviewed for consistency with the NCCMP based on impacts which may occur to areas not excluded. The project has also been reviewed and determined to be in compliance with the Carteret County Land Use Plan (update 1991) and the Morehead City Land Use Plan (update 1991).

A preliminary review of the FY 94 project was requested on February 10, 1992, and a response received from the NCDCM on March 2, 1992. The preliminary review states that the project is inconsistent with the NCCMP based on the need for further information concerning direct and indirect physical impacts to natural resources and further explanations concerning viable alternatives. Based on the information contained herein, and project modifications since the preliminary review, it has been determined that the proposed plan is consistent to the maximum extent practicable with the approved NCCMP. The request for preliminary review, February 10, 1992, the response received from the NCDCM, March 2, 1992, and a response to items identified in the March 2, 1992, letter are contained in Appendix A.

6.02 Executive Order 11988, Flood Plain Management.

The project is located within the 100-year flood plain and has been evaluated under Executive Order 11988, Flood Plain Management. No practicable alternative to constructing the project in the flood plain exists (see section 2.00).

6.03 Executive Order 11990, Protection of Wetlands.

In accordance with Executive Order 11990, Protection of Wetlands, dated May 24, 1977, all practicable measures to minimize harm to wetlands have been taken. No practicable alternatives to the proposed project exist.

6.04 Sedimentation Erosion Control Plan.

A Sedimentation and Erosion Control Plan for the project, including the upland diked disposal site is being coordinated as part of the review of the plans and specifications for the project. A Sedimentation and Erosion Control Plan is shown on Figure 7.

6.05 Mitigation Plan.

This mitigation plan assumes that creation of tidal marsh and shallow estuarine bottom at a 2:1 ratio and the creation of 10 acres of habitat will offset the 5 acres of resources loss as a result of the project.

A further goal of the mitigation will be to replace, to the greatest extent possible, the functional aspects of the converted habitats. However, functional aspects of these habitat complexes are not easily quantifiable. Units of habitat acreage are relatively easy to quantify. If it can be assumed that on an acre-for-acre basis one unit of previous habitat will be equal to two units of new habitat, replacement and probably enhancement of the former functional aspects of the old habitat segments can be accomplished by creation or restoration of similar habitat elsewhere in the estuarine system.

The aim of the mitigation effort is to compensate in adequate and fair measure for the loss of approximately 5 acres of existing wetland, and shallow water resources which will be converted to deep water habitat, as described in section 4.00, Table 1. The deep water habitat will recolonize with deep water pioneer organisms.

The actual surface area of benthic habitat within the area will be increased by conversion of wetland and upland habitat (Table 1). All dredged surfaces will be biologically unoccupied surfaces until benthic organisms can once again become established. Replacement of benthic habitat by a direct, in-kind mitigative effort will be undertaken by creation of shallow estuarine bottom.

Values and functional attributes of the wetland and shallow water habitat presently within the project area are generally understood as being medium to low quality. Based on a general assessment of the habitat available within the overall system, the mitigation site will probably be of greater value than the existing, degraded habitats.

The proposed mitigation site is located within the general vicinity of the project and is found within the greater Newport River estuary (Figure 8). This site is approximately 20 acres in size and has been used as a disposal area at different times during the history of the Atlantic Intracoastal Waterway. This proposed site has been filled well above the height of mean-high-water (m.h.w.).

The areas to be created would be very similar to adjacent habitats and would possess most of the same sets of values and ecological functions discussed in section 3.03.4. Of the functions mentioned in Table 3, the resulting created wetlands will make the greatest contribution toward sediment stabilization, production export, and wildlife diversity. Created marshlands within the larger estuarine system will have a value as nursery habitat for foraging and cover by juvenile fishes as well as other aquatic forms.

The generalized method of wetland construction would involve the removal of the fill materials to the level of the layers representing the original or desired wetland surface. The material removed would be disposed of on the remaining upland portion of the 20-acre mitigation site. The graded and leveled area would then be seeded and planted with greenhouse-grown seedlings. Based on past experience in eastern North Carolina, greenhouse-grown seedlings have a better survival rate than field-dug stock (Broome, et al. 1982).

The mitigation site is of sufficient size to allow for creation of more direct contact with tidal waters by construction of small tidal streams and shallow water habitats that would carry water into the habitat more efficiently. Such channels would also allow for greater habitat diversity and greater interspersions of micro-habitat types, thus increasing the overall value of the additions to the system.

The ultimate degree of success of the mitigation would be assessed by regular monitoring and comparison of the newly created habitat with more natural habitats. In this way, adjacent wetland habitats would serve as models. Similarity indices could be used as numerical measures of the degree of success of the mitigation. Regular checks would continue until it appeared that the mitigation areas had reached the desired measure of similarity or stability as compared to the natural wetlands. Two or three years of monitoring will be used to assess the course of the mitigation areas. Additional mitigation acreage may be necessary if it is found that the compensation areas have not fared as well as expected.

Early work on development of the mitigation site can begin once review of the environmental assessment is completed. According to Section 906 of the Water Resources Development Act of 1985 (Public Law 99-662), mitigation of fish and wildlife losses including land acquisition can be undertaken before the beginning of any construction of the project [Section 906 (a)(1) (A)].

7.00 COORDINATION.

Previous coordination performed as part of the EA/FNSI Jan., 89 and EA/FNSI, Sep. 89, have been incorporated into this document.

The project was coordinated by letter with the NCDCM. (Corps of Engineers letter dated February 10, 1992, and DCM response dated March 2, 1992).

Information meetings have been held during the preconcept and design stages of the project with U.S. Army personnel and other agencies.

8.00 RECIPIENTS OF THIS ASSESSMENT.

This assessment is being circulated for review and comment to the agencies and public listed below for 30 days. After reviewing the comments received, the Commander, Headquarters, 2nd U.S. Army may sign the FNSI and proceed with the proposed action subject to receipt of the necessary Department of the Army permit, State Section 401 Water Quality Certification, and consistency concurrence, or prepare an environmental impact statement.

Office of Federal Activities, U.S. Environmental Protection Agency
Regional Administrator, U.S. Environmental Protection Agency
Area Director, State and Private Forestry, Forest Service, USDA
Regional Environmental Officer, HUD, Atlanta Regional Office
Executive Director, Advisory Council on Historic Preservation
Director, Office of Ecology and Conservation, NOAA
Federal Emergency Management Administration, Department of Commerce
Special Programs, Center for Environmental Health
Habitat Conservation Division, National Marine Fisheries Service
Director, State Clearinghouse
Office of Environment Project Review, USDI
Division of Ecological Services, U.S. Fish and Wildlife Service
Commander, Fifth Coast Guard District
President, Conservation Council of North Carolina, Chapel Hill
Sierra Club
Izaak Walton League
Region 3, Department of Transportation, Federal Highway Administration
Southeastern Regional Office, National Audubon Society
North Carolina Wildlife Federation
EIS Review Section, Environmental Protection Agency, Region IV
National Wildlife Federation
State Conservationist, Soil Conservation, USDA
Director, Office of Environmental Compliance, Department of Energy
Environmental Defense Fund, Inc.
Marine Division, Cape Fear Community College
Commander, Headquarters XVIII Airborne Corps, Ft. Bragg, North Carolina
HQDA, Office of the Chief of Army Reserve, Ft. Meyer, Virginia
Commander, 824th Transportation Company, Morehead City, North Carolina
Carteret County Commissioners
Mayors
Carteret County Planning Department
North Carolina State Representative
Postmaster, Beaufort, North Carolina
Town of Morehead City
Carteret County Economic Development Council, Inc.
Board of Carteret County Commissioners

9.00 LITERATURE CITED.

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10.00 FINDING OF NO SIGNIFICANT IMPACT (FNSI).

The proposed action will not significantly affect the quality of the human environment; therefore, an environmental impact statement will not be prepared.

DATE: _____

COL. R. M. Danielson
Director of Engineering & Housing
Fort Bragg, North Carolina

Attachments

APPENDIX A

February 10, 1992

CESAW-PD-E

Mr. Roger N. Schechter, Director
Division of Coastal Management
North Carolina Department of Environment,
Health, and Natural Resources
Post Office Box 27687
Raleigh, North Carolina 27611-7687

Dear Mr. Schechter:

The Wilmington District, U.S. Army Corps of Engineers, has been tasked by 120th Army Reserve Command to prepare the environmental documentation and obtain the necessary environmental clearances for the upgrading of the Morehead City Army Reserve Center (MHARC), Carteret County, North Carolina, presently scheduled to be constructed in FY94. The MHARC watercraft capability has been upgraded to include the 1600 and 2000 series Landing Craft Utility (LCU) vessels to better equip the unit to do its part in the sustainment of combat forces. We request that you furnish us with your preliminary consistency review of the proposed plan within 2 weeks from the date of this letter. We have enclosed 11 copies of the proposed plan and an existing site map to expedite your review.

