Statement of Findings for Wetlands

Metropolitan Washington Airports Authority
Ronald Reagan Washington National Airport
Runway 15-33 Runway Safety Area Enhancements

Potomac River
Washington, D.C.
March 2013

Recommended: _____

Alexcy Romero, Acting Suprintendent, George Washington Memorial Parkway (NPS) Date

Concurred: _____

Ed Harvey, Chief, Water Resources Division (NPS) Date

Approved: _____

Stephen Whitesell, Director, National Capital Region (NPS) Date

Introduction

The Metropolitan Washington Airports Authority (the Airports Authority) operates Ronald Reagan Washington National Airport (the Airport), which occupies 733 acres of land and 127 acres of submerged land situated along the western shore of the Potomac River. The land and submerged land are owned by the United States of America and administered by the Federal Aviation Administration (FAA).

In its Runway Safety Area (RSA) Determination prepared in 2007, the FAA found that the existing Runway 15-33 RSA did not meet the applicable FAA design and engineering standards. To comply with the U.S. Department of Transportation Appropriations Act for Federal Fiscal Year 2006 (the "Act"), FAA Order 5200.8, *Runway Safety Area Program*, and FAA Order 5200.9, *Financial Feasibility and Equivalency of Runway Safety Area Improvements and Engineered Material Arresting Systems*, the Airports Authority must enhance the Runway 15-33 RSA at the Airport by Federal Fiscal Year 2015. FAA Advisory Circular (AC) 150/5300-13, *Airport Design*, defines the design standards for RSAs. FAA AC 150/5220-22A, *Engineered Materials Arresting Systems (EMAS) for Aircraft Overruns,* defines the define standards for EMAS used within the RSA. A vicinity map depicting the general location of the Airport and the RSA study area is provided as **Figure 1**.

The Airports Authority evaluated the impacts of the planned RSA enhancements and their reasonable alternatives in a Final Environmental Assessment, *Runway 4-22 and Runway 15-33 Runway Safety Area Enhancements* (March 2012) (FEA) pursuant to the requirements of FAA Order 1050.1E, *Environmental Impacts: Policies and Procedures* and FAA Order 5050.4B*, National Environmental Policy Act (NEPA) Implementing Instructions for Airport Actions*. The FAA issued a Finding of No Significant Impact (FONSI) and Record of Decision (ROD) in April 2012.

Executive Order 11990 (Protection of Wetlands) requires the National Park Service (NPS) and other federal agencies to evaluate the likely impacts of actions in wetlands. NPS Director's Order #77-1: Wetland Protection and Procedural Manual #77-1 provide NPS policies and procedures for complying with E.O. 11990. This Statement of Findings (SOF) documents compliance with these NPS wetland protection management procedures.

Purpose of Proposed Action

The RSA enhancements are being constructed to comply with the Act, FAA Orders 5200.8 and 5200.9 and the two FAA ACs referred to above. The FAA has determined that the proposed RSA enhancements project (the Project) provides for an RSA that would meet the applicable design and engineering standards, thereby providing a measure of safety in the event of an aircraft excursion from Runway 15-33 by significantly reducing the extent of personal injury and aircraft damage during overruns, under-shoots, or veer-offs.

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Figure 1:
Study Area Map

Ronald Reagan
Washington National Airport
Runway 15-33
Runway Safety Area Enhancements
Washington, D.C.

Wetland Statement of Findings

METROPOLITAN WASHINGTON AIRPORTS AUTHORITY

Legend:

- Limits of Study Area
- Ronald Reagan Washington National Airport Property Line

Scale: 1 inch = 2,000 feet

0 1,000 2,000 4,000 Feet

Base Data: Esri

Alternatives Considered

Within the context of the requirements of FAA Order 5200.8 and FAA AC 150/5300-13, the Airports Authority conducted a number of studies to consider various RSA enhancement scenarios in terms of operational capabilities, potential environmental impacts, effectiveness, and practicability. The Airports Authority developed and evaluated twenty-three alternatives for Runway 15-33 that included one or more of the following features:

- Constructing a standard RSA (i.e., a traditional graded RSA that complies with the FAA RSA design standard prescribed by FAA AC 150/5300-13)
- Relocating, shifting, and/or realigning the runway
- Reducing the length of the runway
- Implementing a combination of relocating, shifting, and/or realigning the runway and reducing runway length
- Using declared distances (FAA AC 150/5300-13 defines declared distances as the distances an airport operator declares available for an aircraft's takeoff run, takeoff distance, accelerate-stop distance, and landing distance requirements)
- Using EMAS

Detailed descriptions of the alternatives are included in Section III "Alternatives" and Appendix D "Alternatives" of the FEA.

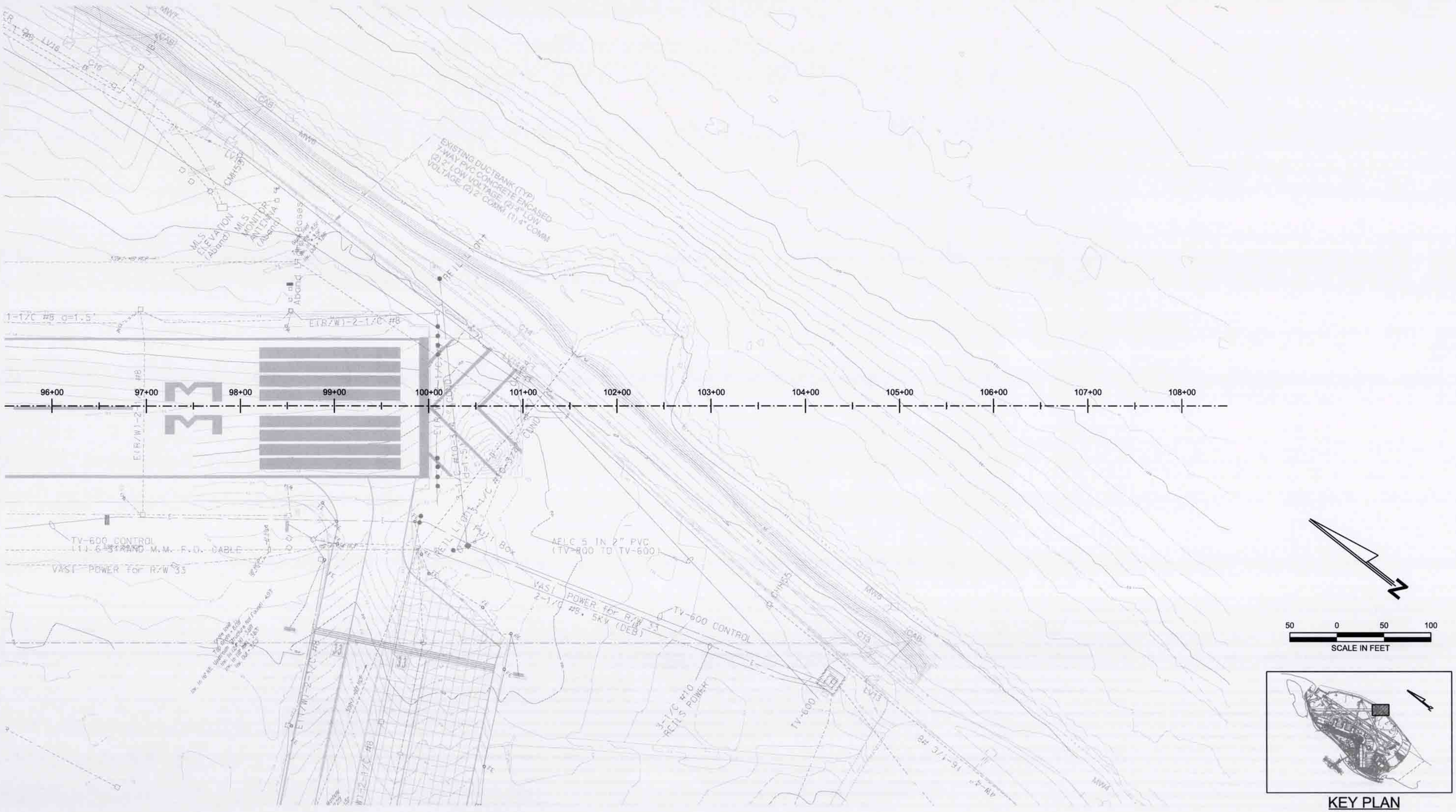
The Airports Authority conducted a first level of screening, during which fifteen of the twenty-three alternatives for Runway 15-33 were eliminated because those alternatives would not meet the stated purpose of and need for the Proposed Action (i.e., to bring the Runway 15-33 RSA into compliance with FAA Order 5200.8 and FAA AC 150/5300-13 for the critical design aircraft). Because of its extreme impacts and probable costs, the Airports Authority also eliminated one additional alternative for Runway 15-33 that would have involved placing fill in the Potomac River at the southeast end of Runway 15-33 and placing a pier over the George Washington Memorial Parkway and a tunnel for the Parkway under the pier at the northwest end of Runway 15-33.

After the initial screening, seven Preliminary EA Action Alternatives for Runway 15-33 and the No Action Alternative were retained for further environmental analysis.

