FINDING OF NO SIGNIFICANT IMPACT/
FINDING OF NO PRACTICABLE ALTERNATIVE

1.0 NAME OF ACTION

Shoreline Stabilization at the Lighter-Than-Air Area (LTA) Pool and Sewage Pump Station, Langley Air Force Base (LAFB), Virginia

2.0 DESCRIPTION OF THE PROPOSED ACTION AND ALTERNATIVES

The U.S. Air Force proposes to stabilize the shoreline at the LTA Pool and Sewage Pump Station located within eight miles of shore at LAFB. Over the years, erosion from tidal wave action has occurred along the shoreline due to the inappropriate size and physical makeup of the hardscape material; the lack of a proper geotextile liner; and the lack of native vegetation. The LTA Pool and Sewage Pump Station area is one of several stretches of shoreline at Langley exhibiting an erosion rate ranging from six inches to as much as one foot per year. Continued erosion from both the constant tidal wave action and storm events ultimately threaten the area.

The Air Force proposes to remove existing pieces of concrete material along approximately 600 linear feet of shoreline and install a geotextile liner, resize the concrete and construct a two-foot thick Class II revetment. In addition, more than 250 square feet of cordgrass (*Spartina*) would be planted to reduce environmental effects at the site. In addition to evaluating the environmental impacts of the Proposed Action, two alternatives were analyzed. Under Alternative 1, three trapezoidal riprap structures would be installed approximately 60 feet off shore. These breakwaters would control tidal wave action along the shore and naturally build a sediment substrate over time to support tidal marsh vegetation. Under Alternative 2, Hardscape materials would be removed and regraded. A geotextile liner would be installed, along with, clean sand and appropriately sized riprap to form a revetment. In addition, a single offshore breakwater of the same materials would be constructed and cordgrass (S*partina)* would be planted extensively along the shoreline to increase the total area of wetlands. Under the No Action Alternative, no stabilization efforts would take place at the LTA Pool and Sewage Pump Station Area.

3.0 SUMMARY OF THE ENVIRONMENTAL CONSEQUENCES

Environmental resource categories analyzed in the EA include land use; air quality; biological resources; safety; solid and hazardous waste; water quality; coastal zone, wetlands, and floodplains; cultural resources; geology and soils; and noise. The nature and duration of the impacts are such that there would be no significant impact associated with the proposed activities.

Land Use. The current land use would not change as a result of the implementation of the Proposed Action, and alternatives. They would positively impact land use by protecting the site from continued erosion, therefore preserving land mass and its existing uses.

Air Quality. Criteria pollutant emissions, carbon monoxide, sulfur dioxide, particulate matter, lead, and nitrogen oxides, would increase, but impacts to air quality would be minor and temporary for the Proposed Action and Alternative 2. *De minimus* thresholds for criteria pollutants would not be exceeded. Negative impacts, due to heavy-duty vehicle emissions,

fugitive dust associated with earth moving activities, and the resizing of concrete for riprap material would be minimized by the use of common construction practices, such as utilizing water to ensure that dusty conditions are avoided during the construction period. Policies regarding truck trips, idling, and type of earth moving equipment would be established to minimize emissions. Under Alternative 1, effects on air quality would be minimal. A barge would ferry the riprap material to the three breakwater construction areas, and the current conditions along the shoreline would be unchanged.

Biological Resources. The use of a siltation curtain outboard of the construction would help to contain the turbulence and siltation caused by construction activities, therefore reducing minor short-term stress on vegetation and wildlife. The long-term benefit would be positive due to reduced erosion and turbidity, increase in the quality of wetland vegetation, and the improvement of shoreline habitat. The National Aquarium, the Alliance for the Chesapeake Bay, the Chesapeake Bay Foundation, and the Virginia Institute for Marine Science are conducting research related to water quality, the reintroduction of submerged aquatic vegetation (SAV) and the optimum environment for native seahorse (*Hippocanthus erectus)* in the area. Alternatives 1 and 2 could negatively impact SAV restoration and research being conducted in the area.

Safety. Under the Proposed Action, the preservation and addition of wetland vegetation would not attract additional local and migratory bird populations; therefore it would not result in increased Bird Air Strike Hazard (BASH) issues. Under Alternative 1 and Alternative 2, uncontrolled growth of native vegetation could attract additional waterfowl, which could present BASH issues.

Solid and Hazardous Waste. No significant solid waste or hazardous materials impacts would occur for either the Proposed Action, or the Alternatives. Reusing material as a primary source for appropriately sized riprap would minimize solid wastes resulting from the removal of existing hardscape. Unusable rebar and asphalt would be removed from the site and disposed of at the Bethel Sanitary Landfill or recycled. No impacts would occur under Alternative 1 because no debris would be generated. Materials kept on site temporarily to service and maintain vehicles would be regulated pertaining to their storage and handling. Fertilizers or other material associated with the planting of native vegetation would be managed in accordance with established guidelines to contain any unintended release.

Water Quality. Under the Proposed Action and Alternative 2, use of erosion and sediment control barriers would reduce the temporary loss of soils from the bank and resulting turbidity in the water throughout the construction period. Adverse impacts would be temporary and minimal. Once the stabilization measures are in place, water quality would improve. Under Alternative 1, turbidity would increase in the area off the shoreline due to the repeated deposition of silt and fines around the breakwater. Though the current siltation rate would be reduced, the rate would depend on the weather conditions and would change over time as the area between the breakwaters and the shoreline filled in.

Coastal Zone, Wetlands, and Floodplains. Coastal Zone, wetlands, and floodplains would benefit as a result of implementation of Proposed Action and Alternative 2. Both actions would stabilize a failing shoreline, increase native wetland resources, and reduce existing erosion conditions. Activities would not impact the enforceable regulatory programs under the Virginia Coastal Resources Management Program. It would be incompatible with ongoing SAV restoration

in the immediate area. As a study area for the Virginia Institute for Marine Science, disturbing the area with the construction of three breakwaters would be detrimental to their ongoing research efforts.

Noise. No adverse impacts are anticipated for the Proposed Action, or Alternatives. While noise produced during construction would be noticeable, it would be similar to that produced by other construction occurring on base and would be temporary in nature. Because the Day-Night Average Noise Level (DNL) is dominated by aircraft operations, the noise sources from this temporary construction would not change the overall DNL for the base.

Cultural Resources. No impacts to cultural resources are anticipated for the Proposed Action or Alternatives. If features or deposits were encountered during the Proposed Action, procedures in AFI 32-7065 (Cultural Resources Management) and the Cultural Resources Management Plan would be implemented.

Geology and Soils. The Proposed Action and Alternatives 1 and 2 would positively impact the shoreline, made up of sand, sandy silt, and shells. Confinement of the soil by the geotextile liner and riprap would protect the shoreline and reduce any ongoing loss of soil into the river.

Under the No Action Alternative, the shoreline would continue to erode at the LTA Pool Pump Station, resulting in the loss of waterfront property currently used for the parking lot, sewage pump station, and recreational facilities. Turbidity would continue to negatively impact SAV, fisheries, and shellfish.

4.0 CONCLUSION

Based on the findings of the EA, no significant impact to the environment would be anticipated. Therefore, issuance of a FONSI is warranted, and preparation of an Environmental Impact Statement, pursuant to the National Environmental Policy Act of 1969 is not required.

Pursuant to Executive Order 11990 *Protection of Wetlands*, and EO 11988 *Floodplain Management*, the authority delegated in Secretary of the Air Force Order 791.1, and taking the above information into account, I find that there is no practicable Alternative to this action and that all measures to minimize harm to wetlands and floodplain environments would be taken.

_____ _____

DONALD G. COOK DATE
Lieutenant General, USAF
Vice Commander, Air Command

Shoreline Stabilization at the Lighter-Than-Air Area Pool and Sewage Pump Station Langley AFB, VA

Final
Environmental Assessment
June 2001

TABLE OF CONTENTS

TABLE OF CONTENTS (continued)

Page

TABLE OF CONTENTS (continued)

Page

TABLE OF CONTENTS (continued)

Page

TABLE OF CONTENTS (continued)

Page

LIST OF FIGURES

Page

LIST OF TABLES

Page

LIST OF APPENDICES

EXECUTIVE SUMMARY

This Environmental Assessment (EA) examines the potential impacts of shoreline stabilization at the Lighter-Than-Air Area (LTA) Pool and Sewage Pump Station located within the eight miles of shoreline at Langley Air Force Base. The Proposed Action is subject to review under the National Environmental Policy Act (NEPA) of 1969 (42 U.S. Code [USC] 4321-4347). Federal Agency NEPA compliance is governed by implementing regulations promulgated by the Council on Environmental Quality (CEQ) (40 Code of Federal Regulations [CFR] Parts 1500-1508). CEQ NEPA regulations are supplemented by agency-specific regulations, which for the Air Force is Air Force Instruction (AFI) 32-7061, *The Environmental Impact Analysis Process*, codified at 32 CFR Part 989.

Purpose and Need for the Action

The erosion rate along the subject portion of Langley's shoreline ranges from six inches per year to as much as one foot per year. The erosion has undermined the integrity of the Sewage Pump Station, the LTA Pool parking lot and the long-term stability of the proposed shoreline stabilization construction area. Failure of the Sewage Pump Station could result in an unpermitted release of sewage directly into the Back River. Continued erosion from both the constant tidal wave action and the more substantial consequences of storm events ultimately threatens the LTA Pool storage building, the LTA Pool deck and the pier.

Water quality along the shoreline continues to deteriorate because of the relationship between erosion and native vegetation. Erosion increases turbidity in the Back River, which negatively impacts native submerged aquatic vegetation (SAV), fisheries, and shellfish. The presence of healthy vegetation combats erosion by increasing filtration of sediment and by holding soil in place. Reduced erosion and minimal improvements to naturally occurring vegetation would contribute to a healthier ecosystem and improved water quality.

Proposed Action and Alternatives

Under the Proposed Action, the base would construct a revetment to stabilize and restore approximately 600 feet of shoreline near the LTA Pool and Sewage Pump Station and would establish a narrow fringe marsh of smooth cordgrass *(Spartina alterniflora).*

Under Alternative 1, installing three (75') breakwater structures 60 feet from the shoreline, at approximately a negative two feet elevation would protect the shoreline. This alternative does not include any on-shore construction.

Under Alternative 2, installing a single (75') breakwater structure, at approximately a negative two feet elevation, grading existing bank to allow for extensive marsh creation, and constructing a revetment along the entire shoreline.

Under the No Action Alternative, the base would take no action and not restore the shoreline.

Summary of Impacts

The Proposed Action along the shoreline at the LTA Pool and Sewage Pump Station would generate minor short-term impacts on the surrounding environment. The nature and duration of the impacts are such that, with the use of common construction practices, there would be no significant impacts during the implementation of the Proposed Action. Land use, air quality, biological resources, safety, solid waste, water quality, the coastal zone, wetlands and floodplains, noise, cultural resources, and geology and soils were examined. Impacts are summarized below.

Issue Area	Proposed Action	Alternative 1	Alternative 2	No Action
Land Use	+	+	+	-
Air Quality	-	0	-	0
Biological Resources	+	+	+	0
Safety (BASH Concerns)	0	-	-	0
Solid and Hazardous Waste	+	0	+	0
Water Quality	+	-	0	-
Coastal Zone, Wetlands, and Floodplains	+	-	+	-
Cultural Resources	0	0	0	0
Geology and Soils	+	-	+	-
Noise	0	0	0	0

A - represents an adverse, but not significant impact
A 0 represents a neutral effect
A + represents a positive effect

1.0 PURPOSE AND NEED FOR THE ACTION

This Environmental Assessment (EA) examines the potential impacts of shoreline stabilization at the Lighter-Than-Air Area (LTA) Pool and Sewage Pump Station located within the eight miles of shoreline at Langley Air Force Base, hereafter referred to as Langley or the base. The Proposed Action is subject to review under the National Environmental Policy Act (NEPA) of 1969 (42 U.S. Code [USC] 4321-4347). Federal Agency NEPA compliance is governed by implementing regulations promulgated by the Council on Environmental Quality (CEQ) (40 Code of Federal Regulations [CFR] Parts 1500-1508). CEQ NEPA regulations are supplemented by agency-specific regulations, which for the Air Force is Air Force Instruction (AFI) 32-7061, *The Environmental Impact Analysis Process*, codified at 32 CFR Part 989.

1.1 Introduction

Langley is located in Hampton, Virginia, in the Tidewater Virginia area. The main base is occupied jointly with the National Aeronautics and Space Administration Langley Research Center (NASA LaRC) on 2,883 acres. Currently, the host unit at the base is the 1st Fighter Wing. The Back River, a tidal estuary that flows east and discharges into the lower reaches of the Chesapeake Bay, surrounds the base on three sides. A peninsula separates the main channel of the river into the Northwest and Southwest Branches. Langley and the NASA LaRC occupy this peninsula (Appendix B, Map 1).

Much of the peninsula occupied by Langley and NASA LaRC is located within the 100-year floodplain. Most of the area within the base is highly developed. Along the shoreline, development generally extends near or to the riverbank, although a narrow buffer of grassland is present in some locations. Some of the development on the base is constructed over fill, including parts of the subject area. The portions of Langley and NASA LaRC that border the Northwest Branch in the vicinity of Tabbs Creek are mostly undeveloped and are comprised of large parcels of marshland.

The land along the eastern shoreline, across the Southwest Branch of the river from Langley is primarily residential. Land along the southern shore of the Main Channel of the Back River is primarily open space, with the exception of two marinas located in the Harris River area. The land along the northern shoreline of the Northwest Branch, across the Branch from the base and NASA LaRC, is primarily salt marsh habitat with sparse residential development. The same land use predominates along the north shore of the Main Channel although there is a marina in the vicinity of Back Cove, a tributary to the Main Channel. Both of these areas are within the City of Poquoson. Much of the area along the north bank of the Northwest Branch and Main Channel lies within the Plum Tree Island National Wildlife Refuge. This refuge is a 3,275-acre salt marsh complex that is used extensively by waterfowl, shore birds, and wading birds.

Langley is one of 54 federal facilities that fall within the Chesapeake Bay Watershed. Because of the large number of federal facilities in the area, the United States Environmental Protection Agency's Chesapeake Bay Program established a Federal Agencies Committee in 1984. Langley has been an active participant in the Program since 1994, when the first Federal Agencies' Agreement committed federal lands to long-term and specific water quality goals and required cooperative efforts to improve the ecosystem management of the Chesapeake Bay. In 1998, the

federal agencies, including the Department of Defense (DoD) and the Air Force (AF), renewed their commitments to the Chesapeake Bay Program by signing the Federal Agencies' Chesapeake Ecosystem Unified Plan (FACEUP) (Appendix C). Ruby B. DeMesme, Assistant Secretary for Manpower, Reserve Affairs, Installations, and Environment, signed the Plan for the Department of the Air Force.

Although there are no legal drivers enforcing the Plan, as an active participant in the Chesapeake Bay Program, Langley is committed to the restoration and protection of the Back River's water quality, living resources, habitats, and ecological relationships.

1.2 Background

The base sits at the confluence of the Northwest and Southwest Branches of the Back River, a tributary to the Chesapeake Bay. With eight miles of shoreline exposure, Langley has a long-term problem with erosion and deterioration of property due to storms that affect the shoreline.

The subject area for the Proposed Action is indicated on the location map (Appendix B, Map 3). Previous shoreline stabilization efforts at the base have been the placement of discarded pieces of concrete and road material, known as "hardscape", along the banks of the river. The existing hardscape material in this area consists of pieces of asphalt and concrete as large as four feet by four feet with some pieces having exposed reinforcing bar. A fringe tidal marsh currently exists along approximately 140 feet of the shoreline at the site. The small size of the marsh, an 85-foot area and another 55-foot one, affords little protection to the impacted facilities. Erosion from tidal wave action has continued along most of the shoreline due to the inappropriate size and physical makeup of the hardscape material, lack of a proper geotextile liner, and lack of native vegetative buffers. Continued erosion prevents wetlands from extending further around the site and contributes directly to the poor quality of the water in the area. Undercutting threatens the stability of the structures along this portion of the base's shoreline.

1.3 Purpose and Need

The purpose of the Proposed Action is to stabilize the shoreline. The erosion rate along Langley's shoreline ranges from six inches per year to as much as one foot per year (Hill, VA DCR). The erosion has undermined the integrity of the Sewage Pump Station, the LTA Pool parking lot and their long-term stability. Failure of the Sewage Pump Station could result in an unpermitted release of sewage directly into the Back River. Continued erosion could ultimately threaten the LTA Pool storage building and the LTA Pool deck requiring costly repairs and, depending on the time of year, loss of operating time. The aerial view of the shoreline around the parking lot, swimming LTA Pool, Sewage Pump Station and associated buildings is provided in Figure 1-1. Damage to the northern tip of the parking lot from erosion is apparent in the photograph. It should also be noted that the pier, as shown in Figure 1-1, was rebuilt after it was severely damaged during a storm.

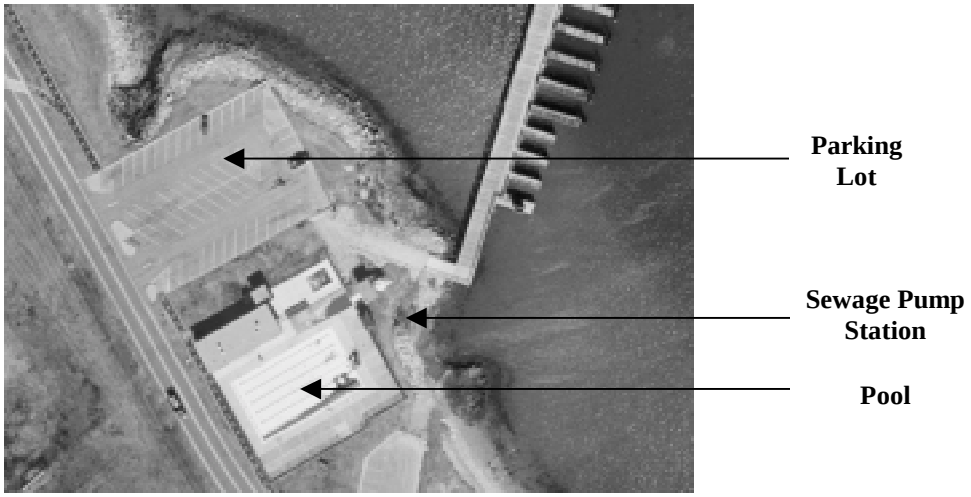


Figure 1-1. Aerial View of LTA Pool and Sewage Pump Station.

Water quality along the shoreline continues to deteriorate because of the relationship between erosion and native vegetation. Erosion increases turbidity in the Back River, which negatively impacts native and restored submerged aquatic vegetation (SAV), fisheries, and shellfish. The presence of healthy vegetation combats erosion by increasing filtration of sediment and by holding soil in place. Reduced erosion and minimal improvements to naturally occurring vegetation would contribute to a healthier ecosystem and improved water quality.

The primary need at the site is to reduce or to stop the deterioration of real property that threatens the Air Force Mission. Ecological improvements are also needed at the site to meet the Air Force's commitment to the Chesapeake Bay Program.

2.0 PROPOSED ACTION AND ALTERNATIVES

With eight miles of shoreline exposed to continuous tidal action and subject to more severe impacts during storm events, Langley has a long-term problem with erosion and deterioration of property. Although virtually the entire shoreline would benefit from improved shoreline protection measures, several sites have been identified as being in urgent need of stabilization efforts. The LTA Pool and Sewage Pump Station area is one of those sites. Because of its location, the shoreline restoration project can only take place in a wetland area and within the 100-year floodplain at Langley, regardless of the alternative that is selected.

The Proposed Action to stabilize and restore approximately 600 feet of shoreline near the LTA Pool and Sewage Pump Station was selected from the four alternatives discussed in this Section and is based upon the selection criteria described in Section 2.1, below.

2.1 Selection Criteria

Eight criteria were identified on which to base the selection of a Proposed Action for shoreline stabilization at the LTA Pool and Sewage Pump Station. The Proposed Action meets all eight criteria. The criteria and their applicability to the four alternatives are shown in Table 2-1 below.

Table 2-1. Selection Criteria for Shoreline Stabilization.

	Reduce Erosion and Turbidity	Preserve Existing Vegetation and SAV Habitat for Marine Life	Protect Existing Structures, (e.g., Sewage Pump Station) from Damage	Present Minimal Environmental Impact During Construction	Present Minimal Bird/Aircraft Strike Hazard (BASH)	Increase Filtration of Runoff	Hold Soils in Place	Accomplish in a Timely Manner
Proposed Action	√	√	√	√	√	√	√	√
No Action Alternative				√	√			√
Alternative 1			√			√		
Alternative 2	√	√	√			√	√	

The selection criteria are defined below.

2.1.1 Reduce Erosion and Turbidity

The alternative selected for shoreline stabilization should result in the elimination or reduction in the loss of soil and sands from the shoreline. Reduced erosion is needed to prevent and minimize

the loss of property as well as deterioration of water quality in the area. Reduced erosion would contribute to improved clarity of the water column along the shoreline.

2.1.2 Preserve Existing Vegetation and SAV Habitat for Marine Life

The alternative selected for shoreline stabilization should result in the preservation of existing SAV beds and the quality of the habitat for marine life along the shoreline.

2.1.3 Protect Existing Structures, (e.g., Sewage Pump Station) from Damage

The alternative selected for shoreline stabilization should eliminate or reduce the likelihood that the real property in the area is damaged or destroyed by wave action.

2.1.4 Present Minimal Environmental Impact During Construction

The alternative selected for shoreline stabilization should result in minimal, or no, disruption to ongoing activities that the greater communities, outside of the Air Force, engage in everyday. Located at the confluence of the Northwest and Southwest Branches of the Back River, there are public oyster leases, scientific research sponsored by local, regional and national organizations, and state-sponsored projects operating or planned just off this stretch of shoreline. Within the base community, use of the nearby recreational facilities will increase over the summer months.

2.1.5 Present Minimal Bird/Aircraft Strike Hazard (BASH)

The alternative selected for shoreline stabilization should result in the least contribution, if any, to the BASH concerns already associated with flightline operations. The base is located along migratory bird routes and contains numerous natural areas that attract transitory birds. The selected alternative should not compound the existing BASH concerns at the base.

2.1.6 Increase Filtration of Runoff

The alternative selected for shoreline stabilization should increase the filtration of runoff coming from the base. Wetland or marsh areas can improve water quality in many ways, including the uptake of contaminants.

2.1.7 Hold Soils in Place

The alternative selected for shoreline stabilization should result in the physical confinement of soil. The shoreline stabilization project would protect the integrity of the shoreline, avoiding further erosion or loss of soil to the river.

2.1.8 Accomplish in a Timely Manner

The alternative selected for shoreline stabilization should protect the shoreline as soon as possible and be completed before further erosion impacts the existing SAV restoration effort.

2.2 Proposed Action

Under the Proposed Action, the existing concrete pieces along the shoreline would be collected and resized (by cleaving, or dropping pieces of concrete a short distance from the bucket of the backhoe onto other concrete pieces to break them into two or three smaller pieces) on site. Figure 2-1 shows the existing concrete material on the site. Unusable materials such as reinforcing bar, asphalt, and concrete fines generated from resizing efforts would be recycled elsewhere on base, in the Tidewater area, or taken off site to Bethel Sanitary Landfill.

The shoreline of the project area (approximately 600 linear feet) would be prepared (very minor regrading of the shoreline, shown in Appendix D) and a geotextile liner would be installed along the bank of the shoreline. Over the liner, a layer of the resized concrete would be used as the base material for the revetment for shoreline stabilization. On top of the base material, a two-foot layer of Class II, VDOT (150- to 200-pound angular granite pieces of rock) riprap would be installed, completing the revetment.

A fringe tidal marsh of native smooth cordgrass *(Spartina alterniflora)*, occurring in two patches (one is approximately 85 feet long and the other approximately 55 feet long), is present along the shoreline and would be preserved. The existing marsh would be minimally enhanced with the planting of more than 250 square feet of smooth cordgrass *(Spartina alterniflora)*, as required in the Joint Permit Application No. 00-1582 (Appendix D). Overall, the Proposed Action would stabilize the shoreline where chronic erosion occurs, increase protection from strong storm surges, and enhance restoration of fringe wetlands.

Figure 2-1. LTA Pool and Sewage Pump Station.

2.3 Alternatives to the Proposed Action

In accordance with both the CEQ and AF implementing regulations for NEPA, alternatives to the Proposed Action must be identified. Under the AF regulations, alternatives may be eliminated from further analysis based on reasonable standards so long as those standards are not so narrow as to unnecessarily limit the alternatives (32 CFR 989.8(b)). Reasonable alternatives have been

identified based upon their ability to stabilize the shoreline. Discussion of each alternative, and the no action alternative, is presented below.

2.3.1 Alternative 1: Installation of Offshore Breakwaters

Under Alternative 1, three breakwaters (trapezoidal riprap structures) would be constructed off shore. The breakwaters would control the tidal wave action experienced along the shore by dissipating energy from storm surges and, over time, naturally build a sediment substrate to support tidal marsh vegetation.

Specifically, the breakwaters would be constructed of Class II, VDOT (150- to 200-pound angular granite pieces of rock) riprap. The three breakwaters would be aligned to provide the greatest area of shoreline protection available from three 75-foot breakwaters.

An intended consequence of the breakwaters is the natural deposition of silt and fines landward of the structure. Over time, this would build up and create a spit of land that could eventually support native vegetation.

2.3.2 Alternative 2: Installation of Revetment, a Single Breakwater, and Marsh Development

Under Alternative 2, a single breakwater would be constructed of Class II, VDOT (150- to 200-pound angular granite pieces of rock) riprap. The breakwater would be located such that the greatest amount of shoreline possible is protected from "Nor easter" storm events which have historically resulted in the most destructive wave energy.

Large areas of smooth cordgrass *(Spartina alterniflora)* and saltmeadow cordgrass (*Spartina patens)* vegetation would be planted to substantially increase the total area of wetlands along the shoreline.

The existing concrete pieces along the shoreline would be collected and resized (by using the backhoe to drop pieces of concrete a short distance so as to break them into two or three pieces) on site. Unusable materials such as reinforcing bar, asphalt, and concrete fines generated from resizing efforts would be recycled elsewhere on base, in the Tidewater area, or taken off site to Bethel Sanitary Landfill.

The shoreline would be regraded and a geotextile liner would be installed along the bank of the shoreline. Over the liner, a layer of the resized concrete would be used as the base material for the revetment for shoreline stabilization. On top of the base material, a two-foot layer of the same Class II, VDOT (150- to 200-pound angular granite pieces of rock) riprap would be installed, completing the revetment.

2.3.3 No Action Alternative

Under the no action alternative, the shoreline would continue to erode at the LTA Pool and Sewage Pump Station. As long as erosion occurs, Langley would lose waterfront property, and the integrity of the parking lot, Sewage Pump Station, and nearby recreational facilities would continue to be threatened. Water quality would continue to degrade due to the turbidity of the water from existing erosion. Overall ecological health and shellfish growth would continue to decline as water quality degraded.

2.3.4 Comparison of Alternatives

Table 2-2 summarizes the potential environmental impacts of the Proposed Action and alternatives, based upon the detailed impact analyses presented in Section 4.0.

Table 2-2. Summary of Potential Impacts of the Proposed Action and Alternatives.

Issue Area	Proposed Action	Alternative 1	Alternative 2	No Action
Land Use	+	+	+	-
Air Quality	-	0	-	0
Biological Resources	+	+	+	0
Safety (BASH Concerns)	0	-	-	0
Solid and Hazardous Waste	+	0	+	0
Water Quality	+	-	0	-
Coastal Zone, Wetlands, and Floodplains	+	-	+	-
Cultural Resources	0	0	0	0
Geology and Soils	+	-	+	-
Noise	0	0	0	0

A - represents an adverse, but not significant impact
A 0 represents a neutral effect
A + represents a positive effect

3.0 EXISTING ENVIRONMENT

This section describes relevant environmental conditions at Langley AFB and the resources potentially affected by the Proposed Action and the alternatives described in Section 2. The resources to be analyzed are identified and the expected geographic scope of potential impacts, known as the region of influence (ROI), is defined below. The environment includes all areas and lands that might be affected, as well as the natural, cultural, and socioeconomic resources they contain or support.

Environmental justice concerns the disproportionate effect of a federal action on low-income or minority populations. The existence of disproportionately high and adverse impacts depends on the nature and magnitude of the effects identified for each of the individual resources. If implementation of the Proposed Action were to have the potential to significantly affect people, those effects would have to be evaluated for how they adversely or disproportionately affect low–income or minority communities. No long-term adverse effects would occur as a result of the Proposed Action; indeed the Proposed Action would be environmentally beneficial. Thus, neither minority nor low-income groups would be affected disproportionately and environmental justice was eliminated from further analysis.

3.1 Land Use

The existing land use proximate to the shoreline along the LTA Pool and Sewage Pump Station includes an outdoor pool, a pump house and changing rooms. There also is a parking lot for the pool, a pier, the Sewage Pump Station, and a running track along this stretch of shoreline.