A previous attempt to upgrade the MHARC, as described in the Environmental Assessment and Finding of No Significant Impact, Expansion and Improvements, U.S. Army Reserve Center (USARC), and Area Maintenance Support Activity Shop (AMSA), Morehead City, Carteret County, N.C., dated January 1989, was found inconsistent with the North Carolina Coastal Management Program (Division of Coastal Management letter dated March 3, 1989). The project was inconsistent based on the filling of public trust and estuarine waters for nonwater dependent activities. Calico Creek was dredged adjacent to the MHARC in 1989/1990 to a depth of -14 feet mean low water (m.l.w.) (12 feet project depth plus 2 feet overdepth) from its intersection with the -14 foot m.l.w. contour in the Newport River, near the most eastern end of the North Carolina State Ports Authority bulkhead to the terminus of 5th Street. The dredged material was placed within an existing upland disposal site on the north end of Radio Island. This work is described in the Environmental Assessment and Finding of No Significant Impact, U.S. Army Reserve Center (USARC), Dredging and Dredged Material Disposal - Calico Creek, Morehead City, Carteret County, North Carolina, dated September 1989. The proposed project will require preparation of an Environmental Assessment and Finding of No Significant Impact.

The proposed plan includes installation of fencing along the established property line, cutting away of existing property, construction of a suitable docking facility, and dredging to -14 feet m.l.w. for mooring of five 1600 series LCU's (135 feet long by 30 feet wide) and five 2000 series LCU's (174 feet long by 42 feet wide). The project also involves the landside expansion and improvement of the existing 150 member reserve center complex.

The major elements of the plan include the following:

a. Cutting away approximately 0.8 acre of existing land to allow ample waterward mooring of the LCU's.

b. Dredging approximately 90,000 to 100,000 cubic yards of material from Calico Creek, including a 320- by 320-foot turning basin at the western end of the project. The proposed plan will involve maintenance, if required, of that portion of the channel dredged to -14 feet m.l.w. in 1989/1990 and initial dredging of the remaining portion of the channel and turning basin to -14 feet m.l.w. The depths of the turning basin are between 0.1 and 2.5 feet m.l.w. and the remaining channel depths average between 3 to 6 feet m.l.w. Dredged material will be disposed of within an existing upland diked disposal site.

c. Constructing two 90-foot-wide bulkheads and extending the bulkhead at the eastern end of the existing bulkhead, which will result in filling of approximately 0.5 acre of open water for the docking of the 2000 series LCU's. The new bulkheads will not extend beyond the existing pier which is to be removed.

d. Constructing a pier system approximately 250 feet long by 15 feet wide along the western shoreline of the project area, with two floating docks 85 feet long by 10 feet wide extending waterward for the docking of the 1600 series LCU's.

e. Installing a chain link fence along the established property line, including the wetland area adjacent to 5th Street.

The proposed plan is designed to address the need for docking the vessels safely and adequately during a hurricane storm event. Due to the time required to mobilize sufficient reservists to relocate the vessels to more protected waters or to take them to sea, the decision has been made to keep the vessels moored in place during a hurricane. Normal mooring design requires wind loading computations based on 60 to 90 knot winds. To meet the requirements for this facility, the design wind load was calculated to that above 100 knots. It has been determined that an open pier system would not provide adequate and safe docking of the larger 2000 series LCU's during the

larger storm events (winds over 100 knots). Therefore, the proposed plan includes construction of two bulkheads which would meet the resistance of a hurricane. In the past, the unit has had to mobilize to transport the existing 1400 series LCU's to safer mooring facilities. The transporting and mooring of the 1600 series elsewhere in the event of a storm may be possible, if required. However, the size of the 2000 series vessels may preclude finding suitable mooring elsewhere. Therefore, it is critical that the bulkheads be adequate to safely moor these vessels during larger storm events. Dredging of the channel and construction and maintenance of the turning basin are necessary to allow the vessels to maneuver and dock safely without impacting the existing wetlands on the north side of the channel.

The exact layout of the reserve center landside facility has not been prepared at this time; however, no buildings or other nonwater dependent activities will involve the taking of public trust or estuarine waters.

The project will involve mitigation for the loss of estuarine resources. A mitigation plan for the loss of these resources is being formulated and will be coordinated with all concerned agencies in the near future.

If you have any questions, please contact Mrs. Trudy Wilder, Environmental Resources Branch, at (919) 251-4581.

Sincerely,

Lawrence W. Saunders
Chief, Planning Division

Enclosures

Copies Furnished (with enclosures):

Commander
Office of the Chief, Army Reserve
Army Support Center
ATTN: DAAR-EN/Bonham
1815 North Fort Myer Drive
Arlington, Virginia 22209-1808

Commander
120th Army Reserve Command
ATTN: AFKD-ACG-EN/Etzkorn
Fort Jackson, South Carolina 29207-6070

Commander
824th Transportation Company
U.S. Army Reserve Center
405 Fisher Street
Morehead City, North Carolina 28557-6070

MEMORANDUM:

TO: STEVE BENTON

FROM: JAMES L. MERCER

SUBJECT: CONSISTENCY DETERMINATION - DCM92-05
UPGRADING MOREHEAD CITY ARMY RESERVE CENTER

DATE: MARCH 2, 1992

The U.S. Army has modified the project plans for the upgrading of the Morehead City Reserve Center from their original proposal which was submitted to this office in 1989 and 1990. While there has been significant modification, it appears that this project is still inconsistent with the North Carolina Coastal Management Program. A final determination of this consistency cannot be made until additional information is supplied. This information should address both direct and indirect physical impacts to natural resources and further explanations as to whether there exist viable alternatives which would eliminate or minimize resource impacts.

Based on our review, we have determined the following:

1. The Corps needs to provide additional documentation as to why the two 90' bulkheaded "docks" cannot be engineered as open-pile pier structures, thus eliminating the direct impacts of filling on 0.5 acres of coastal wetlands, shallow estuarine habitat, and open navigable waters area.
2. In order to be consistent with development along the estuarine shoreline, the project plans must detail all impervious surfaces, i.e., existing and proposed areas of gravel, asphalt, concrete, etc., within 75' of the adjusted MHW shoreline. The maximum 30% figure is a standard for development without undertaking innovative design changes.
3. "Cutting away" of the highground property to create mooring berths for the LCUs is considered a positive design change alleviating the public trust occupation by fixed piers extending more than one-third the width of the waterway.
4. From our most recent onsite visit (2/4/92), it was determined that the dredging requirements along the 250' pier system on the western shoreline appears to involve the direct displacement of coastal wetlands and intertidal oyster rocks along the shoreline of Calico Creek. The indirect impacts of dredging in this area have also not been assessed by the Corps scoping document. Vertical or box cut side-slopes of dredging along the 250' pier system will provide vessel access to -14' of water. However, prop wash,

March 2, 1992

Page #2

boat wakes and wave action from the LCUs in the turning basin and along the first 5 berths will result in additional loss of marsh as sloughing occurs. Also, any dredged impacts to the two "islands" should be identified. The Corps of Engineers needs to address these potential impacts and design away from the vegetated wetlands and shallow water resources with adequate side-slopes and/or retaining structures.

5. Fencing off of the property line west of Fifth Street cannot be completely evaluated without project plans that show the MHW contour. Interruption of public access and fencing off of the public trust waterward of the MHW shoreline is inconsistent with CAMA Use Standards. It will also appear to be appropriate for the Army to obtain title to Fifth Street as it extends north to the water's edge in order to develop in this area. The Corps needs to resolve the public access question and private pier issue at the end of Fifth Street and present that information in a follow-up document. In addition, the project plans should show the location and extent of the private residence and property along the terminal end of the fence on the west shoreline.
6. Any mitigation proposed should be consistent with 15A NCAC 7M.

If you have any questions concerning this, please contact me at my Morehead City office.

JLM/dh

cc: Preston P. Pate, Jr.
Charles S. Jones

Draft responses to Preliminary Consistency Review, March 2, 1992

1. Comment: The Corps needs to provide additional documentation as to why the two 90' bulkheaded "docks" cannot be engineered as open-pile pier structures, thus eliminating the direct impacts of filling on 0.5 acres of coastal wetlands, shallow estuarine habitat, and open navigable waters area.

