

WFF Marsh Fiber Environmental Assessment

Appendix C
VMRC Tidal Wetlands Permit
USACE Nationwide Permit 12
Joint Permit Application

**COMMONWEALTH OF VIRGINIA
MARINE RESOURCES COMMISSION
PERMIT**

The Commonwealth of Virginia, Marine Resources Commission, hereinafter referred to as the Commission, on this 25th day of August 2020 hereby grants unto:

**National Aeronautics and Space Administration
34200 Fulton Street
Wallops Island, VA 23337**

hereinafter referred to as the Permittee, permission to:

- Encroach in, on, or over State-owned subaqueous bottoms pursuant to Chapter 12, Subtitle III, of Title 28.2 of the Code of Virginia.
- Use or develop tidal wetlands pursuant to Chapter 13, Subtitle III, of Title 28.2 of the Code of Virginia.

Permittee is hereby authorized to vibratory trench two 1.5-inch conduits under 4,310 linear feet of State owned marsh in the Walker Marsh area of Accomack County. All activities authorized herein shall be accomplished in conformance with the plans and drawings dated received May 26, 2020, and revised drawings dated received July 31, 2020, which are attached and made a part of this permit.

This permit is granted subject to the following conditions:

- (1) The work authorized by this permit is to be completed by **August 31st, 2023**. The Permittee shall notify the Commission when the project is completed. The completion date may be extended by the Commission in its discretion. Any such application for extension of time shall be in writing prior to the above completion date and shall specify the reason for such extension and the expected date of completion of construction. All other conditions remain in effect until revoked by the Commission or the General Assembly.
- (2) This permit grants no authority to the Permittee to encroach upon the property rights, including riparian rights, of others.
- (3) The duly authorized agents of the Commission shall have the right to enter upon the premises at reasonable times, for the purpose of inspecting the work being done pursuant to this permit.
- (4) The Permittee shall comply with the water quality standards as established by the Department of Environmental Quality, Water Division, and all other applicable laws, ordinances, rules and regulations affecting the conduct of the project. The granting of this permit shall not relieve the Permittee of the responsibility of obtaining any and all other permits or authority for the projects.
- (5) This permit shall not be transferred without written consent of the Commissioner.
- (6) This permit shall not affect or interfere with the right vouchsafed to the people of Virginia concerning fishing, fowling and the catching of and taking of oysters and other shellfish in and from the bottom of acres and waters not included within the terms of this permit.
- (7) The Permittee shall, to the greatest extent practicable, minimize the adverse effects of the project upon adjacent properties and wetlands and upon the natural resources of the Commonwealth.
- (8) This permit may be revoked at any time by the Commission upon the failure of the Permittee to comply with any of the terms and conditions hereof or at the will of the General Assembly of Virginia.
- (9) There is expressly excluded from the permit any portion of the waters within the boundaries of the Baylor Survey.
- (10) This permit is subject to any lease of oyster planting ground in effect on the date of this permit. Nothing in this permit shall be construed as allowing the Permittee to encroach on any lease without the consent of the leaseholder. The Permittee shall be liable for any damages to such lease.
- (11) The issuance of this permit does not confer upon the Permittee any interest or title to the beds of the waters.
- (12) All structures authorized by this permit, which are not maintained in good repair, shall be completely removed from State-owned bottom within three (3) months after notification by the Commission.
- (13) The Permittee agrees to comply with all of the terms and conditions as set forth in this permit and that the project will be accomplished within the boundaries as outlined in the plans attached hereto. Any encroachment beyond the limits of this permit shall constitute a Class 1 misdemeanor.
- (14) This permit authorizes no claim to archaeological artifacts that may be encountered during the course of construction. If, however, archaeological remains are encountered, the Permittee agrees to notify the Commission, who will, in turn notify the Department of Historic Resources. The Permittee further agrees to cooperate with agencies of the Commonwealth in the recovery of archaeological remains if deemed necessary.
- (15) The Permittee agrees to indemnify and save harmless the Commonwealth of Virginia from any liability arising from the establishment, operation or maintenance of said project.