A number of oyster lease grounds are located throughout the Back River. However, at this site, there are no adjacent or conflicting lease grounds (Appendix B, Map 2). These State owned grounds are leased by private individuals who raise oysters for public consumption. Generally, the oyster harvest is poor in this part of the river due to the low quality of the water.

The Virginia Marine Resources Commission (VMRC) is implementing a three-step process of habitat restoration in the area southeast of the pier. The three steps are to stop shoreline erosion, stabilize the bottom of the river with vegetation, and use a reef to dissipate wave energy and to provide habitat. A bed of SAV was planted in this area and is being monitored. The construction of a 40-foot by 400-foot conservation oyster reef is scheduled for June 2001. Once the reef is in place, it will provide a place for oysters to thrive and it will help to dissipate wave energy directed toward the shoreline.

Northwest of the pier, another SAV bed is in place and staffs from the National Aquarium Baltimore, Maryland; the Virginia Institute of Marine Science, and the Chesapeake Bay Foundation are monitoring it. This SAV bed is of particular interest because no other manmade SAV bed has remained viable for as long. This area is under a scrutiny by organizations interested in learning about the needs for successful restoration of wetlands, suitable habitat for marine life, and water quality.

3.2 Air Quality

The United States Environmental Protection Agency (EPA) developed National Ambient Air Quality Standards (NAAQS) for criteria pollutants. The criteria pollutants that have standards are sulfur dioxide (SO_2), particulate matter (PM), carbon monoxide (CO), ozone, nitrogen dioxide (NO_2), and lead. Ozone (O_3) is controlled by regulating its precursors, volatile organic chemicals (VOCs) and nitrogen oxides (NO_x). NAAQS are implemented by states through a state implementation plan (SIP). Langley is located in an area originally designated by EPA as an attainment area for all NAAQS, except for ozone. The area was re-designated as a maintenance area for ozone on July 28, 1997. Maintenance areas are former nonattainment areas that have succeeded in meeting the NAAQS standard. An area remains a maintenance area for ten years and a state must develop a maintenance plan for that area as part of its SIP.

The Clean Air Act prohibits a federal agency from engaging in an activity that would: (1) cause or contribute to any new violation of any air quality standard in any area; (2) increase the frequency or severity of any existing violation; or (3) delay timely attainment. Under the Clean Air Act, the conformity rule applies to federal actions occurring in nonattainment or maintenance areas and would therefore be applicable, since Langley is in a maintenance area for ozone.

The conformity rule defines applicability criteria and includes several exemptions and emissions thresholds, which determine whether the federal action requires a conformity determination. Non-exempt federal actions with total direct and indirect emissions that remain below the *de minimis* thresholds and are not regionally significant do not require conformity determinations. The *de minimis* thresholds for the base are 100 tons per year of NO_x and 100 tons per year of VOC since it is in a maintenance area outside an ozone transport region. The ozone transport region is comprised of all coastal states extending from northern Virginia to Maine.

Table 3-1. Baseline Emissions for Langley Air Force Base.

Emissions Source	Pollutant (tons/year)				
	CO	VOCs	NO_x	SO_2	PM_{10}
Langley AFB					
Stationary Sources	14.5	33.1	29.8	1.0	4.5
Mobile Sources	760.9	104.5	241.2	5.6	8.2
Total	775.4	137.6	271.0	6.6	12.7
Hampton Roads Air Quality Control Region	257,325	79,750	83,560	110,220	49,860

Source: Environmental Assessment Demolition of the Langley Tow Tank Facility, April 2001

3.3 Biological Resources

No threatened or endangered species are known to exist on Langley, although bald eagles feed and forage on the surrounding waters and tidal flats. During 1994 and 1995, the Virginia Division of Natural Heritage surveyed Langley for sensitive and rare flora and fauna. All rare, threatened, and endangered plant and animal species that potentially occur on base are discussed

in Appendix F. Also included in Appendix F is correspondence from the Fish and Wildlife Service confirming that the Proposed Action will affect no threatened or endangered species.

3.3.1 Vegetation

The shoreline area covered by the proposed stabilization activities is classified as disturbed and urbanized. Examples of the surrounding community types in these areas include parking lots, roads, lawns, ditches, and tidal wetlands. Although the vegetative community in these areas may be botanically diverse, it is mostly due to the proliferation of weedy species. The disturbed/urbanized community areas, with the exception of tidal wetlands and ditches, generally do not provide a habitat for rare, threatened, or endangered plants and animals. There is a patchy marsh community with various types of estuarine vegetation. Saltgrass (*Distichlis spicata*), reed (*Phragmites*), marsh elder (*Iva fructescens*), false willow (*Baccharis*), rush (*Juncus*), saltmeadow cordgrass (*Spartina patens*), and smooth cordgrass (*Spartina alterniflora*) have been identified at or near the area.

3.3.2 Wildlife

Habitat quality for wildlife in the area is low due to the proximity to high levels of human activity. Oysters, clams, and mussels (collectively called shellfish) are growing along the shoreline but are currently in a distressed condition due to poor water quality. Other species typically associated with the base's shoreline include fiddler crabs, mud snails, gulls, and shore birds.

3.4 Safety

The flightline is located south of the proposed stabilization project area. BASH issues are of concern to the base and steps have been taken on base to minimize BASH concerns. The base is located along migratory bird routes and contains numerous natural areas that attract transitory birds. This is compounded by the fact the Plum Tree Island National Wildlife Refuge is located along the north bank of the Northwest Branch and Main Channel of the Back River. This refuge is a 3,275-acre salt marsh complex that is used extensively by waterfowl, shore birds, and wading birds.

3.5 Solid Waste

All solid waste removed off of the base is taken to Bethel Sanitary Landfill.

The base is subject to and routinely maintains compliance with solid waste regulations, including rules pertaining to chemical storage in tanks and containers and waste minimization policies.

More than 48 sites have been or are currently under investigation under the Air Force's Environmental Restoration Program (ERP). Soil in these areas may be contaminated and plans for treatment or excavation may be underway. No ERP sites are located within the vicinity of the proposed project area.

3.6 Water Quality

The base is bordered on the northeast side by the Northwest Branch of the Back River, and on the southeast side by the Southwest Branch of the Back River. The Back River is a tributary of the Chesapeake Bay. The water is estuarine and primarily saline in nature.

Stormwater runoff from base parking lots and roads may carry some spilled oil, grease, hydraulic fluid, and jet fuel into the Back River; however, due to pollution prevention and waste management measures, the releases are sporadic and minimal in quantity. Occasionally, runoff contains fertilizer residue from landscaping efforts to keep turf healthy and green.

The erosion rate along the subject portion of Langley's shoreline ranges from six inches per year to as much as one foot per year. Based on the one foot per year erosion rate (Hill, VA DCR), the current siltation rate is 12 pounds per week per foot of shoreline, or 186 tons per year. The erosion has undermined the integrity of the Sewage Pump Station, the LTA Pool parking lot and the long-term stability of the proposed construction area. Failure of the Sewage Pump Station would result in unpermitted releases of sewage directly into the Back River. Continued erosion from both the constant tidal action and the more substantial consequences of storm events ultimately threatens the LTA Pool storage building, the LTA Pool deck and the pier.

Erosion of the shoreline causes increased turbidity and total suspended solids in the water. Heavy siltation is detrimental to shellfish, which are filter feeders. The silt in the water provides no nutrition and can cause injury to gills. Additionally, over time, the buildup of silt would cover and kill sessile organisms. Turbidity and suspended solids also reduce sunlight, which adversely affects the growth of SAV. SAV filters and assimilates nutrients in the water and provides a good habitat and feeding area for many aquatic organisms.

3.7 Coastal Zone, Wetlands, and Floodplains

The federal Coastal Zone Management Act requires that "federal agency activity within or outside the coastal zone that affects land, water use, or natural resources of the coastal zone shall be carried out in a manner consistent with approved state management programs" (16 U.S.C. 1456(c)(1)(A)). Executive Order 11988, Floodplain Management, requires that each federal agency "shall provide leadership and shall take action to reduce the risk of flood loss, to minimize the impact of floods on human safety, health and welfare, and to restore and preserve the natural and beneficial values served by floodplains". The proposed shoreline stabilization area is within the 50-and 100-year floodplains. Executive Order 11990, Protection of Wetlands, requires that each federal agency "shall provide leadership and shall take action to minimize the destruction, loss or degradation of wetlands, and to preserve and enhance the natural and beneficial values of wetlands". Federal, state, and local wetland construction permits are required for any construction within the wetland and coastal zone management areas. Much of the shoreline area involved is a historical wetland and floodplain. The size of the existing floodplain and coastal zone is being decreased through erosion from wave energy.

Virginia's requirements applicable to actions in the coastal zone, wetlands and floodplains are managed under the Virginia Coastal Program (VCP). The VCP goals include prevention of damage to the Commonwealth's natural resource base, the protection of public and private investment in the coastal zone, and the promotion of resources development and public recreation opportunities. Nine enforceable regulatory programs are gathered under the VCP to protect and enhance the coastal zone. Four of the nine regulatory programs apply to the LTA Pool and Sewage Pump Station Shoreline Stabilization project. Management of fisheries, sub aqueous lands, wetlands, and the coastal zone are program areas relevant to the proposed stabilization project. Although air quality and non-point source pollution are included in the VCP, they are discussed separately in this document.

3.8 Noise

Sound levels are expressed in decibels and are usually "A-weighted" for human hearing. On military installations, the Day-night average Noise Level (DNL) is used to determine impacts. The DNL metric provides a single measure of overall noise exposure and is used to predict human annoyance. Based on 190 aircraft operations occurring on an average busy day at Langley AFB, the area near the LTA pool is exposed to a DNL of between 80 and 85 dB (Air Force 2001).

3.9 Cultural Resources

It is likely that previous development, such as dredging, filling, roadwork, and runway construction, have destroyed any potential for intact deposits. In the Cultural Resources Management Plan (CRMP) written for the base in January 1998, the area along the shoreline is assessed as having a low potential for containing historical remains.

3.10 Geology and Soils

Soils along the shoreline are hydric and comprised of sand, sandy silt, and shells. Upland soils are mostly fill dirt from various sources distinct from the shoreline project area. The area has been filled and partially constructed upon, and the shoreline soils are eroding into the Back River.

4.0 ENVIRONMENTAL CONSEQUENCES

The proposed stabilization and restoration activities along the shoreline at the LTA Pool and Sewage Pump Station would generate minor short-term impacts on the surrounding environment. The nature and duration of the impacts are such that by using common construction practices there would be no significant impact associated with the Proposed Action.

4.1 Land Use

4.1.1 Proposed Action: Installation of Revetment and Minimal Enhancement of Vegetation

The Proposed Action is compatible with the future land use designation of the property in the Base Comprehensive Plan since no change in land use would occur. The proposed placement of stabilizing geotextile liner, placement of appropriately sized recycled riprap material, and Class II VDOT rock (150- to 200-pound angular granite), and planting of natural vegetation would protect this area from continued erosion, particularly the already damaged northern corner of the parking lot and the exposed and vulnerable sewage pump station.

The smooth cordgrass *(Spartina alterniflora),* which is proposed for planting, only thrives where the marsh is partially inundated. As a result, the marshes would infill and thicken where smooth cordgrass *(Spartina alterniflora)* would be planted, but would not spread upland or too far out into the river. As a result, potential BASH concerns would be minimized. Although the proposed site for stabilization is north of the flightline, uncontrolled proliferation of smooth cordgrass *(Spartina alterniflora)* could, theoretically, contribute to BASH concerns (see Section 4.5.1).

Restoration of wetlands would improve the quality of the water and would indirectly enhance the oyster cultivation activities in the Back River. The proposed stabilization action would not encroach on any currently leased grounds.

4.1.2 Alternative 1: Installation of Three Offshore Breakwaters

Alternative 1 is compatible with the future land use designation of the property in the Base Comprehensive Plan since no change in land use would occur. Location of the breakwaters would be incompatible with ongoing activities conducted by non Air Force organizations in the waters off the shoreline. SAV beds have been planted 30 feet off of this part of the shoreline, and extend another 20 to 30 feet out into the river. Construction of breakwaters would have the undesirable effect of burying those beds with the silt and fines that naturally collect behind a breakwater.

Because this alternative does not directly address conditions on the shoreline, there would still be opportunities for continued erosion. The erosion would be at a reduced rate due to the dissipated wave energy provided by the breakwaters. Within approximately five years, the area between the shoreline and the breakwaters would fill in due to repeated deposition of silt and fines over the breakwaters. Eventually, native vegetation could grow here, creating a marsh.

Although the proposed site for stabilization is north of the flightline, a large marshland could contribute to BASH concerns (see Section 4.5.2).

4.1.3 Alternative 2: Installation of Revetment, a Single Breakwater, and Marsh Development

Alternative 2 is compatible with the future land use designation of the property in the Base Comprehensive Plan since no change in land use would occur. However, the ideal location for the single breakwater would be incompatible with an oyster reef that is scheduled for construction in June 2001. The oyster reef is a central part of a conservation project that is being conducted by the VMRC. In addition, the breakwater would interfere with an SAV bed that is part of the same three-part conservation project.

The shoreline would be stabilized by resizing concrete pieces (by dropping by backhoe pieces of concrete a short distance so as to break them into two or three pieces) on site to the approximate size of Class II VDOT riprap (150- to 200-pound rocks), the placement of a geotextile liner, and supplemented by Class II VDOT riprap. The large areas of smooth cordgrass *(Spartina alterniflora)* and saltmeadow cordgrass (*Spartina patens)* vegetation that would be planted to substantially increase the total area of wetlands along the shoreline would further stabilize the area.

Although the proposed site for stabilization is north of the flightline, a significantly enhanced marshland could contribute to BASH concerns (see Section 4.5.3).

4.1.4 No Action Alternative

This alternative would have only negative effects on land use since erosion would continue to diminish the usable property at this location. Given enough erosion, mission-essential structures would become unusable. This alternative does not fulfill any project needs for maintaining current land use.

4.2 Air Quality

General Considerations

Langley AFB is in an ozone maintenance area and an attainment area for the other criteria pollutants, carbon monoxide (CO), sulfur dioxide (SO_x), particulate matter (PM_{10}), lead (Pb), and nitrogen oxides (NO_x). An analysis of NO_x and VOC emissions from vehicle traffic is included in Appendix E as required by the Clean Air Act, Section 176, the State Implementation Plan, and Air Force Instruction 32-7040, paragraph 2.7.5.

Fugitive dust would temporarily increase during construction of the Proposed Action from site clearing and earth-moving activities. Fugitive dust would be minimized, as needed, through measures such as the application of water to disturbed areas and haul roads, and speed controls on earthmoving equipment and haul trucks.

Vehicular emissions of particulate matter (PM), sulfur dioxide (SO_2), nitrogen oxides (NO_x), volatile organic compounds (VOC), and carbon monoxide (CO) would be expected to increase during construction. These emissions would not be expected to significantly affect local or regional air quality or result in violations of National Ambient Air Quality Standards (NAAQS).

Fugitive dust emissions from the on-site concrete resizing operation would be minimal since the concrete would be resized by cleaving large pieces into smaller pieces. The equipment used for the cleaving operation would be either a backhoe bucket or front-end loader bucket used to drop the larger concrete pieces. A concrete crusher would not be used. However, since the only fugitive dust emission factors available in EPA's Compilation of Air Pollutant Emissions Factors are for a crusher operation, this activity was used as the basis for the calculations in Appendix E, which represents the theoretical maximum amount of emissions that could occur.

Specific information from Appendix E is included for the Proposed Action and each alternative below.

4.2.1 Proposed Action: Installation of Revetment and Minimal Enhancement of Vegetation

Under the Proposed Action, fugitive dust and vehicle emissions would temporarily increase due to increased heavy-duty vehicle traffic. The emissions would result from both on-site activities and haul trucks removing unusable material from the resizing operation and delivering additional material for the revetment. An estimated 33 (30 trips for new material, 3 trips for debris removal) truck trips would be required to remove unusable material and bring sufficient riprap material to the site. Emissions from the activities of the Proposed Action are shown in Table 4-1. In order to provide a realistic scenario, emissions calculations are based on shoreline stabilization activities occurring over a three-month period. This assumption allows for the expected six-week construction period and any contingencies.

Table 4-1. Emissions from the Proposed Action.

	Tons	Percent Regional Contributions
CO	0.24	<0.01
VOCs	0.07	<0.01
NO_x	0.81	<0.01
SO_x	0.06	<0.01
PM_{10}	0.61	<0.01

Emissions generated from the operation of diesel-fueled construction equipment during construction are expected to be below the *de minimis* levels of the Clean Air Act's General Conformity Regulations. Based on emission factors provided in EPA's Compilation of Air Pollutant Emission Factors annual emissions of NO_x and VOCs during the construction period would be approximately 4.2 tons and 0.44 tons, respectively. The assumptions and calculations used to arrive at these emissions are provided in Appendix E. These emissions would not be expected to significantly impact local or regional air quality, or result in violations of National Ambient Air Quality Standards (NAAQS).

Emissions from the Proposed Action would be less than the *de minimis* levels included in the general conformity rule. Therefore, the Proposed Action would be exempt from the general conformity requirements for NO_x and VOCs.

4.2.2 Alternative 1: Installation of Three Offshore Breakwaters

Under Alternative 1, air quality would not be impacted. A barge would ferry the riprap material to the three breakwater construction areas. The current conditions along the shoreline would be unchanged (pieces of concrete and asphalt debris would be randomly scattered along the shoreline) and no heavy-duty vehicles would be needed to move concrete, rocks or grade the bank.

4.2.3 Alternative 2: Installation of Revetment, a Single Breakwater and Marsh Development

Under Alternative 2, as under the Proposed Action, fugitive and vehicle emissions would temporarily increase due to heavy-duty vehicle traffic, earth moving activities, and on-site resizing of concrete for riprap material. An estimated 33 (33 trips for the revetment, rocks for the single breakwater would be ferried in on a barge in the river) truck trips would be required to remove unusable material from the resizing operation and bring sufficient riprap material to the site.

Fugitive dust would be minimized, as needed, through measures such as the application of water to disturbed areas and concrete resizing/recycle areas. Policies regarding truck trips, idling, and size and type of earth moving equipment would be established to minimize the temporary degradation of air quality. Vehicular emissions of PM, sulfur dioxide (SO_x), and carbon monoxide (CO) would be expected to increase during construction activities. Emissions from Alternative 2 are shown in Table 4-2.

Table 4-2. Emissions from Alternative 2.

	Tons	Percent Regional Contributions
CO	0.24	<0.01
VOCs	0.07	<0.01
NO_x	0.81	<0.01
SO_2	0.06	<0.01
PM_{10}	0.61	<0.01

Emissions generated from the operation of diesel-fueled construction equipment during construction are expected to meet the *de minimis* levels of the Clean Air Act's General Conformity Regulations. Under 40 CFR Part 93, the *de minimis* levels are 100 tons for NO_x and VOCs. Based on emission factors provided in EPA's Compilation of Air Pollutant Emission Factors, annual emissions of NO_x and VOCs during the construction period would be approximately 4.2 tons and 0.44 tons, respectively. The assumptions and calculations used to arrive at these emissions are provided in Appendix E. These emissions would not be expected to

significantly impact local or regional air quality, or result in violations of National Ambient Air Quality Standards (NAAQS).

Emissions from Alternative 2 would be less than the *de minimis* levels included in the general conformity rule. Therefore, this alternative would be exempt from the general conformity requirements for NO_x and VOCs.

4.2.4 No Action Alternative

This alternative would not affect the air quality at the LTA project area since no restoration activity would occur. While having no change in air quality would be neutral for the ozone maintenance area, long-term benefits for all other media would be lacking.

4.3 Biological Resources

Construction activity may create a short-term impact on vegetation and wildlife. Turbidity of the water and emissions of various air pollutants would temporarily increase during construction, which could stress vegetation and wildlife. High levels of turbidity can disturb native shellfish, the growth of SAV, and some types of marine life; however, using a curtain outboard of construction would contain the turbulence caused by the construction activity. Increased air emissions would be minimal and not have any direct impact on vegetation and wildlife. Once the construction is complete, the impact would be positive because of the reduced erosion and turbidity, increase in the quality of wetland vegetation, and the improvement of shoreline habitat.

4.3.1 Vegetation

4.3.1.1 Proposed Action: Installation of Revetment and Minimal Enhancement of Vegetation

By preserving the existing marsh, which occurs in two patches (one is approximately 85 feet long and the other approximately 55 feet long), the Proposed Action implements the biodiversity conservation principle provided in Section 2.2 of Air Force Instruction 32-7064, Integrated Natural Resources Management. The existing marsh would be minimally enhanced with more than 250 square feet of smooth cordgrass *(Spartina alterniflora)*.

A healthy marsh area would improve the water quality in the area due to the contaminant filtering effect and soil holding capacity that marshes perform. SAV would remain preserved and provide structure and shelter for shellfish.

4.3.1.2 Alternative 1: Installation of Three Offshore Breakwaters

Under Alternative 1, the existing patches of marsh would eventually be buried under the silt and fines that wash around the breakwaters and are deposited landward. Within approximately five years, the area would fill in and native vegetation would again be viable creating a much larger marsh.

4.3.1.3 Alternative 2: Installation of Revetment, a Single Breakwater, and Marsh Development

Under Alternative 2, the single breakwater constructed southeast of the pier would cause the deposition of silt and fines that wash over the breakwater to bury the existing patch of marsh. This area would fill in within three to five years and would then support vegetation again.

The stabilization of the shoreline with the construction of a revetment and extensive planting of native species would greatly enhance filtering effect and soil holding capacity as well as the stability and quality of vegetation to the north of the pier.

4.3.1.4 No Action Alternative

This alternative would not create short-term impacts to on shore or aquatic vegetation in the project area. However, it does not mean the status quo would be preserved either. Erosion from wave action would continue with loss of usable land. Water quality in the Back River would continue to be adversely affected by runoff and siltation with secondary impacts on aquatic vegetation and marine life. There would be no benefits for vegetation with this alternative.

4.3.2 Wildlife

4.3.2.1 Proposed Action: Installation of Revetment and Minimal Enhancement of Vegetation

The preservation and required restoration of wetland vegetation would have a minimal impact on the existing local and migratory bird population centers as the restoration is only slightly greater than the loss. Further improvements in water quality gained by the implementation of the Proposed Action would positively affect the health of the SAV, shellfish and marine organisms in the Back River.

4.3.2.2 Alternative 1: Installation of Three Offshore Breakwaters

Under Alternative 1, the existing patches of marsh would eventually be buried under the silt and fines that wash around the breakwaters and are deposited landward. Within approximately five years, the area behind the breakwaters would naturally fill in and native vegetation would again be viable and have a much larger marsh area in which to spread providing, in the long-term, improved conditions for wildlife. The SAV would be replaced with native marsh contributing to the loss of native SAV restoration and associated marine life.

4.3.2.3 Alternative 2: Installation of Revetment, a Single Breakwater, and Marsh Development

The stabilization of the shoreline with the construction of a revetment and extensive creation of native marsh would greatly enhance the local and migratory bird habitat. Improved water quality through buffer filtration and expansion of food sources would improve conditions for wildlife.

The single breakwater constructed southeast of the pier would cause the deposition of silt and fines that wash around the breakwater to bury the existing SAV bed. This area would be regraded and planted with native grass marsh species. While this would displace marine life inhabiting the existing SAV bed, the large planting effort in the adjacent area would provide alternative marsh habitat for local and migratory birds.

4.3.2.4 No Action Alternative

This alternative would not create short-term impacts to on shore or aquatic wildlife in the project area. However, it does not mean the status quo is preserved either. Erosion from wave action would continue with loss of usable land. Water quality in the Back River would continue to be adversely affected by runoff and siltation, with secondary impacts on aquatic vegetation and marine life. There would be no benefits for wildlife with this alternative.

4.4 Safety

4.4.1 Proposed Action: Installation of Revetment and Minimal Enhancement of Vegetation

Under the Proposed Action, the preservation and minimal addition of wetland vegetation would not attract additional local and migratory bird populations that currently frequent the area. The required replacement of existing marshland damaged during construction would be a minimal addition to existing marsh and would not result in an increased BASH hazard. The fringe tidal marsh of native smooth cordgrass *(Spartina alterniflora)*, occurring in two patches (one is approximately 85 feet long and the other approximately 55 feet long), would be preserved. The marsh would be minimally enhanced with more than 250 square feet of smooth cordgrass *(Spartina alterniflora)*. The smooth cordgrass *(Spartina alterniflora)* prefers to grow in a narrow range of water depths. This type of native grass was selected so that it would not proliferate and create a large area of marsh that would attract waterfowl and exacerbate potential BASH problems on base.

4.4.2 Alternative 1: Installation of Three Offshore Breakwaters

Under Alternative 1, at first, the breakwaters would reduce the wave energy affecting the shoreline and simply reduce the rate of erosion experienced in the area. Once the area landward of the breakwaters began to form a spit, (from infilling occurring over several years) vegetation would thrive in this area and create a large marsh. Uncontrolled growth of native vegetation would attract waterfowl heading toward or leaving the nearby Plum Tree Wildlife Refuge, migratory birds, and other wildlife, which could present a substantial BASH hazard.

4.4.3 Alternative 2: Installation of Revetment, a Single Breakwater, and Marsh Development

Under Alternative 2, potential BASH concerns could be significant. The extensive marsh plantings used to stabilize the area would also attract waterfowl, migratory birds, and other wildlife. After the area landward of the single breakwater filled in, additional marsh would

develop, compounding the attractiveness of the area to birds and similarly increasing the potential BASH concern.

4.4.4 No Action Alternative

Under this alternative, no changes to the existing vegetation in the area would be made. The two small patches of native grasses would continue to grow under stressed conditions. While birds occasionally are attracted to the vegetation, it is not of sufficient size or quality to attract many birds to the area.

4.5 Solid and Hazardous Waste

Langley's ERP investigates and remediates historical contamination sites on base. ACC policy requires that any construction project on or near an ERP site be coordinated through the ERP Manager. Sediments in some parts of the Back River along the shoreline are being investigated and have been designated as ERP Site SS-63, the exact areas covered by the Site are not yet determined but are not expected to overlap with the area impacted by the Proposed Action. Coordination with or approval from the base ERP Manager for any dredging and filling must be made prior to construction.

4.5.1 Proposed Action: Installation of Revetment and Minimal Enhancement of Vegetation

During the construction period associated with the restoration and stabilization of the shoreline area, approximately two truckloads (or 20 tons total) of unusable hardscape material would be removed from the area. This debris (reinforcing bar, concrete, asphalt, soil, etc.) would be recycled elsewhere on base or in the Tidewater area. If necessary, some of the debris would be taken off site to Bethel Sanitary Landfill for disposal.

Use of heavy equipment such as dump trucks, backhoes, bulldozers, etc., may require temporary storage of oils and fluids used to service them. Storage of these materials would be subject to the same storage requirements utilized elsewhere on base in conformance with state and Federal regulations. These requirements include marking the containers with the name of the contents of a tank or drum, placing the unit in a containment area, and routinely checking these units to see that they are in good condition and have no leaks or signs of repeated dripping or spilling.

Any storage of fertilizers, pesticides, or herbicides associated with the planting activities would be managed in the same way as described immediately above.

4.5.2 Alternative 1: Installation of Three Offshore Breakwaters

Under Alternative 1, no action would be taken along the shoreline so no concrete debris would be generated.

Any storage of fertilizers, pesticides, or herbicides associated with the planting activities would be managed in the same way as described under the Proposed Action above.

4.5.3 Alternative 2: Installation of Revetment, a Single Breakwater, and Marsh Development

Much like the consequences described under the Proposed Action, the solid waste generated as a result of implementing Alternative 2 would consist of approximately two truckloads (or 20 tons total) of unusable hardscape material. This debris (reinforcing bar, concrete, asphalt, soil, etc.) would be recycled elsewhere on base or in the Tidewater area. If necessary, some of the debris would be taken off site to Bethel Sanitary Landfill for disposal.

Use of heavy equipment such as dump trucks, backhoes, bulldozers, etc., may require temporary storage of oils and fluids used to service them. Storage of these materials would be subject to the same storage requirements utilized elsewhere on base in conformance with state and Federal regulations. These requirements include marking the containers with the name of the contents of a tank or drum, placing the unit in a containment area, and routinely checking these units to see that they are in good condition and have no leaks or signs of repeated dripping or spilling.

Any storage of fertilizers, pesticides, or herbicides associated with the planting activities would be managed in the same way as described immediately above.

4.5.4 No Action Alternative

This alternative would create no solid or hazardous waste in the project area. However, solid waste already in the project area, such as asphalt, would not be removed. Similarly, oversized concrete hardscape with protruding reinforcing steel would remain in place. Such hardscape neither limits nor prevents erosion and is not "user friendly" for those maintaining the shoreline or using the project site for recreation. There would be no benefits with this alternative.

4.6 Water Quality

4.6.1 Proposed Action: Installation of Revetment and Minimal Enhancement of Vegetation

Established vegetation and newly planted smooth cordgrass *(Spartina alterniflora)* would improve the natural filtration process and would enhance the quality of water as compared with the filtration currently provided by existing conditions. Sediments and nutrients would be trapped within the vegetative root mass and decaying debris around the base of each plant. Nutrients would be assimilated and recycled by the plants. The filtration function performed by the vegetation would result in a reduction in turbidity and runoff of pollutants.