The second level of screening of the Preliminary EA Action Alternatives and the No Action Alternative considered avoidance and minimization of impacts on the Waters of the United States and Wetlands, impacts on runway length and Airport operations, practicability (alternatives with a construction cost less than $38 million were considered to be practicable based on consultation with the FAA), and, where applicable, the ability of the EMAS to stop the critical design aircraft exiting the Runway within the RSA. The Airports Authority selected one Action Alternative and the No Action Alternative for further environmental review.

During the design process that followed the FONSI/ROD, the Airports Authority was able to reduce the impacts on the Waters of the United States from the 5.3 acres reported in the FEA to 4.5 acres. The Airports Authority has determined that no further reductions in the impact area can be reasonably expected. **Figures 2.1 through 2.6** depict the Project design based on the Ronald Reagan Washington National Airport Runway 15-33 Safety Area Enhancements Contract No. 1-11-C010 Engineer's Design Report 100% Design Submittal prepared by Jacobs.

FIGURE 2.1



NO.	REVISION	DATE

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CHRIS W. BOWKER, P.E. No. 037228

DATE	07/30/12
SCALE	AS SHOWN
DESIGNED	WCW
CHECKED	CWB
DRAWN	JKS
ACCEPTED	GKF
SUBMITTED	DRH
APPROVED	FDH

METROPOLITAN WASHINGTON AIRPORTS AUTHORITY

METROPOLITAN WASHINGTON
AIRPORTS AUTHORITY

OFFICE OF ENGINEERING
DESIGN DEPARTMENT

RUNWAY 15-33 RUNWAY SAFETY AREA ENHANCEMENTS
RUNWAY 15-33 EARTHWORK
RONALD REAGAN WASHINGTON NATIONAL AIRPORT
WASHINGTON, DC

EXISTING CONDITIONS

PROJECT IDENTIFIER	DA1104
SHEET NAME	CV01.0001
VOLUME NUMBER	1 of 1
SHEET NUMBER	13 of 43

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LOW
LIMITS OF WORK
BOTTOM OF SLOPE
1:5 FINISHING SLOPE
TOP OF SLOPE
3:1
8.00
8.50
9.00
9.50
10.00
8.25
96+00
97+00
98+00
99+00
100+00
101+00
102+00
103+00
104+00
105+00
106+00
107+00
108+00

50 0 50 100
SCALE IN FEET

KEY PLAN

NO.	REVISION	DATE

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METROPOLITAN WASHINGTON AIRPORTS AUTHORITY

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OFFICE OF ENGINEERING
DESIGN DEPARTMENT

RUNWAY 15-33 RUNWAY SAFETY AREA ENHANCEMENTS
RUNWAY 15-33 EARTHWORK
RONALD REAGAN WASHINGTON NATIONAL AIRPORT
WASHINGTON, DC

GRADING PLAN

PROJECT IDENTIFIER	DA1104
SHEET NAME	CV03.0001
VOLUME NUMBER	1 of 1
SHEET NUMBER	15 of 43

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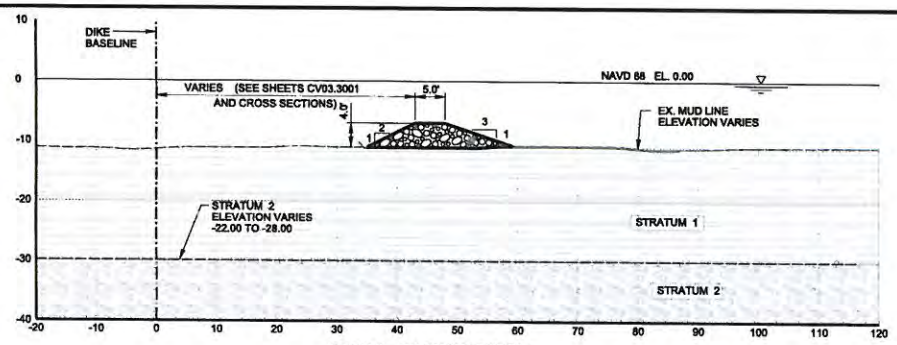
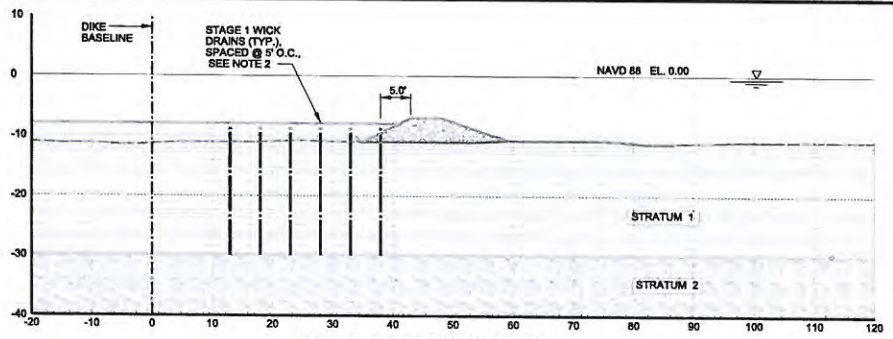
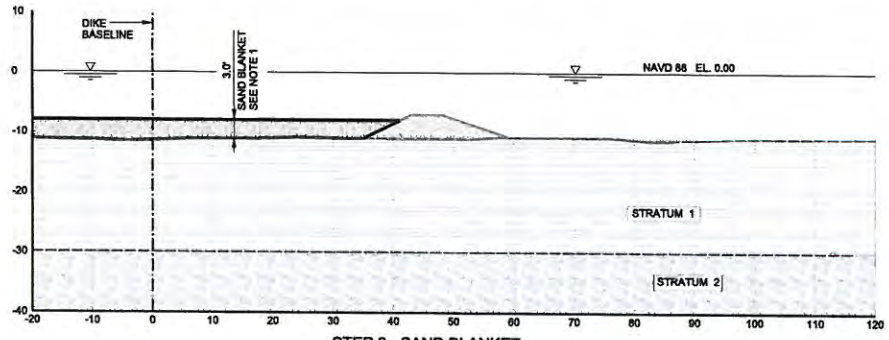
FIGURE 2.3



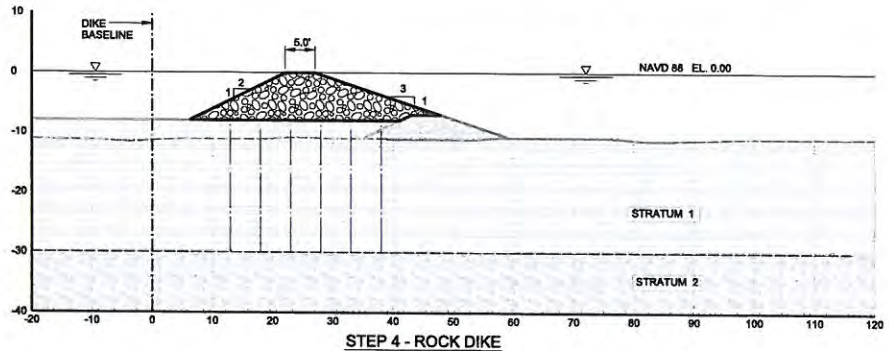
STEP 1 - ROCK TOE BERM



STEP 3 - STAGE 1 WICK DRAINS



STEP 2 - SAND BLANKET



STEP 4 - ROCK DIKE

SEQUENCE OF CONSTRUCTION

STEP 1: PLACE VDOT CLASS I RIPRAP TOE BERM.

STEP 2: PLACE 3.0' THICK SAND BLANKET.

STEP 3: INSTALL STAGE 1 WICK DRAINS.

STEP 4: PLACE VDOT CLASS I RIPRAP DIKE TO ELEVATION 0.0.

STEP 5: PLACE HYDRAULIC SAND FILL TO ELEVATION 5.00. CONSTRUCT SAND BERM UNDER ARMOR STONE TO ELEVATION 6.00.

STEP 6: PLACE ARMOR STONE TO ELEVATION +11.00. INSTALL STAGE 2 WICK DRAINS.

STEP 7: PLACE STAGE 2 SAND FILL TO ELEVATION +11.00 AFTER PRELOAD PERIOD FOR STAGE 1 SAND FILL IS COMPLETE.

STEP 8: REMOVE EXCESS SURCHARGE FILL TO RUNWAY 15-33 FINAL GRADE ELEVATIONS AFTER PRELOAD PERIOD FOR STAGE 2 SAND FILL IS COMPLETE.

NOTES:

1. SAND BLANKET IS NOT REQUIRED WHEN EXISTING MUDLINE IS ABOVE ELEVATION +5.0.
2. INSTALL WICK DRAINS TO PENETRATE INTO STRATUM 2.
3. ALL FILL MATERIAL SHALL BE UNCONTAMINATED. THE USE OF CONTAMINATED FILL AS DEFINED UNDER 40 CFR 230.3 IS PROHIBITED. THE CONTRACTOR SHALL CERTIFY THAT ALL FILL MATERIAL IS UNCONTAMINATED.