The following special conditions are imposed on this permit:

- (16) The placard accompanying this permit document must be conspicuously displayed at the work site.
- (17) Permittee agrees to notify the Commission upon the start of the activities authorized by this permit.
- (18) This permit gives no ownership interest in the underlying State land;
- (19) The Permittee agrees to follow the contingency / clean-up plan, attached to this permit document, to address potential frac-outs or related spills associated with any directional drilling activities;
- (20) All areas of State-owned marsh and adjacent lands disturbed by this activity shall be restored to their original contours and natural conditions within thirty (30) days from the date of completion of the authorized work. All excess materials shall be removed to an upland site and contained in such a manner to prevent its reentry into State waters;
- (21) The Permittee agrees to purchase wetland credits from the Accomack County in-lieu fee account necessary to replace the loss of 64 square feet of tidal vegetated wetlands.
- (22) The Permittee agrees not to conduct any of the authorized work between April 1 and August 31 of any year to minimize adverse impacts to shorebirds.

Description of Fees	Amount	Unit of Measure	Rate	Total	Frequency	After-The-Fact
Permit Fee				\$0.00	One-Time	
Total Permit Fees				\$0.00		

This permit consists of 26 Pages

PERMITTEE(S)

BY CHECKING THIS BOX, I certify that I am the Permittee OR the certified agent acting on behalf of all Permittees, that I have read and understood the permit as drafted and accept all of the terms and conditions herein. I agree and understand that checking the box has the same legal authority as a written signature. The provisions of the permit authorization shall be binding on any assignee or successor in interest of the original Permittee(s). In cases where the Permittee is a corporation, agency or political jurisdiction, I certify I have proper authorization to bind the organization to the financial and performance obligations which result from activity authorized by this permit.

PERMITTEE OR CERTIFIED AGENT

DATE TERMS ACCEPTED

Paul Bull, PE Deputy; Division Chief, Facilities Management Division, Goddard Space Flight Center

Print Your Name Here

PERMITEE

National Aeronautics and Space Administration
34200 Fulton Street
Wallops Island, VA 23337

AGENT

No Agent

COMMISSION

IN WITNESS WHEREOF, the Commonwealth of Virginia, Marine Resources Commission has caused these presents to be executed in its behalf by Randal D. Owen, Deputy Chief, Habitat Management
(Name) (Title) Marine Resources Commission

24th day of September, 2020

By [Signature]

State of Virginia

City of Hampton, to-wit:

I, Teresa Sanzo Boyd, a Notary Public within and for said City, State of Virginia, hereby certify that Randal D. Owen, whose name is signed to the foregoing, bearing the 25th day of August 2020, has acknowledged the same before me in City aforesaid.

Given under my hand this 24th day of September, 2020

My Commission Expires: April 30, 2023

Notary Public [Signature]

**TERESA SANZO BOYD
NOTARY PUBLIC
REG. # 7828300
COMMONWEALTH OF VIRGINIA
MY COMMISSION EXPIRES 4/30/2023**



DEPARTMENT OF THE ARMY
US ARMY CORPS OF ENGINEERS
NORFOLK DISTRICT
FORT NORFOLK
803 FRONT STREET
NORFOLK VA 23510-1011

May 21, 2020

Eastern Virginia Regulatory Section
NAO-2019-2038 / VMRC# 20-0649 (Chincoteague Bay)

National Aeronautics & Space Administration
Attn: Paul C. Bull PE.
Wallops Flight Facility, WFF
34200 Fulton Street
Wallops Island, Virginia 23337

Dear Mr. Bull:

This is in regard to your Department of the Army permit application number NAO-2019-2038 (VMRC #20-0649) to install a fiber optic communication line under portions of Chincoteague Bay and construct two "handholes". This project will temporarily impact approximately 1.55 acres of marsh and will permanently impact approximately 64 s.f. of marsh for the two handholes. The project area is east of the WFF Main Base and west-southwest of the south end of the Town of Chincoteague, in northeastern Accomack County, Virginia. These impacts are detailed on the enclosed drawings entitled "NASA WALLOPS FLIGHT FACILITY MARSH FIBER UPGRADE," sheets 1-16, prepared and submitted on behalf of the applicant by RAUCH engineering design & development services and dated July 2019 (attached).

Your proposed work as outlined above satisfies the criteria contained in the Corps Nationwide Permit(s) (12), attached. The Corps Nationwide Permits were published in the January 6, 2017, Federal Register notice (82 FR 1860) 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.