During construction, siltation would be kept to a minimum during construction by use of VMRC Shoreline Development procedures, which include the use of erosion and sediment control barriers. Based upon the project area's erosion rate, bank height, and volume of silt generated by disturbances, approximately 33 pounds of silt per foot of shoreline disturbed would be lost to the river during each week of construction. The turbidity created by this activity would occur between five and ten feet of the bank. The use of a turbidity curtain outboard of construction would contain the sediment throughout the construction period. Water from the river may be used at the construction site for dust suppression, if necessary. After stabilization measures are

taken, the siltation rate would approach zero and would not exceed 0.25 pounds per week per foot of shoreline.

4.6.2 Alternative 1: Installation of Three Offshore Breakwaters

Under Alternative 1, the breakwaters would dissipate much of the wave energy approaching the shoreline. The current siltation rate would be reduced, although the rate would depend on weather conditions and would be changing over time as the area between the breakwaters and the shoreline filled in. Because the shoreline itself would remain unchanged, the siltation from shoreline erosion would not be reduced as much as it would be under the Proposed Action or Alternative 2 where direct measures would be taken to confine the soil on the shoreline.

Turbidity would increase in the area off the shoreline due to the repeated deposition of silt and fines around the breakwater.

4.6.3 Alternative 2: Installation of Revetment, a Single Breakwater, and Marsh Development

Under Alternative 2, newly planted vegetation would improve the natural filtration process and would enhance the quality of water as compared with the filtration currently provided by existing conditions. Sediments and nutrients would be trapped within the vegetative root mass and decaying debris around the base of each plant. Nutrients would be assimilated and recycled by the plants. The filtration function performed by the vegetation would result in a reduction in turbidity and runoff of pollutants.

As in the Proposed Action, siltation would be kept to a minimum during construction by use of VMRC Shoreline Development procedures, which include the use of erosion and sediment control barriers. Based upon the project area's erosion rate, bank height, and volume of silt generated by disturbances, approximately 33 pounds of silt per foot of shoreline disturbed would be lost to the river during each week of construction. The turbidity created by this activity would occur between five and ten feet of the bank. The use of a turbidity curtain outboard of construction would contain the sediment throughout the construction period. Water from the river may be used at the construction site for dust suppression, if necessary. After stabilization measures are taken, the siltation rate would approach zero and would not exceed 0.25 pounds per week per foot of shoreline.

The single breakwater included in this alternative would further protect the shoreline from wave energy affecting the shoreline. Until the area landward of the breakwater filled in, there would be an elevated turbidity in this area and existing vegetation would be stressed and eventually buried.

4.6.4 No Action Alternative

This alternative would create no short-term impacts on water quality. However, there would be long-term negative impacts. Water quality in the Back River would continue to be adversely affected by runoff and siltation, with secondary impacts on aquatic vegetation and marine life

that may depend on such vegetation. There would be no improvement in water quality with this alternative.

4.7 Coastal Zone, Wetlands, and Floodplains

4.7.1 Proposed Action: Installation of Revetment and Minimal Enhancement of Vegetation

The Proposed Action would have a positive impact on the Coastal Zone, wetlands, and floodplain. In accordance with Section 404 of the Federal Clean Water Act, an application was made and the Corps of Engineers certified compliance with Nationwide Permits 13 and 18, Bank Stabilization and Minor Discharges, respectively. The Certificate of Compliance and a copy of the application are provided in Appendix D.

The Proposed Action would not impact or trigger the enforceable regulatory programs under the VCP (a list of the enforceable regulatory programs is provided in Appendix G). The project would not encroach upon or make use of any sub aqueous lands managed by the Commonwealth. Management of fisheries, sub aqueous lands, wetlands, and the coastal zone under the control of the Air Force would be consistent with the goals of the VCP and would be in compliance with the regulatory programs associated with fisheries, sub aqueous lands, and wetlands. All work associated with the Proposed Action would be conducted in accordance with Virginia's Water Protection Permit Program. The signed Coastal Compliance Determination is also provided in Appendix G.

Some of the native wetlands would be restored creating additional tidal marsh edge in an area that is comprised of primarily hardscape materials. Wetland enhancement contributes to the fulfilling of the goals in the FACEUP for the Chesapeake Bay. The result of the shoreline project would be to stabilize a failing shoreline, increase the native wetland resources, and halt existing erosion conditions.

4.7.2 Alternative 1: Installation of Three Offshore Breakwaters

Under Alternative 1, protection of the coastal zone, the 100-year floodplain and existing wetlands could be achieved in approximately five years. In the interim, silt and fines would be deposited around (and negatively impact) an existing SAV bed that is the subject of study by a number of organizations outside of the Air Force. The ongoing research has attracted national attention due to the fact that this is the longest surviving, man-made wetland of its kind. Interfering with the development of the existing SAV bed would result in noncompliance with the regulatory programs associated with fisheries, sub aqueous lands, and wetlands targeted by the VCP.

4.7.3 Alternative 2: Installation of Revetment, a Single Breakwater, and Marsh Development

Under Alternative 2, the shoreline stabilization would protect the coastal zone, the 100-year floodplain, and existing wetlands. Development of a large marshland also would be supportive of the goals of the regulatory programs targeted by the VCP.

Construction of the single breakwater would be incompatible with the VMRC plans to construct a conservation oyster reef in June 2001. Since reef construction is pursuant to VCP goals (providing habitat for oyster growth and dissipating wave energy), and the reef would not cause infilling like a breakwater (avoiding an expanded marshland in the future) the already planned and funded reef should take precedence over the breakwater in this alternative.

4.7.4 No Action Alternative

This alternative would create no short-term impacts on the coastal zone, wetlands, and floodplain environment of Langley AFB. However, there would be long-term negative effects. Without physical and biological shoreline improvements in the project area, storms would continue to alter these environments by eroding the shoreline, degrading water quality which would affect both aquatic vegetation and marine life, and threatening mission-essential structures by undermining the foundations through wave action and flooding.

4.8 Noise

4.8.1 Proposed Action: Installation of Revetment and Minimal Enhancement of Vegetation

During the Proposed Action, a single medium-duty construction vehicle would be used to move and/or re-size pieces of concrete and asphalt that are presently lying along the shoreline in the vicinity of the LTA pool. The same medium-duty construction vehicle would be used to grade the shoreline in preparation for a geotextile liner. Approximately 33 heavy-duty truck trips would be required to bring enough riprap material to complete the revetment and remove debris from the site. While noise produced during construction would be noticeable, it would be similar to that produced by other construction occurring on base and would be temporary in nature. Because the Day-Night Average Noise Level (DNL) is dominated by long-term aircraft operations, noise sources from temporary construction activity occurring intermittently over a one-month time period would not change the overall DNL; therefore, no adverse impacts are anticipated.

4.8.2 Alternative 1: Installation of Three Offshore Breakwaters

Under Alternative 1, three breakwater structures would be constructed at locations 60 feet offshore. Rocks would be brought to the breakwater construction sites on barges and unloaded from the barges into the water using a medium-duty construction vehicle. These actions would occur over a one-month time period. The DNL in the area would not increase due to the construction activity; therefore, no adverse impacts are anticipated.

4.8.3 Alternative 2: Installation of Revetment, a Single Breakwater, and Marsh Development

Like the Proposed Action, Alternative 2 includes the reuse of hardscape as a feedstock for a revetment along the shoreline. A single medium-duty construction vehicle would carry out moving and re-sizing of riprap and grading of the shoreline. Approximately 33 heavy-duty truck visits would be required to bring enough riprap material to complete the revetment and remove

debris from the site. In addition to construction of the shoreline revetment, a single offshore breakwater would be constructed. Rocks would be brought to the breakwater construction site on barges and unloaded from the barges into the water using a medium-duty construction vehicle. Construction activity would be temporary, occurring intermittently over a one-month time period. While noise produced during construction would be noticeable, it would not add to the DNL in the area, which is generated predominately by aircraft operations. Therefore, no adverse impacts are anticipated.

4.8.4 No Action Alternative

This alternative would create no noise impacts on the LTA project area since no restoration activity would occur. While having no change in noise levels, long-term benefits for all other media would be lacking.

4.9 Cultural Resources

4.9.1 Proposed Action: Installation of Revetment and Minimal Enhancement of Vegetation

In the event that features or deposits were encountered during the Proposed Action, Langley would implement the procedures in Air Force Instruction 32-7065 and the CRMP for unanticipated archeological discoveries.

4.9.2 Alternative 1: Installation of Three Offshore Breakwaters

As indicated in Section 4.10.1, if features or deposits were encountered during the implementation of Alternative 1, Langley would implement the procedures in Air Force Instruction 32-7065 and the CRMP for unanticipated archeological discoveries.

4.9.3 Alternative 2: Installation of Revetment, a Single Breakwater, and Marsh Development

As indicated above, if features or deposits were encountered during the implementation of Alternative 2, Langley would implement the procedures in Air Force Instruction 32-7065 and the CRMP for unanticipated archeological discoveries.

4.9.4 No Action Alternative

This alternative would not disturb any cultural resource that may be in the project area. Since this general area has been extensively developed in the past, it is not likely that there are any undisturbed cultural resources. Hence, there are neither positive benefits nor negative impacts from this alternative.

4.11 Geology and Soils

4.11.1 Proposed Action: Installation of Revetment and Minimal Enhancement of Vegetation

The Proposed Action would positively impact the shoreline made up of hydric soil that is comprised of sand, sandy silt, and shells. Confinement of the soil by the geotextile liner and riprap would protect the shoreline and virtually eliminate any ongoing loss of soil into the river.

4.11.2 Alternative 1: Installation of Three Offshore Breakwaters

The breakwaters would dissipate constant wave energy. However, the shoreline would continue to erode until the natural backfilling of the structure is complete. The completion of the backfilling would take approximately three to five years.

4.11.3 Alternative 2: Installation of Revetment, a Single Breakwater, and Marsh Development

The breakwater would dissipate constant wave energy. The marsh creation would further reduce any erosion as the area landward of the breakwater is filled, regraded, and stabilized with native marsh.

4.11.4 No Action Alternative

This action would neither disturb the soils along the shoreline nor would it create limited turbidity during a brief construction period. It would, however, allow chronic erosion to continue at the site and would contribute to the downward spiral of conditions there, allowing further deterioration of the shoreline.

5.0 CUMULATIVE EFFECTS

This section provides a definition of cumulative effects, a description of past, present, and reasonably foreseeable actions relevant to cumulative effects, and an evaluation of cumulative effects potentially resulting from these interactions.

5.1 Definition of Cumulative Effects

Cumulative impacts on environmental resources result from incremental impacts of Proposed Actions, when combined with other past, present, and reasonably foreseeable future projects in the area. Cumulative impacts can result from minor, but collectively substantial, actions undertaken over a period of time by various agencies (Federal, state, and local) or individuals.

In accordance with NEPA, a discussion of cumulative impacts resulting from projects that are proposed, under construction, recently completed, or anticipated to be implemented in the near future is required. Recent Council on Environmental Quality guidance on *Considering Cumulative Effects* affirms this requirement, stating that the first steps in assessing cumulative effects involve defining the scope of the other actions and their interrelationships with the Proposed Action. The scope of the cumulative effects analysis involves both the geographic extent of the effects and the time frame in which the effects could be expected to occur. For this EA, the ROI includes the base and the portion of the Back River in the vicinity of the Proposed Action. Actions that do not occur within or adjacent to the ROI have not been considered in the cumulative effects analysis.

5.2 Past, Present, and Reasonably Foreseeable Actions

Langley AFB is an active military installation that undergoes changes in mission and in training requirements in response to defense policies, current threats, and tactical and technical advances. The base, like any other major institution (e.g., university, industrial complex), requires new construction, facility improvements, infrastructure upgrades, maintenance and repairs. In addition, tenant organizations such as the Air National Guard and NASA LaRC occupy portions of the base, conduct aircraft operations, and maintain facilities. All of these factors (e.g., mission changes, facility improvements, and tenant use) have and will continue to apply before, during, and after the Proposed Action.

During the time frame for the Proposed Action, Langley AFB has proposed other projects that are independent of the proposed stabilization project, and these would be implemented irrespective of a decision on the Proposed Action. These other proposed projects include construction of a water tower, construction of a physical fitness center, and the demolition of the Langley Tow Tank Facility (also known as the Mile-Long Building).

At the same time, Langley's Natural Resources Management Program has an ongoing effort to proactively provide stewardship of lands under Air Force control.

Within the ROI for the Proposed Action, various organizations outside of the Air Force are also working to proactively restore and protect the Chesapeake Bay and its tributaries. Langley is partnering with the EPA and other agencies within the Chesapeake Bay Program to plant riparian

forest buffers along the Back River shoreline. The shallow zone adjacent to the Sewage Pump Station was identified as an area suited for SAV planting by the National Aquarium in Baltimore, Maryland. National Aquarium staff, in conjunction with the Air Force and the Alliance for the Chesapeake Bay, is planning to continue SAV planting at this site. They also plan to introduce a native seahorse (*Hippocanthus erectus*) population to evaluate their viability in this location and the impacts of seahorses on transplanted SAV beds (Appendix B, Map 2). Southeast of the project area, a 40-foot x 400-foot oyster reef is scheduled for construction in June 2001. Construction of the reef is a conservation measure implemented by the Commonwealth of Virginia that will be carried out under a partnership with the base.

5.3 Analysis of Cumulative Effects of Proposed Action

Air

Air pollutant emissions would be degraded temporarily due to increased heavy-duty vehicle traffic, dust associated with earth-moving activities, and the resizing of concrete for riprap material. Enforcement of common construction practices during the construction period associated with the proposed projects would minimize impacts to air quality. Policies regarding truck trips, idling, and size and type of earth moving equipment would be established to minimize the temporary degradation of air quality.

The other projects that are considered under this subsection would contribute air emissions during their construction and subsequent operations (except for the demolition project, which would not result in an operating structure). Table 5-1 provides the potential total combined criteria pollutant emissions. The values in Table 5-1 were obtained from each of the EAs prepared for the other foreseeable proposed projects. The total emissions for VOCs and NO_x are well below the 100-tpy *de minimis* threshold. These emissions are not likely to occur in the same time frame, given the nature of the projects and the work involved. While all considered projects are on Langley, the locations are widespread. The northern end of the Mile-Long Building is within about 1,500 feet, the Fitness Center construction is more than 8,000 feet from this Proposed Action, and the Water Tower construction is more than 6,000 feet from this shoreline stabilization area.

Table 5-1. Combined Air Emissions of Four Proposed Projects.

Proposed Action	CO	VOC	NO_x	SO_x	PM_{10}
Shoreline Stabilization	0.24	0.07	0.81	0.06	0.61
Demolition of Mile-Long Building	10.50	1.30	15.60	1.50	5.10
Water Tower Replacement	6.60	3.87	2.21	0.41	1.98
Fitness Center	14.40	2.70	7.5	<1	1
TOTALS	31.74	7.94	26.12	<2.97	8.69

Solid Waste

Waste management would be required during the construction period of the Proposed Action. Solid wastes that result from the removal of existing hardscape would be minimized through the use of this material as a primary feedstock for appropriately sized riprap. Although

approximately 20 tons of debris would be generated, this volume would not strain the capacity at local or regional solid waste disposal facilities. Other materials kept on site temporarily to service and maintain vehicles would be subject to state and federal storage and management regulations. Fertilizers or other material associated with the planting of native vegetation would be used in accordance with established guidelines and their storage and management would likewise be subject to requirements designed to contain any unintended release.

Two of the three other proposed projects at the base that are within the scope of the cumulative impact analysis would also generate significant debris, particularly the demolition of the Mile-Long Building. Due to the abundance of regional solid waste landfill capacity, the concurrent or consecutive implementation of these projects would not result in adverse impacts on solid waste disposal facilities in the region.

Noise

Construction vehicle operation and the movement of materials would generate noise at the construction sites and along traffic corridors. The projected construction of a water tower, construction of a physical fitness center, and the demolition of the Mile-Long Building are not expected to be concurrent with the Shoreline Stabilization project. The closest project, the demolition of the Mile-Long Building, would be taking place approximately 1500 feet away from the site for the proposed Shoreline Stabilization project. If the Shoreline Stabilization and Mile-Long Building demolition projects were to unexpectedly overlap in time, the area between the two projects would not experience any increase in Day-night Average Noise Level (DNL). Heavy-duty truck traffic in support of the proposed projects would be routed around residential and other noise sensitive areas whenever practicable. Truck activity would not raise the DNL's along traffic corridors on base and would not be expected to cause undue annoyance.

6.0 IRREVERSIBLE AND IRRETRIEVABLE COMMITMENT OF RESOURCES

Irreversible and irretrievable resource commitments are related to the use of non-renewable resources and the effects that the uses of these resources have on future generations. Irreversible effects primarily result from the use or destruction of a specific resource (e.g. energy or minerals) that cannot be replaced within a reasonable time and could have been used for other purposes. Irretrievable resource commitments involve the loss in value of an affected resource that cannot be restored as a result of the action (e.g. the extinction of an endangered or threatened species).

For the Proposed Action, most resource commitments are neither irreversible nor irretrievable. Most adverse impacts, such as air emissions and noise increases are short-term and temporary, lasting only a few weeks. Construction would involve consumption of nonrenewable gasoline used in vehicles. The use of fuel would not significantly decrease the availability of petroleum resources. After completion of the Proposed Action, air quality would be restored or improved. Other resources, such as the water quality in the Back River, the stability of the shoreline, or the health of the nearby ecosystem would be unaffected or improved once the Proposed Action was completed.

7.0 RELATIONSHIP BETWEEN SHORT TERM USE OF THE ENVIRONMENT AND LONG-TERM PRODUCTIVITY

This section summarizes the relationship between the use of the environment for shoreline stabilization and wetlands protection, and different actions that could be taken to maintain and enhance the long-term productivity of the same land and its resources.

Because the need for stabilization is in a tidal wetland, there is no practicable alternative outside of a wetland. The area under analysis is proximate to a highly developed area, the base, and the Back River estuary. Protecting and enhancing the buffer between the two contributes to both the short-term uses of the environment and long-term productivity.

Though there would be some adverse impacts to several resources, the effects would be short-term and minor. Beneficial results from the proposed action outweigh the short-term effects. The erosion rate would be reduced, therefore reducing turbidity and it's effect on SAV, fisheries, and shellfish. The presence of healthy vegetation helps to combat erosion by holding soils in place. Reduced erosion and improvement to naturally occurring vegetation would contribute to long-term productivity creating a healthier ecosystem.

The long term human productivity associated with the stabilization of the shoreline would be the continued operations of Langley AFB.

8.0 LIST OF PREPARERS

Authors of the LTA Pool and Sewage Pump Station Area EA include:

Steve Stinger, Senior Staff Scientist, URS Radian;
Laurie Huber, Senior Regulatory Specialist, URS Radian; and
Chris Stewart, Environmental Scientist, URS Radian.

Contributors to the development of LTA Pool and Sewage Pump Station Area EA include:

Patsy Kerr and Michael Turner of Langley Air Force Base.

9.0 CONSULTATION AND COORDINATION

Organizations with approval and permitting authorities associated with the proposed stabilization construction have provided letters or statements of their findings (Appendix D). In all cases, permission has been granted to proceed with the proposed construction.

Copies of the letters/statements received are listed below:

- U.S. Army Corps of Engineers, Norfolk District;
- Commonwealth of Virginia, Department of Environmental Quality;
- City of Hampton, Department of Planning;
- Virginia Marine Resources Commission and,
- U.S. Fish and Wildlife Service.

10.0 REFERENCES

1. Barrera, J.F. and T. Kain. 1995. Survey for Bald Eagles and Peregrine Falcons at Langley Air Force Base, Virginia. Unpublished report to the United States Air Force, Air Combat Command, Langley AFB, Virginia.

2. Basco, David R., Old Dominion University Research Foundation, and the Coastal Engineering Center, Old Dominion University. September 1999. Proposal, Shoreline Stabilization Design and Wetland Restoration (Langley Air Force Base, Virginia).

3. Building and Construction Trades Dept., AFL-CIO, Hazard Alert Construction Noise, flyer, http:\\www.cpwr.com\haznoise.html.

4. Chesapeake Bay Foundation, 1995, Save the Bay.

5. Cook, J., 1992. Architectural and Historic Survey of Langley Air force Base and Inventory of Historic Resources, Langley Field, Virginia, National Register Programs Division, Southeast Regional Office, National Park Service, Atlanta, Georgia.

6. Environmental Protection Agency, Office of Air Quality Panning and Standards. Compilation of Air Pollutant Emission Factors. Stationary point and Area Sources. AP-42, Fifth Edition, Volume 1.

7. Hill, Lee. 2001, Virginia Department of Conservation and Recreation, Division of Soil and Water Conservation.

8. Hobson, C.S., 1996. *A Natural Heritage Inventory of Langley Air Force Base*, Virginia. Natural Heritage Technical Report 96-9. Virginia Department of Conservation and Recreation. Division of Natural Heritage, Richmond, Virginia. Unpublished report submitted to Air Combat Command, 1st CES/CEV, Langley Air Force Base, Virginia, March, 1996. 26 pp. plus appendices.

9. Langley Air Force Base, February 1982, Construction Programs in the Floodplains at Langley Air Force Base, Virginia.

10. Langley Air Force Base, October 1995, Storm Water Management Manual, Langley Air Force Base, Virginia.

11. Langley Air Force Base, January 1998, Cultural Resources Management Plan for Langley Air Force Base, Virginia.

12. Langley Air Force Base, June 1998, Integrated Natural Resources Management Plan, Langley Airforce Base, Virginia.

13. Langley Air Force Base, January 2001, Draft Final Environmental Assessment for the Installation of a Water Tower, Langley Airforce Base, Virginia.

14. Langley Air Force Base, March 2001, Preliminary Draft Environmental Assessment Fitness Center, Langley Airforce Base, Virginia.

15. Langley Air Force Base, April 2001, Draft Environmental Assessment Demolition of the Langley Tow Tank Facility (Mile-Long Building), Langley Airforce Base, Virginia.

16. Langley Air Force Base, February 1999. Memorial Park Wetland Restoration, Langley AFB, Virginia, Environmental Assessment.

17. Soil Conservation Service, 1992, US Department of Agriculture, Engineering Field Handbook, Chapter 13, Wetland Restoration, Enhancement, or Creation.

18. United States Army Corps of Engineers. 10 July 1989. Engineering and Design - Environmental Engineering for Coastal Shore Protection (EM1110-2-1204).

19. Virginia Division of Natural Heritage, April 1996, A Natural Heritage Inventory of Langley Air Force Base, Virginia, Virginia Department of Conservation and Recreation.

20. Virginia Marine Resources Commission, June 1994, Shoreline Development BMP's.

21. Wheaton, Thomas et. al., Archeological Site Survey and Testing, Langley Air Force Base, Virginia, New South Associates, Stone Mountain, Georgia.

Appendix A

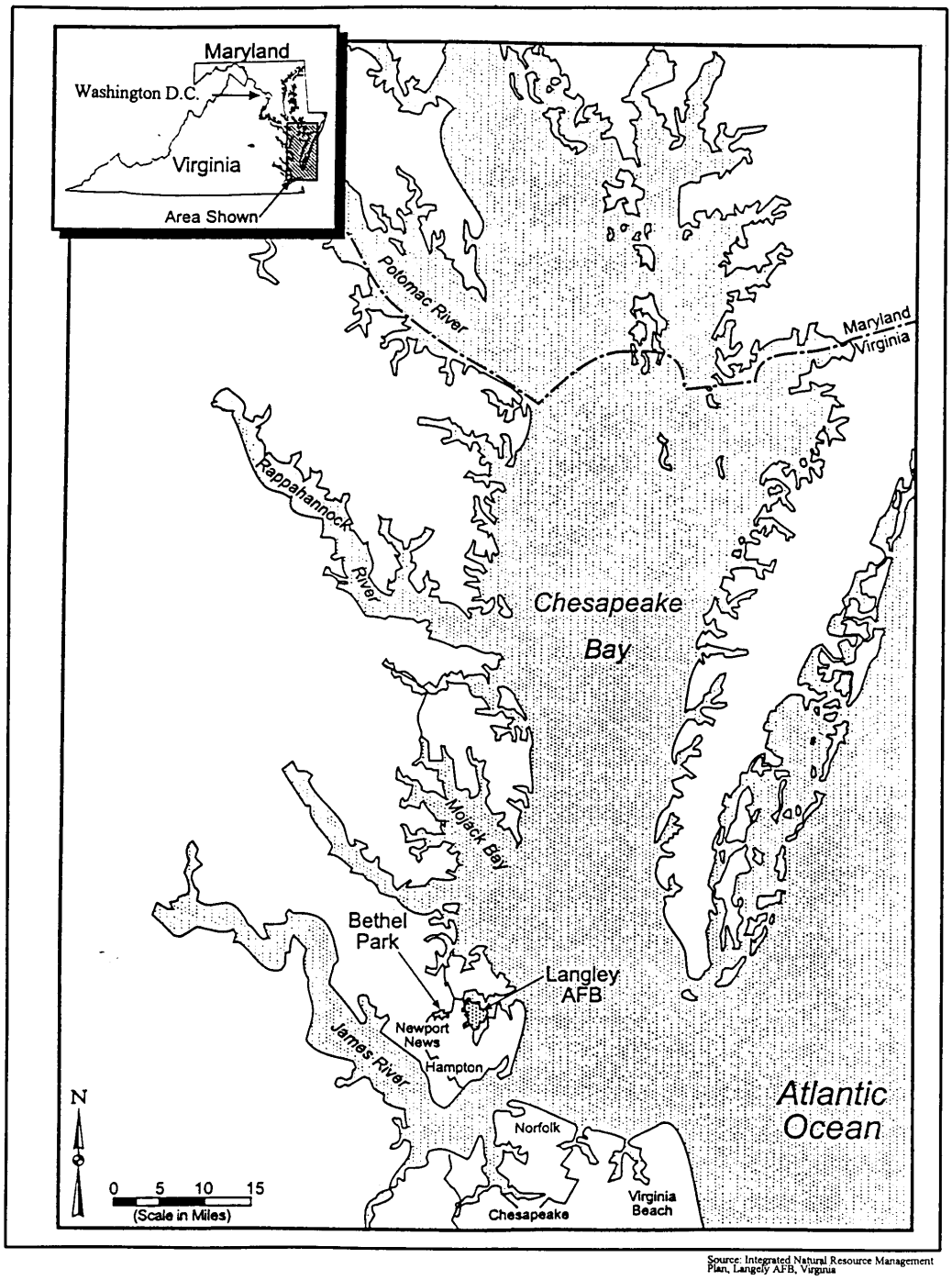
Glossary of Terms

GLOSSARY OF TERMS

AF	Air Force
BASH	Bird/Aircraft Strike Hazard
BMPs	Best Management Practices
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
CRMP	Cultural Resources Management Plan
CO	Carbon Monoxide
DCR	Department of Conservation and Recreation
DoD	Department of Defense
EA	Environmental Assessment
EPA	Environmental Protection Agency
ERP	Environmental Restoration Program
FACEUP	Federal Agencies' Chesapeake Ecosystem Unified Plan
LTA	Lighter-Than-Air
MLW	Mean Low Water
NAAQS	National Ambient Air Quality Standards
NASA	National Aeronautical and Space Administration
NASA LaRC	NASA Langley Research Center
NEPA	National Environmental Policy Act of 1969
NO_2	Nitrogen Dioxide
NO_x	Nitrogen Oxides
PM	Particulate Matter
ROI	Region of Influence
SAV	Submerged Aquatic Vegetation
SIP	State Implementation Plan
SO_2	Sulfur Dioxide
SO_x	Sulfur Oxides
VDOT	Virginia Department of Transportation
VIMS	Virginia Institute of Marine Science
VMRC	Virginia Marine Resources Commission
VMT	Vehicle Miles Traveled
VOCs	Volatile Organic Chemicals