LEGEND:

- VDOT CLASS I RIPRAP
- SAND FILL
- ARMOR STONE SLOPE PROTECTION VDOT CLASS 3 RIPRAP
- STRATUM 1: GREY, BROWN, VERY SOFT SILT
- STRATUM 2: BROWN, DENSE SILTY SAND AND GRAVEL

10 0 10 20
SCALE IN FEET

moffatt & nichol

NO.	REVISION	DATE

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DESIGNED	PWK
DRAWN	RG
CHECKED	PWK
ACCEPTED	GKF
SUBMITTED	DRH
APPROVED	FDH

METROPOLITAN WASHINGTON AIRPORTS AUTHORITY

METROPOLITAN WASHINGTON AIRPORTS AUTHORITY
OFFICE OF ENGINEERING
DESIGN DEPARTMENT

RUNWAY 15-33 RUNWAY SAFETY AREA ENHANCEMENTS
RUNWAY 15-33 EARTHWORK
RONALD REAGAN WASHINGTON NATIONAL AIRPORT
WASHINGTON, DC

SEQUENCE OF CONSTRUCTION
SHEET 1 OF 2

PROJECT IDENTIFIER	DA1104
SHEET NAME	CV03.2001
VOLUME NUMBER	1 of 1
SHEET NUMBER	18 of 43

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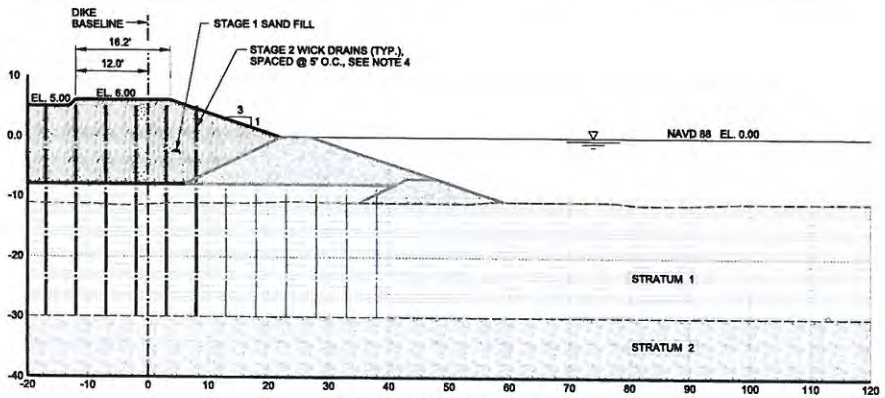
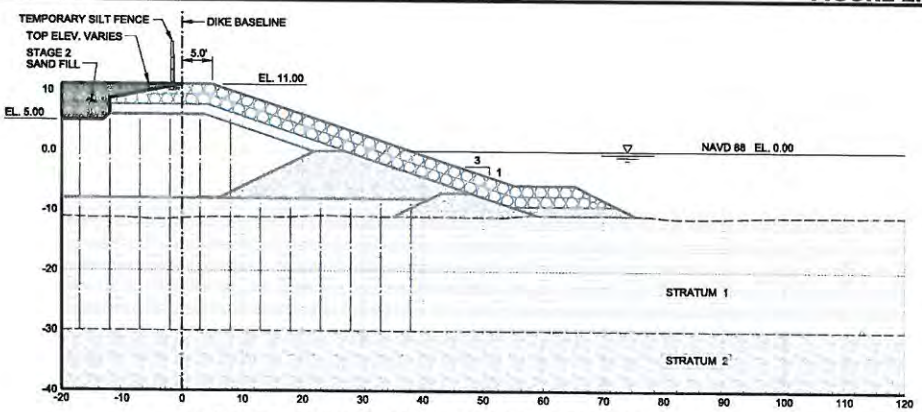
FIGURE 2.4

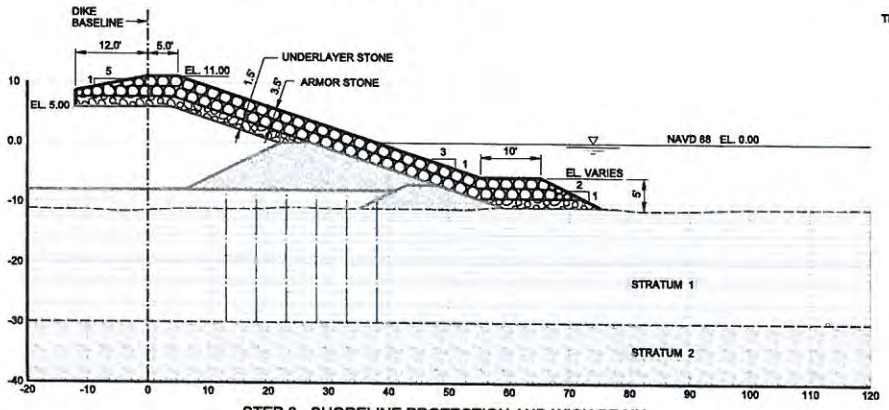


STEP 5 - STAGE 1 FILL

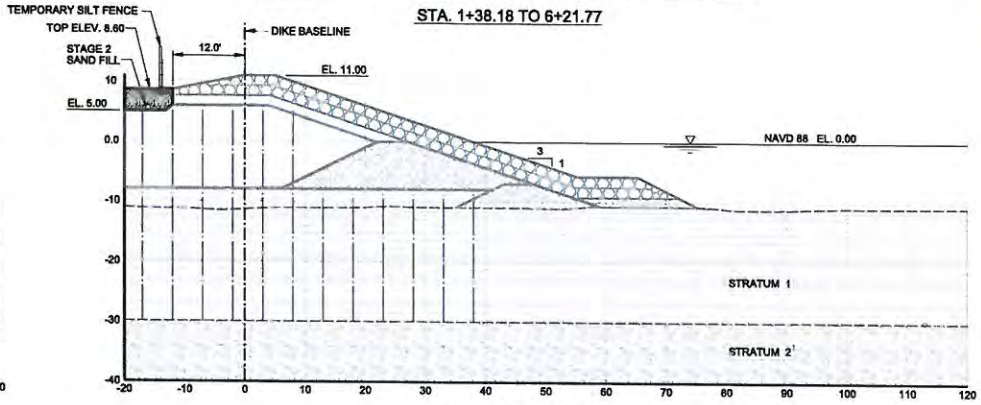


STEP 7A - STAGE 2 FILL (SHOWN AT CENTERLINE RUNWAY 15-33)

STA. 1+38.18 TO 6+21.77



STEP 6 - SHORELINE PROTECTION AND WICK DRAIN



STEP 7B - STAGE 2 FILL

STA. 6+21.77 TO 11+97.04

NOTES:

1. TOP OF STAGE 2 SAND FILL IS APPROXIMATELY 1'-0" ABOVE FINAL ELEVATIONS. SEE FINAL GRADING PLAN.
2. EXCESS FILL MATERIAL ABOVE RUNWAY 15-33 ELEVATIONS SHALL BE USED AS DIRECTED BY THE ENGINEER.
3. FINAL ARMOR CREST ELEVATION AFTER SETTLEMENT SHALL BE NO HIGHER THEN ELEVATION +10.0.
4. INSTALL WICK DRAINS TO TOP OF STRATUM 2.
5. INSTALL TEMPORARY SILT FENCE. FOR SILT FENCE NOTES AND DETAILS, SEE SHEET CV03.3005.
6. ALL FILL MATERIAL SHALL BE UNCONTAMINATED FILL. THE USE OF CONTAMINATED FILL AS DEFINED UNDER 40 CFR 230.3 IS PROHIBITED. THE CONTRACTOR SHALL CERTIFY THAT ALL FILL MATERIAL IS UNCONTAMINATED.

LEGEND:

- VDOT CLASS I RIPRAP
- SAND FILL
- ARMOR STONE SLOPE PROTECTION VDOT CLASS 3 RIPRAP
- STRATUM 1: GREY, BROWN, VERY SOFT SILT
- STRATUM 2: BROWN, DENSE SILTY SAND AND GRAVEL

10 0 10 20
SCALE IN FEET

moffatt & nichol

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SCALE	AS SHOWN
DESIGNED	PWK
CHECKED	PWK
DRAWN	RG
ACCEPTED	GKF
SUBMITTED	DRH
APPROVED	FDH

METROPOLITAN WASHINGTON AIRPORTS AUTHORITY

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DESIGN DEPARTMENT

RUNWAY 15-33 RUNWAY SAFETY AREA ENHANCEMENTS
RUNWAY 15-33 EARTHWORK
RONALD REAGAN WASHINGTON NATIONAL AIRPORT
WASHINGTON, DC