Response: The piers will be constructed of open piles with a concrete cap. The need for the steel bulkhead and fill were justified on the mooring of the vessels during hurricane storm events. Recalculations have determined that the open pile system will provide safe and adequate mooring capabilities. The width of 90 feet is determined to be required to adequately cross tie the vessels during a major storm event. Less width would not provide adequate and safe docking of the 2000 series vessels. The area between the mooring cleats can also be used for off and onloading equipment by crane and other equipment during routine maneuvers. The width of the piers cannot be reduced and still meet its requirements.

2. Comment: In order to be consistent with development along the estuarine shoreline, the project plans must detail all impervious surfaces, i.e., existing and proposed areas of gravel, asphalt, concrete, etc., within 75' of the adjusted MHW shoreline. The maximum 30% figure is a standard for development without undertaking innovative design changes.

Response: The existing area adjacent to the shoreline will be altered through the cutting away of the existing land. The adjusted MHW shoreline has been calculated for existing and proposed impervious areas. The calculations have been determined as follows:

| | <u>Existing</u> | <u>Proposed</u> |
|-------------------|-----------------|-----------------|
| Grass | 19% | 4% |
| Concrete/Pavement | 6% | 44% |
| Building | 4% | 2% |
| Gravel | 71% | 50% |
| TOTAL IMPERVIOUS | 81% | 96% |

(Grass areas not included in impervious calculations)

In accordance with 7H.0209(e)(2) "All development projects, proposal, and designs shall limit the construction of impervious surfaces and areas not allowing natural drainage to only so much as is necessary to adequately service the major purpose or use for which the lot is to be developed. Impervious surfaces shall not exceed 30% of the AEC area of the lot, unless the applicant can effectively demonstrate, through innovative design, that the protection provided by the design would be equal to or exceed the protection by the 30% limitation. Redevelopment of areas exceeding the 30% impervious surface limitation can be permitted if impervious areas are not increased and the applicant designs the project to comply with the intent of the rule to the maximum extent practical."

Since the increase in impervious area calculated above is only 15% of the existing impervious area, and the intent of the rule is met, the proposed impervious area meets the intent of the use standards of the Estuarine Shoreline AEC.

3. Comment: "Cutting away" of the highground property to create mooring berths for the LCUs is considered a positive design change alleviating the public trust occupation by fixed piers extending more than one-third the width of the waterway.

Response: Agreed. The cutting away of the highground will also provide additional aquatic habitat.

4. Comment: From our most recent onsite visit (2/4/92), it was determined that the dredging requirements along the 250' pier system on the western shoreline appears to involve the direct displacement of coastal wetlands and intertidal oyster rocks along the shoreline of Calico Creek. The indirect impacts of dredging in this area have also not been assessed by the Corps scoping document. Vertical or box cut side-slopes of dredging along the 250' pier system will provide vessel access to -14' of water. However, prop wash, boat wakes and wave action from the LCUs in the turning basin and along the first 5 berths will result in additional loss of marsh as sloughing occurs. Also, any dredged impacts to the two "islands" should be identified. The Corps of Engineers needs to address these potential impacts and design away from the vegetated wetlands and shallow water resources with adequate side-slopes and/or retaining structures.

Response: The proposed scheme, as revised, should reduce the impacts on existing wetlands. The impacts have been evaluated and are included in the proposed mitigation plan, Appendix XX.

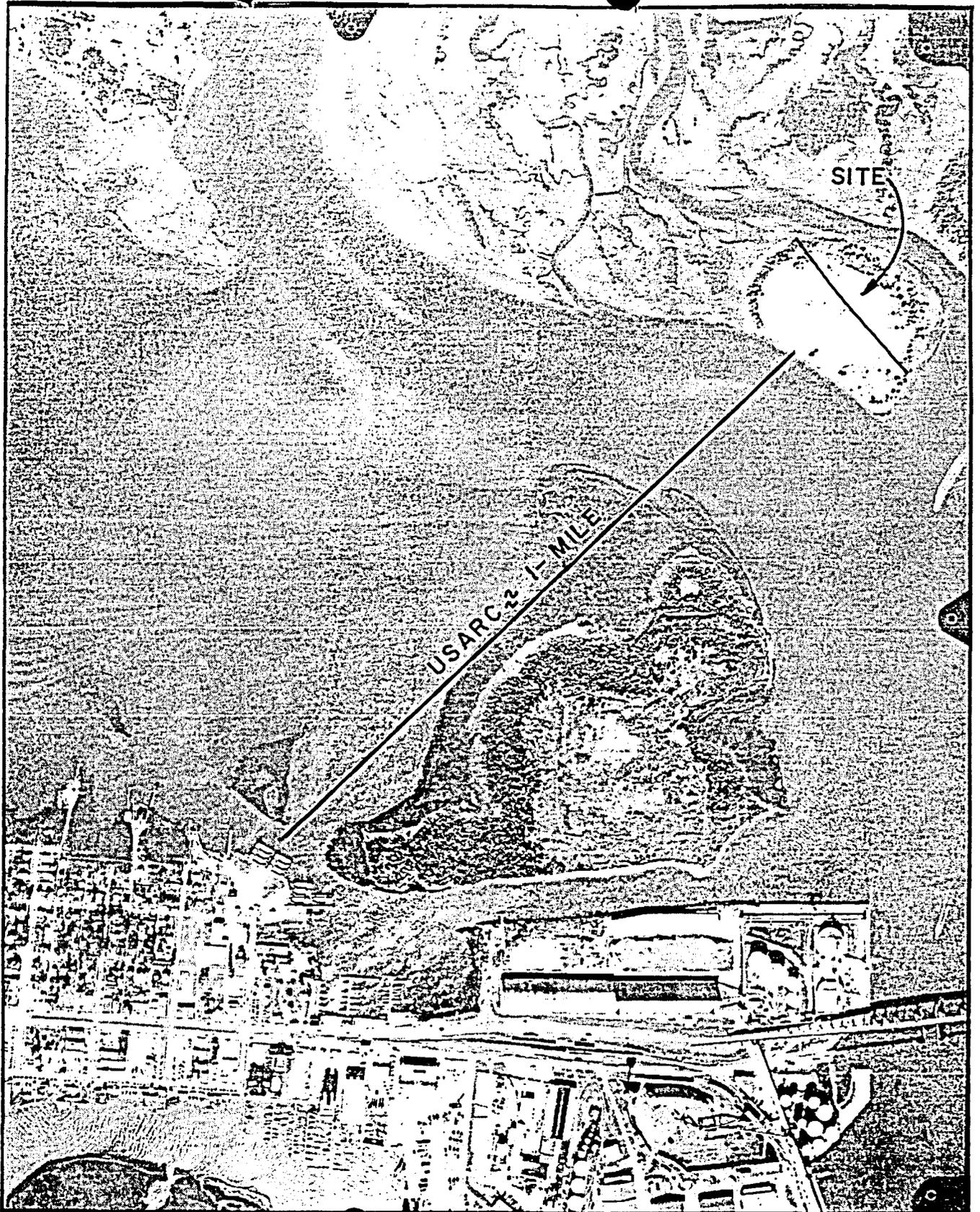
5. Comment: Fencing off of the property line west of Fifth Street cannot be completely evaluated without project plans that show the MHW contour. Interruption of public access and fencing off of the public trust waterward of the MHW shoreline is inconsistent with CAMA Use Standards. It will also appear to be appropriate for the Army to obtain title to Fifth Street as it extends north to the water's edge in order to develop in this area. The Corps needs to resolve the public access question and private pier issue at the end of Fifth Street and present that information in a follow-up document. In addition, the project plans should show the location and extent of the private residence and property along the terminal end of the fence on the west shoreline.

Response: The MHW contour is shown on Figure xx. The intent of the fencing would be to secure the USARC and eliminate possible injury to local residents on government property. The public access question is still being discussed with local and town officials. Until this question is resolved, no plans to fence the area at the end of 5th Street will be pursued. The private pier adjacent to the turning basin at the western limits of the project will not be impacted. The private residence on the eastern side of 5th Street are being acquired by the USARC as part of their facility. No impact to the

residence on the western side of 5th Street will occur. Any fencing of the USARC property will occur landward of the MHW line.

Comment: Any mitigation proposed should be consistent with 15A NCAC 7M.

Response: The preliminary mitigation plan (Appendix X) is being coordinated with all concern agencies during 30 day review of the EA/FNSI. The mitigation plan is consistent to the extent practicable with 15A NCAC 7M.