Appendix B

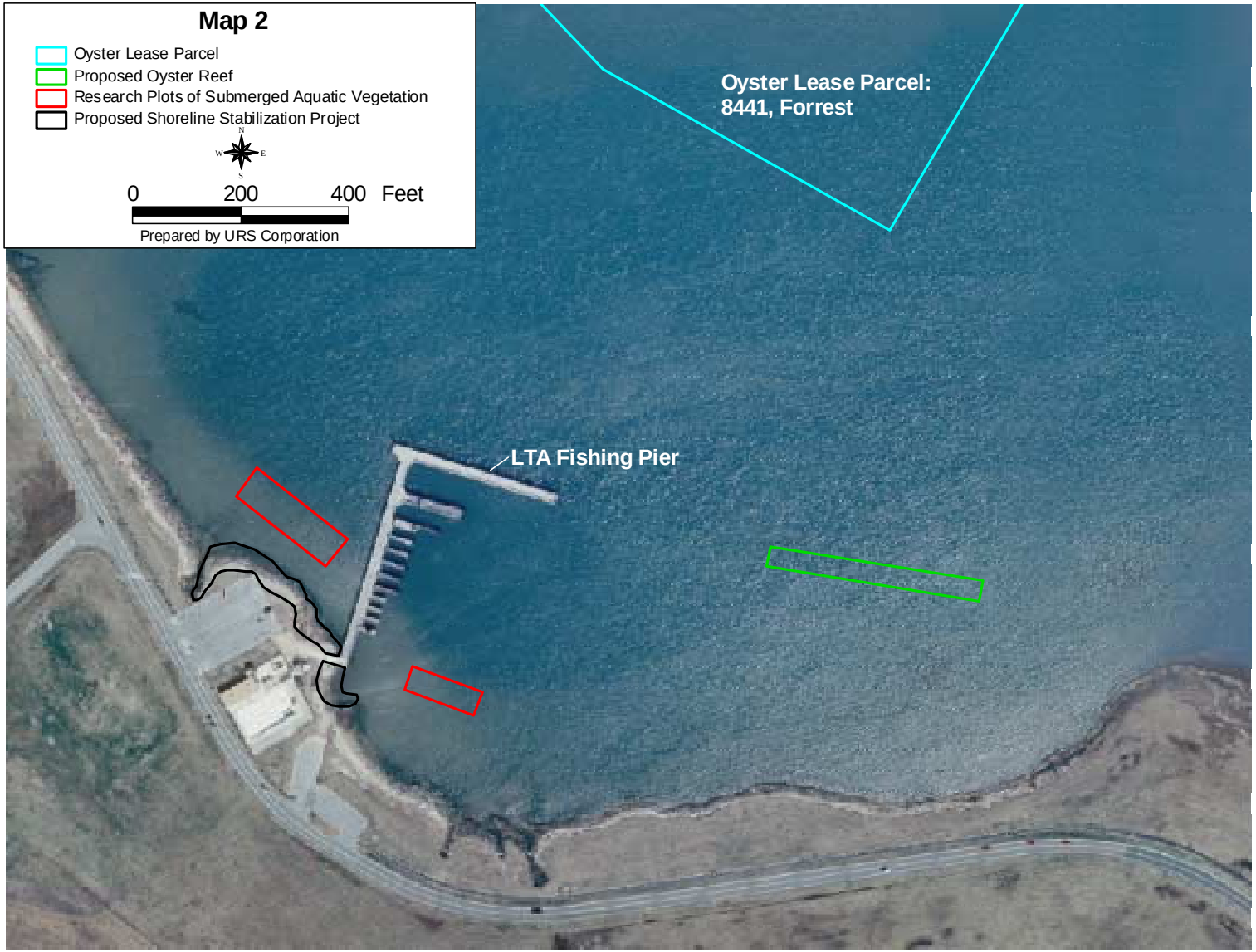
Maps



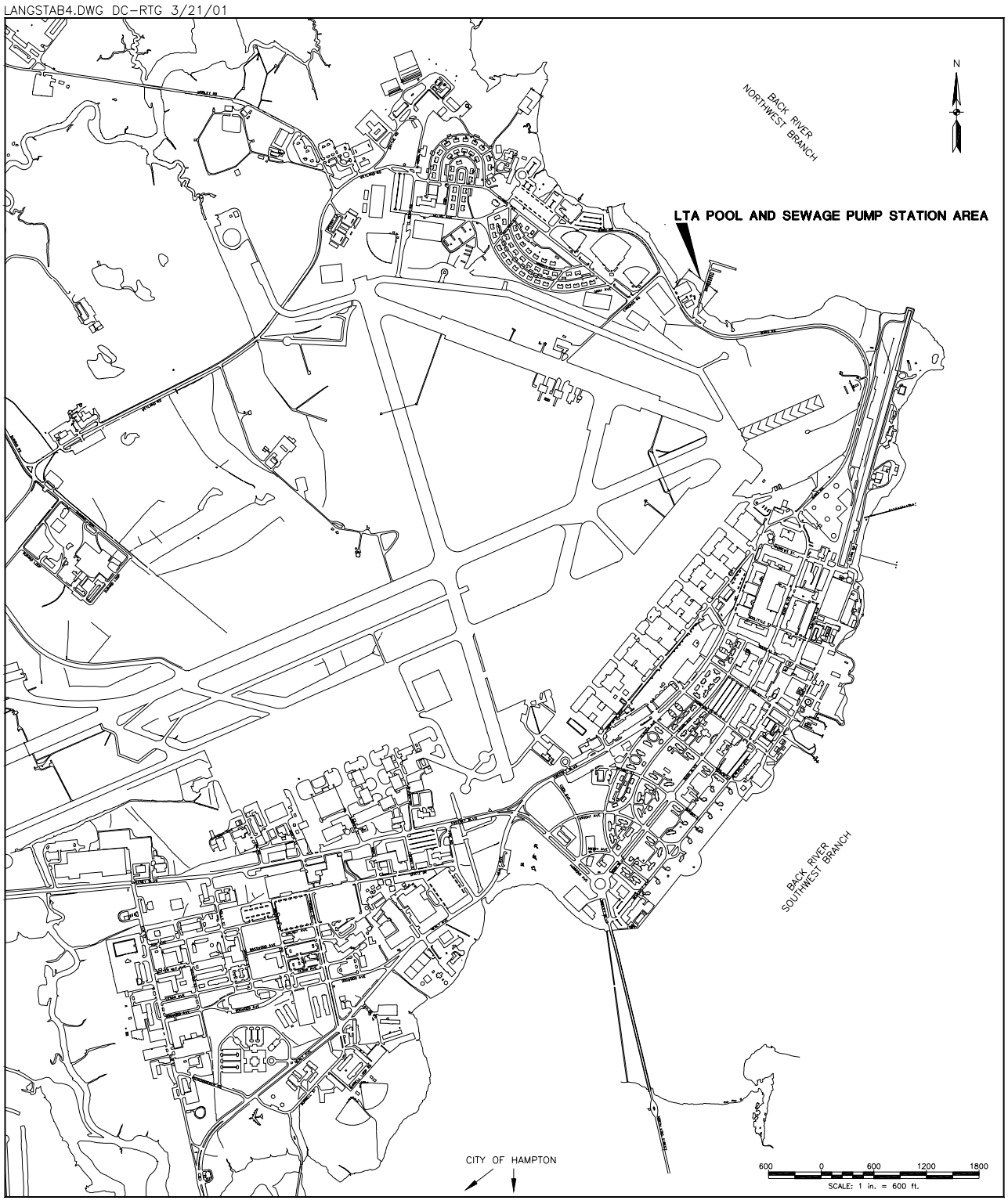
Source: Integrated Natural Resource Management Plan, Langley AFB, Virginia

Location Map, Langley Air Force Base, Virginia

MAP 1


Map 2
Oyster Lease Parcel
Proposed Oyster Reef
Research Plots of Submerged Aquatic Vegetation
Proposed Shoreline Stabilization Project
N
W
E
S
0
200
400
Feet
Prepared by URS Corporation
Oyster Lease Parcel:
8441, Forrest
LTA Fishing Pier

MAP 2


LANGSTAB4.DWG DC-RTG 3/21/01
N
BACK RIVER
NORTHWEST BRANCH
LTA POOL AND SEWAGE PUMP STATION AREA
BACK RIVER
SOUTHWEST BRANCH
CITY OF HAMPTON
600 0 600 1200 1800
SCALE: 1 in. = 600 ft.

MAP 3

Appendix C

Federal Agencies' Chesapeake Ecosystem Unified Plan

Chesapeake Bay Program

FEDERAL AGENCIES' CHESAPEAKE ECOSYSTEM UNIFIED PLAN

NOVEMBER 5, 1998

WHEREAS, the *Clean Water Action Plan* charts a course toward fulfilling the original goals of the *Clean Water Act* and calls upon Federal agencies to develop a unified policy to enhance watershed management in which Federal, state, and local governments and the public work together to identify critical problems, focus resources, recognize waters of exceptional value, include watershed goals in Federal planning, and implement effective strategies to solve problems; and

WHEREAS, as reported in the April 1997 *Second Biennial Progress Report* of the *1994 Agreement of Federal Agencies on Ecosystem Management in the Chesapeake Bay*, the Federal agency partners of the Chesapeake Bay Program have accomplished, and are committed to accomplish, the numerous goals of that 1994 Agreement; and

WHEREAS, the community of Federal agencies with signed formal Chesapeake Bay partnership agreements has expanded to include 15 agencies dedicated to enhancing stewardship on Federally-managed public lands, supporting cooperative state and community implementation, and contributing expertise in resource management, science and planning to achieve ecosystem-based management; and

WHEREAS, the Chesapeake Bay Program's directives on Nutrient Reduction, Habitat Restoration, Wetlands, and Riparian Forest Buffers, and its Local Government Participation Action Plan and Community Watershed Initiative continue to advance the Program as a national leader in the use of partnerships and sound science for targeting, developing and implementing restoration and protection programs.

Now, therefore, we the undersigned representatives of the participating Federal agencies, establish the following unified plan to meet the goals of the *1987 Chesapeake Bay Agreement* and subsequent amendments and directives, and to build on the achievements of the *1994 Agreement of Federal Agencies on Ecosystem Management in the Chesapeake Bay*, consistent with our missions and our success in securing the necessary resources. Specifically, we further agree to be:

PARTNERS FOR THE CHESAPEAKE

creating new opportunities for Federal agencies to work with states to carry out the commitments of the Clean Water Action Plan. We commit to:

1. target Conservation Reserve Enhancement funds to Bay watershed states in support of efforts to protect farmland and forests and reduce nutrient inputs to the Chesapeake Bay (USDA lead);
2. work to integrate opportunities to benefit the Bay through existing Federal initiatives such as USDA's Environmental Quality Incentives Program and the Wetlands Reserve program (USDA lead);
3. support the development of state Unified Watershed Assessments and Action Plans for Priority Watersheds;
4. encourage the development of permanent teams within each Bay watershed state, comprised of Federal and state officials with responsibilities for implementing the Clean Water Action Plan;
5. promote the addition of new Federal partners, including agencies that deal with transportation and other infrastructure; establish or update memoranda of understanding with all Federal partners; and strengthen relationships among existing partners through resource sharing and unified program planning and implementation; and
6. develop and adopt a Bay Partner Facility program by March 1, 1999, and seek the designation of at least 30 Federal facilities as partners by December 31, 2000, and 60 Federal facilities by December 31, 2005.

PROTECTORS OF PRIORITY WATERSHEDS

targeting various Federal programs and resources to meet the needs of priority watersheds, particularly those designated by states under the Clean Water Action Plan. We commit to:

1. support geographically-specific programs, such as the Chesapeake Bay Program's Regions of Concern for toxics and Nutrient Areas of Concern;
2. develop, by June 30, 1999, a mechanism to implement wet weather pollution prevention on Federal facilities in the Anacostia River and Rock Creek watersheds and transfer these technologies to other appropriate Federal facilities and urban areas (EPA lead);
3. implement the Biennial Federal Workplan for the Anacostia River Watershed and provide biennial updates beginning in June 30, 1999 (COE lead);
4. support the 18-point restoration plan for the Elizabeth River through active participation in the programs and projects of the Elizabeth River Coalition (COE lead); and
5. participate fully in the American Heritage Rivers Program for the Potomac and Upper Susquehanna/Lackawanna Rivers by: a) identifying relevant Federal landholdings by December 31, 1998; b) establishing partnership agreements with community-based efforts in the Heritage Rivers watersheds by April 30, 1999; c) and supporting directed application of technical and funding resources to aid revitalization efforts (EPA lead).

STEWARDS OF THE BAY'S LIVING RESOURCES AND HABITATS

supporting the restoration of Chesapeake Bay living resources and their habitats by fully implementing fish and wildlife conservation efforts and all habitat restoration authorities on all lands, including Federal lands, in the Bay watershed. We commit to:

1. develop an inventory of habitat restoration needs on Federal lands in the Chesapeake Bay watershed to aid in the creation of an annual list of restoration priority areas, from which two projects will be completed each year beginning in 2000 (NOAA lead);
2. support the Chesapeake Bay Program's Wetlands Directive by assisting states in implementation of their strategies for net gain of wetlands and establishing a restoration goal for Federal facilities of 100 acres per year beginning in 2000 (EPA lead);
3. support conservation and restoration of stream corridors on Federal lands by: a) establishing demonstration sites and implementing restoration technology on three Federal facilities by December 31, 1999 (USFWS lead); b) adopting riparian area conservation policies for Federal lands by September 30, 2000 (USFS lead); c) adopting a stream assessment and inventory protocol for Federal lands by May 31, 2000 and an inventory of stream systems on Federal lands by January 1, 2005 (USFWS lead); and d) restoring 200 miles of riparian forest buffers on Federal lands by January 1, 2010 (USFS lead);
4. identify additional blockages to anadromous fish on Federal lands by December 31, 1999, and open priority blockages to 50 miles of streams by December 31, 2003 (NOAA lead);
5. identify 4 areas for aquatic reef siting at near shore areas adjacent to Federal facilities, in accordance with the Chesapeake Bay Program's Framework for Habitat Restoration and the Aquatic Reef Habitat Plan, by December 31, 1999 (NOAA lead);
6. target priority areas for terrestrial and aquatic invasive species control on Federal facilities by January 1, 2000 and implement controls on priority sites (USFWS lead);
7. expand conservation landscaping on Federal facilities, in keeping with the Presidential directive on beneficial landscaping, by: a) completing a Conservation Landscaping and BayScapes Guide for Federal Land Managers by January 1, 2000; and b) integrating conservation landscaping into Federal agency specifications and design criteria by July 31, 2001 (USFWS lead);
8. develop model lease provisions by September 30, 1999 for facilities, outleases, rights-of-way, and other Federal actions to provide a means for Chesapeake Bay stewardship goals to be considered in the issuance of leases by or to Federal agencies within the watershed (GSA lead); and
9. work with state conservation agencies to determine the effects of nutria on tidal wetland loss and to evaluate methods of controlling this exotic species (USGS lead).

LEADERS IN NUTRIENT AND TOXICS PREVENTION AND REDUCTION ON FEDERAL LANDS AND FACILITIES

working to meet and maintain the nutrient and toxics prevention and reduction goals of the Chesapeake Bay Program, with an emphasis on non-point source controls, and extending our efforts beyond year 2000. We commit to:

1. provide technical assistance and training for Federal landholders for development of nutrient management plans by December 31, 1999 (NRCS lead), and develop nutrient management plans for Federal lands within the watershed by December 31, 2000, emphasizing agricultural, construction, turf, golf course and recreation, and developed lands;
2. assess the performance of Federal on-site septic systems and adopt management plans for priority improvements by December 31, 2000 (USPS lead);
3. expand our existing Chesapeake Bay Program Federal facility site assessment protocol beyond nutrients to include toxics reduction and habitat restoration opportunities, and continue to complete at least five such assessments annually within the Bay watershed (NRCS lead);
4. ensure, by December 31, 2000, that personnel are trained to strengthen and implement comprehensive Integrated Pest Management (IPM) on 75% of all Federally-owned lands in the watershed, and establish a peer review panel to evaluate at least five Federal IPM plans annually (USDA lead);
5. implement pollution prevention and related technologies to achieve, by January 1, 2000, a 75% voluntary reduction from a 1994 baseline in releases of Chesapeake Bay Toxics of Concern and chemicals required for reporting under section 313(c) of the Emergency Planning and Community Right-to-Know Act for Federal facilities in the Chesapeake Bay basin (EPA lead);
6. establish, by January 1, 2000, participation of 30 Federal facilities as mentors in the Chesapeake Bay Program's Businesses for the Bay to implement pollution prevention initiatives (DoD lead); and
7. compile and provide information on the reported occurrence of toxics in wildlife in the Bay ecosystem by January 1, 2003 (USGS lead).

GUARDIANS OF HUMAN HEALTH

focusing renewed efforts on the protection of human health through actions we take to control the effects of harmful pollutants in the Bay watershed. We commit to:

1. coordinate Federal funding and response systems in support of state and local efforts in the Chesapeake Bay watershed for major events, including Pfiesteria-type outbreaks and other harmful algal blooms (NOAA lead);
2. support and target research and monitoring efforts on the relation of harmful microorganisms such as Pfiesteria to aquatic resources and human health (NOAA lead) and the effects of other physical and biological stressors on fin fish and shellfish (USGS lead);

3. provide preliminary identification of nitrate levels over the maximum drinking water contaminant level in shallow aquifers throughout the watershed by January 1, 2001 (USGS lead);
4. identify closed shellfish beds adjacent to Federal lands in the Chesapeake Bay watershed by December 31, 1998 and participate in re-opening priority areas by January 1, 2005 (NOAA lead);
5. locate releases of toxics from Federal facilities in the Chesapeake Bay watershed, with priority on drainage areas where fish consumption advisories exist, and work cooperatively to address these releases by December 31, 2000 (EPA lead); and
6. work with local governments to address pollution from storm drain outfalls on Federal lands that pose a human health risk through exposure by inhalation, ingestion, or body contact such as swimming (EPA lead).

PROVIDERS OF RESEARCH, ASSESSMENT, AND NEW TECHNOLOGIES

assuring "state-of-the-art" technical support for Chesapeake Bay Program partners, ranking research needs, and identifying requirements to develop new technologies. We commit to:

1. sign Memoranda of Agreements to make Chesapeake Bay-related data and information Internet accessible by all Bay Program partners through the Chesapeake Information Management System by July 1, 1999 (EPA lead);
2. complete, by March 1, 1999, a Bay watershed-wide assessment of potential levels of nutrient loadings (USDA lead) and water quality parameters (USGS lead) that support the identification of Nutrient Areas of Concern and serve as a basis for strengthening the ability of local and state jurisdictions to achieve their tributary basins' nutrient reduction goals;
3. complete an inventory, by January 1, 2000, of current science-based technology available for implementation to achieve the agricultural component of Bay nutrient reduction goals (USDA lead), and identify the sources that restrict the production of submerged aquatic vegetation and associated habitat in the middle and upper Bay and tidal tributaries (USGS lead);
4. define and assess, by January 1, 2003, the contribution and implications of nitrogen compound emissions (e.g., ammonia) from agricultural activities; and develop models that characterize the transport of emissions and deposition of these compounds (NOAA lead);
5. provide an assessment, by July 1, 2000, of the amount of nutrients and associated lag times in ground water, and of implications for adjustments to tributary strategies' nutrient reduction goals, and identify follow-up research needs to further address management needs by January 1, 2002 (USGS lead);
6. develop an index of river flow, by January 1, 2001, and other tools to document the long-term changes in water quality, living resources, and sea-level rise (USGS lead);
7. develop an index that demonstrates the changes in climate affecting the Chesapeake Bay ecosystem, as needed to refine restoration strategies by January 1, 2003 (NOAA lead);
8. conduct research and provide information needed to identify species and habitats on Federal lands in need of special management efforts to maintain biodiversity and the integrity of the Chesapeake ecosystem by January 1, 2003 (USGS lead); and
9. complete an analysis of forest distribution and condition in the Chesapeake Bay watershed and host a regional conference to discuss issues related to fragmentation of forest landscape by January 1, 2000 (USFS lead).

SUPPORTERS OF SMART GROWTH

identifying and implementing new mechanisms to avoid development patterns that increase pollution problems, to encourage redevelopment of urban areas, and to raise the quality of life. We commit to:

1. evaluate and implement alternative work practices and other policies of Federal agencies in the watershed to reduce vehicle miles traveled (EPA lead);
2. promote funding for research into the effects of road and highway construction on growth and development within the Chesapeake Bay watershed, and on increasing storm water flow and inputs of nutrients and toxics to the Bay and its tributaries, including air pollution and land use changes (FHWA lead);
3. give preference to re-use and recycling of Federal brownfield sites, and discourage development in greenfield sites (EPA lead);
4. fully cooperate with local governments, states, and other Federal agencies in carrying out voluntary and mandatory actions to comply with the management of storm water (EPA lead);
5. encourage construction design that: a) minimizes natural area loss on new and rehabilitated Federal facilities; b) adopts low impact development and best management technologies for storm water, sediment and erosion control, and reduces impervious surfaces; c) utilizes energy efficient technologies; and d) considers the Conservation Landscaping and BayScapes Guide for Federal Land Managers (GSA lead);
6. develop, by January 1, 2000, a protocol by which Federal facilities proposed for relocation or major expansion within the Chesapeake Bay watershed will assess the direct and secondary ecological, economic, and community effects (DoD lead);
7. increase public access to the Chesapeake Bay, with at least 200 additional miles of Federally-owned shoreline and tidal waters opened or enhanced for public access by January 1, 2005, and participate in the development of water trails to improve access and appreciation of the Bay and its resources (NPS lead); and
8. establish annual meetings, beginning in 1999, with the Office of Management and Budget to assess regional impacts associated with major Federally-funded actions in the Chesapeake Bay watershed (EPA lead).

Finally, we agree to supplement our biennial reporting on the *1994 Agreement of Federal Agencies on Ecosystem Management in the Chesapeake Bay* with progress in the implementation of this new unified plan, beginning April 1, 1999 (EPA lead).

FOR THE ENVIRONMENTAL PROTECTION AGENCY

Carol M. Browner, *Administrator*

Jonathan C. Fox, *Assistant Administrator for Water*

W. Michael McCabe, *Regional Administrator, Region III*

William Matuszeski, *Director, Chesapeake Bay Program Office*

FOR THE DEPARTMENT OF THE INTERIOR

Bruce Babbitt, *Secretary*

Donald J. Barry, *Assistant Secretary for Fish & Wildlife & Parks*

Patricia J. Beneke, *Assistant Secretary for Water & Science*

FOR THE FISH AND WILDLIFE SERVICE

Jamie Rappaport Clark, *Director*

FOR THE U.S. GEOLOGICAL SURVEY

Thomas J. Casadevall, *Acting Director*

FOR THE NATIONAL PARK SERVICE

for Robert G. Stanton, *Director*

FOR THE DEPARTMENT OF DEFENSE

Sherri W. Goodman, *Deputy Under Secretary of Defense for Environmental Security*

FOR THE DEPARTMENT OF THE NAVY

Robert B. Pirie, Jr., *Assistant Secretary for Installations and Environment*

FOR THE DEPARTMENT OF THE ARMY

Joseph W. Westphal, *Assistant Secretary for Civil Works*

Mahlon Apgar IV, *Assistant Secretary for Installations, Logistics and Environment*

FOR THE DEPARTMENT OF THE AIR FORCE

Ruby B. DeMesme, *Assistant Secretary for Manpower, Reserve Affairs, Installations, and Environment*

FOR THE DEFENSE LOGISTICS AGENCY

Lt. Gen. Henry T. Glisson, *Director*

FOR THE DEPARTMENT OF TRANSPORTATION

Rodney E. Slater, *Secretary*

FOR THE U.S. COAST GUARD

Admiral James M. Loy, *Commandant*

FOR THE NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION

D. James Baker, *Administrator*

FOR THE DEPARTMENT OF AGRICULTURE

James R. Lyons, *Under Secretary for Natural Resources & Environment*

FOR THE FARM SERVICE AGENCY

Keith C. Kelly, *Administrator*

FOR THE U.S. FOREST SERVICE

Michael P. Dombeck, *Chief*

FOR THE NATURAL RESOURCES CONSERVATION SERVICE

Pearlie S. Reed, *Chief*

FOR THE GENERAL SERVICES ADMINISTRATION

David J. Barram, *Administrator*

FOR THE NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

Daniel S. Goldin, *Administrator*

FOR THE U.S. POSTAL SERVICE

William J. Henderson, *Postmaster General and Chief Executive Officer*

FOR THE NATIONAL CAPITAL PLANNING COMMISSION

Harvey B. Gantt, *Chairman*

FOR THE SMITHSONIAN INSTITUTION

I. Michael Heyman, *The Secretary*

OBSERVERS:

U.S. Senator Paul S. Sarbanes

Congresswoman Eleanor Holmes Norton

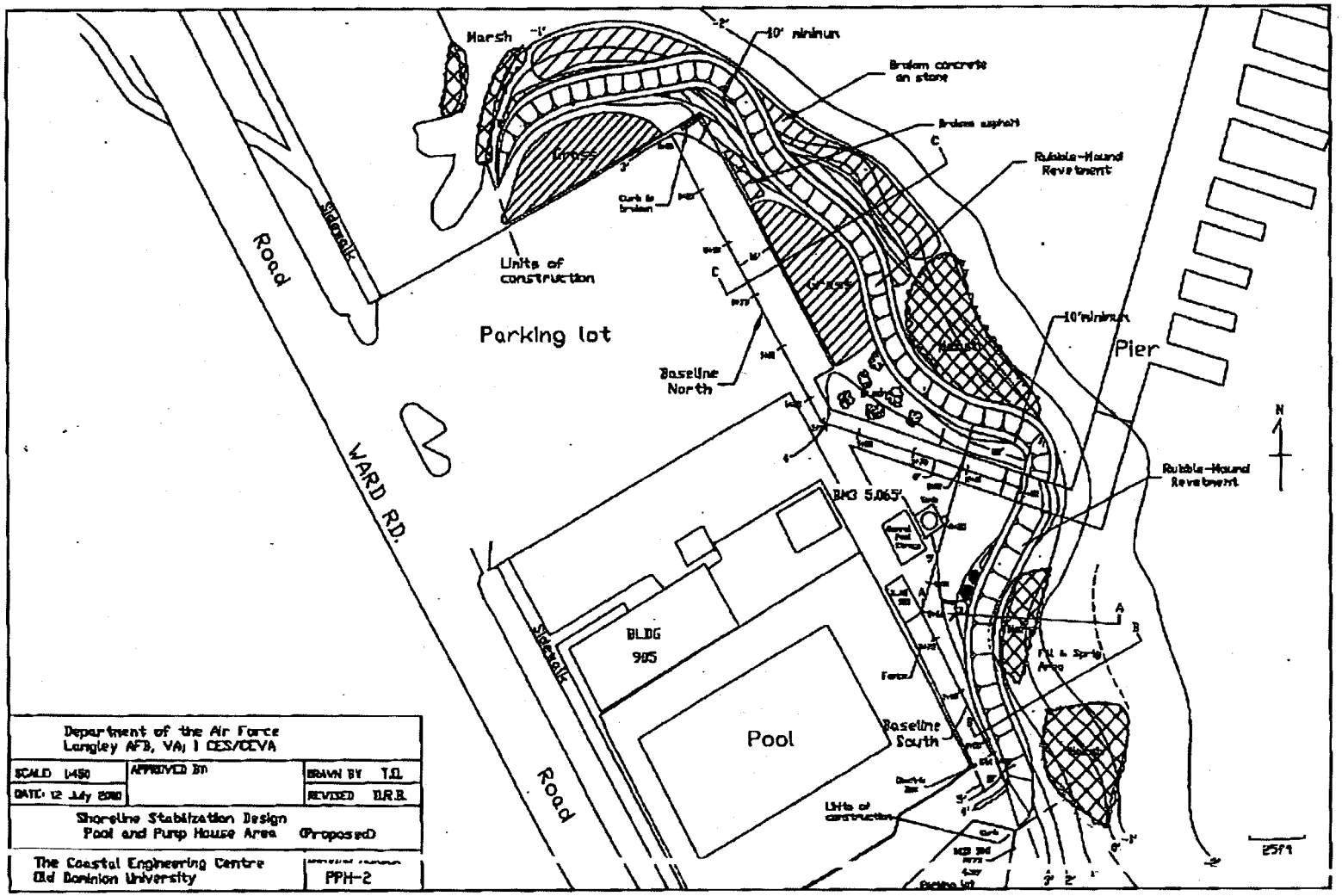
For the State of Maryland

For the District of Columbia

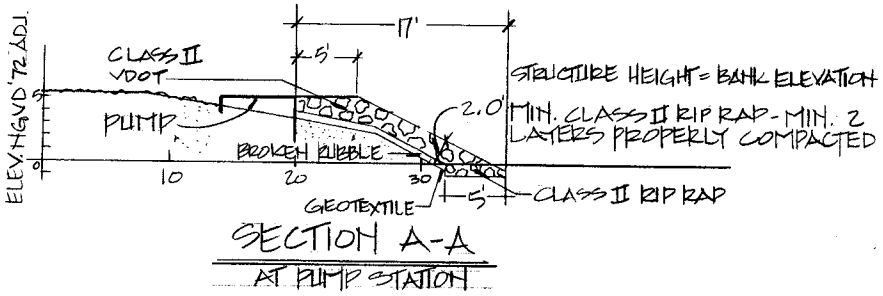
For the Chesapeake Bay Commission

Appendix D

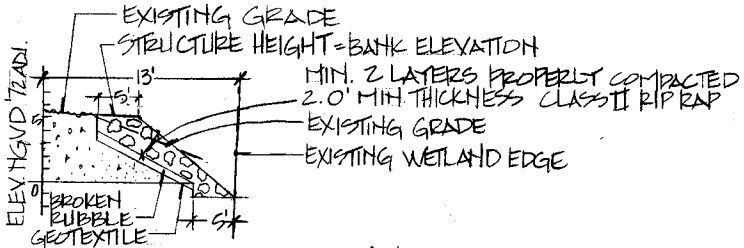
Permits and Drawings



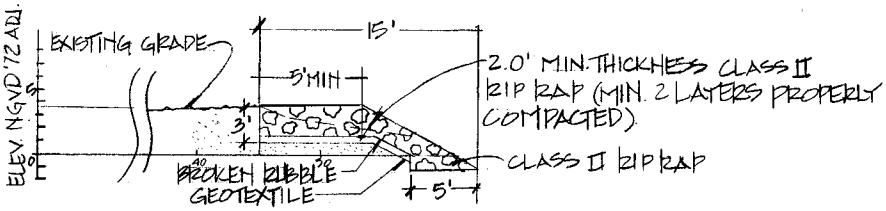
Design Drawing of Proposed Shoreline Stabilization Activities at the LTA Pool and Sewage Pump Station



SECTION A-A
AT PUMP STATION



SECTION B-B
SOUTHEAST OF PUMP



SECTION C-C
NORTHWEST OF PUMP

Design Detail for Proposed Construction to Stabilize the Shoreline Near the LTA Pool and Sewage Pump Station Area

U.S. Army Corps of Engineers
Norfolk District, Western Virginia Regulatory Section
803 Front Street
Norfolk, Virginia 23510-1096

September 28, 2000

00-V1582

Project Number:

Waterway: NW Branch Back River

1. Participant:
Langley AFB, 1 SPTG/CC
Colonel Daniel K Koslov
45 Nealy Avenue
Langley AFB, VA 23665 2107

2. Authorized Agent:
Langley AFB, 1 CES/CEVA
Ms. Patsy Kerr & Mr. Thomas A Wittkamp
37 Sweeney Blvd
Langley AFB VA 23665 2107

3. Address of Job Site:
Langley AFB at sewage pump station and LTA pool, Ward Road.

4. Project Description:
Rework and regrade 500-600 feet of riprap to protect sewage pump station and LTA pool facilities. About 250 square feet of saltgrass will be filled to protect pump structure. Asphalt in existing raprap to be removed. Over 250 square feet of area will be sprigged with saltgrass.