SEQUENCE OF CONSTRUCTION
SHEET 2 OF 2

PROJECT IDENTIFIER	DA1104
SHEET NAME	CV03.2002
VOLUME NUMBER	1 of 1
SHEET NUMBER	19 of 43

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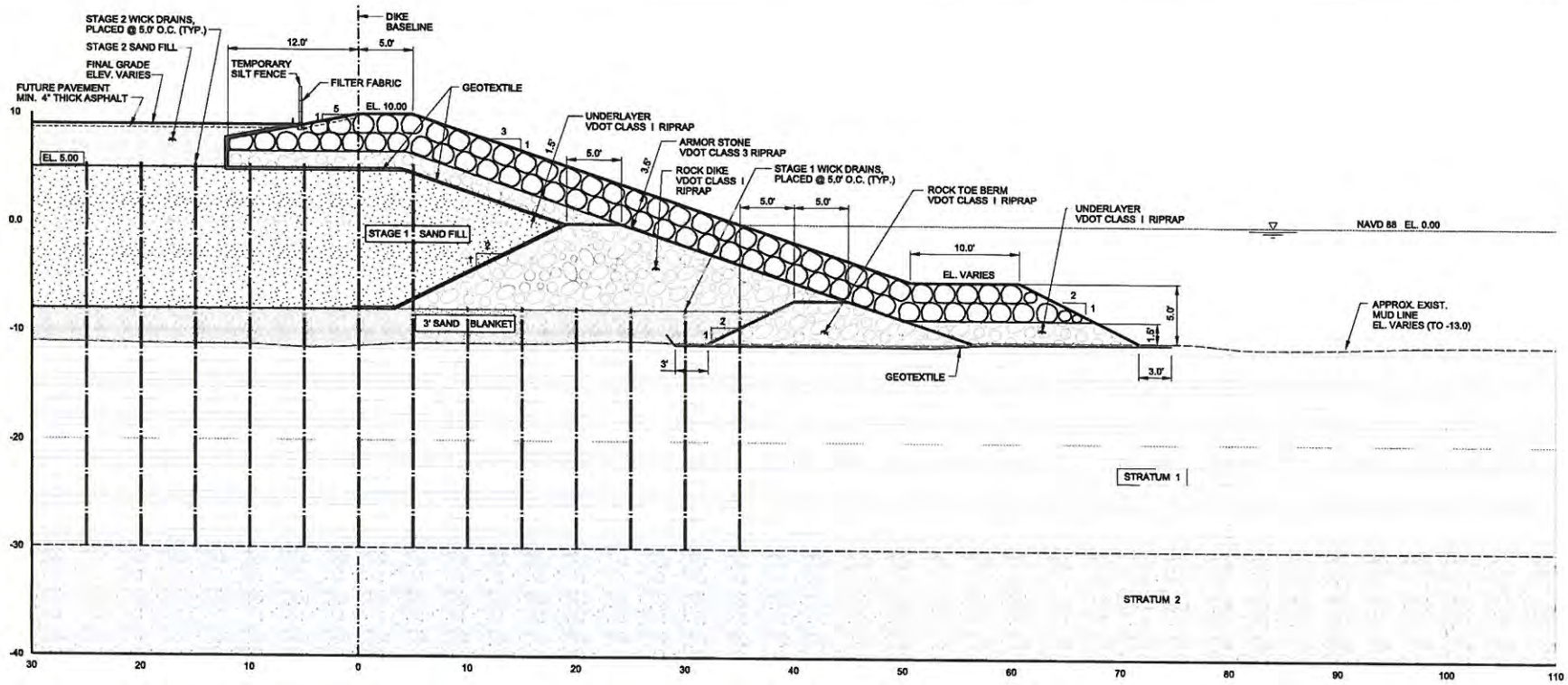
FIGURE 2.5



TYPICAL SECTION - STA. 1+38.18 TO STA. 6+21.77
SCALE: 1"=5'

NOTES:

1. TOP OF STAGE 2 SAND FILL IS APPROXIMATELY 1'-0" ABOVE FINAL ELEVATIONS. SEE FINAL GRADING PLAN.
2. EXCESS FILL MATERIAL ABOVE RUNWAY FINAL ELEVATIONS SHALL BE USED AS DIRECTED BY THE ENGINEER.
3. FINAL ARMOR CREST ELEVATION AFTER SETTLEMENT SHALL BE NO LOWER THAN ELEVATION +10.0.
4. INSTALL WICK DRAINS TO TOP OF STRATUM 2.

LEGEND:

- VDOT CLASS I RIPRAP
- SAND FILL
- ARMOR STONE SLOPE PROTECTION VDOT CLASS 3 RIPRAP
- STRATUM 1: GREY, BROWN, VERY SOFT SILT
- STRATUM 2: BROWN, DENSE SILTY SAND AND GRAVEL

5 0 5 10
SCALE IN FEET

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NO.	REVISION	DATE

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DATE	07/30/12
SCALE	AS SHOWN
DESIGNED	PWK
DRAWN	RG
CHECKED	PWK
ACCEPTED	GKF
SUBMITTED	DRH
APPROVED	FDH

METROPOLITAN WASHINGTON AIRPORTS AUTHORITY

OFFICE OF ENGINEERING
DESIGN DEPARTMENT

RUNWAY 15-33 RUNWAY SAFETY AREA ENHANCEMENTS
RUNWAY 15-33 EARTHWORK
RONALD REAGAN WASHINGTON NATIONAL AIRPORT
WASHINGTON, DC

RUNWAY 15-33 SHORE PROTECTION
TYPICAL SECTION
STA. 1+38.18 TO STA. 6+21.77

PROJECT IDENTIFIER	DA1104
SHEET NAME	CV03.2003
VOLUME NUMBER	1 of 1
SHEET NUMBER	20 of 43

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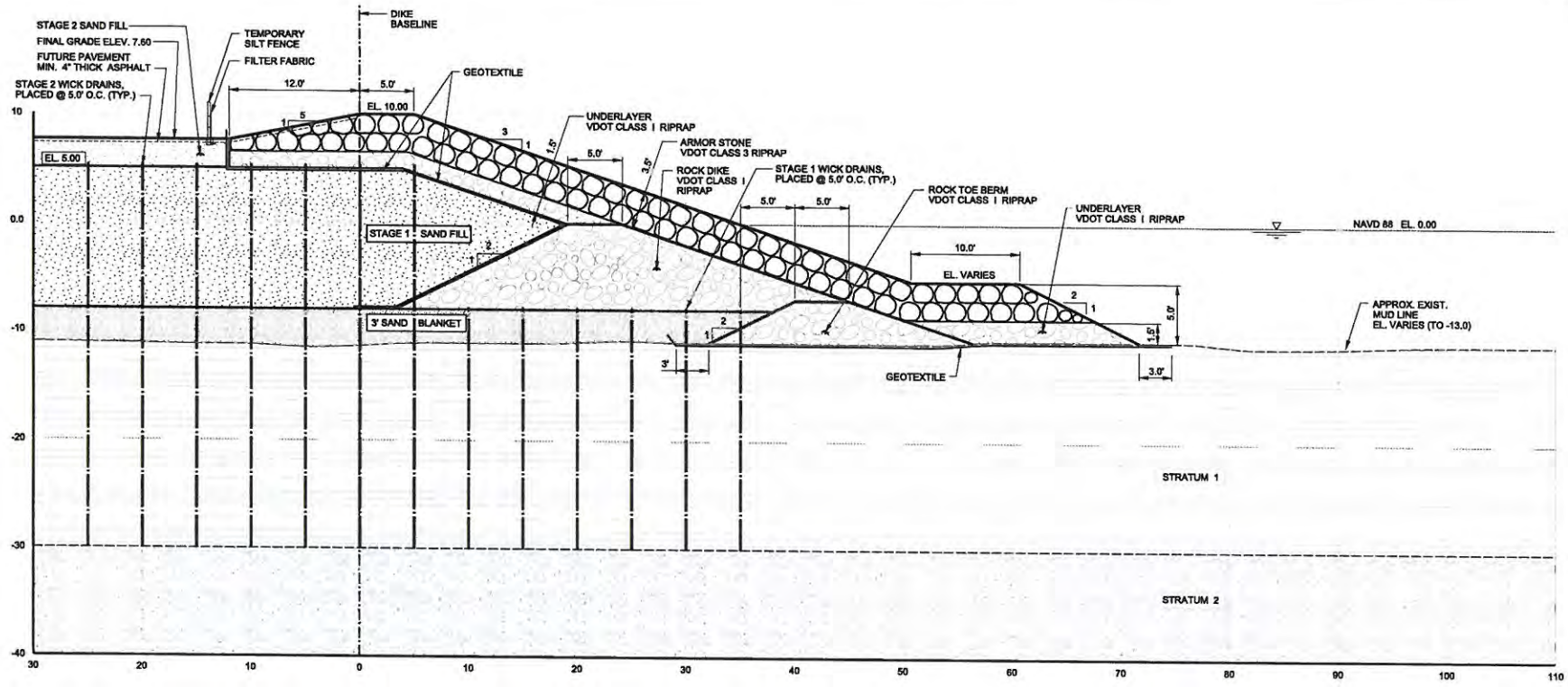
FIGURE 2.6



TYPICAL SECTION - STA. 6+21.77 TO STA. 11+97.04
SCALE: 1"=5'

NOTES:

1. TOP OF STAGE 2 SAND FILL IS APPROXIMATELY 1'-0" ABOVE FINAL ELEVATIONS. SEE FINAL GRADING PLAN.
2. EXCESS FILL MATERIAL ABOVE RUNWAY FINAL ELEVATIONS SHALL BE USED AS DIRECTED BY THE ENGINEER.
3. FINAL ARMOR CREST ELEVATION AFTER SETTLEMENT SHALL BE NO LOWER THAN ELEVATION +10.0.
4. INSTALL WICK DRAINS TO TOP OF STRATUM 2.