U.S. ARMY RESERVE CENTER
MOREHEAD CITY, N.C.
MITIGATION AREA
NOT TO SCALE

FIGURE 8



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION IV

345 COURTLAND STREET, N.E.
ATLANTA, GEORGIA 30365

AUG 27 1991

WD-RCRA & FF

Certified Mail
Return Receipt Requested

RECEIVED

SEP 09 1991

HAZARDOUS WASTE SECTION

Commander
Directorate of Engineering and Housing
Attention: AFZA-DE-RJ (Mr. Robert Turner)
Fort Bragg, NC 28307

RE: Updating Preliminary Assessments for the Revised
Hazard Ranking System
U. S. Army Reserve Centers

Dear Sir:

The Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA), as amended by the Superfund Amendments and Reauthorization Act of 1986 (SARA), requires the U.S. Environmental Protection Agency (EPA) to establish a Federal Agency Hazardous Waste Compliance Docket to provide information on the status and compliance of federal facilities that may have releases of hazardous substances. Section 120 specifically addresses federal agency compliance with requirements on response actions, site evaluations, and hazard ranking procedures for facilities on the Docket. The U. S. Army Reserve Centers on the enclosed list are on the Docket.

EPA Region IV is currently contacting each federal facility on the Docket but not on the National Priorities List (NPL) to request updated information required by the revised Hazard Ranking System (HRS2) of the National Contingency Plan (NCP), which became effective March 14, 1991. Our records indicate that a Preliminary Assessment (PA) report or its equivalent was submitted previously for the reserve centers and that it was determined that no further action was needed at that time. We are writing to request updated information on any releases of hazardous substances that may have occurred or been discovered since that time.

We are enclosing the basic guidelines for a Preliminary Assessment. If the EPA determines from the updated PA information that a release has occurred or there is a potential for release, we may require further investigation later in the form of a Site Inspection (SI). We are also enclosing guidelines on the requirements of HRS2, generally to be utilized following an SI; however, we are not requesting that level of investigation at this time. Both PA and SI are defined in the NCP (40 CFR 300).

We are requesting submittal of the updated PA information within 60 days of receipt of this letter. If that is not feasible, we request submittal of a timetable for compliance within 30 days of receipt of this letter.

If you have questions regarding the updating of PA information, please contact Mr. J. C. Meredith of this office at (404) 347-3016.

Sincerely yours,

for *James H. Scarbrough*

James H. Scarbrough, P.E., Chief
RCRA & Federal Facilities Branch
Waste Management Division

Enclosure

cc: Mr. William L. Meyer, Director
Division of Solid Waste Management
North Carolina Department of Environment,
Health & Natural Resources
Post Office Box 27687
Raleigh, NC 27611-7687

Commander
U. S. Army Toxic & Hazardous Materials Agency
CETHA-IR-S (Conrad Swann)
Aberdeen Proving Ground, MD 21010-5401

cc: *Jack Butler*
Superfund

HRS2 UPDATES FOR NORTH CAROLINA

| STATE | FACILITY NAME | PRIMARY AGENCY | SECONDARY AGENCY |
|-------|----------------------------|----------------|------------------|
| NC | ALBERMARLE ARMY RESERVE | DOD | DOA |
| NC | ASHEVILLE ARMY RESERVE | DOD | DOA |
| NC | BREVARD ARMY RESERVE | DOD | DOA |
| NC | CHARLOTTE ARMY RESERVE | DOD | DOA |
| NC | DURHAM ARMY RESERVE #1 | DOD | DOA |
| NC | DURHAM ARMY RESERVE #2 | DOD | DOA |
| NC | FORT BRAGG ARMY RESERVE | DOD | DOA |
| NC | GARNER ARMY RESERVE | DOD | DOA |
| NC | GREENSBORO ARMY RESERVE | DOD | DOA |
| NC | GREENVILLE ARMY RESERVE | DOD | DOA |
| NC | HICKORY ARMY RESERVE | DOD | DOA |
| NC | HIGH POINT ARMY RESERVE | DOD | DOA |
| NC | LUMBERTON ARMY RESERVE | DOD | DOA |
| NC | MOREHEAD CITY ARMY RESERVE | DOD | DOA |
| NC | RALEIGH ARMY RESERVE | DOD | DOA |
| NC | ROCKY MOUNT ARMY RESERVE | DOD | DOA |
| NC | SALISBURY ARMY RESERVE | DOD | DOA |
| NC | WILMINGTON ARMY RESERVE | DOD | DOA |



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION IV

345 COURTLAND STREET
ATLANTA, GEORGIA 30365

AUG 13 9 17 AM

RECEIVED

AUG 17 1990

SUPERFUND SECTION

4WD-RCRA & FF

Colonel K.W. Crissman
Director of Engineering & Housing
Headquarters, XVIII Airborne Corps & Fort Bragg
Fort Bragg, North Carolina 28307-5000

Re: Preliminary Assessments
U.S. Army Reserve Centers in North Carolina

Dear Colonel Crissman:

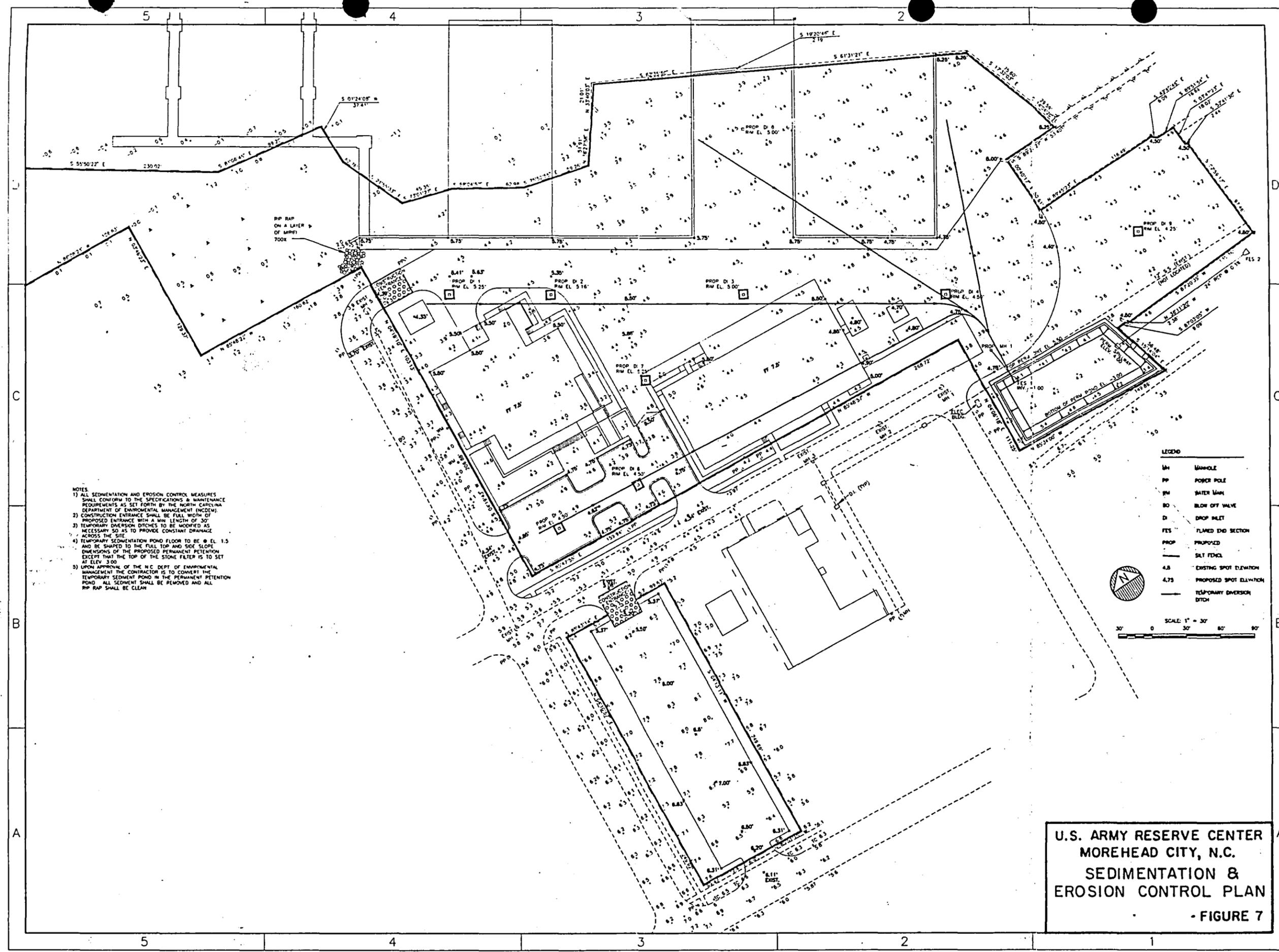
The Preliminary Assessment forms for potential hazardous waste sites at U.S. Army Reserve Centers in North Carolina, submitted by letter of June 21, 1990, have been reviewed by the U.S. Environmental Protection Agency. Based upon the information submitted and a telephone verification by Mr. William A. Kern of your Directorate, we have concluded that no further action is needed at this time.