This nationwide permit verification is contingent upon the following project specific conditions:

All temporarily disturbed areas impacted by access, equipment, exit pit excavations, shoreline points for barge access, or matting compression would be restored by NASA to pre-construction conditions within 12 months.

The permittee 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 project specific conditions (above), Regional Conditions, and the Nationwide Permit General Conditions (enclosed) are met, an individual Department of the Army Permit will not be required. In addition, the Virginia Department of Environmental Quality has provided a conditional §401 Water Quality Certification for Nationwide Permit Number 12. 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. This authorization does not relieve your responsibility to comply with local requirements pursuant to the Chesapeake Bay Preservation Act (CBPA), nor does it supersede local government authority and responsibilities pursuant to the Act. You should contact your local government before you begin work to find out how the CBPA applies to your project.

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

This verification is valid until the Nationwide Permit is modified, reissued, or revoked. All of the existing Nationwide Permits are scheduled to be modified, reissued, or revoked prior to March 18, 2022. It is incumbent upon you to remain informed of changes to the Nationwide Permits. We will issue a public notice when the Nationwide Permits are reissued. Furthermore, if you commence or are under contract to commence this activity before the date that the relevant nationwide permit is modified or revoked, you will have twelve (12) months from the date of the modification or revocation of the Nationwide Permit to complete the activity under the present terms and conditions of this Nationwide Permit unless discretionary authority has been exercised on a case-by-case basis to modify, suspend, or revoke the authorization in accordance with 33 CFR 330.4(e) and 33 CFR 330.5 (c) or (d). Project specific conditions listed in this letter continue to remain in effect after the Nationwide Permit verification expires, unless the district engineer removes those conditions. 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.

In granting an authorization pursuant to this permit, the Norfolk District has relied on the information and data provided by the permittee. If, subsequent to notification by the Corps that a project qualifies for this permit, such information and data prove to be materially false or materially incomplete, the authorization may be suspended or revoked, in whole or in part, and/or the Government may institute appropriate legal proceedings.

If you have any questions and/or concerns about this permit authorization, please contact me via telephone at (757) 201-7792 or via email at brian.c.denson@usace.army.mil.

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Sincerely,

A handwritten signature in blue ink, appearing to read "Brian Denson", is placed over a light blue rectangular background.

Brian Denson
Eastern Virginia
Regulatory Section

Enclosure(s): Referenced Drawings, Certificate of Compliance, NWP-12

The Site Plans that were included with the letter are not provided with the Final EA Appendix since they are duplicates of the Site Plans provided with the JPA. Please see the Site Plans included in the JPA for the Marsh Fiber project.



U.S. Army Corps
Of Engineers
Norfolk District

**CERTIFICATE OF COMPLIANCE
WITH
ARMY CORPS OF ENGINEERS PERMIT**

Permit Number: NAO-2019-2038
VMRC Number: 20-0649

Corps Contact: Brian Denson

Name of Permittee: NASA, Attn: Paul C. Bull, PE

Date of Issuance: May 21, 2020

Permit Type: NWP-12

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:

US Army Corps of Engineers - Norfolk District
CENAO-WR-R
Attn: Brian Denson
803 Front Street
Norfolk, VA 23510-1011

Or scan and send via email to brian.c.denson@usace.army.mil

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

Nationwide Permit (12) Utility Line Activities.
Effective 3/19/2017
Expires 3/18/2022

Activities required for the construction, maintenance, repair, and removal of utility lines and associated facilities in waters of the United States, provided the activity does not result in the loss of greater than 1/2-acre of waters of the United States for each single and complete project.

Utility lines: This NWP authorizes discharges of dredged or fill material into waters of the United States and structures or work in navigable waters for crossings of those waters associated with the construction, maintenance, or repair of utility lines, including outfall and intake structures. There must be no change in pre-construction contours of waters of the United States. A "utility line" is defined as any pipe or pipeline for the transportation of any gaseous, liquid, liquescent, or slurry substance, for any purpose, and any cable, line, or wire for the transmission for any purpose of electrical energy, telephone, and telegraph messages, and internet, radio, and television communication. The term "utility line" does not include activities that drain a water of the United States, such as drainage tile or french drains, but it does apply to pipes conveying drainage from another area.