LEGEND:

- VDOT CLASS I RIPRAP
- SAND FILL
- ARMOR STONE SLOPE PROTECTION VDOT CLASS 3 RIPRAP
- STRATUM 1: GREY, BROWN, VERY SOFT SILT
- STRATUM 2: BROWN, DENSE SILTY SAND AND GRAVEL

5 0 5 10
SCALE IN FEET

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NO.	REVISION	DATE

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RUNWAY 15-33 RUNWAY SAFETY AREA ENHANCEMENTS
RUNWAY 15-33 EARTHWORK
RONALD REAGAN WASHINGTON NATIONAL AIRPORT
WASHINGTON, DC

RUNWAY 15-33 SHORE PROTECTION
TYPICAL SECTION
STA. 6+21.77 TO STA. 11+97.04

PROJECT IDENTIFIER	DA1104
SHEET NAME	CV03.2004
VOLUME NUMBER	1 of 1
SHEET NUMBER	21 of 43

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The Project and the National Park Service Boundary

Part of the riverbed of the Potomac River, within the District of Columbia, falls under the management jurisdiction of the NPS. The RSA enhancements Project is subject to NPS wetland management policies because of proposed impacts to riverine tidal wetlands (the riverbed) on NPS property. However, since a portion of the RSA enhancements Project area is to be constructed on riverbed owned by the United States of America, administered by the FAA and leased to the Airports Authority, NPS jurisdiction is limited to the 1.94 acres of the riverbed Project area outside of the Airport property boundary.

Site Conditions

Uplands and Wetlands within the Project Area

The boundaries of all wetlands and other Waters of the United States (WOUS) within the RSA enhancements Project area were delineated by Straughan Environmental Services, Inc. (SES). The results of their delineation are documented in two separate reports dated October 2006 and August 2008. The U.S. Army Corps of Engineers (COE) verified the results of the 2006 delineation with a COE Jurisdictional Determination (JD) dated January 29, 2008 (COE #CENAB-2006-02341). The COE verified the results of the 2008 delineation with a JD dated October 23, 2008 (COE #NAO-2008-02979).

As stipulated in the NPS Procedural Manual #77-1 Wetland Protection (NPS, 2011), the NPS uses *Classification of Wetlands and Deepwater Habitats of the United States* (Cowardin et al. 1979) as the standard for defining, classifying, and inventorying wetlands. Under the Cowardin definition, this reach of the Potomac River is classified as riverine, tidal, unconsolidated bottom, wetlands. These areas lack hydrophytes, but contain undrained hydric soils. The limit of riverine wetlands within the RSA enhancements Project area extends out from the mean high water line on the river bank. Notwithstanding the Cowardin definition of riverine wetlands, the landward extent of NPS jurisdiction of riverine wetlands associated with the DCA RSA Project is limited by the DCA property boundary as NPS jurisdiction does not extend onto land administered by the FAA and leased to the Airports Authority. Construction of the selected design alternative for the RSA enhancements Project will result in 1.94 acres of impact to riverine tidal wetlands under the jurisdiction of NPS, which is the wetland area of concern for this document. **Figures 3 and 4** depict the limits of the wetland within the entire Project area as well the 1.94 acres of riverine tidal wetland within NPS jurisdiction.

Functions Provided by Wetlands within the Project Area

The riverine tidal wetlands within the Project area primarily function to provide freshwater fish, shellfish, and other wildlife habitat; however, these functions are compromised by existing riprap modification of the shoreline. As a result of the riprap shoreline stabilization, these wetlands do not support native emergent vegetation communities which function to provide critical fish, shellfish, and wildlife habitat. Other important functions associated with intact riverine tidal wetlands, such as sediment retention, are not provided by the wetlands within the Project area.

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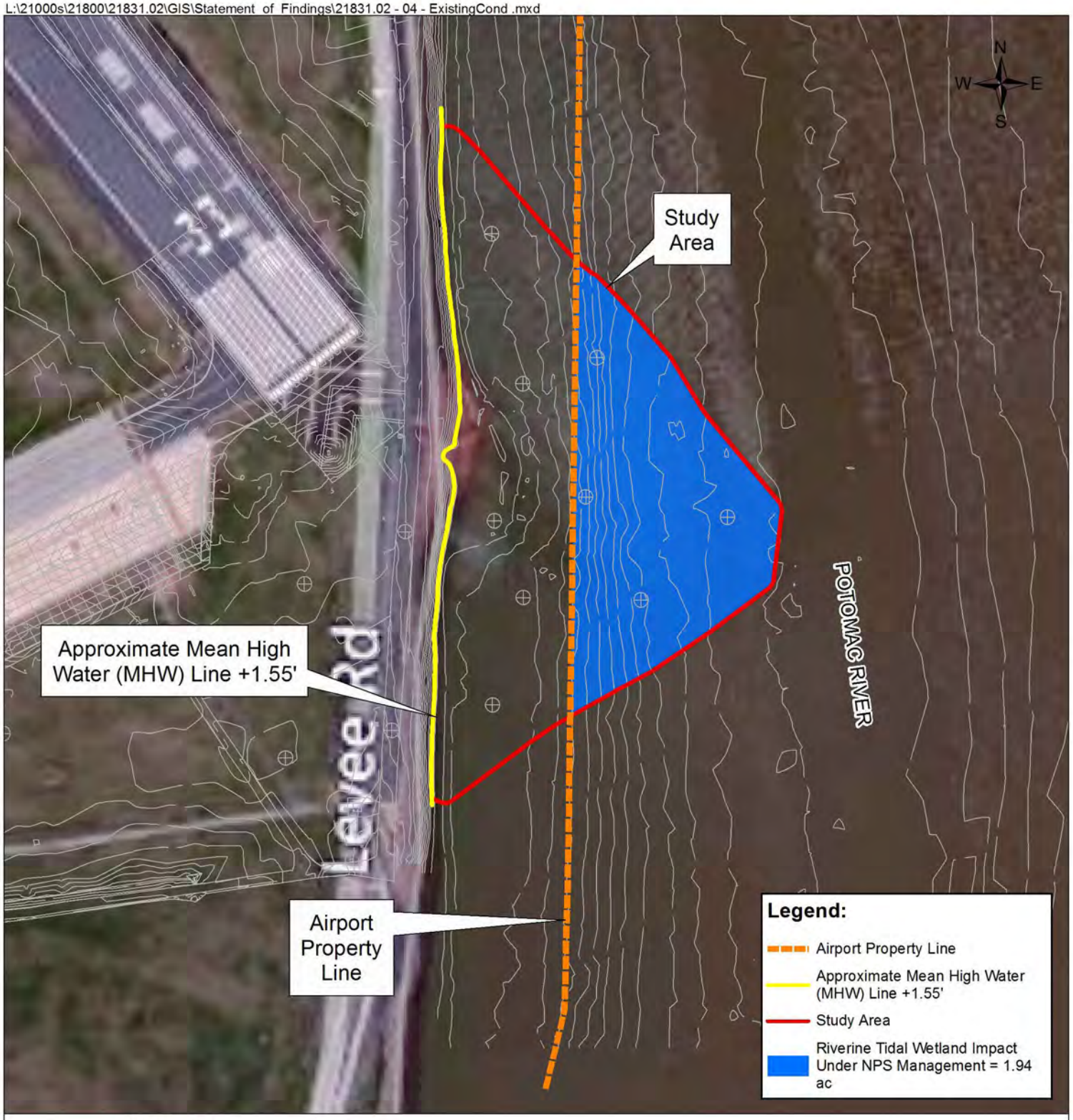

Figure 3:
Existing Conditions
Ronald Reagan
Washington National Airport
Runway 15-33
Runway Safety Area Enhancements
Washington, D.C.

Wetland Statement of Findings

METROPOLITAN WASHINGTON AIRPORTS AUTHORITY

Scale: 1 inch = 150 feet

0 75 150 300 Feet

BASE TOPOGRAPHY AND SITE PLAN DATA WERE PROVIDED IN DIGITAL FORMAT BY JACOBS AND MOFFATT & NICHOL AND USED AS A BASE FOR THIS EXHIBIT. MINOR GRAPHICAL CHANGES WERE MADE AND TEXT WAS ADDED BY WSSI. PHOTO SOURCE: ESRI BING MAPS AERIAL 2011. THE PROPOSED PROJECT WOULD IMPACT APPROXIMATELY 830 LINEAR FEET OF SHORELINE.