If any releases of hazardous substances to the environment should occur in the future or any information on any past releases should be found, these should be reported to EPA. If you have questions concerning this review, please contact Mr. J.C. Meredith, P.E., Remedial Project Manager, at (404) 347-3016.

Sincerely yours,


James H. Scarbrough, P.E., Chief
RCRA & Federal Facilities Branch
Waste Management Division

cc: Lee Crosby, NCDEHNR



NOTES

- 1) ALL SEDIMENTATION AND EROSION CONTROL MEASURES SHALL CONFORM TO THE SPECIFICATIONS & MAINTENANCE REQUIREMENTS AS SET FORTH BY THE NORTH CAROLINA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT (NCEM).
- 2) CONSTRUCTION ENTRANCE SHALL BE FULL WIDTH OF PROPOSED ENTRANCE WITH A MIN. LENGTH OF 30'
- 3) TEMPORARY DIVERSION DITCHES TO BE MODIFIED AS NECESSARY SO AS TO PROVIDE CONSTANT DRAINAGE ACROSS THE SITE.
- 4) TEMPORARY SEDIMENTATION POND FLOOR TO BE @ EL. 1.5 AND BE SHAPED TO THE FULL TOP AND SIDE SLOPE DIMENSIONS OF THE PROPOSED PERMANENT RETENTION EXCEPT THAT THE TOP OF THE STONE FILTER IS TO BE SET AT ELEV. 3.00
- 5) UPON APPROVAL OF THE N.C. DEPT. OF ENVIRONMENTAL MANAGEMENT THE CONTRACTOR IS TO CONVERT THE TEMPORARY SEDIMENT POND IN THE PERMANENT RETENTION POND. ALL SEDIMENT SHALL BE REMOVED AND ALL RIP RAP SHALL BE CLEAN.

LEGEND

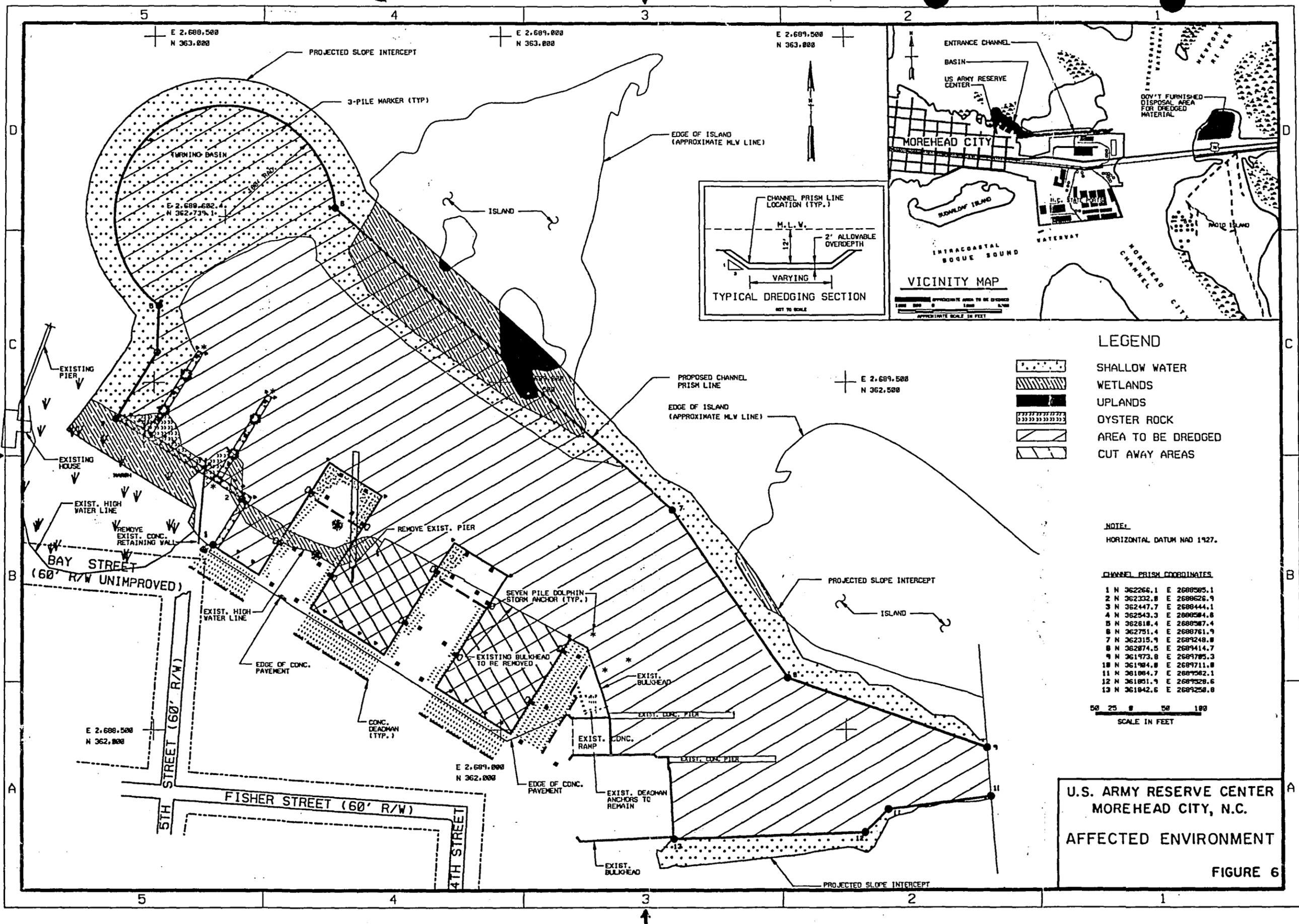
| | |
|------|---------------------------|
| MH | MANHOLE |
| PP | POWER POLE |
| WM | WATER MAIN |
| BO | BLOW OFF VALVE |
| D | DROP INLET |
| FES | FLARED END SECTION |
| PROP | PROPOSED |
| — | SILT FENCE |
| 4.8 | EXISTING SPOT ELEVATION |
| 4.75 | PROPOSED SPOT ELEVATION |
| --- | TEMPORARY DIVERSION DITCH |



SCALE: 1" = 30'

0 30 60 90

U.S. ARMY RESERVE CENTER
 MOREHEAD CITY, N.C.
 SEDIMENTATION &
 EROSION CONTROL PLAN
 - FIGURE 7



LEGEND

-  SHALLOW WATER
-  WETLANDS
-  UPLANDS
-  OYSTER ROCK
-  AREA TO BE DREDGED
-  CUT AWAY AREAS

NOTE:
HORIZONTAL DATUM NAD 1927.