Material resulting from trench excavation may be temporarily sidecast into waters of the United States for no more than three months, provided the material is not placed in such a manner that it is dispersed by currents or other forces. The district engineer may extend the period of temporary side casting for no more than a total of 180 days, where appropriate. In wetlands, the top 6 to 12 inches of the trench should normally be backfilled with topsoil from the trench. The trench cannot be constructed or backfilled in such a manner as to drain waters of the United States (e.g., backfilling with extensive gravel layers, creating a french drain effect). Any exposed slopes and stream banks must be stabilized immediately upon completion of the utility line crossing of each waterbody.

Utility line substations: This NWP authorizes the construction, maintenance, or expansion of substation facilities associated with a power line or utility line in non-tidal waters of the United States, provided the activity, in combination with all other activities included in one single and complete project, does not result in the loss of greater than 1/2-acre of waters of the United States. This NWP does not authorize discharges into non-tidal wetlands adjacent to tidal waters of the United States to construct, maintain, or expand substation facilities.

Foundations for overhead utility line towers, poles, and anchors: This NWP authorizes the construction or maintenance of foundations for overhead utility line towers, poles, and anchors in all waters of the United States, provided the foundations are the minimum size necessary and separate footings for each tower leg (rather than a larger single pad) are used where feasible.

Access roads: This NWP authorizes the construction of access roads for the construction and maintenance of utility lines, including overhead power lines

and utility line substations, in non-tidal waters of the United States, provided the activity, in combination with all other activities included in one single and complete project, does not cause the loss of greater than 1/2-acre of non-tidal waters of the United States. This NWP does not authorize discharges into non-tidal wetlands adjacent to tidal waters for access roads. Access roads must be the minimum width necessary (see Note 2, below). Access roads must be constructed so that the length of the road minimizes any adverse effects on waters of the United States and must be as near as possible to pre-construction contours and elevations (e.g., at grade corduroy roads or geotextile/gravel roads). Access roads constructed above pre-construction contours and elevations in waters of the United States must be properly bridged or culverted to maintain surface flows.

This NWP may authorize utility lines in or affecting navigable waters of the United States even if there is no associated discharge of dredged or fill material (See 33 CFR part 322). Overhead utility lines constructed over section 10 waters and utility lines that are routed in or under section 10 waters without a discharge of dredged or fill material require a section 10 permit.

This NWP authorizes, to the extent that Department of the Army authorization is required, temporary structures, fills, and work necessary for the remediation of inadvertent returns of drilling fluids to waters of the United States through sub-soil fissures or fractures that might occur during horizontal directional drilling activities conducted for the purpose of installing or replacing utility lines. These remediation activities must be done as soon as practicable, to restore the affected waterbody. District engineers may add special conditions to this NWP to require a remediation plan for addressing inadvertent returns of drilling fluids to waters of the United States during horizontal directional drilling activities conducted for the purpose of installing or replacing utility lines.

This NWP also authorizes temporary structures, fills, and work, including the use of temporary mats, necessary to conduct the utility line activity. Appropriate measures must be taken to maintain normal downstream flows and minimize flooding to the maximum extent practicable, when temporary structures, work, and discharges, including cofferdams, are necessary for construction activities, access fills, or dewatering of construction sites. Temporary fills must consist of materials, and be placed in a manner, that will not be eroded by expected high flows. After construction, temporary fills must be removed in their entirety and the affected areas returned to pre-construction elevations. The areas affected by temporary fills must be revegetated, as appropriate.

Notification: The permittee must submit a pre-construction notification to the district engineer prior to commencing the activity if any of the following criteria are met: (1) the activity involves mechanized land clearing in a forested wetland for the utility line right-of-way; (2) a section 10 permit is required; (3) the utility line in waters of the United States, excluding overhead lines, exceeds 500 feet; (4) the utility line is placed within a jurisdictional area (i.e., water of the United States), and it runs parallel to or along a stream bed that is within that jurisdictional area; (5) discharges that result in the loss of greater than 1/10-acre of waters of the United States; (6) permanent access roads are constructed

above grade in waters of the United States for a distance of more than 500 feet; or (7) permanent access roads are constructed in waters of the United States with impervious materials. (See general condition 32.)