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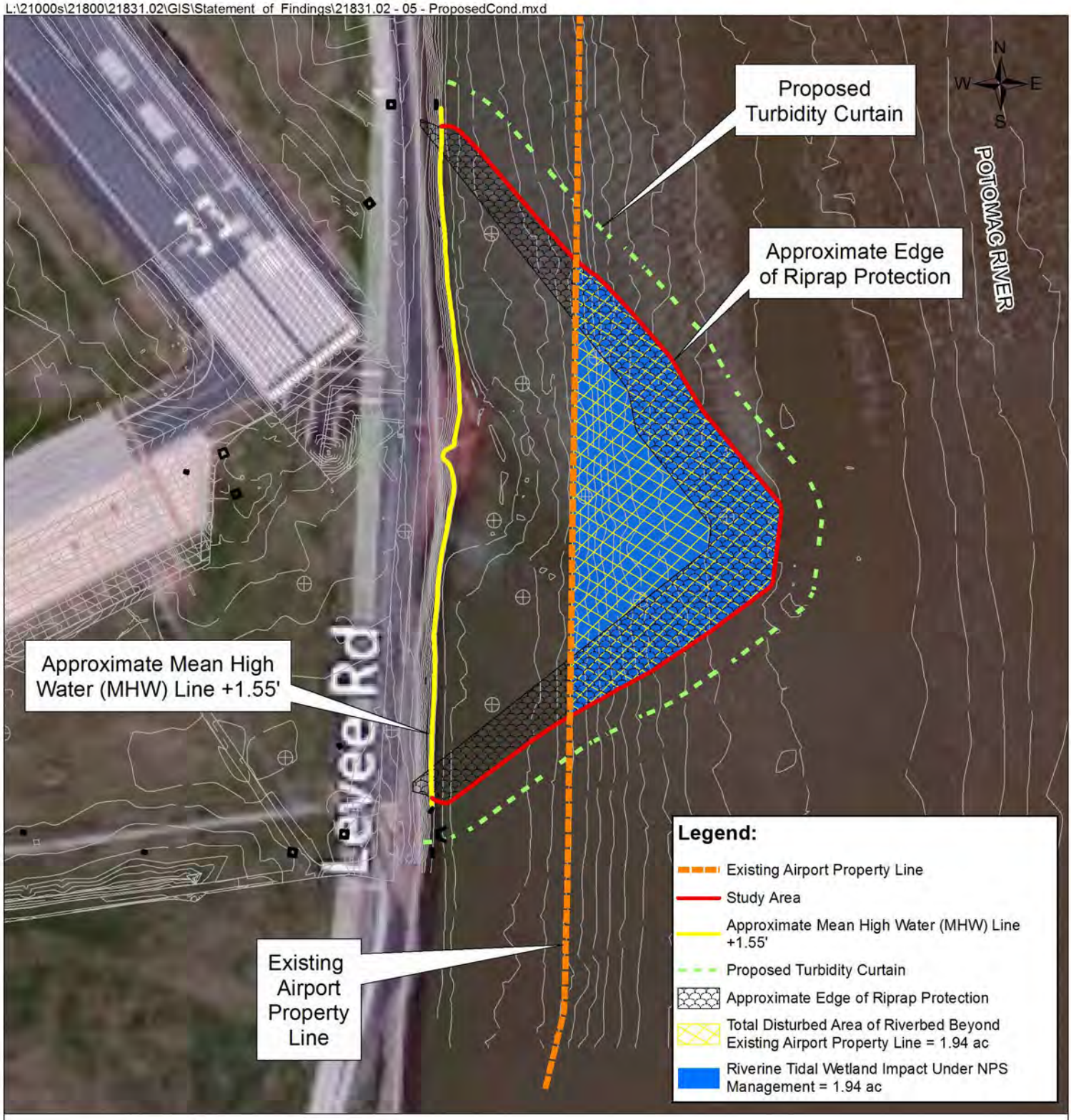

Figure 4:
Proposed Conditions

Ronald Reagan
Washington National Airport
Runway 15-33
Runway Safety Area Enhancements
Washington, D.C.

Wetland Statement of Findings

METROPOLITAN WASHINGTON AIRPORTS AUTHORITY

Scale: 1 inch = 150 feet

0 75 150 300 Feet

BASE TOPOGRAPHY AND SITE PLAN DATA WERE PROVIDED IN DIGITAL FORMAT BY JACOBS AND MOFFATT & NICHOL AND USED AS A BASE FOR THIS EXHIBIT. MINOR GRAPHICAL CHANGES WERE MADE AND TEXT WAS ADDED BY WSSI. PHOTO SOURCE: ESRI BING MAPS AERIAL 2011. THE PROPOSED PROJECT WOULD IMPACT APPROXIMATELY 830 LINEAR FEET OF SHORELINE.

Given the relatively poor water quality[1] associated with the portion of the river where the impacts are proposed, the composition of the river substrate[2] within the proposed impact area, its proximity to an existing airport, the fact that the existing shoreline is lined with rip rap, that the area is only intermittently populated with SAV and that the SAV that has been documented[3] in the area primarily consists of Hydrilla verticillata (a non-native highly invasive species) the functional value of the impact area, as outlined in **Table 1**, has been determined to be low.

Table 1 – Tidal Riverine with Intermittent SAV Population

Functional Value Parameter	Score	Explanation
Flood Protection	Low	As documented in the Final Environmental Assessment, Runway 4-22 and Runway 15-33 Runway Safety Area Enhancements (March 2012) Section 5.7, the proposed fill will not present any barriers to flood flow passage, nor increase the 100-year floodplain.
Water Quality	Low	The U.S. Environmental Protection Agency (USEPA) lists the Upper Tidal Potomac River in the RSA Project area on the 303(d) list of impaired waters and identifies high coliform bacteria levels, toxics in sediments, and toxin-contaminated fish as the primary factors for noncompliance.
Shoreline Erosion Control	Low	Existing shoreline is lined with rip rap. New shoreline of fill area will also be lined with riprap so this functional parameter will remain unchanged.
Aquatic Productivity	Medium	No tidal wetland present, however, shoreline is intermittently populated by SAV.
Fish and Wildlife Habitat	Medium	Due to intermittent population by SAV.
Aesthetics	Low	Due to rip rap lined shoreline and proximity to existing runway.
Recreation	Low	Aircraft noise and proximity to existing runway.
Average Score	**Low**	

Source: Wetland Studies and Solutions, Inc., January 2013.
Prepared by: Wetland Studies and Solutions, Inc., January 2013.

[1] *The U.S. Environmental Protection Agency (USEPA) lists the Upper Tidal Potomac River in the study area vicinity on the 303(d) list of impaired waters and identifies high coliform bacteria levels, toxics in sediments, and toxin-contaminated fish as the primary factors for noncompliance. USEPA, Listed Water Information, 2008, Potomac, DC, http://iaspub.epa.gov/tmdl_waters10/enviro.control?p_list_id=DCPMS00E_03.*

[2] *Collected samples indicate that the local river sediments are predominantly fine sand and silt (with high organic content) between 0 and 15 feet deep. Straughan Environmental Services, Inc., River Sediment Quality Assessment Report Runway 15/33 and 4/22 Safety Area Study, July 2007.*

[3] *Based on digital SAV survey data provided by the District of Columbia Department of the Environment (DDOE) on 8/15/2012.*

Federally Listed Threatened and Endangered Species

The Endangered Species Act of 1973, as amended, regulates rare, threatened, and endangered species and is administered by the U.S. Fish and Wildlife Service (USFWS) and the National Marine Fisheries Service (NMFS). The USFWS is responsible for terrestrial and freshwater species, while NMFS is responsible for marine and anadromous species.

While preparing the FEA, information gathered through consultation with the USFWS, NMFS, and the District of Columbia Department of the Environment's Fisheries and Wildlife Division regarding the occurrence of plant and animal species and associated habitat was compared to the Project limits to identify any potential impacts to fish, wildlife, and plant species and their associated habitats.

The NMFS noted in its January 4, 2011 correspondence with FAA that Shortnose sturgeon (a federally listed endangered species) and the Atlantic sturgeon (a federally listed endangered species) may pass through the Project area. The FAA subsequently submitted a biological assessment (BA) to the NMFS on March 18, 2011 addressing the potential impacts of the Proposed Action on Atlantic and Shortnose sturgeon habitat. The FAA determined that the Proposed Action is unlikely to affect these species and the NMFS concurred in a letter dated June 4, 2011.

Because of the location and extent of the proposed improvements, the existing operational use of the Airport property, and the transient nature of any species that would possibly use the habitats within or near the Project area, no rare, threatened, or endangered species, species of concern, or Species of Greatest Conservation Need will be affected by the proposed Project. There will be no taking or relocation of species. There will be no loss of critical terrestrial or aquatic habitat. Temporary disruption of aquatic habitat will occur during construction, but will not result in significant impacts to species. Per the FAA FONSI/ROD, the proposed Project will not affect any rare, threatened or endangered species, species of concern, or species of greatest conservation need.

Essential Fish Habitat

The FAA submitted an Essential Fish Habitat (EFH) Assessment to the NMFS on March 4, 2011. This assessment concluded that proposed runway improvements would not affect EFH or EFH species and that there would be negligible impacts on EFH prey species. The NMFS responded with a letter dated April 4, 2011 that the Proposed Action would adversely affect spawning and nursery ground for several anadromous fish prey species. However, considering the importance of the proposed RSA enhancements to runway safety at DCA, NMFS stated that they will not object to construction of the RSA enhancements provided adequate compensatory mitigation is provided for impacts to these waters of the Potomac River.