CHANNEL PRISM COORDINATES

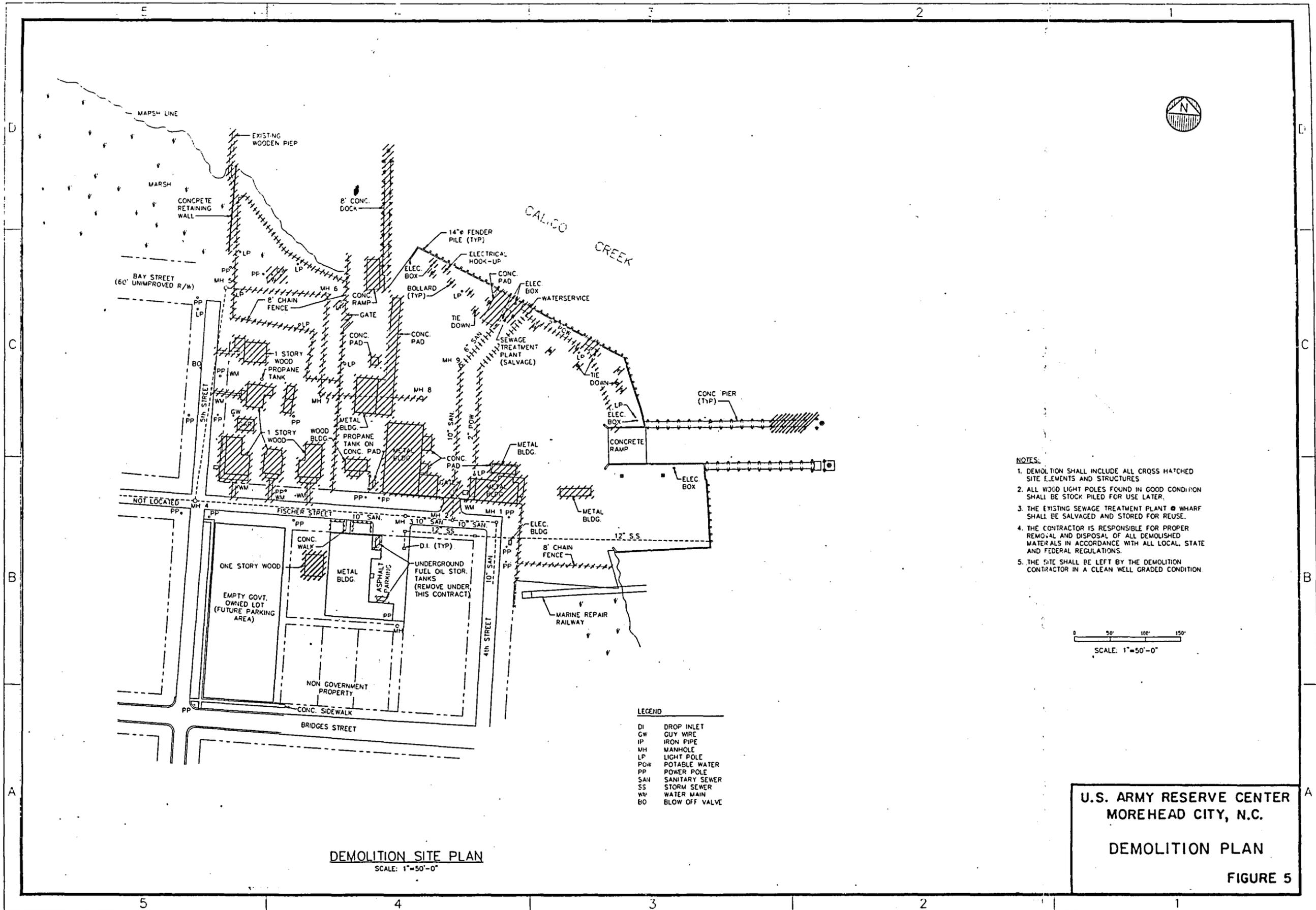
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| 2 | N 362332.8 | E 2689526.9 |
| 3 | N 362447.7 | E 2689444.1 |
| 4 | N 362543.3 | E 2689384.8 |
| 5 | N 362618.4 | E 2689387.4 |
| 6 | N 362751.4 | E 2689261.9 |
| 7 | N 362315.9 | E 2689248.8 |
| 8 | N 362674.5 | E 2689414.7 |
| 9 | N 361973.8 | E 2689785.3 |
| 10 | N 361984.8 | E 2689711.8 |
| 11 | N 361984.7 | E 2689582.1 |
| 12 | N 361891.9 | E 2689328.6 |
| 13 | N 361842.6 | E 2689258.8 |

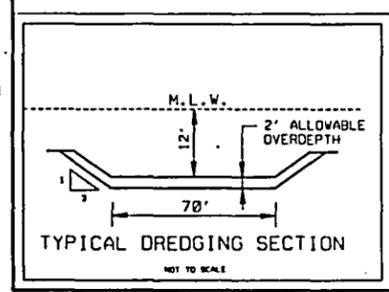
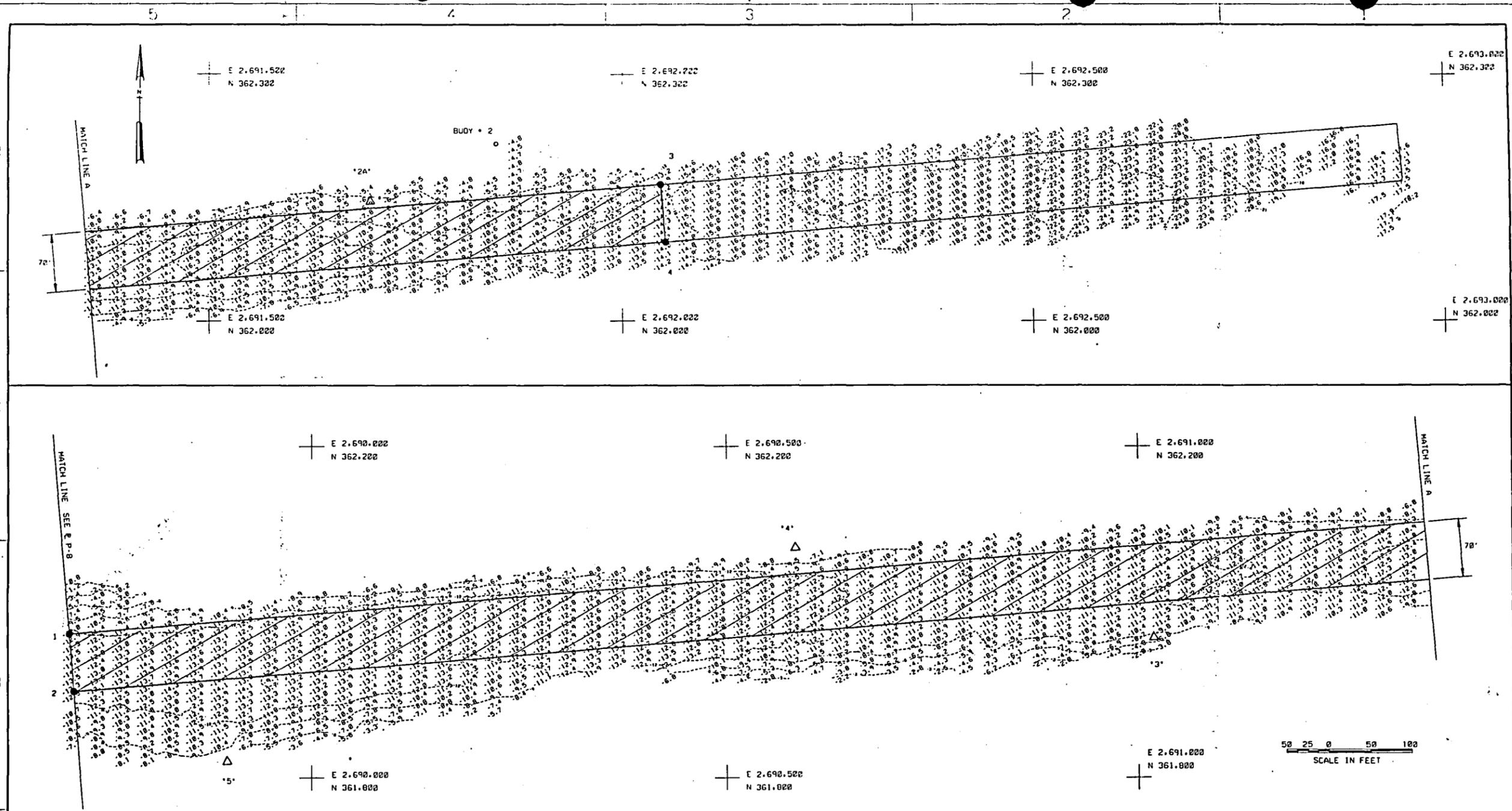
50 25 0 50 100
SCALE IN FEET