5. Findings

This is regarding your request to perform work in the waters of the United States, as described above. This activity has been reviewed and found to satisfy the criteria contained in the Corps Nationwide Permits (13 and 18), attached. (The Corps Nationwide Permits were published in the Federal Register (61 FR 65874) on December 13, 1996 and the regulations governing their use can be found in 33 CFR 330 published in Volume 56, Number 226 of the Federal Register dated November 22, 1991.) The permitee understands and agrees that, if future operations by the United States require the removal, relocation, or other alteration, of the structure or work herein authorized, or if, in the opinion of the Secretary of the Army or his authorized representative, said structure or work shall cause unreasonable obstruction to the free navigation of the navigable waters, the permittee will be required, upon due notice from the Corps of Engineers, to remove, relocate, or alter the structural work or obstructions caused thereby, without expense to the United States. No claim shall be made against the United States on account of any such removal or alteration.

Provided the conditions are met, an individual Department of the Army Permit will not be required. In addition, the Virginia Department of Environmental Quality has waived 401 certification for Nationwide Permit Numbers 13 and 18. However, a permit may be required from the Virginia Marine Resources Commission and/or your local wetlands board, and this verification is not valid until you obtain their approval, if necessary. You may contact the Virginia Marine Resources Commission at (757) 247-2200 for further information concerning their permit requirements.

This verification is valid for two years from the date of this letter, unless the Norfolk District Engineer uses discretionary authority to modify, suspend or revoke this verification. The Chief of Engineers will periodically review the nationwide permits and their conditions and will decide to either modify, reissue or revoke the permits. The existing nationwides are scheduled to expire on February 11, 2002. If the nationwide permit(s) verified in this letter are reissued without modification or if your activity complies with any subsequent nationwide permit, the expiration date of this verification will not change. However, if the nationwide permit(s) verified in the letter are modified or revoked so that the activity listed above would no longer be authorized and you have commenced or are under contract to commence the work, you will have twelve months from the date of that permit change to complete the activity. Activities completed under the authorization of a nationwide permit which was in effect at the time the activity was completed continue to be authorized by that nationwide permit.

It is your responsibility to remain informed of changes to the nationwide permits. We will issue a special public notice announcing any changes to the nationwide permits when they occur.

Enclosed is a "compliance certification" form, which must be signed and returned within 30 days of completion of the project, including any required mitigation (see nationwide permit condition number 14). Your signature on this form certifies that you have completed the work in accordance with the nationwide permit terms and conditions.

6. Corps Contact: John Evans at (757) 441-7794.

John Evans

J. Robert Hume, III
for Chief, Western Va Regulatory Section

NAO FL 13 REVISED DEC 90

Nationwide Permit (18) Minor Discharges

Minor discharges of dredged or fill material into all waters of the United States provided that the activity meets all of the following criteria:

a. The quantity of discharged material and the volume of excavated area does not exceed 25 cubic yards below the plane of the ordinary high water mark or the high tide line;

b. The discharge, including any excavated area, will not cause the loss of more than 1/10 acre of a special aquatic site, including wetlands. For the purposes of this nationwide permit, the acreage limitation includes the filled area plus special aquatic sites that are adversely affected by flooding and special aquatic sites that are drained so that they would no longer be a water of the United States as a result of the project;

c. If the discharge, including any excavated area, exceeds 10 cubic yards below the plane of the ordinary high water mark or the high tide line or if the discharge is in a special aquatic site, including wetlands, the permittee notifies the District Engineer in accordance with the "Notification" general condition. For discharges in special aquatic sites, including wetlands, the notification must also include a delineation of affected special aquatic sites, including wetlands. (Also see 33 CFR 330.1(e)); and

d. The discharge, including all attendant features, both temporary and permanent, is part of a single and complete project and is not placed for the purpose of stream diversion.

e. This NWP can not be used in conjunction with NWP 26 for any single and complete project. (Sections 10 and 404)

GENERAL CONDITIONS:

The following general conditions must be followed in order for any authorization by a NWP to be valid:

1. Navigation. No activity may cause more than a minimal adverse effect on navigation.
2. Proper Maintenance. Any structure or fill authorized shall be properly maintained, including maintenance to ensure public safety.
3. Soil Erosion and Sediment Controls. Appropriate soil erosion and sediment controls must be used and maintained in effective operating condition during construction, and all exposed soil and other fills, as well as any work below the ordinary high water mark or high tide line, must be permanently stabilized at the earliest practicable date.
4. Aquatic Life Movements. No activity may substantially disrupt the movement of those species of aquatic life indigenous to the waterbody, including those species which normally migrate through the area, unless the activity's primary purpose is to impound water. Culverts placed in streams must be installed to maintain low flow conditions.
5. Equipment. Heavy equipment working in wetlands must be placed on mats, or other measures must be taken to minimize soil disturbance.
6. Regional and Case-By-Case Conditions. The activity must comply with any regional conditions which may have been added by the division engineer (see 33 CFR 330.4(e)) and with any case specific conditions added by the Corps or by the State or tribe in its Section 401 water quality certification and Coastal Zone Management Act consistency determination.
7. Wild and Scenic Rivers. No activity may occur in a component of the National Wild and Scenic River System; or in a river officially designated by Congress as a "study river" for possible inclusion in the system, while the river is in an official study status; unless the appropriate Federal agency, with direct management responsibility for such river, has determined in writing that the proposed activity will not adversely affect the Wild and Scenic River designation, or study status. Information on Wild and Scenic Rivers may be obtained from the appropriate Federal land management agency in the area (e.g., National Park Service, U.S. Forest Service, Bureau of Land Management, U.S. Fish and Wildlife Service).
8. Tribal Rights. No activity or its operation may impair reserved tribal rights, including, but not limited to, reserved water rights and treaty fishing and hunting rights.
9. Water Quality. (a) In certain States and tribal lands an individual 401 water quality certification must be obtained or waived (See 33 CFR 330.4(c)).
   (b) For NWPs 12, 14, 17, 18, 32, 39, 40, 42, 43, and 44, where the State or tribal 401 certification (either generically or individually) does not require or approve a water quality management plan, the permittee must include design criteria and techniques that will ensure that the authorized work does not result in more than minimal degradation of water quality. An important component of a water quality management plan includes stormwater management that minimizes degradation of the downstream aquatic system, including water quality. Refer to General Condition 21 for stormwater management requirements. Another important component of a water quality management plan is the establishment and maintenance of vegetated buffers next to open waters, including streams. Refer to General Condition 19 for vegetated buffer requirements for the NWPs.
10. Coastal Zone Management. In certain states, an individual state coastal zone management consistency concurrence must be obtained or waived (see Section 330.4(d)).
11. Endangered Species. (a) No activity is authorized under any NWP which is likely to jeopardize the continued existence of a threatened or endangered species or a species proposed for such designation, as identified under the Federal Endangered Species Act, or which will destroy or adversely modify the critical habitat of such species. Non-federal permittees shall notify the District Engineer if any listed species or designated critical habitat might be affected or is in the vicinity of the project, or is located in the designated critical habitat and shall not begin work on the activity until notified by the District Engineer that the requirements of the Endangered Species Act have been satisfied and that the activity is authorized. For activities that may affect Federally-listed endangered or threatened species or designated critical habitat, the notification must include the name(s) of the endangered or threatened species that may be affected by the proposed work or that utilize the designated critical habitat that may be affected by the proposed work. As a result of formal or informal consultation with the FWS or NMFS, the District Engineer may add species-specific regional endangered species conditions to the NWPs.
    (b) Authorization of an activity by a nationwide permit does not authorize the "take" of a threatened or endangered species as defined under the Federal Endangered Species Act. In the absence of separate authorization (e.g., an ESA Section 10 Permit, a Biological Opinion with "incidental take" provisions, etc.) from the U.S. Fish and Wildlife Service or the National Marine Fisheries Service, both lethal and non-lethal "takes" of protected species are in violation of the Endangered Species Act. Information on the location of threatened and endangered species and their critical habitat can be obtained directly from the offices of the U.S. Fish and Wildlife Service and National Marine Fisheries Service or their world wide web pages at http://www.fws.gov/r9endspp/endspp.html and http://www.nfms.gov/prot_res/esahome.html, respectively.
12. Historic Properties. No activity which may affect historic properties listed, or eligible for listing, in the National Register of Historic Places is authorized, until the DE has complied with the provisions of 33 CFR Part 325, Appendix C. The prospective permittee must notify the District Engineer if the authorized activity may affect any historic properties listed, determined to be eligible, or which the prospective permittee has reason to believe may be eligible for listing on the National Register of Historic Places, and shall not begin the activity until notified by the District Engineer that the requirements of the National Historic Preservation Act have been satisfied and that the activity is authorized. Information on the location and existence of historic resources can be obtained from the State Historic Preservation Office and the National Register of Historic Places (see 33 CFR 330.4(g)). For activities that may affect historic properties listed in, or eligible for listing in, the National Register of Historic Places, the notification must state which historic property may be affected by the proposed work or include a vicinity map indicating the location of the historic property.
13. Notification.
    (a) Timing: Where required by the terms of the NWP, the prospective permittee must notify the District Engineer with a preconstruction notification (PCN) as early as possible. The District Engineer must determine if the PCN is complete within 30 days of the date of receipt and can request the additional information necessary to make the PCN complete only once. However, if the prospective permittee does not provide all of the requested information, then the District Engineer will notify the prospective permittee that the PCN is still incomplete and the PCN review process will not commence until all of the requested information has been received by the District Engineer. The prospective permittee shall not begin the activity:

(1) Until notified in writing by the District Engineer that the activity may proceed under the NWP with any special conditions imposed by the District or Division Engineer; or
(2) If notified in writing by the District or Division Engineer that an individual permit is required; or
(3) Unless 45 days have passed from the District Engineer's receipt of the complete notification and the prospective permittee has not received written notice from the District or Division Engineer. Subsequently, the permittee's right to proceed under the NWP may be modified, suspended, or revoked only in accordance with the procedure set forth in 33 CFR 330.5(d)(2).

(b) Contents of Notification: The notification must be in writing and include the following information:
(1) Name, address, and telephone numbers of the prospective permittee;
(2) Location of the proposed project;
(3) Brief description of the proposed project; the project's purpose; direct and indirect adverse environmental effects the project would cause; any other NWP(s), regional general permit(s), or individual permit(s) used or intended to be used to authorize any part of the proposed project or any related activity; and
(4) For NWPs 7, 12, 14, 18, 21, 34, 38, 39, 40, 41, 42, and 43, the PCN must also include a delineation of affected special aquatic sites, including wetlands, vegetated shallows (e.g., submerged aquatic vegetation, seagrass beds), and riffle and pool complexes (see paragraph 13(f));
(5) For NWP 7, Outfall Structures and Maintenance, the PCN must include information regarding the original design capacities and configurations of those areas of the facility where maintenance dredging or excavation is proposed.
(6) For NWP 14, Linear Transportation Crossings, the PCN must include a compensatory mitigation proposal to offset permanent losses of waters of the United States and a statement describing how temporary losses of waters of the United States will be minimized to the maximum extent practicable.
(7) For NWP 21, Surface Coal Mining Activities, the PCN must include an Office of Surface Mining (OSM) or state-approved mitigation plan.
(8) For NWP 27, Stream and Wetland Restoration, the PCN must include documentation of the prior condition of the site that will be reverted by the permittee.
(9) For NWP 29, Single-Family Housing, the PCN must also include:
(i)Any past use of this NWP by the individual permittee and/or the permittee's spouse;
(ii)A statement that the single-family housing activity is for a personal residence of the permittee;
(iii)A description of the entire parcel, including its size, and a delineation of wetlands. For the purpose of this NWP, parcels of land measuring ¼ acre or less will not require a formal on-site delineation. However, the applicant shall provide an indication of where the wetlands are and the amount of wetlands that exists on the property. For parcels greater than ¼ acre in size, a formal wetland delineation must be prepared in accordance with the current method required by the Corps. (See paragraph 13(f));
(iv)A written description of all land (including, if available, legal descriptions) owned by the prospective permittee and/or the prospective permittee's spouse, within a one mile radius of the parcel, in any form of ownership (including any land owned as a partner, corporation, joint tenant, co-tenant, or as a tenant-by-the-entirety) and any land on which a purchase and sale agreement or other contract for sale or purchase has been executed;
(10) For NWP 31, Maintenance of Existing Flood Control Projects, the prospective permittee must either notify the District Engineer with a PCN prior to each maintenance activity or submit a five year (or less) maintenance plan. In addition, the PCN must include all of the following:
(i) Sufficient baseline information so as to identify the approved channel depths and configurations and existing facilities. Minor deviations are authorized, provided the approved flood control protection or drainage is not increased;
(ii) A delineation of any affected special aquatic sites, including wetlands; and,
(iii) Location of the dredged material disposal site.
(11) For NWP 33, Temporary Construction, Access, and Dewatering, the PCN must also include a restoration plan of reasonable measures to avoid and minimize adverse effects to aquatic resources.
(12) For NWPs 39, 43, and 44, the PCN must also include a written statement to the District Engineer explaining how avoidance and minimization of losses of waters of the United States were achieved on the project site.
(13) For NWP 39, Residential, Commercial, and Institutional Developments, and NWP 42, Recreational Facilities, the PCN must include a compensatory mitigation proposal that offsets unavoidable losses of waters of the United States or justification explaining why compensatory mitigation should not be required.
(14) For NWP 40, Agricultural Activities, the PCN must include a compensatory mitigation proposal to offset losses of waters of the United States.
(15) For NWP 43, Stormwater Management Facilities, the PCN must include, for the construction of new stormwater management facilities, a maintenance plan (in accordance with State and local requirements, if applicable) and a compensatory mitigation proposal to offset losses of waters of the United States.
(16) For NWP 44, Mining Activities, the PCN must include a description of all waters of the United States adversely affected by the project, a description of measures taken to minimize adverse effects to waters of the United States, a description of measures taken to comply with the criteria of the NWP, and a reclamation plan (for aggregate mining activities in isolated waters and non-tidal wetlands adjacent to headwaters and any hard rock/mineral mining activities).
(17) For activities that may adversely affect Federally-listed endangered or threatened species, the PCN must include the name(s) of those endangered or threatened species that may be affected by the proposed work or utilize the designated critical habitat that may be affected by the proposed work.
(18) For activities that may affect historic properties listed in, or eligible for listing in, the National Register of Historic Places, the PCN must state which historic property may be affected by the proposed work or include a vicinity map indicating the location of the historic property.
(19) For NWPs 12, 14, 29, 39, 40, 42, 43, and 44, where the proposed work involves discharges of dredged or fill material into waters of the United States resulting in permanent, above-grade fills within 100-year floodplains (as identified on FEMA's Flood Insurance Rate Maps or FEMA-approved local floodplain maps), the notification must include documentation demonstrating that the proposed work complies with the appropriate FEMA or FEMA-approved local floodplain construction requirements.

(c) Form of Notification: The standard individual permit application form (Form ENG 4345) may be used as the notification but must clearly indicate that it is a PCN and must include all of the information required in (b) (1)-(19) of General Condition 13. A letter containing the requisite information may also be used.

(d) District Engineer's Decision: In reviewing the PCN for the proposed activity, the District Engineer will determine whether the activity authorized by the NWP will result in more than minimal individual or cumulative adverse environmental effects or may be contrary to the public interest. The prospective permittee may, optionally, submit a proposed mitigation plan with the PCN to expedite the process and the District Engineer will consider any proposed compensatory mitigation the applicant has included in the proposal in determining whether the net adverse environmental effects to the aquatic environment of the proposed work are minimal. If the District Engineer determines that the activity complies with the terms and conditions of the NWP and that the adverse effects on the aquatic environment are minimal, the District Engineer will notify the permittee and include any conditions the District Engineer deems necessary.
Any compensatory mitigation proposal must be approved by the District Engineer prior to commencing work. If the prospective permittee is required to submit a compensatory mitigation proposal with the PCN, the proposal may be either conceptual or detailed. If the prospective permittee elects to submit a compensatory mitigation plan with the PCN, the District Engineer will expeditiously review the proposed compensatory mitigation plan. The District Engineer must review the plan within 45 days of receiving a complete PCN and determine whether the conceptual or specific proposed mitigation would ensure no more than minimal adverse effects on the aquatic environment. If the net adverse effects of the project on the aquatic environment (after consideration of the compensatory mitigation proposal) are determined by the District Engineer to be minimal, the District Engineer will provide a timely written response to the applicant stating that the project can proceed under the terms and conditions of the nationwide permit.

If the District Engineer determines that the adverse effects of the proposed work are more than minimal, then he will notify the applicant either: (1) that the project does not qualify for authorization under the NWP and instruct the applicant on the procedures to seek authorization under an individual permit; (2) that the project is authorized under the NWP subject to the applicant's submission of a mitigation proposal that would reduce the adverse effects on the aquatic environment to the minimal level; or (3) that the project is authorized under the NWP with specific modifications or conditions. Where the District Engineer determines that mitigation is required in order to ensure no more than minimal adverse effects on the aquatic environment, the activity will be authorized within the 45-day PCN period, including the necessary conceptual or specific mitigation or a requirement that the applicant submit a mitigation proposal that would reduce the adverse effects on the aquatic environment to the minimal level. When conceptual mitigation is included, or a mitigation plan is required under item (2) above, no work in waters of the United States will occur until the District Engineer has approved a specific mitigation plan.

(e) Agency Coordination: The District Engineer will consider any comments from Federal and State agencies concerning the proposed activity's compliance with the terms and conditions of the NWPs and the need for mitigation to reduce the project's adverse effects on the aquatic environment to a minimal level.

For activities requiring notification to the District Engineer that result in the loss of greater than ½ acre of waters of the United States, the District Engineer will, upon receipt of a notification, provide immediately (e.g., via facsimile transmission, overnight mail, or other expeditious manner), a copy to the appropriate offices of the Fish and Wildlife Service, State natural resource or water quality agency, EPA, State Historic Preservation Officer (SHPO), and, if appropriate, the National Marine Fisheries Service. With the exception of NWP 37, these agencies will then have 10 calendar days from the date the material is transmitted to telephone or fax the District Engineer notice that they intend to provide substantive, site-specific comments. If so contacted by an agency, the District Engineer will wait an additional 15 calendar days before making a decision on the notification. The District Engineer will fully consider agency comments received within the specified time frame, but will provide no response to the resource agency, except as provided below. The District Engineer will indicate in the administrative record associated with each notification that the resource agencies' concerns were considered. As required by Section 305(b)(4)(B) of the Magnuson-Stevens Fishery Conservation and Management Act, the District Engineer will provide a response to National Marine Fisheries Service within 30 days of receipt of any Essential Fish Habitat conservation recommendations. Applicants are encouraged to provide the Corps multiple copies of notifications to expedite agency notification.

(f) Wetlands Delineations: Wetland delineations must be prepared in accordance with the current method required by the Corps. For NWP 29 see paragraph (b)(9)(iii) for parcels less than ¼ acre in size. The permittee may ask the Corps to delineate the special aquatic site. There may be some delay if the Corps does the delineation. Furthermore, the 45-day period will not start until the wetland delineation has been completed and submitted to the Corps, where appropriate.

14. Compliance Certification. Every permittee who has received a Nationwide permit verification from the Corps will submit a signed certification regarding the completed work and any required mitigation. The certification will be forwarded by the Corps with the authorization letter. The certification will include: a.) A statement that the authorized work was done in accordance with the Corps authorization, including any general or specific conditions; b.) A statement that any required mitigation was completed in accordance with the permit conditions; and c.) The signature of the permittee certifying the completion of the work and mitigation.

15. Use of Multiple Nationwide Permits. The use of more than one NWP for a single and complete project is prohibited, except when the acreage loss of waters of the United States authorized by the NWPs does not exceed the acreage limit of the NWP with the highest specified acreage limit. For example, if a road crossing over tidal waters is constructed under NWP 14, with associated bank stabilization authorized by NWP 13, the maximum acreage loss of waters of the United States for the total project cannot exceed 1/3 acre.

16. Water Supply Intakes. No activity, including structures and work in navigable waters of the United States or discharges of dredged or fill material, may occur in the proximity of a public water supply intake except where the activity is for repair of the public water supply intake structures or adjacent bank stabilization.

17. Shellfish Beds. No activity, including structures and work in navigable waters of the United States or discharges of dredged or fill material, may occur in areas of concentrated shellfish populations, unless the activity is directly related to a shellfish harvesting activity authorized by NWP 4.

18. Suitable Material. No activity, including structures and work in navigable waters of the United States or discharges of dredged or fill material, may consist of unsuitable material (e.g., trash, debris, car bodies, asphalt, etc.) and material used for construction or discharged must be free from toxic pollutants in toxic amounts (see Section 307 of the Clean Water Act).

19. Mitigation. The project must be designed and constructed to avoid and minimize adverse effects to waters of the United States to the maximum extent practicable at the project site (i.e., on site). Mitigation will be required when necessary to ensure that the adverse effects to the aquatic environment are minimal. The District Engineer will consider the factors discussed below when determining the acceptability of appropriate and practicable mitigation necessary to offset adverse effects on the aquatic environment that are more than minimal.

(a) Compensatory mitigation at a minimum 1:1 ratio will be required for all wetland impacts requiring a PCN. Consistent with National policy, the District Engineer will establish a preference for restoration of wetlands to meet the minimum compensatory mitigation ratio, with preservation used only in exceptional circumstances.

(b) To be practicable, the mitigation must be available and capable of being done considering costs, existing technology, and logistics in light of the overall project purposes. Examples of mitigation that may be appropriate and practicable include, but are not limited to: reducing the size of the project; establishing and maintaining wetland or upland vegetated buffers to protect open waters such as streams; and replacing losses of aquatic resource functions and values by creating, restoring, enhancing, or preserving similar functions and values, preferably in the same watershed.

(c) The District Engineer will require restoration, creation, enhancement, or preservation of other aquatic resources in order to offset the authorized impacts to the extent necessary to ensure that the adverse effects on the aquatic environment are minimal. An important element of any compensatory mitigation plan for projects in or near streams or other open waters is the establishment and maintenance, to the maximum extent practicable, of vegetated buffers next to open waters on the project site. The vegetated buffer should consist of native species. The District Engineer will determine the appropriate width of the vegetated buffer and in which cases it will be required. Normally, the vegetated buffer will be 25 to 50 feet wide on each side of the stream, but the District Engineer may require wider vegetated buffers to address documented water quality concerns. If there are open waters on the project site and the District Engineer requires compensatory mitigation for wetland impacts to ensure that the net adverse effects on the aquatic environment are minimal, any vegetated buffer will comprise no more than 1/3 of the remaining compensatory mitigation acreage after the permanently filled wetlands have been replaced on a one-to-one acreage basis. In addition, compensatory mitigation must address adverse effects on wetland functions and values and cannot be used to offset the acreage of wetland losses that would occur in order to meet the acreage limits of some of the NWPs (e.g., for NWP 39, ¼ acre of wetlands cannot be created to change a ½ acre loss of wetlands to a ¼ acre loss; however, ½ acre of created wetlands can be used to reduce the impacts of a 1/3 acre loss of wetlands). If the prospective permittee is required to submit a compensatory mitigation proposal with the PCN, the proposal may be either conceptual or detailed.

(d) To the extent appropriate, permittees should consider mitigation banking and other appropriate forms of compensatory mitigation. If the District Engineer determines that compensatory mitigation is necessary to offset losses of waters of the United States and ensure that the net adverse effects of the authorized work on the aquatic environment are minimal, consolidated mitigation approaches, such as mitigation banks, will be the preferred method of providing compensatory mitigation, unless the District Engineer determines that activity-specific compensatory mitigation is more appropriate, based on which is best for the aquatic environment. These types of mitigation are preferred because they involve larger blocks of protected aquatic environment, are more likely to meet the mitigation goals, and are more easily checked for compliance. If a mitigation bank or other consolidated mitigation approach is not available in the watershed, the District Engineer will consider other appropriate forms of compensatory mitigation to offset the losses of waters of the United States to ensure that the net adverse effects of the authorized work on the aquatic environment are minimal.

20. Spawning Areas. Activities, including structures and work in navigable waters of the United States or discharges of dredged or fill material, in spawning areas during spawning seasons must be

avoided to the maximum extent practicable. Activities that result in the physical destruction (e.g., excavate, fill, or smother downstream by substantial turbidity) of an important spawning area are not authorized.

21. Management of Water Flows. To the maximum extent practicable, the activity must be designed to maintain preconstruction downstream flow conditions (e.g., location, capacity, and flow rates). Furthermore, the activity must not permanently restrict or impede the passage of normal or expected high flows (unless the primary purpose of the fill is to impound waters) and the structure or discharge of dredged or fill material must withstand expected high flows. The activity must, to the maximum extent practicable, provide for retaining excess flows from the site, provide for maintaining surface flow rates from the site similar to preconstruction conditions, and must not increase water flows from the project site, relocate water, or redirect water flow beyond preconstruction conditions. In addition, the activity must, to the maximum extent practicable, reduce adverse effects such as flooding or erosion downstream and upstream of the project site, unless the activity is part of a larger system designed to manage water flows.
22. Adverse Effects From Impoundments. If the activity, including structures and work in navigable waters of the United States or discharge of dredged or fill material, creates an impoundment of water, adverse effects on the aquatic system caused by the accelerated passage of water and/or the restriction of its flow shall be minimized to the maximum extent practicable.
23. Waterfowl Breeding Areas. Activities, including structures and work in navigable waters of the United States or discharges of dredged or fill material, into breeding areas for migratory waterfowl must be avoided to the maximum extent practicable.
24. Removal of Temporary Fills. Any temporary fills must be removed in their entirety and the affected areas returned to their preexisting elevation.
25. Designated Critical Resource Waters. Critical resource waters include, NOAA-designated marine sanctuaries, National Estuarine Research Reserves, National Wild and Scenic Rivers, critical habitat for Federally listed threatened and endangered species, coral reefs, State natural heritage sites, and outstanding national resource waters or other waters officially designated by a State as having particular environmental or ecological significance and identified by the District Engineer after notice and opportunity for public comment. The District Engineer may also designate additional critical resource waters after notice and opportunity for comment.
    (a) Except as noted below, discharges of dredged or fill material into waters of the United States are not authorized by NWPs 7, 12, 14, 16, 17, 21, 29, 31, 35, 39, 40, 42, 43, and 44 for any activity within, or directly affecting, critical resource waters, including wetlands adjacent to such waters. Discharges of dredged or fill materials into waters of the United States may be authorized by the above NWPs in National Wild and Scenic Rivers if the activity complies with General Condition 7. Further, such discharges may be authorized in designated critical habitat for Federally listed threatened or endangered species if the activity complies with General Condition 11 and the U.S. Fish and Wildlife Service or the National Marine Fisheries Service has concurred in a determination of compliance with this condition.
    (b) For NWPs 3, 8, 10, 13, 15, 18, 19, 22, 23, 25, 27, 28, 30, 33, 34, 36, 37, and 38, notification is required in accordance with General Condition 13, for any activity proposed in the designated critical resource waters including wetlands adjacent to those waters. The District Engineer may authorize activities under these NWPs only after he determines that the impacts to the critical resource waters will be no more than minimal.
26. Fills Within 100-Year Floodplains. For purposes of this general condition, 100-year floodplains will be identified through the Federal Emergency Management Agency's (FEMA) Flood Insurance Rate Maps or FEMA-approved local floodplain maps.
    (a) Discharges Below Headwaters. Discharges of dredged or fill material into waters of the United States resulting in permanent, above-grade fills within the 100-year floodplain at or below the point on a stream where the average annual flow is five cubic feet per second (i.e., below headwaters) are not authorized by NWPs 29, 39, 40, 42, 43, and 44. For NWPs 12 and 14, the prospective permittee must notify the District Engineer in accordance with General Condition 13 and the notification must include documentation that any permanent, above-grade fills in waters of the United States within the 100-year floodplain below headwaters comply with FEMA or FEMA-approved local floodplain construction requirements.
    (b) Discharges in Headwaters (i.e., above the point on a stream where the average annual flow is five cubic feet per second).
        (1) Flood Fringe. Discharges of dredged or fill material into waters of the United States resulting in permanent, above-grade fills within the flood fringe of the 100-year floodplain of headwaters are not authorized by NWPs 12, 14, 29, 39, 40, 42, 43, and 44, unless the prospective permittee notifies the District Engineer in accordance with General Condition 13. The notification must include documentation that such discharges comply with FEMA or FEMA-approved local floodplain construction requirements.
        (2) Floodway. Discharges of dredged or fill material into waters of the United States resulting in permanent, above-grade fills within the floodway of the 100-year floodplain of headwaters are not authorized by NWPs 29, 39, 40, 42, 43, and 44. For NWPs 12 and 14, the permittee must notify the District Engineer in accordance with General Condition 13 and the notification must include documentation that any permanent, above grade fills proposed in the floodway comply with FEMA or FEMA-approved local floodplain construction requirements.