Wetland Impacts

The proposed impacts consist of the placement of fill within the Potomac River for construction of RSA enhancements for Runway 15-33 at the Airport. Wetlands under NPS management jurisdiction are the subject of this Wetland Statement of Findings. Approximately 1.94 acres of riverbed beyond the Airport property line fall within the management jurisdiction of the NPS according to NPS Directors Order #77-1: Wetland Protection. Figures 3 and 4 depict the 1.94 acres of riverine tidal wetlands that are the subject of this document, under NPS jurisdiction, and will be lost.

There will be other impacts to wetlands that are not managed by NPS and not the subject of this document including the following. The current Project design calls for the disturbance of 4.51 acres of riverine and deepwater habitat along 830 feet of shoreline, and based on submerged aquatic vegetation (SAV) surveys conducted by the District Department of the Environment (DDOE) up to 2.4 acres of SAV will be impacted by the RSA enhancements Project. No emergent wetlands will be impacted by the proposed Project. The portion of Potomac River being impacted by the RSA enhancements Project contains a rip rap lined shoreline that is not vegetated with tidal marsh or non-tidal wetlands. The river bottom is composed primarily of unconsolidated fine sand and silt and portions of the river bottom to a depth of approximately -13.00 feet will be filled with stone and sand in order to create a surface suitable for the expansion of the RSA.

Littoral Drift

Littoral drift is a normal shoreline process that involves the movement of non-cohesive sediments (i.e. mainly sand) along the shoreline from the action of the breaking waves. If the amount of incoming sediment brought to a section of shoreline by littoral drift exceeds outgoing sediment, accretion will occur and new beach could be created along the shoreline. If the net littoral drift is negative, sediments are removed and shoreline erosion occurs.

In order to determine whether placement of fill within the Potomac River to construct the RSA enhancements will result in accretion or erosion the Airports Authority conducted hydrodynamic and sedimentation numerical modeling studies for the proposed Project. The results of the hydrodynamic numerical modeling study show that construction of the RSA enhancements would have minimal impacts on local tide elevations; however current velocities on the northern edge of the eastern most tip of the fill will increase, while they will decrease on the southern edge of the eastern most tip of the fill. The results of the sedimentation numerical modeling study show that due to the respective increase and decrease in current velocities erosion is expected to occur on the northern edge of the fill while accretion is expected to occur on the southern edge of the fill.

In order to protect the fill slope from erosion due to wave action and current velocities rip rap armoring is being placed along the outer edge of the fill area. The existing airport shoreline is hardened with rip rap. Water depths in the Project area range from 0 to 13 feet below North American Vertical Datum 1988 (NAVD88). Comparatively, the main navigation channel within the Potomac River which is located east of the Project site contains water depths up to 37 feet below NAVD88. Additionally, the lateral extent of the proposed fill at its widest point is roughly 400 feet. The width of the Potomac River in the vicinity of the Project area is approximately 3,200 feet. Therefore, while the addition of rip rap to the river bottom may locally alter flow and sediment transport rates, based on the size of the proposed fill compared to the volume and velocity of water being transported within the Potomac River, the effect of the proposed Project on littoral drift will be negligible.

Mitigation

During the RSA enhancements Project design process, impacts to riverine tidal wetlands were avoided and minimized to the maximum extent practicable. Preliminary design of the selected RSA enhancement alternative analyzed in the FEA estimated the amount of fill within the Potomac River to be 5.3 acres. Subsequent to issuance of the FONSI/ROD, during the detailed design process the impact to the River was reduced to 4.51 acres. As a result of the remaining unavoidable impacts, compensatory

mitigation for impacts to 1.94 acres of riverine wetlands under the jurisdiction of NPS is proposed as follows:

Wetland Compensatory Mitigation

Construction of the selected design alternative for the RSA enhancements Project will result in 1.94 acres of impact to riverine tidal wetlands under the management jurisdiction of NPS. In accordance with D.O. #77-1, the Airports Authority will compensate for unavoidable impacts to wetland through a riverine wetland restoration project located 6 miles downstream from the impact site. There are no options to create or restore riverine tidal wetlands at or near the impact site. After exhaustive coordination trying to identify appropriate compensatory mitigations actions, the Airports Authority presented the NPS with a proposal to fund the first phase of the Dyke Marsh Restoration Project as mitigation for the impacts caused by the proposed expansion of the Runway 15-33 RSA. The first phase of this project would be the construction of a continuous breakwater located along the edge of the historic promontory along the southern limits of the Dyke Marsh restoration project area. **Figure 5.1** depicts the location of Dyke Marsh relative to the Airport, while **Figure 5.2** depicts the location of the proposed stone promontory structure. The promontory will protect the wetland functions (from degradation caused by storm surges and other hydrologic processes) of approximately 60 acres of riverine emergent and tidal marsh. The protection of 60 acres of wetland will serve as compensation for the loss 1.94 acres at the impact site. The NPS is currently preparing an Environmental Impact Statement (EIS) for the restoration of Dyke Marsh.

Dyke Marsh is an important, large tract of freshwater riverine emergent and tidal marsh along the Potomac River in the Washington Metropolitan area. Located just south of the City of Alexandria, Virginia, Dyke Marsh represents the last major remnant of once extensive freshwater tidal marshes along the Potomac River. The NPS has managed Dyke Marsh since 1973, and it is administered by the George Washington Memorial Parkway. Before NPS supervision, significant portions of the emergent marsh were mined for sand and gravel, with resultant loss from 1940-1972, of about 270 acres of marshland. A recent U.S. Geological Survey (USGS) study has documented ongoing rapid erosion of Hog Island Gut and the outer edges of the marsh. Today only 60 acres remain, with the current rate of erosion estimated to be 1.5 to 2.0 acres per year.

The NPS is currently developing the Dyke Marsh Wetland Restoration and Long-Term Management Plan and EIS to identify specific restoration options. The project also meets Public Law 93-251, which mandates that: "*The Secretary of the Army … is authorized to assist the National Park Service … to plan for, design and implement restoration of the historic and ecological values of Dyke Marsh on the Potomac River.*"

This restoration and long-term management plan is needed to protect the existing wetlands from erosion, exotic plant species, loss of habitat, and altered hydrologic regimes; restore wetlands, ecological functions, and processes lost through sand and gravel mining and shoreline erosion; reduce restoration and management costs associated with continued wetland loss; and improve ecosystem services that benefit the Potomac River Watershed and the Chesapeake Bay.

Restoration of Dyke Marsh EIS would consider the most effective means of enhancing and protecting the estuarine environment in order to stop the continuing shoreline erosion and improve degraded habitat. As such, the first phase of this project, and an element that is common to all of the action alternatives analyzed in the EIS, is the construction of the breakwater promontory structure along the southern extent of the historic promontory. The construction of this breakwater would greatly decrease

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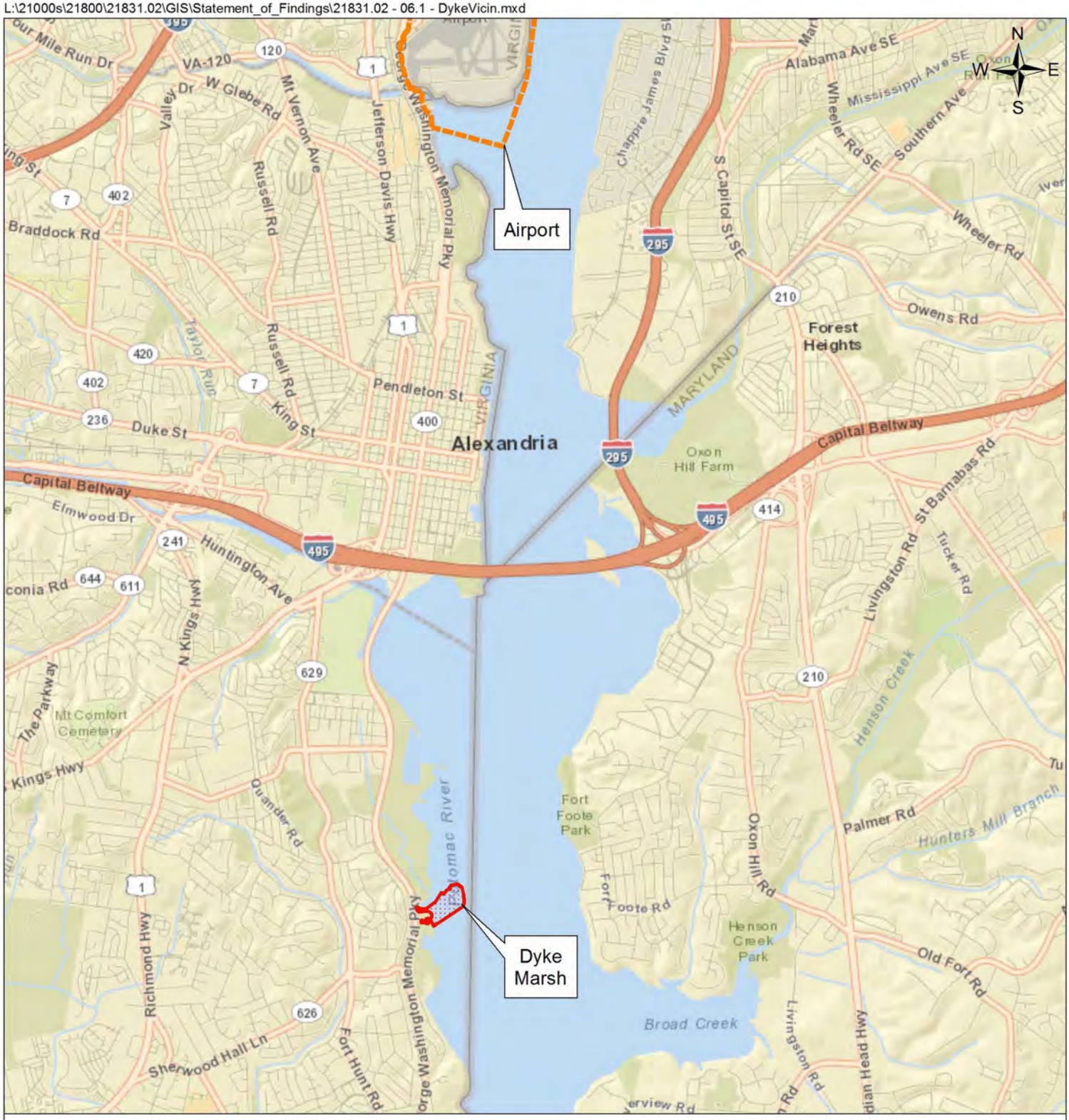