**U.S. ARMY RESERVE CENTER
MOREHEAD CITY, N.C.**

AFFECTED ENVIRONMENT

FIGURE 6





CHANNEL PRISM COORDINATES

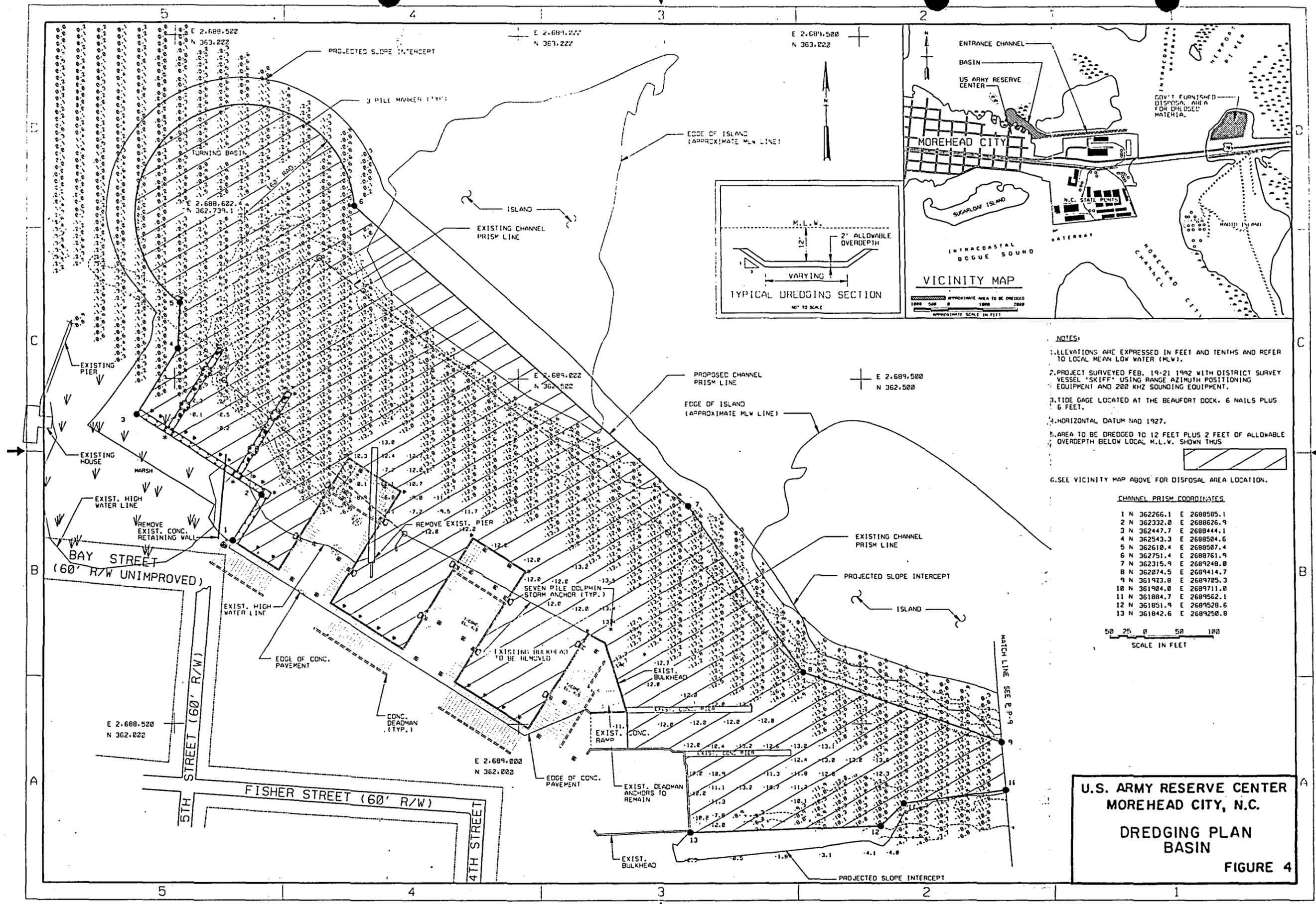
| | | |
|---|------------|-------------|
| 1 | N 361973.8 | E 2689705.3 |
| 2 | N 361904.0 | E 2689711.0 |
| 3 | N 362095.5 | E 2692251.9 |
| 4 | N 362165.3 | E 2692046.2 |

NAVIGATION AIDS

| | | |
|---------|------------|-------------|
| BUOY #2 | N 362214.7 | E 2691846.8 |
| DM #2A | N 362144.8 | E 2691695.8 |
| DM #3 | N 361969.1 | E 2691819.8 |
| DM #4 | N 362077.7 | E 2690584.8 |
| DM #5 | N 361819.8 | E 2689897.6 |

- NOTES:
- ELEVATIONS ARE EXPRESSED IN FEET AND TENTHS AND REFER TO LOCAL MEAN LOW WATER (MLW).
 - PROJECT SURVEYED FEB. 19-21 1992 WITH DISTRICT SURVEY VESSEL "SKIFF" USING RANGE AZIMUTH POSITIONING EQUIPMENT AND 200 KHZ SOUNDING EQUIPMENT.
 - TIDE GAGE LOCATED AT THE BEAUFORT DOCK. 6 NAILS PLUS 6 FEET.
 - HORIZONTAL DATUM NAD 1927.
 - AREA TO BE DREDGED TO 12 FEET PLUS 2 FEET OF ALLOWABLE OVERDEPTH BELOW LOCAL M.L.W. SHOWN THUS
 - SEE PLATE P-8 FOR DISPOSAL AREA LOCATION.

U.S. ARMY RESERVE CENTER
MOREHEAD CITY, N.C.
DREDGING PLAN
ENTRANCE CHANNEL
FIGURE 4a



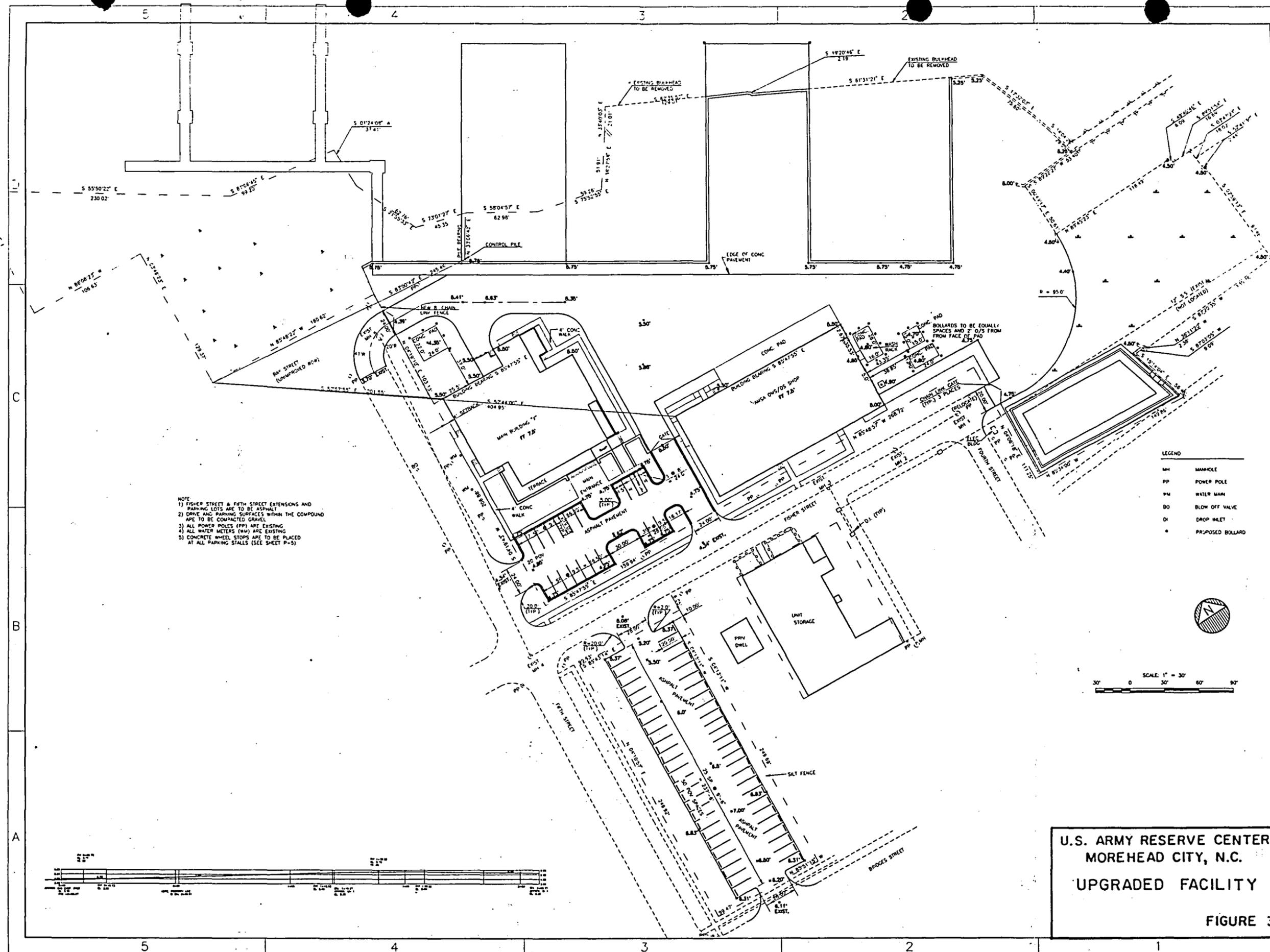
- NOTES:**
1. ELEVATIONS ARE EXPRESSED IN FEET AND TENTHS AND REFER TO LOCAL MEAN LOW WATER (MLW).
 2. PROJECT SURVEYED FEB. 19-21 1992 WITH DISTRICT SURVEY VESSEL "SKIFF" USING RANGE AZIMUTH POSITIONING EQUIPMENT AND 200 KHZ SOUNDING EQUIPMENT.
 3. TIDE GAGE LOCATED AT THE BEAUFORT DOCK. 6 NAILS PLUS 6 FEET.
 4. HORIZONTAL DATUM NAD 1927.
 5. AREA TO BE DREDGED TO 12 FEET PLUS 2 FEET OF ALLOWABLE OVERDEPTH BELOW LOCAL M.L.W. SHOWN THUS
 6. SEE VICINITY MAP ABOVE FOR DISPOSAL AREA LOCATION.