Note 1: Where the utility line is constructed or installed in navigable waters of the United States (i.e., section 10 waters) within the coastal United States, the Great Lakes, and United States territories, a copy of the NWP verification will be sent by the Corps to the National Oceanic and Atmospheric Administration (NOAA), National Ocean Service (NOS), for charting the utility line to protect navigation.

Note 2: For utility line activities crossing a single waterbody more than one time at separate and distant locations, or multiple waterbodies at separate and distant locations, each crossing is considered a single and complete project for purposes of NWP authorization. Utility line activities must comply with 33 CFR 330.6(d).

Note 3: Utility lines consisting of aerial electric power transmission lines crossing navigable waters of the United States (which are defined at 33 CFR part 329) must comply with the applicable minimum clearances specified in 33 CFR 322.5(i).

Note 4: Access roads used for both construction and maintenance may be authorized, provided they meet the terms and conditions of this NWP. Access roads used solely for construction of the utility line must be removed upon completion of the work, in accordance with the requirements for temporary fills.

Note 5: Pipes or pipelines used to transport gaseous, liquid, liquescent, or slurry substances over navigable waters of the United States are considered to be bridges, not utility lines, and may require a permit from the U.S. Coast Guard pursuant to section 9 of the Rivers and Harbors Act of 1899. However, any discharges of dredged or fill material into waters of the United States associated with such pipelines will require a section 404 permit (see NWP 15).

Note 6: This NWP authorizes utility line maintenance and repair activities that do not qualify for the Clean Water Act section 404(f) exemption for maintenance of currently serviceable fills or fill structures.

Note 7: For overhead utility lines authorized by this NWP, a copy of the PCN and NWP verification will be provided to the Department of Defense Siting Clearinghouse, which will evaluate potential effects on military activities.

Note 8: For NWP 12 activities that require pre-construction notification, the PCN must include 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, including other separate and distant crossings that require Department of the Army authorization but do not require pre-construction notification (see paragraph (b) of general condition 32). The district engineer will evaluate the PCN in accordance with Section D, "District Engineer's Decision." The district engineer may require mitigation to ensure

that the authorized activity results in no more than minimal individual and cumulative adverse environmental effects (see general condition 23).

Authority: Section 10 of the Rivers and Harbors Act of 1899 and section 404 of the Clean Water Act (Sections 10 and 404)

REGIONAL CONDITIONS:

- Conditions for Waters Containing Submerged Aquatic Vegetation (SAV) Beds:** This condition applies to: NWP's 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 22, 23, 25, 27, 28, 29, 31, 32, 33, 35, 36, 37, 38, 39, 44, 45, 48, 52, 53 and 54. A pre-construction notification (PCN) is required if work will occur in areas that contain submerged aquatic vegetation (SAV). Information about SAV habitat can be found at the Virginia Institute of Marine Science's website <http://web.vims.edu/bio/sav/>. Additional avoidance and minimization measures, such as relocating a structure or time-of-year restrictions (TOYR), may be required to reduce impacts to SAV habitat.
- Conditions for Anadromous Fish Use Areas:** To ensure that activities authorized by any NWP do not impact documented spawning habitat or a migratory pathway for anadromous fish, a check for anadromous fish use areas must be conducted via the Norfolk District's Regulatory GIS (for reporting permits) and/or the Virginia Department of Game and Inland Fisheries (VDGIF) Information System (by applicant for non-reporting permits) at <http://vafwis.org/fwis/>. For any proposed NWP, if the project is located in an area documented as an anadromous fish use area (confirmed or potential), a time-of-year restriction (TOYR) prohibiting all in-water work will be required from February 15 to June 30 of any given year or any TOYR specified by VDGIF and/or Virginia Marine Resources Commission (VMRC). For permits requiring a PCN, if the Norfolk District determines that the work is minimal and the TOYR is unnecessary, informal consultation will be conducted with NOAA Fisheries Service (NOAA) to obtain concurrence that the TOYR would not be required for the proposed activity. For dredging in the Elizabeth River upstream of the Mid-Town Tunnel on the mainstem and the West Norfolk Bridge (Route 164, Western Freeway) on the Western Branch of the Elizabeth River, a TOYR is not required.
- Conditions for Designated Critical Resource Waters, which include National Estuarine Research Reserves:** Notification is required for work under NWP's 3, 8, 10, 13, 15, 18, 19, 22, 23, 25, 27, 28, 30, 33, 34, 36, 37, 38 and 54 in the Chesapeake Bay National Estuarine Research Reserve in Virginia. This multi-site system along a salinity gradient of the York River includes Sweet Hall Marsh, Taskinas Creek, Catlett Islands, and Goodwin Islands. More information can be found at: <http://www.vims.edu/cbnerr/>. NWP's 7, 12, 14, 16, 17, 21, 29, 31, 35, 39, 40, 42, 43, 44, 49, 50, 51, and 52 cannot be used to authorize the discharge of dredged or fill material in the Chesapeake Bay National Estuarine Research Reserve in Virginia.
- Conditions for Federally Listed Species and Designated Critical Habitat:** For ALL NWPs, notification is required for any project that may affect a federally listed threatened or endangered species or designated critical habitat. The U.S.