Further Information:

1. District engineers have authority to determine if an activity complies with the terms and conditions of an NWP.
2. NWPs do not obviate the need to obtain other Federal, State, or local permits, approvals, or authorizations required by law.
3. NWPs do not grant any property rights or exclusive privileges.
4. NWPs do not authorize any injury to the property or rights of others.
5. NWPs do not authorize interference with any existing or proposed Federal project.

Nationwide Permits (13) Bank Stabilization

Bank stabilization activities necessary for erosion prevention provided the activity meets all of the following criteria:

a. No material is placed in excess of the minimum needed for erosion protection;
b. The bank stabilization activity is less than 500 feet in length;
c. The activity will not exceed an average of one cubic yard per running foot placed along the bank below the plane of the ordinary high water mark or the high tide line;
d. No material is placed in any special aquatic site, including wetlands;
e. No material is of the type or is placed in any location or in any manner so as to impair surface water flow into or out of any wetland area;
f. No material is placed in a manner that will be eroded by normal or expected high flows (properly anchored trees and treetops may be used in low energy areas); and,
g. The activity is part of a single and complete project.

Bank stabilization activities in excess of 500 feet in length or greater than an average of one cubic yard per running foot may be authorized if the permittee notifies the district engineer in accordance with the "Notification" general condition and the district engineer determines the activity complies with the other terms and conditions of the nationwide permit and the adverse environmental impacts are minimal both individually and cumulatively. This NWP may not be used for the channelization of a water of the U.S. (Sections 10 and 404)

GENERAL CONDITIONS:

The following general conditions must be followed in order for any authorization by a NWP to be valid:

1. Navigation. No activity may cause more than a minimal adverse effect on navigation.
2. Proper Maintenance. Any structure or fill authorized shall be properly maintained, including maintenance to ensure public safety.
3. Soil Erosion and Sediment Controls. Appropriate soil erosion and sediment controls must be used and maintained in effective operating condition during construction, and all exposed soil and other fills, as well as any work below the ordinary high water mark or high tide line, must be permanently stabilized at the earliest practicable date.
4. Aquatic Life Movements. No activity may substantially disrupt the movement of those species of aquatic life indigenous to the waterbody, including those species which normally migrate through the area, unless the activity's primary purpose is to impound water. Culverts placed in streams must be installed to maintain low flow conditions.
5. Equipment. Heavy equipment working in wetlands must be placed on mats, or other measures must be taken to minimize soil disturbance.
6. Regional and Case-By-Case Conditions. The activity must comply with any regional conditions which may have been added by the division engineer (see 33 CFR 330.4(e)) and with any case specific conditions added by the Corps or by the State or tribe in its Section 401 water quality certification and Coastal Zone Management Act consistency determination.
7. Wild and Scenic Rivers. No activity may occur in a component of the National Wild and Scenic River System; or in a river officially designated by Congress as a "study river" for possible inclusion in the system, while the river is in an official study status; unless the appropriate Federal agency, with direct management responsibility for such river, has determined in writing that the proposed activity will not adversely affect the Wild and Scenic River designation, or study status. Information on Wild and Scenic Rivers may be obtained from the appropriate Federal land management agency in the area (e.g., National Park Service, U.S. Forest Service, Bureau of Land Management, U.S. Fish and Wildlife Service).
8. Tribal Rights. No activity or its operation may impair reserved tribal rights, including, but not limited to, reserved water rights and treaty fishing and hunting rights.
9. Water Quality. (a) In certain States and tribal lands an individual 401 water quality certification must be obtained or waived (See 33 CFR 330.4(c)).
   (b) For NWPs 12, 14, 17, 18, 32, 39, 40, 42, 43, and 44, where the State or tribal 401 certification (either generically or individually) does not require or approve a water quality management plan, the permittee must include design criteria and techniques that will ensure that the authorized work does not result in more than minimal degradation of water quality. An important component of a water quality management plan includes stormwater management that minimizes degradation of the downstream aquatic system, including water quality. Refer to General Condition 21 for stormwater management requirements. Another important component of a water quality management plan is the establishment and maintenance of vegetated buffers next to open waters, including streams. Refer to General Condition 19 for vegetated buffer requirements for the NWPs.
10. Coastal Zone Management. In certain states, an individual state coastal zone management consistency concurrence must be obtained or waived (see Section 330.4(d)).
11. Endangered Species. (a) No activity is authorized under any NWP which is likely to jeopardize the continued existence of a threatened or endangered species or a species proposed for such designation, as identified under the Federal Endangered Species Act, or which will destroy or adversely modify the critical habitat of such species. Non-federal permittees shall notify the District Engineer if any listed species or designated critical habitat might be affected or is in the vicinity of the project, or is located in the designated critical habitat and shall not begin work on the activity until notified by the District Engineer that the requirements of the Endangered Species Act have been satisfied and that the activity is authorized. For activities that may affect Federally-listed endangered or threatened species or designated critical habitat, the notification must include the name(s) of the endangered or threatened species that may be affected by the proposed work or that utilize the designated critical habitat that may be affected by the proposed work. As a result of formal or informal consultation with the FWS or NMFS, the District Engineer may add species-specific regional endangered species conditions to the NWPs.
    (b) Authorization of an activity by a nationwide permit does not authorize the "take" of a threatened or endangered species as defined under the Federal Endangered Species Act. In the absence of separate authorization (e.g., an ESA Section 10 Permit, a Biological Opinion with "incidental take" provisions, etc.) from the U.S. Fish and Wildlife Service or the National Marine Fisheries Service, both lethal and non-lethal "takes" of protected species are in violation of the Endangered Species Act. Information on the location of threatened and endangered species and their critical habitat can be obtained directly from the offices of the U.S. Fish and Wildlife Service and National Marine Fisheries Service or their world wide web pages at http://www.fws.gov/r9endspp/endspp.html and http://www.nfms.gov/prot_res/esahome.html, respectively.
12. Historic Properties. No activity which may affect historic properties listed, or eligible for listing, in the National Register of Historic Places is authorized, until the DE has complied with the provisions of 33 CFR Part 325, Appendix C. The prospective permittee must notify the District Engineer if the authorized activity may affect any historic properties listed, determined to be eligible, or which the prospective permittee has reason to believe may be eligible for listing on the National Register of Historic Places, and shall not begin the activity until notified by the District Engineer that the requirements of the National Historic Preservation Act have been satisfied and that the activity is authorized. Information on the location and existence of historic resources can be obtained from the State Historic Preservation Office and the National Register of Historic Places (see 33 CFR 330.4(g)). For activities that may affect historic properties listed in, or eligible for listing in, the National Register of Historic Places, the notification must state which historic property may be affected by the proposed work or include a vicinity map indicating the location of the historic property.
13. Notification.
    (a) Timing: Where required by the terms of the NWP, the prospective permittee must notify the District Engineer with a preconstruction notification (PCN) as early as possible. The District Engineer must determine if the PCN is complete within 30 days of the date of receipt and can request the additional information necessary to make the PCN complete only once. However, if the prospective permittee does not provide all of the requested information, then the District Engineer will notify the prospective permittee that the PCN is still incomplete and the PCN

review process will not commence until all of the requested information has been received by the District Engineer. The prospective permittee shall not begin the activity:

(1) Until notified in writing by the District Engineer that the activity may proceed under the NWP with any special conditions imposed by the District or Division Engineer; or

(2) If notified in writing by the District or Division Engineer that an individual permit is required; or

(3) Unless 45 days have passed from the District Engineer's receipt of the complete notification and the prospective permittee has not received written notice from the District or Division Engineer. Subsequently, the permittee's right to proceed under the NWP may be modified, suspended, or revoked only in accordance with the procedure set forth in 33 CFR 330.5(d)(2).

(b) Contents of Notification: The notification must be in writing and include the following information:

(1) Name, address, and telephone numbers of the prospective permittee;

(2) Location of the proposed project;

(3) Brief description of the proposed project; the project's purpose; direct and indirect adverse environmental effects the project would cause; any other NWP(s), regional general permit(s), or individual permit(s) used or intended to be used to authorize any part of the proposed project or any related activity; and

(4) For NWPs 7, 12, 14, 18, 21, 34, 38, 39, 40, 41, 42, and 43, the PCN must also include a delineation of affected special aquatic sites, including wetlands, vegetated shallows (e.g., submerged aquatic vegetation, seagrass beds), and riffle and pool complexes (see paragraph 13(f));

(5) For NWP 7, Outfall Structures and Maintenance, the PCN must include information regarding the original design capacities and configurations of those areas of the facility where maintenance dredging or excavation is proposed.

(6) For NWP 14, Linear Transportation Crossings, the PCN must include a compensatory mitigation proposal to offset permanent losses of waters of the United States and a statement describing how temporary losses of waters of the United States will be minimized to the maximum extent practicable.

(7) For NWP 21, Surface Coal Mining Activities, the PCN must include an Office of Surface Mining (OSM) or state-approved mitigation plan.

(8) For NWP 27, Stream and Wetland Restoration, the PCN must include documentation of the prior condition of the site that will be reverted by the permittee.

(9) For NWP 29, Single-Family Housing, the PCN must also include:

(i)Any past use of this NWP by the individual permittee and/or the permittee's spouse;

(ii)A statement that the single-family housing activity is for a personal residence of the permittee;

(iii)A description of the entire parcel, including its size, and a delineation of wetlands. For the purpose of this NWP, parcels of land measuring ¼ acre or less will not require a formal on-site delineation. However, the applicant shall provide an indication of where the wetlands are and the amount of wetlands that exists on the property. For parcels greater than ¼ acre in size, a formal wetland delineation must be prepared in accordance with the current method required by the Corps. (See paragraph 13(f));

(iv)A written description of all land (including, if available, legal descriptions) owned by the prospective permittee and/or the prospective permittee's spouse, within a one mile radius of the parcel, in any form of ownership (including any land owned as a partner, corporation, joint tenant, co-tenant, or as a tenant-by-the-entirety) and any land on which a purchase and sale agreement or other contract for sale or purchase has been executed;

(10) For NWP 31, Maintenance of Existing Flood Control Projects, the prospective permittee must either notify the District Engineer with a PCN prior to each maintenance activity or submit a five year (or less) maintenance plan. In addition, the PCN must include all of the following:

(i) Sufficient baseline information so as to identify the approved channel depths and configurations and existing facilities. Minor deviations are authorized, provided the approved flood control protection or drainage is not increased;

(ii) A delineation of any affected special aquatic sites, including wetlands; and,

(iii) Location of the dredged material disposal site.

(11) For NWP 33, Temporary Construction, Access, and Dewatering, the PCN must also include a restoration plan of reasonable measures to avoid and minimize adverse effects to aquatic resources.

(12) For NWPs 39, 43, and 44, the PCN must also include a written statement to the District Engineer explaining how avoidance and minimization of losses of waters of the United States were achieved on the project site.

(13) For NWP 39, Residential, Commercial, and Institutional Developments, and NWP 42, Recreational Facilities, the PCN must include a compensatory mitigation proposal that offsets unavoidable losses of waters of the United States or justification explaining why compensatory mitigation should not be required.

(14) For NWP 40, Agricultural Activities, the PCN must include a compensatory mitigation proposal to offset losses of waters of the United States.

(15) For NWP 43, Stormwater Management Facilities, the PCN must include, for the construction of new stormwater management facilities, a maintenance plan (in accordance with State and local requirements, if applicable) and a compensatory mitigation proposal to offset losses of waters of the United States.

(16) For NWP 44, Mining Activities, the PCN must include a description of all waters of the United States adversely affected by the project, a description of measures taken to minimize adverse effects to waters of the United States, a description of measures taken to comply with the criteria of the NWP, and a reclamation plan (for aggregate mining activities in isolated waters and non-tidal wetlands adjacent to headwaters and any hard rock/mineral mining activities).

(17) For activities that may adversely affect Federally-listed endangered or threatened species, the PCN must include the name(s) of those endangered or threatened species that may be affected by the proposed work or utilize the designated critical habitat that may be affected by the proposed work.

(18) For activities that may affect historic properties listed in, or eligible for listing in, the National Register of Historic Places, the PCN must state which historic property may be affected by the proposed work or include a vicinity map indicating the location of the historic property.

(19) For NWPs 12, 14, 29, 39, 40, 42, 43, and 44, where the proposed work involves discharges of dredged or fill material into waters of the United States resulting in permanent, above-grade fills within 100-year floodplains (as identified on FEMA's Flood Insurance Rate Maps or FEMA-approved local floodplain maps), the notification must include documentation demonstrating that the proposed work complies with the appropriate FEMA or FEMA-approved local floodplain construction requirements.

(c) Form of Notification: The standard individual permit application form (Form ENG 4345) may be used as the notification but must clearly indicate that it is a PCN and must include all of the information required in (b) (1)-(19) of General Condition 13. A letter containing the requisite information may also be used.

(d) District Engineer's Decision: In reviewing the PCN for the proposed activity, the District Engineer will determine whether the activity authorized by the NWP will result in more than minimal individual or cumulative adverse environmental effects or may be contrary to the public interest. The prospective permittee may, optionally, submit a proposed mitigation plan with the PCN to expedite the process and the District Engineer will consider any proposed compensatory mitigation the applicant has included in the proposal in determining whether the net adverse environmental effects to the aquatic environment of the proposed work are minimal. If the District Engineer determines that the activity complies with the terms and conditions of the NWP and that the adverse effects on the aquatic environment are minimal, the District Engineer will notify the permittee and include any conditions the District Engineer deems necessary.

Any compensatory mitigation proposal must be approved by the District Engineer prior to commencing work. If the prospective permittee is required to submit a compensatory mitigation proposal with the PCN, the proposal may be either conceptual or detailed. If the prospective permittee elects to submit a compensatory mitigation plan with the PCN, the District Engineer will expeditiously review the proposed compensatory mitigation plan. The District Engineer must review the plan within 45 days of receiving a complete PCN and determine whether the conceptual or specific proposed mitigation would ensure no more than

minimal adverse effects on the aquatic environment. If the net adverse effects of the project on the aquatic environment (after consideration of the compensatory mitigation proposal) are determined by the District Engineer to be minimal, the District Engineer will provide a timely written response to the applicant stating that the project can proceed under the terms and conditions of the nationwide permit.

If the District Engineer determines that the adverse effects of the proposed work are more than minimal, then he will notify the applicant either: (1) that the project does not qualify for authorization under the NWP and instruct the applicant on the procedures to seek authorization under an individual permit; (2) that the project is authorized under the NWP subject to the applicant's submission of a mitigation proposal that would reduce the adverse effects on the aquatic environment to the minimal level; or (3) that the project is authorized under the NWP with specific modifications or conditions. Where the District Engineer determines that mitigation is required in order to ensure no more than minimal adverse effects on the aquatic environment, the activity will be authorized within the 45-day PCN period, including the necessary conceptual or specific mitigation or a requirement that the applicant submit a mitigation proposal that would reduce the adverse effects on the aquatic environment to the minimal level. When conceptual mitigation is included, or a mitigation plan is required under item (2) above, no work in waters of the United States will occur until the District Engineer has approved a specific mitigation plan.

(e) Agency Coordination: The District Engineer will consider any comments from Federal and State agencies concerning the proposed activity's compliance with the terms and conditions of the NWPs and the need for mitigation to reduce the project's adverse effects on the aquatic environment to a minimal level.

For activities requiring notification to the District Engineer that result in the loss of greater than ½ acre of waters of the United States, the District Engineer will, upon receipt of a notification, provide immediately (e.g., via facsimile transmission, overnight mail, or other expeditious manner), a copy to the appropriate offices of the Fish and Wildlife Service, State natural resource or water quality agency, EPA, State Historic Preservation Officer (SHPO), and, if appropriate, the National Marine Fisheries Service. With the exception of NWP 37, these agencies will then have 10 calendar days from the date the material is transmitted to telephone or fax the District Engineer notice that they intend to provide substantive, site-specific comments. If so contacted by an agency, the District Engineer will wait an additional 15 calendar days before making a decision on the notification. The District Engineer will fully consider agency comments received within the specified time frame, but will provide no response to the resource agency, except as provided below. The District Engineer will indicate in the administrative record associated with each notification that the resource agencies' concerns were considered. As required by Section 305(b)(4)(B) of the Magnuson-Stevens Fishery Conservation and Management Act, the District Engineer will provide a response to National Marine Fisheries Service within 30 days of receipt of any Essential Fish Habitat conservation recommendations. Applicants are encouraged to provide the Corps multiple copies of notifications to expedite agency notification.

(f) Wetlands Delineations: Wetland delineations must be prepared in accordance with the current method required by the Corps. For NWP 29 see paragraph (b)(9)(iii) for parcels less than ¼ acre in size. The permittee may ask the Corps to delineate the special aquatic site. There may be some delay if the Corps does the delineation. Furthermore, the 45-day period will not start until the wetland delineation has been completed and submitted to the Corps, where appropriate.

14. Compliance Certification. Every permittee who has received a Nationwide permit verification from the Corps will submit a signed certification regarding the completed work and any required mitigation. The certification will be forwarded by the Corps with the authorization letter. The certification will include: a.) A statement that the authorized work was done in accordance with the Corps authorization, including any general or specific conditions; b.) A statement that any required mitigation was completed in accordance with the permit conditions; and c.) The signature of the permittee certifying the completion of the work and mitigation.

15. Use of Multiple Nationwide Permits. The use of more than one NWP for a single and complete project is prohibited, except when the acreage loss of waters of the United States authorized by the NWPs does not exceed the acreage limit of the NWP with the highest specified acreage limit. For example, if a road crossing over tidal waters is constructed under NWP 14, with associated bank stabilization authorized by NWP 13, the maximum acreage loss of waters of the United States for the total project cannot exceed 1/3 acre.

16. Water Supply Intakes. No activity, including structures and work in navigable waters of the United States or discharges of dredged or fill material, may occur in the proximity of a public water supply intake except where the activity is for repair of the public water supply intake structures or adjacent bank stabilization.

17. Shellfish Beds. No activity, including structures and work in navigable waters of the United States or discharges of dredged or fill material, may occur in areas of concentrated shellfish populations, unless the activity is directly related to a shellfish harvesting activity authorized by NWP 4.

18. Suitable Material. No activity, including structures and work in navigable waters of the United States or discharges of dredged or fill material, may consist of unsuitable material (e.g., trash, debris, car bodies, asphalt, etc.) and material used for construction or discharged must be free from toxic pollutants in toxic amounts (see Section 307 of the Clean Water Act).

19. Mitigation. The project must be designed and constructed to avoid and minimize adverse effects to waters of the United States to the maximum extent practicable at the project site (i.e., on site). Mitigation will be required when necessary to ensure that the adverse effects to the aquatic environment are minimal. The District Engineer will consider the factors discussed below when determining the acceptability of appropriate and practicable mitigation necessary to offset adverse effects on the aquatic environment that are more than minimal.

(a) Compensatory mitigation at a minimum 1:1 ratio will be required for all wetland impacts requiring a PCN. Consistent with National policy, the District Engineer will establish a preference for restoration of wetlands to meet the minimum compensatory mitigation ratio, with preservation used only in exceptional circumstances.

(b) To be practicable, the mitigation must be available and capable of being done considering costs, existing technology, and logistics in light of the overall project purposes. Examples of mitigation that may be appropriate and practicable include, but are not limited to: reducing the size of the project; establishing and maintaining wetland or upland vegetated buffers to protect open waters such as streams; and replacing losses of aquatic resource functions and values by creating, restoring, enhancing, or preserving similar functions and values, preferably in the same watershed;

(c) The District Engineer will require restoration, creation, enhancement, or preservation of other aquatic resources in order to offset the authorized impacts to the extent necessary to ensure that the adverse effects on the aquatic environment are minimal. An important element of any compensatory mitigation plan for projects in or near streams or other open waters is the establishment and maintenance, to the maximum extent practicable, of vegetated buffers next to open waters on the project site. The vegetated buffer should consist of native species. The District Engineer will determine the appropriate width of the vegetated buffer and in which cases it will be required. Normally, the vegetated buffer will be 25 to 50 feet wide on each side of the stream, but the District Engineer may require wider vegetated buffers to address documented water quality concerns. If there are open waters on the project site and the District Engineer requires compensatory mitigation for wetland impacts to ensure that the net adverse effects on the aquatic environment are minimal, any vegetated buffer will comprise no more than 1/3 of the remaining compensatory mitigation acreage after the permanently filled wetlands have been replaced on a one-to-one acreage basis. In addition, compensatory mitigation must address adverse effects on wetland functions and values and cannot be used to offset the acreage of wetland losses that would occur in order to meet the acreage limits of some of the NWPs (e.g., for NWP 39, ¼ acre of wetlands cannot be created to change a ½ acre loss of wetlands to a ¼ acre loss; however, ½ acre of created wetlands can be used to reduce the impacts of a 1/3 acre loss of wetlands). If the prospective permittee is required to submit a compensatory mitigation proposal with the PCN, the proposal may be either conceptual or detailed.

(d) To the extent appropriate, permittees should consider mitigation banking and other appropriate forms of compensatory mitigation. If the District Engineer determines that compensatory mitigation is necessary to offset losses of waters of the United States and ensure that the net adverse effects of the authorized work on the aquatic environment are minimal, consolidated mitigation approaches, such as mitigation banks, will be the preferred method of providing compensatory mitigation, unless the District Engineer determines that activity-specific compensatory mitigation is more appropriate, based on which is best for the aquatic

environment. These types of mitigation are preferred because they involve larger blocks of protected aquatic environment, are more likely to meet the mitigation goals, and are more easily checked for compliance. If a mitigation bank or other consolidated mitigation approach is not available in the watershed, the District Engineer will consider other appropriate forms of compensatory mitigation to offset the losses of waters of the United States to ensure that the net adverse effects of the authorized work on the aquatic environment are minimal.

20. Spawning Areas. Activities, including structures and work in navigable waters of the United States or discharges of dredged or fill material, in spawning areas during spawning seasons must be avoided to the maximum extent practicable. Activities that result in the physical destruction (e.g., excavate, fill, or smother downstream by substantial turbidity) of an important spawning area are not authorized.
21. Management of Water Flows. To the maximum extent practicable, the activity must be designed to maintain preconstruction downstream flow conditions (e.g., location, capacity, and flow rates). Furthermore, the activity must not permanently restrict or impede the passage of normal or expected high flows (unless the primary purpose of the fill is to impound waters) and the structure or discharge of dredged or fill material must withstand expected high flows. The activity must, to the maximum extent practicable, provide for retaining excess flows from the site, provide for maintaining surface flow rates from the site similar to preconstruction conditions, and must not increase water flows from the project site, relocate water, or redirect water flow beyond preconstruction conditions. In addition, the activity must, to the maximum extent practicable, reduce adverse effects such as flooding or erosion downstream and upstream of the project site, unless the activity is part of a larger system designed to manage water flows.
22. Adverse Effects From Impoundments. If the activity, including structures and work in navigable waters of the United States or discharge of dredged or fill material, creates an impoundment of water, adverse effects on the aquatic system caused by the accelerated passage of water and/or the restriction of its flow shall be minimized to the maximum extent practicable.
23. Waterfowl Breeding Areas. Activities, including structures and work in navigable waters of the United States or discharges of dredged or fill material, into breeding areas for migratory waterfowl must be avoided to the maximum extent practicable.
24. Removal of Temporary Fills. Any temporary fills must be removed in their entirety and the affected areas returned to their preexisting elevation.
25. Designated Critical Resource Waters. Critical resource waters include, NOAA-designated marine sanctuaries, National Estuarine Research Reserves, National Wild and Scenic Rivers, critical habitat for Federally listed threatened and endangered species, coral reefs, State natural heritage sites, and outstanding national resource waters or other waters officially designated by a State as having particular environmental or ecological significance and identified by the District Engineer after notice and opportunity for public comment. The District Engineer may also designate additional critical resource waters after notice and opportunity for comment.
    (a) Except as noted below, discharges of dredged or fill material into waters of the United States are not authorized by NWPs 7, 12, 14, 16, 17, 21, 29, 31, 35, 39, 40, 42, 43, and 44 for any activity within, or directly affecting, critical resource waters, including wetlands adjacent to such waters. Discharges of dredged or fill materials into waters of the United States may be authorized by the above NWPs in National Wild and Scenic Rivers if the activity complies with General Condition 7. Further, such discharges may be authorized in designated critical habitat for Federally listed threatened or endangered species if the activity complies with General Condition 11 and the U.S. Fish and Wildlife Service or the National Marine Fisheries Service has concurred in a determination of compliance with this condition.
    (b) For NWPs 3, 8, 10, 13, 15, 18, 19, 22, 23, 25, 27, 28, 30, 33, 34, 36, 37, and 38, notification is required in accordance with General Condition 13, for any activity proposed in the designated critical resource waters including wetlands adjacent to those waters. The District Engineer may authorize activities under these NWPs only after he determines that the impacts to the critical resource waters will be no more than minimal.
26. Fills Within 100-Year Floodplains. For purposes of this general condition, 100-year floodplains will be identified through the Federal Emergency Management Agency's (FEMA) Flood Insurance Rate Maps or FEMA-approved local floodplain maps.
    (a) Discharges Below Headwaters. Discharges of dredged or fill material into waters of the United States resulting in permanent, above-grade fills within the 100-year floodplain at or below the point on a stream where the average annual flow is five cubic feet per second (i.e., below headwaters) are not authorized by NWPs 29, 39, 40, 42, 43, and 44. For NWPs 12 and 14, the prospective permittee must notify the District Engineer in accordance with General Condition 13 and the notification must include documentation that any permanent, above-grade fills in waters of the United States within the 100-year floodplain below headwaters comply with FEMA or FEMA-approved local floodplain construction requirements.
    (b) Discharges in Headwaters (i.e., above the point on a stream where the average annual flow is five cubic feet per second).
        (1) Flood Fringe. Discharges of dredged or fill material into waters of the United States resulting in permanent, above-grade fills within the flood fringe of the 100-year floodplain of headwaters are not authorized by NWPs 12, 14, 29, 39, 40, 42, 43, and 44, unless the prospective permittee notifies the District Engineer in accordance with General Condition 13. The notification must include documentation that such discharges comply with FEMA or FEMA-approved local floodplain construction requirements.
        (2) Floodway. Discharges of dredged or fill material into waters of the United States resulting in permanent, above-grade fills within the floodway of the 100-year floodplain of headwaters are not authorized by NWPs 29, 39, 40, 42, 43, and 44. For NWPs 12 and 14, the permittee must notify the District Engineer in accordance with General Condition 13 and the notification must include documentation that any permanent, above grade fills proposed in the floodway comply with FEMA or FEMA-approved local floodplain construction requirements.

Further Information:

1. District engineers have authority to determine if an activity complies with the terms and conditions of an NWP.
2. NWPs do not obviate the need to obtain other Federal, State, or local permits, approvals, or authorizations required by law.
3. NWPs do not grant any property rights or exclusive privileges.
4. NWPs do not authorize any injury to the property or rights of others.
5. NWPs do not authorize interference with any existing or proposed Federal project.

U.S. Army Corps
Of Engineers
Norfolk District

CERTIFICATE OF COMPLIANCE
WITH
ARMY CORPS OF ENGINEERS PERMIT

Permit Number: 00-V1582

Name of Permittee: Langley AFB, 1 SPTG/CC
Colonel Daniel K Koslov
45 Nealy Avenue
Langley AFB, VA 23665 2107

Langley AFB, 1 CES/CEVA
Ms. Patsy Kerr & Mr. Thomas A Wittkamp
37 Sweeney Blvd
Langley AFB VA 23665 2107

Date of Issuance: September 28, 2000

Permit Type: Nationwide 13 and 18.