CHANNEL PRISM COORDINATES

| | | | |
|------|----------|---|-----------|
| 1 N | 362266.1 | E | 2688505.1 |
| 2 N | 362332.0 | E | 2688626.9 |
| 3 N | 362447.7 | E | 2688444.1 |
| 4 N | 362543.3 | E | 2688584.6 |
| 5 N | 362610.4 | E | 2688587.4 |
| 6 N | 362751.4 | E | 2688761.9 |
| 7 N | 362315.9 | E | 2689248.0 |
| 8 N | 362074.5 | E | 2689414.7 |
| 9 N | 361973.8 | E | 2689705.3 |
| 10 N | 361904.0 | E | 2689711.0 |
| 11 N | 361884.7 | E | 2689562.1 |
| 12 N | 361851.9 | E | 2689528.6 |
| 13 N | 361842.6 | E | 2689258.8 |

50 25 0 50 100
SCALE IN FEET

**U.S. ARMY RESERVE CENTER
MOREHEAD CITY, N.C.
DREDGING PLAN
BASIN
FIGURE 4**



NOTE
 1) FISHER STREET & FIFTH STREET EXTENSIONS AND PARKING LOTS ARE TO BE ASPHALT
 2) DRIVE AND PARKING SURFACES WITHIN THE COMPOUND ARE TO BE COMPACTED GRAVEL
 3) ALL POWER POLES (PP) ARE EXISTING
 4) ALL WATER METERS (WM) ARE EXISTING
 5) CONCRETE WHEEL STOPS ARE TO BE PLACED AT ALL PARKING STALLS (SEE SHEET P-3)

LEGEND

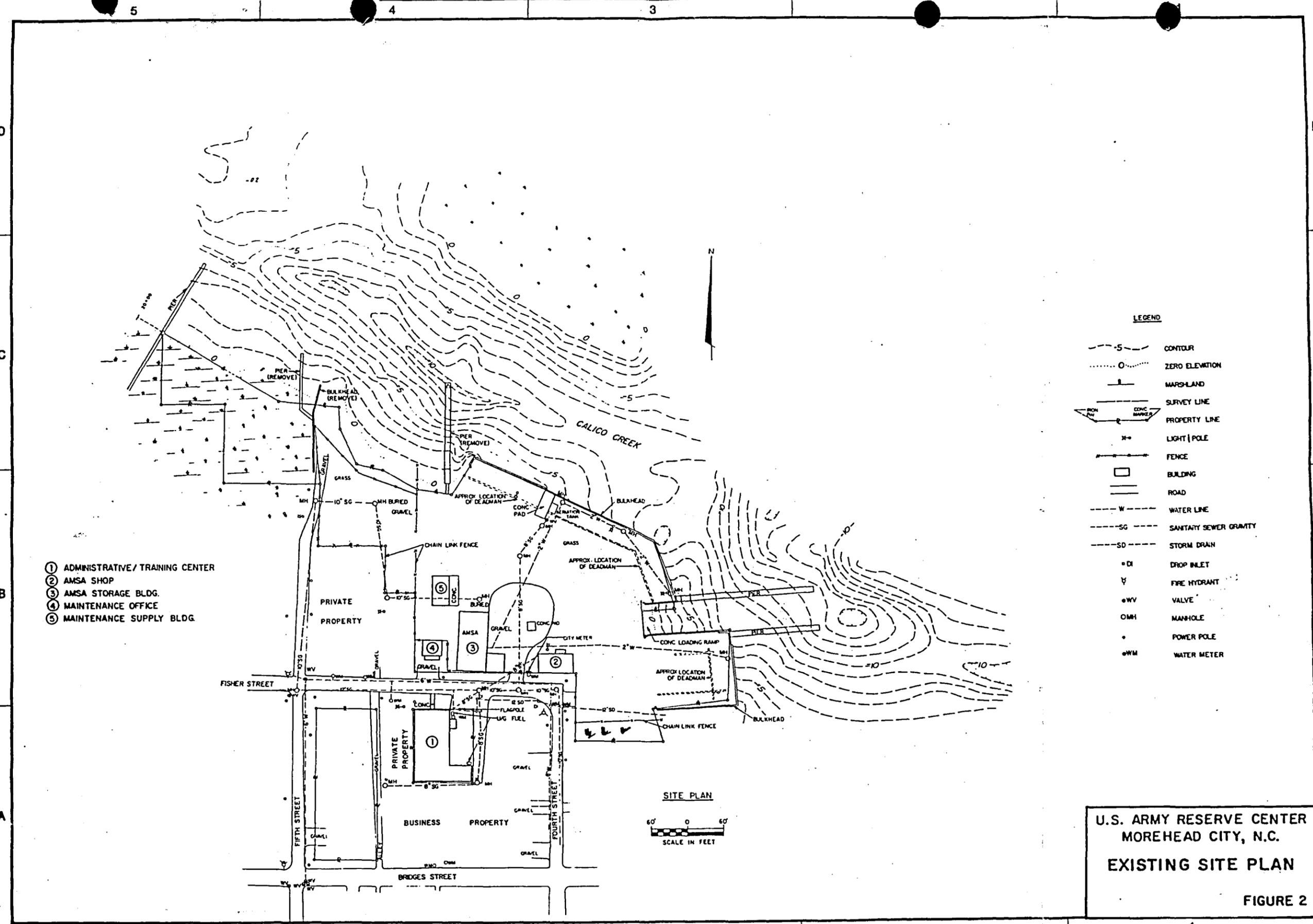
| | |
|----|------------------|
| WM | MANHOLE |
| PP | POWER POLE |
| WM | WATER MAIN |
| BO | BLOW OFF VALVE |
| DI | DROP INLET |
| • | PROPOSED BOLLARD |



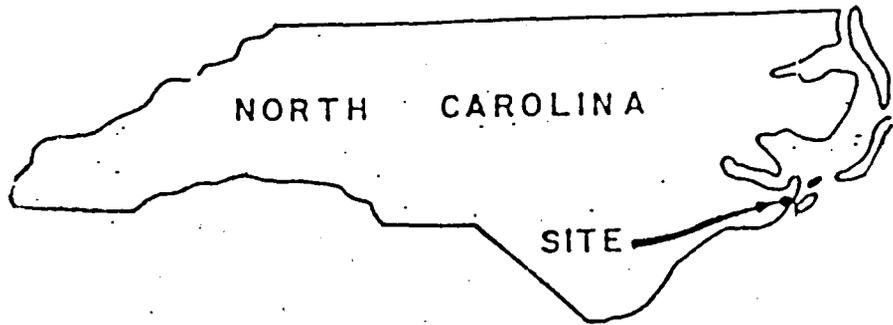
SCALE 1" = 30'
 30' 0 30 60 90'

**U.S. ARMY RESERVE CENTER
 MOREHEAD CITY, N.C.
 UPGRADED FACILITY**
 FIGURE 3

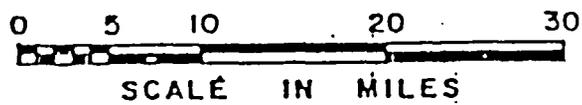




U.S. ARMY RESERVE CENTER
 MOREHEAD CITY, N.C.
 EXISTING SITE PLAN
 FIGURE 2



STATE INDEX.



VICINITY MAP

FIGURE 1