Fish and Wildlife Service (Service) has developed an online system that allows users to find information about sensitive resources that may occur within the vicinity of a proposed project. This system is named "Information, Planning and Conservation System," (IPaC), and is located at: <http://ecos.fws.gov/ipac/>. The applicant may use IPaC to determine if any federally listed species or designated critical habitat may be affected by their proposed project. If your Official Species List from IPaC identifies any federally listed endangered or threatened species, you are required to submit a PCN for the proposed activity, unless the project clearly does not impact a listed species or suitable habitat for the listed species. If you are unsure about whether your project will impact listed species, please submit a PCN, so the Norfolk District may review the action. Further information about the Virginia Field Office "Project Review Process" may be found at: <http://www.fws.gov/northeast/virginiafield/endangered/projectreviews.html>. Additional consultation may also be required with National Marine Fisheries Service for species or critical habitat under their jurisdiction, including sea turtles, marine mammals, shortnose sturgeon, and Atlantic sturgeon. For additional information about their jurisdiction in Virginia, please see <https://www.greateratlantic.fisheries.noaa.gov/protected/index.html>. Additional resources to assist in determining compliance with this condition can be found on our webpage: <http://www.nao.usace.army.mil/Missions/Regulatory/USFWS.aspx>

5. **Conditions for Waters with Federally Listed Endangered or Threatened Species, Waters Federally Designated as Critical Habitat, and One-mile Upstream (including tributaries) of Any Such Waters:** Any work proposed in critical habitat, as designated in regional condition 4, requires a PCN.

6. **Conditions for Designated Trout Waters:** Notification is required for work in the areas listed below for NWP's 3, 4, 5, 6, 7, 12, 13, 14, 16, 17, 18, 19, 21, 23, 25, 29, 30, 31, 32, 33, 34, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 49, 50, 51, 52, 53, and 54. This condition applies to activities occurring in two categories of waters; Class V (Put and Take Trout Waters) and Class VI (Natural Trout Waters), as defined by the Virginia State Water Control Board Regulations, Water Quality Standards (VR-680-21-00), dated January 1, 1991, or the most recently updated publication. The Virginia Department of Game and Inland Fisheries (VDGIF) designated these same trout streams into six classes. Classes I-IV are considered wild trout streams. Classes V and VI are considered stockable trout streams. Information on designated trout streams can be obtained via their Virginia Fish and Wildlife Information Service's (VAFWIS's) Cold Water Stream Survey database. Basic access to the VAFWIS is available via <http://vafwis.org/fwis/>. The waters, occurring specifically within the mountains of Virginia, are within the following river basins:
 - 1) Potomac-Shenandoah River Basins
 - 2) James River Basin
 - 3) Roanoke River Basin
 - 4) New River Basin
 - 5) Tennessee and Big Sandy River Basins
 - 6) Rappahannock River Basin

VDGIF recommends the following time-of-year restrictions (TOYRs) for any in-stream work within streams identified as wild trout waters in its Cold Water Stream Survey database. The recommended TOYRs for trout species are:

- Brook Trout: October 1 through March 31
- Brown Trout: October 1 through March 31
- Rainbow Trout: March 15 through May 15