Within 30 days of completion of the activity authorized by this permit and any mitigation required by the permit, sign this certification and return it to the following address:

Norfolk District Corps of Engineers
Regulatory Branch, Attn: John Evans
803 Front Street
Norfolk, Va. 23510-1096

Please note that your permitted activity is subject to a compliance inspection by a U.S. Army Corps of Engineers representative. If you fail to comply with this permit you are subject to permit suspension, modification or revocation.

I hereby certify that the work authorized by the above referenced permit has been completed in accordance with the terms and conditions of the said permit, and required mitigation has been completed in accordance with the permit conditions.

_____ _____

Signature of Permittee Date

COMMONWEALTH of VIRGINIA

James S. Gilmore, III
Governor

John Paul Woodley, Jr.
Secretary of Natural Resources

DEPARTMENT OF ENVIRONMENTAL QUALITY

5636 Southern Boulevard
Virginia Beach, VA 23462
Tel# (757) 518-2000
http://www.deq.state.va.us

Dennis H. Treacy
Director

Francis L. Daniel
Tidewater Regional Director

September 13, 2000

Colonel Daniel K. Koslov
c/o Ms. Patsy Kerr and Mr. Thomas A. Wittcamp
1 CES/CEVA
37 Sweeney Blvd.
Langley AFB, Virginia 23665-2107

RE: **Joint Permit Application No.00-1582**
US Air Force Base Langley

Dear Sir:

This letter is in response to your application to provide shoreline stabilization for the LTA Pool and Sewage Pump Station along the Back River in Hampton, Virginia.

Because the water quality impacts should be minimal and temporary in nature, a Virginia Water Protection Permit will not be required by the Department of Environmental Quality for this project. Should the size and scope of the project change so that one acre or more of wetlands are impacted, a permit may be required. You are advised that this does not give you the authority to violate the State Water Quality Standards (9 VAC 25-260, formerly VR 680-21-01). Other agencies that may require permits are the Virginia Marine Resources Commission and the U.S. Army Corps of Engineers.

If you have any questions, please do not hesitate to contact me at (757)518-2126.

Sincerely,

LeAnn Moran

LeAnn Moran
Environmental Engineer
Planning & Permit Support/VWPP

cc: U.S. Army Corps of Engineers
Virginia Marine Resources Commission
File

City of Hampton

October 4, 2000

Ms. Patsy Kerr
1 CES/CEVA
37 Sweeney Blvd.
Langley AFB, VA 23665-2107

RE: Joint Permit Application #00-1582
Riprap Installation

Dear Ms. Kerr:

I have reviewed your application to provide erosion protection for the LTA Pool and Sewage Pump Station at Langley AFB. As stated in the application, the project will involve removal of existing rubble, re-grading the existing slope, installation of geotextile and the installation of riprap. As long as this project does not exceed the footprint of the existing riprap revetment, by extending channnelward of the existing riprap revetment, it is considered as maintenance and does not require a permit from the Hampton Wetlands Board.

Approvals may be necessary, however, from the Virginia Marine Resources Commission and the U. S. Army Corps of Engineers

This projects appears to present an opportunity to create wetlands and I encourage take advantage of this opportunity. If you have any questions or need any further assistance, please do not hesitate to contact me at 727-6134.

Sincerely,

Edward J. Haughton

Edward J. Haughton, AICP
Staff Coordinator

cc: Virginia Marine Resources Commission
U. S. Army Corps of Engineers
Virginia Institute of Marine Sciences

DEPARTMENT OF PLANNING
22 LINCOLN STREET, HAMPTON, VIRGINIA 23669

"Oldest Continuous English-Speaking Settlement in America - 1610"

Appendix E

Emissions Calculations

GENERAL CONFORMITY APPLICABILITY DETERMINATION AND BACKGROUND EMISSIONS CALCULATIONS

for the

PROPOSED SHORELINE STABILIZATION AT THE LIGHTER-THAN-AIR POOL AND SEWAGE PUMP STATION AREA LANGLEY AFB, VIRGINIA

GENERAL CONFORMITY APPLICABILITY DETERMINATION

1.0 Introduction

Langley AFB is proposing to stabilize the shoreline at the Lighter-Than-Air facilities to prevent or reduce further shore erosion which is threatening mission-essential facilities and to improve the marine habitat in the Back River.

National Ambient Air Quality Standards (NAAQS) developed by EPA for sulfur dioxide (SO_2), particulate matter (PM), carbon monoxide (CO), ozone, nitrogen dioxide (NO_2), and lead must be considered for the proposed project. Ozone is controlled by regulating its precursors, volatile organic chemicals (VOCs) and nitrogen oxides (NO_x). NAAQS are implemented by states through a state implementation plan (SIP). Langley is located in an area originally designated by EPA as an attainment area for all NAAQS, except ozone. The area was redesignated as a maintenance area for ozone on July 28, 1997. Maintenance areas are former nonattainment areas that have succeeded in meeting the NAAQS standard. An area remains a maintenance area for ten years and a state must develop a maintenance plan as part of its SIP.

The Clean Air Act prohibits a federal agency from engaging in an activity that would: (1) cause or contribute to any new violation of any air quality standard; (2) increase the frequency or severity of any existing violation; or (3) delay timely attainment. Under the Clean Air Act, the conformity rule applies to federal actions occurring in nonattainment or maintenance areas and would therefore be applicable, since Langley is in a maintenance area for ozone.

The conformity rule defines applicability criteria and includes several exemptions and emission thresholds, which determine whether the federal action requires a conformity determination. Non-exempt federal actions with total direct and indirect emissions that remain below the de minimis thresholds and are not regionally significant do not require conformity determinations. The *de minimis* thresholds for the base are 100 tons per year of NO_x and 100 tons per year of VOC since it is in a maintenance area outside an ozone transport region.

2.0 General Conformity Applicability Determination

The general conformity regulations, codified at 40 CFR Part 51, Subpart W and Part 93, Subpart B require federal actions to conform with state or federal implementation plans (SIPs or FIPs). The purpose of these regulations is to make sure that the actions do not interfere with strategies to attain the NAAQS. A general conformity determination must be performed where the actions in an ozone maintenance area are expected to result in an increase of VOCs or NO_x of 100 tons or more per year. Emissions of less than 100 tons of each are considered *de minimis* and therefore exempt from conformity regulations.

To determine the applicability of the general conformity regulations, potential emissions of VOCs or NO_x must be quantified from all identified sources. For this proposed action, evaluating diesel exhaust emissions from vehicles which could be involved in grading the project site or resizing hardscape operating for eight hours per day for a three month period is considered to be a reasonable situation.

Emissions from Construction Activities

Emissions of NO_x and VOCs would be generated by activities associated with the shoreline stabilization project. Specifically, emissions would be generated during the operation of diesel-powered construction equipment during site preparation and other earth moving actions. The types of equipment and the number of units to be operated during the twelve-month construction period are as follows:

- Loaders - 2 units;
- Dump truck - 1 unit.

For this impact analysis, the following assumptions of emissions from these vehicles were made:

- Each of the vehicles would be operated eight (8) hours per day, five (5) days per week during an assumed three-(3) month construction period. This period covers the actual construction time but also allows for contingencies that could delay completion.

- The daily vehicle miles traveled for the dump truck is estimated to be 30 miles.

- Emissions are based on the following emission factors derived from AP-42:

Equipment	NO_x Emission Factor (lb/hr)	VOC Emission Factor (lb/hr)	Annual NO_x Emissions (ton/yr)	Annual VOC Emissions (ton/yr)
Loader	1.89	0.25	0.38	0.05
Dump Truck[1]	4.166	0.19	0.42/0.007[2]	0.019/0.0009[2]
		TOTAL	**0.81 tpy**	**0.07 tpy**

Notes:

1. The hourly emissions for the dump truck are presented to quantify emissions associated with hauling material to or from points on the construction site. To quantify emissions associated with hauling material to the off-site disposal area, the following emission factors are used:

   - NO_x - 8.60 grams/mile
   - VOCs - 1.07 grams/mile

2. This number represents the emissions generated by the dump truck based on vehicle miles traveled (VMT) which occur hauling soil or debris to the off-site disposal area. The VMT is based on the following assumptions:

   - The truck would make three trips per day.
   - Each trip is ten (10) miles round trip.

Example Calculations:

1. For a loader:

   1.89 lbs of NO_x/hr x 200 hr/yr x 1 ton/2,000 lbs x 2 units = 0.38 tpy

2. For a truck:

   3 trips/day x 10 miles/trip x 25 days/yr x 8.60 gr NO_x/mi x 1 lb/454 gr x 1 lb./2,000 lbs = 0.007 tpy.

3.0 Conclusions

Table 3-1 provides a summary of the emissions of NO_x and VOCs from the proposed shoreline stabilization project.

Table 3-1

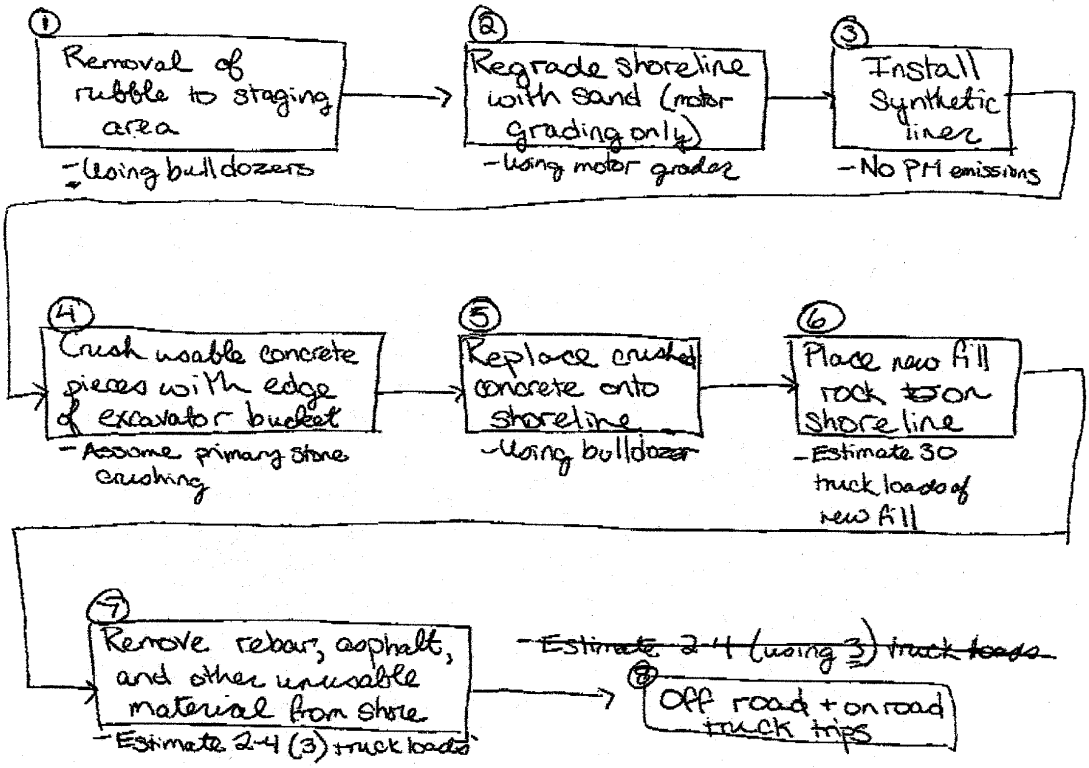
Summary of NO_x and VOC Emissions from the Proposed Shoreline Stabilization Project

Equipment	NO_x Emission Factor (lb/hr)	VOC Emission Factor (lb/hr)	Annual NO_x Emissions (ton/yr)	Annual VOC Emissions (ton/yr)
Loader	1.89	0.25	0.38	0.05
Dump Truck[1]	4.166	0.19	0.42/0.007[2]	0.019/0.0009[2]
		TOTAL	**0.81 tpy**	**0.07 tpy**

Based on the information provided, the emissions of NO_x and VOCs are below the thresholds under 40 CFR Parts 51 and 93 air pollution regulations. Therefore, emissions from the project fall below the *de minimis* levels included in the general conformity rule. This project is therefore exempt from the general conformity requirements.

Client: Langley AFB
Project: EA for Shoreline Stabilization
URS No: 80377105.01

Calc By: Cynthia Hall
Date: 30 April 2001
Page: 1/8



Other notes:
600 linear feet of shoreline to be revetted, approx. 8 feet wide
Assume approximately 1 ft high of riprap now, with 40% coverage

Note: These calculations do not include NO_x, VOC, CO, SO_x, and PM_{10} from diesel internal combustion of heavy equipment motors. Those air emissions were calculated separately

Client: Langley AFB
Project: EA for Shoreline Stabilization
URS No.: 80377105.01

Calc By: Cynthia Hall
Date: 30 April 2001
Page: 2/8

Step one: Removal of rubble to staging area
Amount of rubble to be moved -

600 linear ft shoreline | 8 ft wide | 1 ft high | 40% coverage currently

= 1920 ft³ rubble

Density from Perry's Chemical Engineers Handbook of Concrete is 2.2-2.4 lb/ft³

$$1920\ ft^3 \times \frac{2.4\ lb}{ft^3} = 4{,}608\ lb \text{ concrete rubble (assuming mostly concrete)}$$

$$4608\ lb \times \frac{1\ ton}{2000\ lb} = 2.304 \text{ ton concrete rubble}$$

Rubble will be moved to staging areas with bulldozer. Heavy construction operations (Table 13.2.3-1) Section for Stationary Sources in AP-42 recommends using the dozer equation (overburden) in Table 11.9-2.

$$EF_{PM} = \frac{5.7(s)^{1.2}}{(M)^{1.3}} \quad [lb/ton]$$

$$EF_{PM10} = \frac{(0.75)(1.0)(s)^{1.5}}{(M)^{1.4}} \quad [lb/ton]$$

where
S = Material silt content (%) and
M = Material moisture content.

Using values for sand from AP-42 Table 13.2.4-1,
s = 2.6 and M = 7.4 (conservative)

$$\therefore EF_{PM} = \frac{5.7(2.6)^{1.2}}{(7.4)^{1.3}} = 1.33 \text{ lb/ton}$$

$$EF_{PM10} = \frac{(0.75)(1.0)(2.6)^{1.5}}{(7.4)^{1.4}} = 0.19 \text{ lb/ton}$$

Step One (cont.)

$$E_{PM,1} = \frac{1.33\ lb}{ton} \mid \frac{2.304\ ton}{} = \boxed{3.1\ lb\ PM}$$

$$E_{PM10,1} = \frac{0.19\ lb}{ton} \mid \frac{2.304\ ton}{} = \boxed{0.4\ lb\ PM_{10}}$$

Step Two: Regrade sand shoreline using motorized graders.

Table 13.2.3-1 recommends using grading equation in Table 11.9-2

$$EF_{PM} = (0.040)(S)^{2.5}$$
$$EF_{PM10} = \cancel{0.060}(0.60)(0.051)(S)^{2.0} \quad \left[\frac{lb}{VMT}\right]$$

where S ≡ mean vehicle speed in miles per hour (mph)
and VMT ≡ Vehicle Miles Traveled

Conservatively assuming a vehicle speed of 10 mph:

$$EF_{PM} = (0.040)(10)^{2.5} = 12.65\ lb/VMT$$
$$EF_{PM10} = (0.60)(0.051)(10)^{2.0} = 3.06\ lb/VMT$$

Grading 600ft of shoreline 8ft wide, assume 3 passes total

$$E_{PM,2} = \frac{600\ ft}{pass} \mid \frac{3\ passes}{} \mid \frac{1\ mi}{5280\ ft} \mid \frac{12.65\ lb}{mi\ traveled} = \boxed{4.3\ lb\ PM}$$

$$E_{PM10,2} = \frac{600\ ft}{pass} \mid \frac{3\ passes}{} \mid \frac{1\ mi}{5280\ ft} \mid \frac{3.06\ lb}{mi\ traveled} = \boxed{1.0\ lb\ PM_{10}}$$

Step Three: Install synthetic liner

Assume ~~zero~~ emissions of PM negligible, due to minimal mechanical operations

$$E_{PM,3} = \emptyset$$
$$E_{PM10,3} = \emptyset$$

Client : Langley AFB
Project : EA for Shoreline Stabilization
URS No: 80877105.01

Calc By : Cynthia Hall
Date : 30 April 2001
Page : 4|8

Step four : Crush usable concrete with edge of excavator bucket to calculate emissions, may liken process to primary crushing of rock/stone. ~~AP~~ Emission Factors for primary stone crushing are provided in Section 11.19.2, "Crushed Stone Processing" of AP-42 (January 1995).

Emission factor for primary crushing, from Table 11.19.2-2

$EF_{PM} = 0.00070$ lb/ton throughput

$$E_{PM,crushing} = \frac{0.00070 \text{ lb PM}}{\text{ton rubble}} \Big| \frac{2.3 \text{ ton rubble}}{} = 1.6 \times 10^{-3} \text{ lb PM}$$

$EF_{PM10} = 0.0024$ lb/ton throughput

(Note: this is the EF for tertiary crushing, and may be used as an upper limit). Use this E.F. to more conservatively estimate both PM + PM_{10} emissions.

~~EF~~ $E_{PM10,4} = \frac{0.0024 \text{ lb PM}}{\text{ton rubble}} \Big| \frac{2.3 \text{ ton rubble}}{} = \boxed{5.5 \times 10^{-3} \text{ lb PM}_{10}}$

$E_{PM,4} = \boxed{5.5 \times 10^{-3} \text{ lb PM}}$

Step five : Replace crushed concrete onto shoreline

Using bull dozer to move crushed concrete, emissions would be identical to those calculated in step ~~four~~ one (less some for rebar, etc - conservatively assume same).

$E_{PM,5} = \boxed{3.1 \text{ lb PM}}$

$E_{PM10,5} = \boxed{0.4 \text{ lb PM}_{10}}$

Step six : Place new fill rock on shoreline

Consists of truck unloading of 150-200 lb riprap, and bulldozing

~~F~~ For truck unloading, use material handling factors in Section 13.2.4

For bulldozing, use dozer equation in Table 11.9-2. (as calculated in step 1)

Step six (cont.)

$$EF_{PM,\ material\ handling} = k(0.0032)\frac{\left(\frac{u}{5}\right)^{1.3}}{\left(\frac{M}{2}\right)^{1.4}} \quad [lb/ton]$$

where
u = mean wind speed, miles/hr k = particle size multiplier
M = Material moisture content, %

For Norfolk, VA $u = 6.0$ mph
For Sand, $M = 7.4$ %
For PM<30um, $k = 0.74$ — For PM<10, $k = 0.35$

$$EF_{PM,\ mat.\ handling} = \frac{(.74)(0.0032)[(0.20)(6.0)]^{1.3}}{[(0.5)(7.4)]^{1.4}} = 4.8\times10^{-4}\ lb/ton$$

$$EF_{PM10,\ mat\ handling} = \frac{(0.35)(0.0032)[(0.20)(6.0)]^{1.3}}{[(0.5)(7.4)]^{1.4}} = 2.3\times10^{-4}\ lb/ton$$

$$E_{PM,6\ (mat'l\ handling)} = \frac{4.8\times10^{-4}\ lb}{ton} \left| \frac{30\ trucks}{} \right| \frac{10\ tons}{truck} = 0.14\ lb\ PM$$

$$E_{PM10,6\ (mat'l\ handling)} = \frac{2.3\times10^{-4}\ lb}{ton} \left| \frac{30\ trucks}{} \right| \frac{10\ tons}{truck} = 0.07\ lb\ PM10$$

$$E_{PM,6\ (dozing)} = \frac{1.33\ lb}{ton} \left| \frac{30\ trucks}{} \right| \frac{10\ tons}{truck} = 399\ lb\ PM$$

(Note: VERY conservative as calculated for sand)

$$E_{PM10,6\ (dozing)} = \frac{0.19\ lb}{ton} \left| \frac{30\ trucks}{} \right| \frac{10\ tons}{truck} = 57\ lb\ PM10$$

(Note: VERY conservative)

$$E_{PM,6} = 0.14\ lb + 399\ lb = \boxed{399\ lb\ PM}$$

$$E_{PM10,6} = 0.07\ lb + 57\ lb = \boxed{57\ lb\ PM}$$

Step seven: Removal of rebar, asphalt, and other unusable material
use material handling factors given in step six
Use 3 trucks loaded

$$E_{PM} = \frac{4.8\times10^{-4}\ lb\ PM}{ton} \left| \frac{3\ trucks}{} \right| \frac{10\ tons}{truck} = \boxed{0.01\ lb\ PM}$$

$$E_{PM10} = \frac{2.3\times10^{-4}\ lb\ PM_{10}}{ton} \left| \frac{3\ trucks}{} \right| \frac{10\ tons}{truck} = \boxed{6.9\times10^{-3}\ lb\ PM_{10}}$$

Client: Langley AFB
Project: EA for Shoreline Stabilization
URS No.: 803771 05.01

Calc By: Cynthia Hall
Date: 30 April 2001
Page: 6/8

Step eight: Quantification of truck trips on paved and unpaved roads (not a separate step)

Emissions estimated so far do not include emissions from the road surface due to contact with vehicle tires, etc. ~~These PM An equation that~~
These emissions occur on both paved roads and unpaved roads.
The equation for estimating emissions from travel on paved roads, as provided in AP-42 Section 13.2.1, is:

$$EF_{PM,PM10} = (k)\left(\frac{sL}{2}\right)^{0.65}\left(\frac{W}{3}\right)^{1.5} \quad [lb/VMT]$$

where $k \equiv$ Base particulate emission factor for particle size
$sL \equiv$ Road surface silt loading $[g/m^2]$
$W \equiv$ Average weight of vehicles traveling [tons]

Conservatively assumed sL in the 90th percentile of Low average daily traffic loads (as presented in ~~Table~~ Table 13.2.1-2)
$sL = 30\ g/m^2$
$W = 10$ tons
$k_{PM} = 0.082$ lb/VMT
$k_{PM10} = 0.016$ lb/VMT

$$EF_{PM} = (0.082\ lb/VMT)\left(\frac{30}{2}\right)^{0.65}\left(\frac{10}{3}\right)^{1.5} = 2.9\ lb/VMT$$

$$EF_{PM10} = (0.016\ lb/VMT)\left(\frac{30}{2}\right)^{0.65}\left(\frac{10}{3}\right)^{1.5} = 0.57\ lb/VMT$$

Assume each round-trip is 10 miles on paved road

Assume 35 round trips taken (30 for fresh rip-rap, 3 to haul off rebar, 2 to deliver dozers)

$$E_{PM,B\ (paved)} = \frac{2.9\ lb}{mi} \left| \frac{35\ trips}{} \right| \frac{10\ mi}{trip} = 1{,}015\ lb\ PM$$

$$E_{PM10\ (unpaved)} = \frac{0.57\ lb}{mi} \left| \frac{35\ trips}{} \right| \frac{10\ mi}{trip} = 200\ lb\ PM_{10}$$

Step eight : (cont)

For unpaved roads, the equation for emission factor is given in AP-42 section 13.2.2:

$$EF = (k)(5.9)\left(\frac{s}{12}\right)\left(\frac{S}{30}\right)\left(\frac{W}{3}\right)^{0.70}\left(\frac{w}{4}\right)^{0.5}\left(\frac{365-p}{365}\right)$$

where

k = Particle size multiplier
s = Silt content of road surface material [%]
S = Mean vehicle speed [mph]
W = Mean vehicle weight [ton]
w = Mean number of wheels
p = Number of days with ≥0.01 in. precipitation per year

For PM, $k = 1.0$
For PM_{10}, $k = 0.36$
For sand, $s = 2.6\%$
For mid Atlantic states, $p = 120$ to 150 (Assume 120)
For trucks, $W = 10$ tons
Assume $w = 8$ for trucks
Assume $w = 4$ for dozers
Assume $W = 4$ tons for dozers
Assume $S = 20$ mph for trucks
Assume $S = 10$ mph for dozers

$$EF_{PM\ (unpaved\ trucks)} = (1.0)(5.9)\left(\frac{2.6}{12}\right)\left(\frac{20}{30}\right)\left(\frac{10}{3}\right)^{0.7}\left(\frac{8}{4}\right)^{0.5}\left(\frac{365-120}{365}\right)$$

$EF_{PM\ (unpaved,\ trucks)} = 1.9$ lb/VMT
$EF_{PM10\ (unpaved,\ trucks)} = 0.68$ lb/VMT

$$EF_{PM\ (unpaved\ dozers)} = (1.0)(5.9)\left(\frac{2.6}{12}\right)\left(\frac{10}{30}\right)\left(\frac{4}{3}\right)^{0.7}\left(\frac{4}{4}\right)^{0.5}\left(\frac{365-120}{365}\right)$$

$EF_{PM\ (unpaved\ dozers)} = 0.35$ lb/VMT
$EF_{PM10\ (unpaved\ dozers)} = 0.13$ lb/VMT

Client: Langley AFB
Project: EA for Shoreline Stabilization
URS No.: 80377105.01

Calc By: Cynthia Hall
Date: 1 May 2001
Page: 8/8

Step eight (cont.)

Assume 35 round trips taken by trucks.
Assume for each round trip, 0.5 miles traveled unpaved

$$E_{PM,8(\text{trucks unpaved})} = \frac{1.9\ \text{lb}}{\text{mi traveled}} \left| \frac{35\ \text{trips}}{} \right| \frac{0.5\ \text{mi}}{\text{trip}} = 33.3\ \text{lb PM}$$

$$E_{PM_{10},8(\text{unpaved trucks})} = \frac{0.68\ \text{lb}}{\text{mi traveled}} \left| \frac{35\ \text{trips}}{} \right| \frac{0.5\ \text{mi}}{\text{trip}} = 11.9\ \text{lb PM}_{10}$$

Travel by dozer dependent on length of shoreline + number of passes, plus delivery.
Assume ½ mile for each of 2 dozers for delivery (1 mi.)
Assume a total of 10 passes along 600 ft shoreline (6,000 ft, or 1.14 miles - very conservative) for a total of 2.14 miles

$$E_{PM,8(\text{dozers unpaved})} = \frac{0.35\ \text{lb}}{\text{mi traveled}} \left| 2.14\ \text{mi} \right. = 0.75\ \text{lb PM}$$

$$E_{PM10,8(\text{unpaved dozers})} = \frac{0.13\ \text{lb}}{\text{mi traveled}} \left| 2.14\ \text{mi} \right. = 0.28\ \text{lb PM}_{10}$$

$$E_{PM,8} = 1015\ \text{lb PM} + 33.3\ \text{lb PM} + 0.75\ \text{lb PM} = \boxed{1,049\ \text{lb PM}}$$

$$E_{PM10,8} = 200\ \text{lb PM}_{10} + 11.9\ \text{lb PM}_{10} + 0.28\ \text{lb PM}_{10} = \boxed{212\ \text{lb PM}_{10}}$$

Total emissions

$$E_{total} = E_1 + E_2 + E_3 + E_4 + E_5 + E_6 + E_7 + E_8$$

$$E_{PM,total} = 3.1\ \text{lb} + 4.3\ \text{lb} + 0 + 5.5\times10^{-3}\ \text{lb} + 3.1\ \text{lb} + 399\ \text{lb} + 0.01\ \text{lb} + 1,049\ \text{lb} = \boxed{1,459\ \text{lb PM}}$$

$$E_{PM10,total} = 0.4\ \text{lb} + 1.0\ \text{lb} + 0 + 5.5\times10^{-3}\ \text{lb} + 0.4\ \text{lb} + 57\ \text{lb} + 6.9\times10^{-3}\ \text{lb} + 212\ \text{lb} = \boxed{271\ \text{lb PM}_{10}}$$

Client: Langley AFB
Project: EA for Shoreline Stabilization
URS No: 80377105.01

Calc By: Michael Kendall
Date: May 24, 2001
Page: 1/1

Emissions from truck and loader for CO, SOx, and PM using Emission Factors for Heavy-Duty Diesel-Powered Construction Equipment – Attached.

Truck

CO

$1.794 \frac{lbs}{hr} \times 200 \frac{hr}{Yr} = 358.8 \frac{lbs}{Yr} = 0.1794 TPY$

SOx

$0.454 \frac{lbs}{hr} \times 200 \frac{hr}{Yr} = 90.08 \frac{lbs}{Yr} = 0.0454 TPY$

PM

$0.256 \frac{lbs}{hr} \times 200 \frac{hr}{Yr} = 51.2 \frac{lbs}{Yr} = 0.0256 TPY$

Loader

CO

$0.572 \frac{lbs}{hr} \times 200 \frac{hr}{Yr} = 114.4 \frac{lbs}{Yr} = 0.0572 TPY$

SOx

$0.182 \frac{lbs}{hr} \times 200 \frac{hr}{Yr} = 36.4 \frac{lbs}{Yr} = 0.0182 TPY$

PM

$0.172 \frac{lbs}{hr} \times 200 \frac{hr}{Yr} = 34.4 \frac{lbs}{Yr} = 0.0172 TPY$

Appendix F

Correspondence with U.S. Fish and Wildlife Service and Rare, Threatened, and Endangered Species for the Langley AFB Area

Rare, Threatened, and Endangered Species

Information concerning rare, threatened and endangered species was obtained primarily from documents which were focused on Langley AFB. No rare, threatened or endangered aquatic species were identified on the base.