Figure 5.1:
Wetland Mitigation Site Location

Ronald Reagan
Washington National Airport
Runway 15-33
Runway Safety Area Enhancements
Washington, D.C.
Wetland Statement of Findings

METROPOLITAN WASHINGTON AIRPORTS AUTHORITY

Legend:
- Dyke Marsh
- Ronald Reagan Washington National Airport Property Line

Scale: 1 inch = 5,000 feet

Feet
0 2,500 5,000 10,000

Base Data: Esri

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Figure 5.2:
Wetland Mitigation Site
Ronald Reagan
Washington National Airport
Runway 15-33
Runway Safety Area Enhancements
Washington, D.C.
Wetland Statement of Findings

METROPOLITAN WASHINGTON AIRPORTS AUTHORITY

Legend:
Promontory Structure Length: ±1,350 l.f.
Conceptual Marsh Area: ±27 acres

Scale: 1 inch = 500 feet

0 250 500 1,000 Feet

Photo Source: VBMP - 2009, Marsh Source: Marsh and Structure Information digitized from the Dyke Marsh Wetland Restoration and Long Term Management Plan Environmental Impact Statement. Alternative Concepts Meeting Agenda. Alternative Concept C - Moderate Restoration. Slide 7. United States Department of the Interior National Park Service. May 8, 2012.

the excessive rate of erosion currently affecting the marsh and would promote the deposition of sediment in areas that were historically wetlands. In addition, the construction of the breakwater would greatly improve the chances of success for the later phases of restoration. The dampening of the wave action and decreased flow energy would facilitate the restoration of emergent marsh to the dredged areas. This, in turn, would enhance the ecosystem and related ecological services provided by the marsh, expand the extent and quality of a relatively rare wildlife habitat, increase buffering from storms and flooding, and extend the aesthetic appeal of this urban/suburban wetland.

In order to provide compensatory mitigation for this Wetland Statement of Findings for the RSA enhancements Project wetland impacts, the Airports Authority shall be responsible for providing funding in the amount of $2.50 million to be used by the NPS for construction of all or a portion of the promontory structure breakwater (1st phase of the Dyke Marsh restoration project). Within ninety (90) days of completing all compliance with all other federal laws and regulations the Airports Authority will deposit $2.50 million into an escrow account controlled by a title company or law firm selected by the Airports Authority. The funds in this escrow account will be made available to NPS for construction of the 1st phase of the Dyke Marsh restoration project upon execution of a contract for the construction of all or a portion of the 1st phase of the Dyke Marsh restoration project, which contract will include a provision that the construction must be complete no later than December 31, 2016 or 12 months after execution of contract, whichever is earlier. In the event that the NPS is unable to execute a contract for construction of the 1st phase of the Dyke Marsh restoration project by December 31, 2015 the $2.50 million shall be made available for use by the Airports Authority for the completion of an alternate compensatory mitigation project as mutually agreed upon by the COE, NPS and the Airports Authority.

To evidence construction of the Dyke Marsh stone revetment, the Airports Authority shall request aerial photographs of the restoration project on a quarterly basis during its construction and provide said photographs to the COE. Additionally, the Airports Authority shall request that NPS provide an as-built survey to the COE upon completion of construction of the stone revetment structure.

According to the USEPA[4] "The presence of marshes in a watershed helps to reduce damage caused by floods by slowing and storing flood water. As water moves slowly through a marsh, sediment and other pollutants settle to the substrate, or floor of the marsh. Marsh vegetation and microorganisms also use excess nutrients for growth that can otherwise pollute surface water such as nitrogen and phosphorous from fertilizer. This wetland type is very important to preserving the quality of surface waters." Therefore, restoration of Dyke Marsh, a freshwater tidal marsh located approximately six miles from the proposed impact site will provide very valuable and much needed functional benefits to the Potomac River and has been given a high functional value relative to the proposed impact site as further described in Table 2.

[4] http://water.epa.gov/type/wetlands/marsh.cfm.

Table 2 – Dyke Marsh – Freshwater Tidal Marsh Restoration

Functional Value Parameter	Score	Explanation[5]
Flood Protection	High	Provide temporary storage of flood waters.
Water Quality	High	Filter and trap sediments and pollutants, increase dissolved oxygen levels and reduce nutrient levels.
Shoreline Erosion Control	High	Dense stems, roots and rhizomes buffer adjacent shoreline by reducing wave energy.
Aquatic Productivity	High	Wetland ecosystem is a source of food for a variety of fish, shellfish, birds, amphibians, reptiles and small mammals.
Fish and Wildlife Habitat	High	Provide habitat for resident and migratory species of fish, invertebrates, reptiles, birds and mammals.
Aesthetics	High	People enjoy wetlands for their beauty, ecological diversity, and solitude.
Recreation	High	Wetlands can be used for fishing, hunting, painting, photography, bird watching and wildlife study.
Average Score	**High**	

Source: Wetland Studies and Solutions, Inc., January 2013.
Prepared by: Wetland Studies and Solutions, Inc., January 2013.

Compliance

This document is required in order to comply with the National Park Service's Director's Order #77-1: Wetland Protection. Compliance with other agency regulations will be completed (if appropriate for this project) separately from this document. Separate compliance with other appropriate federal laws and regulations is required as per the NPS's Director's Oder #77-1: Wetland Protection and Procedural Manual.

National Environmental Policy Act

The FEA prepared by the Airports Authority for the Runway 4-22 and Runway 15-33 Runway Safety Area Enhancements was accepted by the FAA in March 2012 and the FAA issued its FONSI/ROD in April 2012. In addition, the NPS has prepared the Wetlands Statement of Findings, per NPS Director's Order #77-1: Wetland Protection and Procedural Manual #77-1, which provides NPS policies and procedures for complying with E.O. 11990. Lastly, the NPS will adopt the FAA's FONSI/ROD and use the information

[5] *Explanations adapted from Virginia Institute of Marine Sciences Center for Coastal Resources Management publication "Teaching Marsh: Functions & Values of Tidal Wetlands."*

presented in this Statement of Findings to prepare the appropriate decision document to complete the NEPA requirements for this Project.

In addition, the NPS is currently developing the Dyke Marsh Wetland Restoration and Long-Term Management Plan and EIS to identify restoration options. The project would also meet Public Law 93-251, which mandates that: *"The Secretary of the Army … is authorized to assist the National Park Service … to plan for, design and implement restoration of the historic and ecological values of Dyke Marsh on the Potomac River.*" The findings of this planning effort will help inform the final design of the promontory structure breakwater in terms of size, materials, and location.

Conclusion

The Project will adversely impact approximately 1.94 acres of NPS-managed riverine tidal wetlands. To compensate for the impacts to the riverine tidal wetlands, the Airports Authority will fund the first phase of the Dyke Marsh Restoration Project, which is the construction of a promontory structure breakwater. This breakwater will serve to greatly decrease the excessive rate of erosion currently affecting approximately 60 acres of the high-quality existing marsh and would promote the deposition of sediment in areas that were historically wetlands. The dampening of the wave action and decreased flow energy would also facilitate the restoration of emergent marsh to the dredged areas. This, in turn, would enhance the ecosystem and related ecological services provided by the marsh, expand the extent and quality of a relatively rare wildlife habitat, increase buffering from storms and flooding, and extend the aesthetic appeal of this urban/suburban wetland.

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