This condition applies to the following counties and cities: Albemarle, Allegheny, Amherst, Augusta, Bath, Bedford, Bland, Botetourt, Bristol, Buchanan, Buena Vista, Carroll, Clarke, Covington, Craig, Dickenson, Floyd, Franklin, Frederick, Giles, Grayson, Greene, Henry, Highland, Lee, Loudoun, Madison, Montgomery, Nelson, Page, Patrick, Pulaski, Rappahannock, Roanoke City, Roanoke Co., Rockbridge, Rockingham, Russell, Scott, Shenandoah, Smyth, Staunton, Tazewell, Warren, Washington, Waynesboro, Wise, and Wythe. Any discharge of dredged and/or fill material authorized by the NWP's listed above, which would occur in the designated waterways or adjacent wetlands of the specified counties, requires notification to the appropriate Corps of Engineers field office, and written approval from that office prior to performing the work. The Norfolk District recommends that prospective permittees first contact the applicable Norfolk District Field Office, found at this web link:

<http://www.nao.usace.army.mil/Missions/Regulatory/Contacts.aspx>, to determine if the PCN procedures would apply. The notification must be in writing and include the following information (the standard Joint Permit Application may also be used):

- Name, address, and telephone number of the prospective permittee.
- Name, address, email, and telephone number of the property owner.
- Location of the proposed project.
- Vicinity map and project drawings on 8.5-inch by 11-inch paper (plan view, profile, & cross-sectional view).
- Brief description of the proposed project and the project purpose.
- Where required by the terms of the nationwide permit, a delineation of affected special aquatic sites, including wetlands.

When all required information is received by the appropriate field office, the Corps will notify the prospective permittee within 45 days whether the project can proceed under the NWP or whether an individual permit is required. If, after reviewing the PCN, the District Commander determines that the proposed activity would have more than minimal individual or cumulative adverse impacts on the aquatic environment or otherwise may be contrary to the public interest, then he/she will either condition the nationwide permit authorization to reduce or eliminate the adverse impacts, or notify the prospective permittee that the activity is not authorized by the NWP and provide instructions on how to seek authorization under an individual permit. If the prospective permittee is not notified otherwise within the 45-day period, the prospective permittee may assume that the project can proceed under the NWP.

7. **Conditions Regarding Invasive Species:** Plant species listed by the most current *Virginia Department of Conservation and Recreation's Invasive Alien Plant List* shall not be used for re-vegetation for activities authorized by any NWP. The list of invasive plants in Virginia may be found at: <http://www.dcr.virginia.gov/natural-heritage/invspdpdflist>. DCR recommends the use of regional native species for re-vegetation as identified in the DCR *Native*

Plants for Conservation, Restoration and Landscaping brochures for the coastal, piedmont and mountain regions <http://www.dcr.virginia.gov/natural-heritage/nativeplants#brochure> .

8. **Conditions Pertaining to Countersinking of Pipes and Culverts:** This condition applies to: NWP's 3, 7, 12, 14, 17, 18, 21, 23, 25, 27, 29, 32, 33, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 49, 50, 51, and 52. **NOTE: COUNTERSINKING IS NOT REQUIRED IN TIDAL WATERS.** However, replacement pipes/culverts in tidal waters must be installed with invert elevations no higher than the existing pipe/culvert invert elevation, and a new pipe/culvert must be installed with the invert no higher than the stream bottom elevation. For Nontidal Waters: Following consultation with the Virginia Department of Game and Inland Fisheries (VDGIF), the Norfolk District has determined that fish and other aquatic organisms are most likely present in any stream being crossed, in the absence of site-specific evidence to the contrary. Although prospective permittees have the option of providing such evidence, extensive efforts to collect such information is not encouraged, since countersinking will in most cases be required except as outlined in the conditions below. The following conditions will apply in nontidal waters:
- a. All pipes: All pipes and culverts placed in streams will be countersunk at both the inlet and outlet ends, unless indicated otherwise by the Norfolk District on a case-by-case basis (see below). Pipes that are 24" or less in diameter shall be countersunk 3" below the natural stream bottom. Pipes that are greater than 24" in diameter shall be countersunk 6" below the natural stream bottom. The countersinking requirement does not apply to bottomless pipes/culverts or pipe arches. All single pipes or culverts (with bottoms) shall be depressed (countersunk) below the natural streambed at both the inlet and outlet of the structure. In sets of multiple pipes or culverts (with bottoms) at least one pipe or culvert shall be depressed (countersunk) at both the inlet and outlet to convey low flows.
 - b. When countersinking culverts, permittees must ensure reestablishment of a surface water channel (within 15 days post construction) that allows for the movement of aquatic organisms and maintains the same hydrologic regime that was present pre-construction (i.e. the depth of surface water through the permit area should match the upstream and downstream depths). This may require the addition of finer materials to choke the larger stone and/or placement of riprap to allow for a low flow channel.
 - c. Exemption for extensions and certain maintenance: The requirement to countersink does not apply to extensions of existing pipes or culverts that are not countersunk, or to maintenance to pipes/culverts that does not involve replacing the pipe/culvert (such as repairing cracks, adding material to prevent/correct scour, etc.).
 - d. Floodplain pipes: The requirement to countersink does not apply to pipes or culverts that are being placed above ordinary high water, such as those placed to allow for floodplain flows. The placement of pipes above ordinary high water is not jurisdictional (provided no fill is discharged into wetlands).
 - e. Hydraulic opening: Pipes should be adequately sized to allow for the passage of ordinary high water with the countersinking and invert restrictions taken into account.