Several species of birds were identified which could use the Back River watershed for nesting, roosting or foraging including the threatened bald eagle (*Haliaeetus leuocephalus*) and the endangered peregrine facline (*Falco peregrinus*). No nesting or long-term roosting or sites were identified on Langley AFB for either of these species (Berrera et al, 1995). The threatened piping plover (*Charadrius medlodus*) is known to nest at factory point, at the mouth of the Back River (U.S. Fish and Wildlife, 1993). Rare species of birds identified in the area include the northern harrier (*Cirus cyaneus*), least tern (*Sterna antillarum*), black skimmer (*Rynchops niger*) and great egret (*Casmerodius albus*).

Other rare species in the vicinity include the eastern bloodleaf (*Iresine rhizomatosa*), northeaster beach tiger beetle (*Cicindela dorsalis dorsalis*), Mabee's salamander (*Ambustoma mabeei*), and canebreak rattlesnake (*Crotalus harridus atricaudatus*).

Based on Federal and State listings of rare, threatened and endangered species, Table C-1 below provides a list of protected plants and animals that could potentially occur at Langley.

Table C-1. Listed Plant and Animal Species Potentially Occurring at Langley Air Force Base

Common Name	Scientific Name	Status	
		Federal	State
Reptiles			
Northern diamond back terrapin	*Malaclemys terrapin terrapin*	SOC	
Canebreak rattlesnake	*Crotalus horridus arricaudatus*		LE
Amphibians			
Mabee's salamander	*Ambystoma mobeei*		LT
Birds			
Piping plover	*Charadrius melodius*	LT	LT
Least tern	*Sterna antillarum*	LE	SC
Bald eagle	*Haliaeetus leucocephalus*	LT	LT
Great egret	*Ardea alba egretta*		SC
Peregrine falcon	*Falco peregrinus*		LE
Black skimmer	*Rynchops niger*	G5	S2
Mammals			
River otter	*Lontra canadensis lataxina*		SC
Invertebrates			
Northeaster beach tiger beetle	*Cincidela dorsalis dorsalis*	LT	
Plants			
Virginia least trillium	*Trillium pusillum var. virginianum*	G3T2	

LE – Listed Endangered
LT – Listed Threatened
SOC – Species of Concern; those species that have been identified as potentially being imperiled or vulnerable throughout their range or p[art of their range. These species are not protected under the Endangered Species Act.
SC – Special Concern Species
G5S2 – Common globally with possibility of being rare at range borders. Very rare locally with 6-20 occurrences found in Virginia.
G3T2 – Very rare or local throughout this range or found locally (abundantly as some location) in a restricted range or vulnerable to extinction because of other factors. Subspecies very rare and imperiled with 6 - 20 occurrences or few remaining individuals, vulnerable to extinction.

DEPARTMENT OF THE AIR FORCE
HEADQUARTERS AIR COMBAT COMMAND
LANGLEY AIR FORCE BASE, VIRGINIA

10 APR 2001

MEMORANDUM FOR U.S. Fish and Wildlife Service
Virginia Field Office
6669 Short Lane
Gloucester VA 23061

FROM: HQ ACC/CEVP
129 Andrews Street, Suite 102
Langley AFB VA 23665-2769

SUBJECT: Request for Species List - Projects at Langley Air Force Base

1. The U.S. Air Force is preparing Environmental Assessments (EA) to evaluate potential environmental impacts associated with two unrelated proposed actions at the base:

- The proposed demolition of the Tow Tank Facility, also known as the "Mile Long Building" (see map #1)
- The proposed stabilization of a section of the Base's shoreline (see map #2)

2. The Tow Tank Facility is located in the Clear Zone of Runway 08/26 and poses a obstruction to landing or departing aircraft. Air Force airfield safety regulations require that no structures be allowed within runway Clear Zones. Under the proposed action, the Air Force would demolish the tow tank portion of the Tow Tank Facility and keep an attached, two-story brick office building at the intersection of Andrews Street and Sijan Road, outside the runway Clear Zone. After demolition of the building, the tow tanks would be cleaned, punctured for drainage, and backfilled with clean fill. The finished ground elevation would match the existing ground surface; the concrete foundation would remain partially above ground. The finished area would be stabilized with vegetation. No wetland areas would be disturbed or affected.

3. The proposed shoreline stabilization activity would establish a fringe marsh along a 600' line near the "Lighter-Than-Air" Swimming Pool and the Sewage Pump Station. Its purpose would be to use natural means to reduce shoreline erosion and turbidity in the Back River. Existing concrete rip-rap would be removed from the shoreline, resized, and returned to the site upon a geotextile liner. Plugs of smooth cordgrass would then be planted in this foundation.

4. Pursuant to the Endangered Species Act and the National Environmental Policy Act, we are requesting information regarding federally listed or proposed species that may be present in the potentially affected area(s). If any of this information is available digitally, we would appreciate receiving it in that format. Until the extent of the potential impact to listed species is determined, we will make no decision regarding the need for a section 7 consultation.

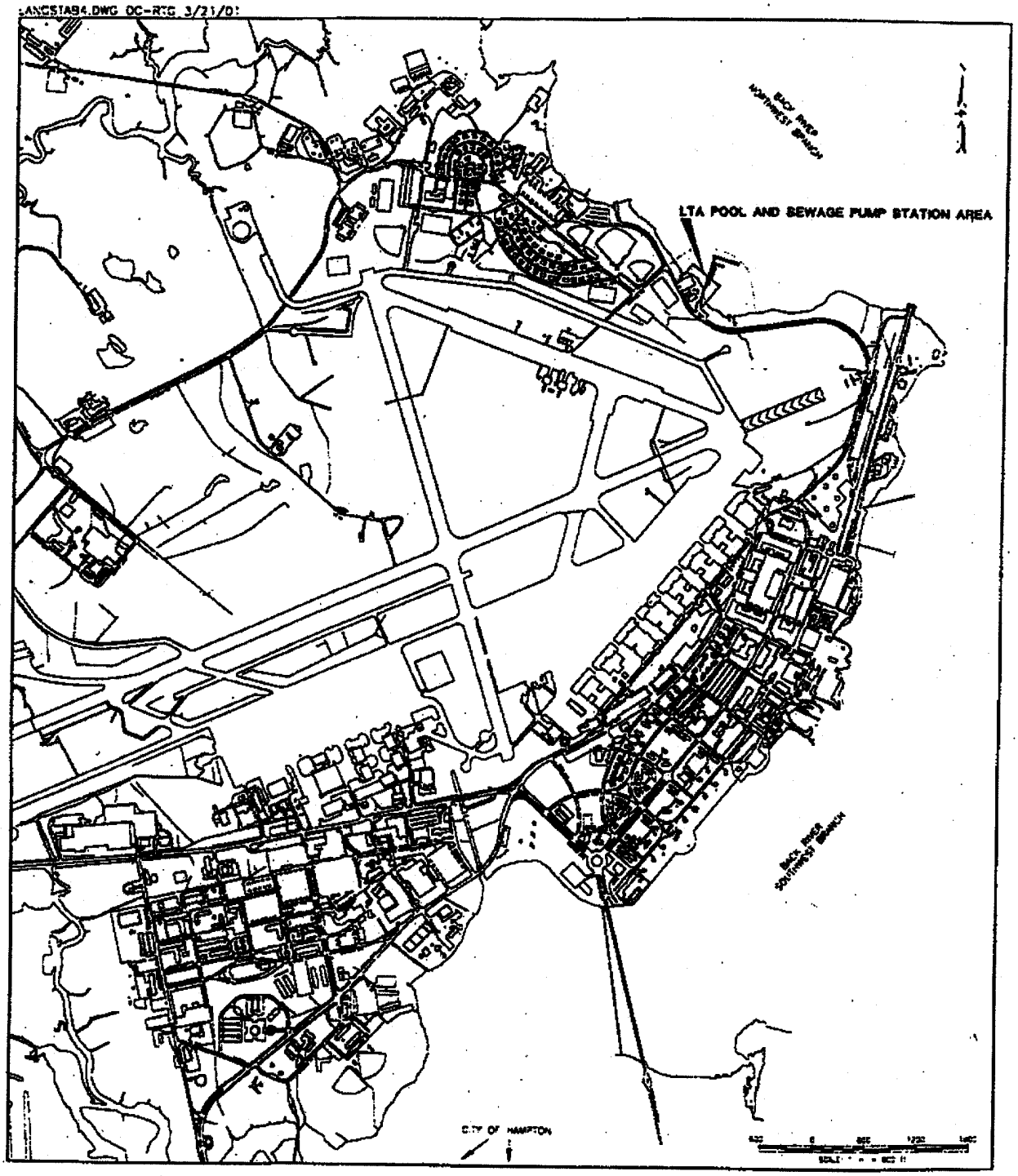
Global Power For America

5. Please provide responses and direct inquiries on this matter to Mr. Roy Barker, Command Natural Resources Manager at (757) 764-9338.

for ALTON CHAVIS
Chief, Environmental Analysis Branch

Attachments:
1. Map of Tow Tank
2. Map of Shoreline Stabilization Site

Figure 1. Location of the Langely Tow Tank Facility at Langley AFB



SHORELINE STABILIZATION SITE

ATTACHMENT 2.

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Ecological Services
6669 Short Lane
Gloucester, VA 23061

April 18, 2001

Mr. Roy Barker
Headquarters, Air Combat Command/CEVP
129 Andrews Street, Suite 102
Langley Air Force Base, Virginia 23665-2769

Re: Building Demolition and Shoreline Stabilization at Langley Air Force Base, City of Hampton, Virginia

Dear Mr. Barker:

The U.S. Fish and Wildlife Service (Service) has reviewed your April 10, 2001 request for information on federally listed species for the referenced projects. The two unrelated proposed actions are to demolish the Tow Tank Facility and to stabilize 600 feet of shoreline at Langley Air Force Base, City of Hampton, Virginia. This letter is submitted in accordance with provisions of the Endangered Species Act (ESA) of 1973 (87 Stat. 884, as amended; 16 U.S.C. 1531 et seq.) and the National Environmental Policy Act (NEPA) of 1969 (83 Stat. 852; 42 U.S.C. 4321 *et seq.*).

The Service believes that neither proposed action will have any effect on federally listed species. The Service commends you for attempting to restore a marsh fringe along 600 feet of shoreline by planting smooth cordgrass. The Service notes that the shoreline stabilization project may require a permit from the U.S. Army Corps of Engineers.

If you have any questions or need further assistance concerning this project, contact Mr. Eric Davis at (804) 693-6694, extension 104.

Sincerely,

Karen L. Mayne
Supervisor
Virginia Field Office

cc: USACE (John Evans)
VDGIF (Tom Wilcox)
VDCR, DNH (Rene Hypes)

Appendix G

Virginia Coastal Program

Enforceable Regulatory Programs Comprising Virginia's Coastal Resources Management Program

Costal Consistency Determination (DEQ-01-102F)

COMMONWEALTH of VIRGINIA

DEPARTMENT OF ENVIRONMENTAL QUALITY

James S. Gilmore, III
Governor

John Paul Woodley, Jr.
Secretary of Natural Resources

Street address: 629 East Main Street, Richmond, Virginia 23219
Mailing address: P.O. Box 10009, Richmond, Virginia 23240
Fax (804) 698-4500 · TDD (804) 698-4021
http://www.deq.state.va.us

Dennis H. Treacy
Director

(804) 698-4000
1-800-592-5482

Attachment 1

Enforceable Regulatory Programs comprising Virginia's Coastal Resources Management Program (VCP)

a. Fisheries Management - The program stresses the conservation and enhancement of finfish and shellfish resources and the promotion of commercial and recreational fisheries to maximize food production and recreational opportunities. This program is administered by the Marine Resources Commission (VMRC); Virginia Code §28.2-200 to §28.2-713 and the Department of Game and Inland Fisheries (DGIF); Virginia Code §29.1-100 to §29.1-570.

The State Tributyltin (TBT) Regulatory Program has been added to the Fisheries Management program. The General Assembly amended the Virginia Pesticide Use and Application Act as it related to the possession, sale, or use of marine antifoulant paints containing TBT. The use of TBT in boat paint constitutes a serious threat to important marine animal species. The TBT program monitors boating activities and boat painting activities to ensure compliance with TBT regulations promulgated pursuant to the amendment. The VMRC, DGIF, and Virginia Department of Agriculture Consumer Services (VDACS) share enforcement responsibilities; Virginia Code §3.1-249.59 to §3.1-249.62.

b. Subaqueous Lands Management - The management program for subaqueous lands establishes conditions for granting or denying permits to use state-owned bottomlands based on considerations of potential effects on marine and fisheries resources, tidal wetlands, adjacent or nearby properties, anticipated public and private benefits, and water quality standards established by the Department of Environmental Quality (DEQ). The program is administered by the Marine Resources Commission; Virginia Code §28.2-1200 to §28.2-1213.

c. Wetlands Management - The purpose of the wetlands management program is to preserve wetlands, prevent their despoliation, and accommodate economic development in a manner consistent with wetlands preservation.

(1) The tidal wetlands program is administered by the Marine Resources Commission; Virginia Code §28.2 -1301 through §28.2 -1320.

(2) The Virginia Water Protection Permit program administered by DEQ includes protection of wetlands --both tidal and non-tidal; Virginia Code §62.1-44.15:5 and Water Quality Certification pursuant to Section 401 of the Clean Water Act.

d. Dunes Management - Dune protection is carried out pursuant to The Coastal Primary Sand Dune Protection Act and is intended to prevent destruction or alteration of primary dunes. This program is administered by the Marine Resources Commission; Virginia Code §28.2-1400 through §28.2-1420.

e. Non-point Source Pollution Control – (1) Virginia's Erosion and Sediment Control Law requires soil-disturbing projects to be designed to reduce soil erosion and to decrease inputs of chemical nutrients and sediments to the Chesapeake Bay, its tributaries, and other rivers and waters of the Commonwealth. This program is administered by the Department of Conservation and Recreation; Virginia Code §10.1-560 et.seq.).

(2) Coastal Lands Management is a state-local cooperative program administered by the Chesapeake Bay Local Assistance Department and 84 localities in Tidewater (see i) Virginia; Virginia Code §10.1-2100 –10.1-2114 and 9 VAC10-20 et seq.

f. Point Source Pollution Control - The point source program is administered by the State Water Control Board (DEQ) pursuant to Virginia Code §62.1-44.15. Point source pollution control is accomplished through the implementation of:

(1) the National Pollutant Discharge Elimination System (NPDES) permit program established pursuant to Section 402 of the federal Clean Water Act and administered in Virginia as the Virginia Pollutant Discharge Elimination System (VPDES) permit program.

(2) The Virginia Water Protection Permit (VWPP) program administered by DEQ; Virginia Code §62.1-44.15:5 and Water Quality Certification pursuant to Section 401 of the Clean Water Act.

g. Shoreline Sanitation - The purpose of this program is to regulate the installation of septic tanks, set standards concerning soil types suitable for septic tanks, and specify minimum distances that tanks must be placed away from streams, rivers, and other waters of the Commonwealth. This program is administered by the Department of Health (Virginia Code §32.1-164 through §32.1-165).

h. Air Pollution Control - The program implements the federal Clean Air Act to provide a legally enforceable State Implementation Plan for the attainment and maintenance of the National Ambient Air Quality Standards. This program is administered by the State Air Pollution Control Board (Virginia Code §10.1-1300 through §10.1- 1320).

(i) Coastal Lands Management is a state-local cooperative program administered by the Chesapeake Bay Local Assistance Department and 84 localities in Tidewater, Virginia established pursuant to the Chesapeake Bay Preservation Act; Virginia Code §10.1-2100 –10.1-2114 and Chesapeake Bay Preservation Area Designation and Management Regulations; Virginia Administrative Code 9 VAC10-20 et seq.

Attachment 2

Advisory Policies for Geographic Areas of Particular Concern

a. Coastal Natural Resource Areas - These areas are vital to estuarine and marine ecosystems and/or are of great importance to areas immediately inland of the shoreline. Such areas receive special attention from the Commonwealth because of their conservation, recreational, ecological, and aesthetic values. These areas are worthy of special consideration in any planning or resources management process and include the following resources:

a) Wetlands
b) Aquatic Spawning, Nursery, and Feeding Grounds
c) Coastal Primary Sand Dunes
d) Barrier Islands
e) Significant Wildlife Habitat Areas
f) Public Recreation Areas
g) Sand and Gravel Resources
h) Underwater Historic Sites.

b. Coastal Natural Hazard Areas - This policy covers areas vulnerable to continuing and severe erosion and areas susceptible to potential damage from wind, tidal, and storm related events including flooding. New buildings and other structures should be designed and sited to minimize the potential for property damage due to storms or shoreline erosion. The areas of concern are as follows:

i) Highly Erodible Areas
ii) Coastal High Hazard Areas, including flood plains.

c. Waterfront Development Areas - These areas are vital to the Commonwealth because of the limited number of areas suitable for waterfront activities. The areas of concern are as follows:

i) Commercial Ports
ii) Commercial Fishing Piers
iii) Community Waterfronts

Although the management of such areas is the responsibility of local government and some regional authorities, designation of these areas as Waterfront Development Areas of Particular Concern (APC) under the VCRMP is encouraged. Designation will allow the use of federal CZMA funds to be used to assist planning for such areas and the implementation of such plans. The VCRMP recognizes two broad classes of priority uses for waterfront development APC:

i) water access dependent activities;
ii) activities significantly enhanced by the waterfront location and complementary to other existing and/or planned activities in a given waterfront area.

Advisory Policies for Shorefront Access Planning and Protection

a. Virginia Public Beaches - Approximately 25 miles of public beaches are located in the cities, counties, and towns of Virginia exclusive of public beaches on state and federal land. These public shoreline areas will be maintained to allow public access to recreational resources.

b. Virginia Outdoors Plan - Planning for coastal access is provided by the Department of Conservation and Recreation in cooperation with other state and local government agencies. The Virginia Outdoors Plan (VOP), which is published by the Department, identifies recreational facilities in the Commonwealth that provide recreational access. The VOP also serves to identify future needs of the Commonwealth in relation to the provision of recreational opportunities and shoreline access. Prior to initiating any project, consideration should be given to the proximity of the project site to recreational resources identified in the VOP.

c. Parks, Natural Areas, and Wildlife Management Areas - Parks, Wildlife Management Areas, and Natural Areas are provided for the recreational pleasure of the citizens of the Commonwealth and the nation by local, state, and federal agencies. The recreational values of these areas should be protected and maintained.

d. Waterfront Recreational Land Acquisition - It is the policy of the Commonwealth to protect areas, properties, lands, or any estate or interest therein, of scenic beauty, recreational utility, historical interest, or unusual features which may be acquired, preserved, and maintained for the citizens of the Commonwealth.

e. Waterfront Recreational Facilities - This policy applies to the provision of boat ramps, public landings, and bridges which provide water access to the citizens of the Commonwealth. These facilities shall be designed, constructed, and maintained to provide points of water access when and where practicable.

f. Waterfront Historic Properties - The Commonwealth has a long history of settlement and development, and much of that history has involved both shorelines and near-shore areas. The protection and preservation of historic shorefront properties is primarily the responsibility of the Department of Historic Resources. Buildings, structures, and sites of historical, architectural, and/or archaeological interest are significant resources for the citizens of the Commonwealth. It is the policy of the

COMMONWEALTH of VIRGINIA

James S. Gilmore, III
Governor

John Paul Woodley, Jr.
Secretary of Natural Resources

DEPARTMENT OF ENVIRONMENTAL QUALITY
Street address: 629 East Main Street, Richmond, Virginia 23219
Mailing address: P.O. Box 10009, Richmond, Virginia 23240
Fax (804) 698-4500 TDD (804) 698-4021
http://www.deq.state.va.us

Dennis H. Treacy
Director

(804) 698-4000
1-800-592-5482

June 15, 2001

Ms. Patsy Kerr
1 CES/CEVA
37 Sweeney Boulevard
Langley AFB, VA 23665

RE: Coastal Consistency Determination for Shoreline Stabilization at the Lighter-Than-Air Area Pool and Sewage Pump Station, Langley AFB, Virginia (DEQ-01-102F).

Dear Ms. Kerr:

This letter is in response to correspondence received on June 4, 2001 requesting concurrence with the Federal Consistency Determination pertaining to Virginia's Coastal Resources Management Program (VCP) for the above-referenced project. As you are aware, pursuant to the Coastal Zone Management Act of 1972, as amended, federal actions that can have foreseeable effects on Virginia's coastal uses or resources must be conducted in a manner which is consistent, to the maximum extent practicable, with the VCP. The Department of Environmental Quality (DEQ) is responsible for coordinating Virginia's review of federal consistency determinations and responding to appropriate officials on behalf of the Commonwealth. The following agencies participated in this review:

Department of Environmental Quality
Chesapeake Bay Local Assistance Department
Department of Historic Resources
Department of Mines, Minerals and Energy
Department of Health
Department of Game and Inland Fisheries
Virginia Institute of Marine Science
City of Hampton
Marine Resources Commission

The Hampton Roads Planning District Commission, the Department of Conservation and Recreation, and the Department of Agriculture and Consumer Services were also invited to comment. A public notice of this project was published November 7, 2000 by Langley AFB. An additional public notice of this consistency review was published on the DEQ website from June 5 to June 14, 2001. No comments were received in response to that notice.

The proposed action involves the construction of 600 linear feet of revetment to stabilize and restore the shoreline near the LTA Pool and Sewage Pump Station along Back River in Hampton. Existing concrete and road materials along the shoreline would be removed or resized as part of the new structure. In addition, a narrow fringe marsh of smooth cordgrass *(Spartina alterniflora)* of approximately 250 square feet would be established in the area.

The Virginia Coastal Resources Management Program is comprised of a network of programs administered by several agencies. In order to be consistent with the VCP, the applicant must obtain all the applicable permits and approvals listed under the Enforceable Programs of the VCP prior to commencing the project. **Based on the information provided in the consistency determination that the applicant has obtained all applicable permits and will comply with all approvals from agencies administering the applicable enforceable policies, we concur with the finding that this proposal is consistent with the VCP.** However, other state approvals, which may apply to this project, are not included in this consistency concurrence. Therefore, the Air Force must ensure that this project is constructed in accordance with all applicable federal, state, and local laws and regulations.

The following enforceable programs of the VCP may be applicable to this project:

1. Wetlands and Water Quality. The consistency determination indicated that two small areas of existing tidal wetlands are located at the project site, but would be preserved. In addition, the existing marsh areas would be minimally enhanced with the planting of more than 250 square feet of smooth cordgrass. In a letter dated 4 October 2000, the City of Hampton states that a Hampton Wetlands Permit is not required as long as the revetment does not exceed the footprint of the existing structure.

As indicated in the September 13, 2000 correspondence from the DEQ-Tidewater Regional Office, a Virginia Water Protection Permit is not required. We recommend that potential adverse impacts to water quality resulting from surface runoff be minimized. This can be achieved by using Best Management Practices. Precautions should be taken to prevent the entry of contaminants or sediment into nearby wetlands and waterways. The implementation and maintenance of proper erosion and sediment control measures should minimize the impacts on waters of the State. Contact DEQ's Tidewater Regional Office at (757) 518-2000 for more information. In addition, the Army Corps of Engineers, in a letter dated 28 September 2000, states that the project meets the criteria for the Corps Nationwide Permits 13 and 18.

2. Subaqueous Lands Management. In correspondence dated October 19, 2000, the Virginia Marine Resources Commission (VMRC #00-1482) indicated that a permit is not required, provided that the proposed revetment does not extend channelward of mean low water.

3. Non-point Source Pollution Control. The consistency determination states (page 4-11) that siltation would be kept to a minimum during construction and that proper use of erosion and sediment control barriers would be employed. The Air Force must comply with Virginia's Erosion and Sediment Control Law (*Virginia Code 10.1-567*) and regulations (*4 VAC 50-30-30 et .seq.*) and Stormwater Management Law (*Virginia Code 10.1-603.5*) and regulations (*4 VAC 3-20-210 et seq.*). The Department of Conservation and Recreation (DCR) is authorized, by State statute, to enter into cooperative agreements with federal agencies with responsibilities for

the implementation of erosion and sediment control and stormwater management plans. However, DCR is not required to formally approve these plans. If the Air Force would like technical assistance in the review of applicable standards and specifications for preparation of these plans, contact the Department of Conservation and Recreation's Chowan/Albemarle watershed office at (757) 925-2468.

4. Air Quality Regulations. Construction of new facilities will be subject to regulation by the Department of Environmental Quality. This project is located in an ozone maintenance area and thus all reasonable precautions to limit emission of volatile organic compounds (VOCs) and oxides of nitrogen (NOx) should be taken during the construction phase of the project. The following sections of Virginia Administrative Code are applicable: 9 VAC 5-50-60 et seq. governing fugitive dust emissions; 9 VAC 5-40-5600 et seq. addressing open burning; and 9 VAC 5-40-5490 et seq. restricting cut-back asphalt usage. In addition, during construction, fugitive dust must be kept to a minimum by using control methods outlined in 9 VAC 5-50-60 et seq. of the Regulations for the Control and Abatement of Air Pollution. These precautions include, but are not limited to, the following:

- Use, where possible, of water or chemicals for dust control;
- Installation and use of hoods, fans, and fabric filters to enclose and vent the handling of dusty materials;
- Covering of open equipment for conveying materials; and
- Prompt removal of spilled or tracked dirt or other materials from paved streets, and of dried sediments resulting from soil erosion.

Please contact the DEQ-Tidewater Regional Office, (757) 518-2000, for additional information.

5. Chesapeake Bay Preservation Act. The Chesapeake Bay Preservation Act (*Virginia Code 10.1-2100* et seq.) and the requirements of the Chesapeake Bay Preservation Area Designation and Management Regulations have been incorporated as one of the enforceable programs of the VCP. The Chesapeake Bay Local Assistance Department (CBLAD) stated that, as planned, the project should not impact Chesapeake Bay Preservation Areas.

Also, in addition to the enforceable programs of the VCP, the following resources and programs may also be affected:

1. Natural Heritage Resources. Natural heritage resources are defined as the habitat of rare, threatened, or endangered animal and plant species, unique or exemplary natural communities, and significant geologic formation. The Department of Conservation and Recreation's Division of Natural Heritage (DNH) maintains a database on natural heritage resources in Virginia. We recommend that the DNH be contacted at (804) 786-7951 as the project is developed, to secure updated information on the presence or absence of natural heritage resources. Also, the Department of Agriculture and Consumer Services maintains a database on endangered and threatened plants and insect species. The person to contact is Frank Fulgham (804) 786-3515. In addition, the Department of Game and Inland Fisheries administers the Commonwealth's protected species legislation. For more information, contact Raymond Fernald at (804) 367-1000.

2. Historic Structures and Archaeological Resources. The Department of Historic Resources stated in a letter dated June 13, 2001 to Ms. Patsy Kerr, that Langley should further coordinate this project with the Department in accordance with Section 106 of the National Historic Preservation Act of 1966, as amended. For more information, contact Lily Richards at (804) 367-2323, extension 140.

3. Solid and Hazardous Wastes. All solid wastes generated at the site should be reduced at the source, re-used, or recycled. All hazardous wastes should be minimized. Solid waste, hazardous waste, and hazardous materials must be managed in accordance with all applicable federal, state, and local environmental regulations. The consistency determination (page 4-10) states that any solid waste generated would be recycled elsewhere on base, in the Tidewater area or off site at the Bethel Sanitary Landfill. For more information, contact the DEQ–Tidewater Regional Office at (757) 518-2000.

4. Pesticides and Herbicides. The use of herbicides or pesticides for landscape maintenance should be in accordance with the principles of integrated pest management. The least toxic pesticides that are effective in controlling the target species should be used. Also, we recommend that the use of pesticides or herbicides containing volatile organic compounds as their active ingredient be avoided to the maximum extent practicable in order to protect air quality. Otherwise, the use of these pesticides or herbicides should be applied outside of the ozone season. Please contact the Department of Agriculture and Consumer Services at (804) 786-3501 for more information.

5. *Pollution Prevention.* The DEQ has several recommendations regarding pollution prevention:

- Consider environmental attributes when purchasing materials. For example, the extent of recycled material content and toxicity levels should be considered.
- Consider contractors' commitments to the environment when choosing contractors. Also, specifications regarding raw material selection (alternative fuels and energy sources) and construction practices can be included in contract documents and requests for proposals.
- Choose sustainable practices and materials in construction and design. These could include asphalt and concrete containing recycled materials and integrated pest management in landscaping.

Pollution prevention measures are likely to reduce potential environmental impacts and reduce costs for material purchasing and waste disposal. For more information, contact DEQ's Office of Pollution Prevention, Mr. Tom Griffin at (804) 698-4545.

Thank you for the opportunity to comment on this undertaking. If you have any questions, please feel free to contact me at (804) 698-4328.

Sincerely,

Ellie L. Irons
EIR Program Manager

Enclosures

Cc: Sheri Kattan DEQ-TRO
Derral Jones, DCR
Catherine Harold, CBLAD
Arthur L. Collins, Hampton Roads PDC