- f. Pipes on bedrock or above existing utility lines: Different procedures will be followed for pipes or culverts to be placed on bedrock or above existing buried utility lines where it is not practicable to relocate the lines, depending on whether the work is for replacement of an existing pipe/culvert or a new pipe/culvert:
 - i. Replacement of an existing pipe/culvert: Countersinking is not required provided the elevations of the inlet and outlet ends of the replacement pipe/culvert are no higher above the stream bottom than those of the existing pipe/culvert. Documentation (photographic or other evidence) must be maintained in the permittee's records showing the bedrock condition and the existing inlet and outlet elevations. That documentation will be available to the Norfolk District upon request, but notification or coordination with the Norfolk District is not otherwise required.
 - ii. A pipe/culvert is being placed in a new location: If the prospective permittee determines that bedrock or an existing buried utility line that is not practicable to relocate prevents countersinking, he/she should evaluate the use of a bottomless pipe/culvert, bottomless utility vault, span (bridge) or other bottomless structure to cross the waterway, and also evaluate alternative locations for the new pipe/culvert that will allow for countersinking. If the prospective permittee determines that neither a bottomless structure nor an alternative location is practicable, then he/she must submit a pre-construction notification (PCN) to the Norfolk District in accordance with General Condition 32 of the NWPs. In addition to the information required by General Condition 32, the prospective permittee must provide documentation of measures evaluated to minimize disruption of the movement of aquatic life as well as documentation of the cost, engineering factors, and site conditions that prohibit countersinking the pipe/culvert. Options that must be considered include partial countersinking (such as less than 3" of countersinking, or countersinking of one end of the pipe), and constructing stone step pools, low rock weirs downstream, or other measures to provide for the movement of aquatic organisms. The PCN must also include photographs documenting site conditions. The prospective permittee may find it helpful to contact the regional fishery biologist for the VDGIF, for recommendations about the measures to be taken to allow for fish movements. When seeking advice from VDGIF, the prospective permittee should provide the VDGIF biologist with all available information such as location, flow rates, stream bottom features, description of proposed pipe(s), slopes, etc. Any recommendations from VDGIF should be included in the PCN. The Norfolk District will notify the prospective permittee whether the proposed work qualifies for the nationwide permit within 45 days of receipt of a complete PCN. **NOTE:** Blasting of stream bottoms through the use of explosives is not acceptable as a means of providing for countersinking of pipes on bedrock.
- g. Pipes on steep terrain: Pipes being placed on steep terrain (slope of 5% or greater) must be countersunk in accordance with the conditions above

and will in most cases be non-reporting. It is recommended that on slopes greater than 5%, a larger pipe than required be installed to allow for the passage of ordinary high water in order to increase the likelihood that natural velocities can be maintained. There may be situations where countersinking both the inlet and outlet may result in a slope in the pipe that results in flow velocities that cause excessive scour at the outlet and/or prohibit some fish movement. This type of situation could occur on the side of a mountain where falls and drop pools occur along a stream. Should this be the case, or should the prospective permittee not want to countersink the pipe/culvert for other reasons, he/she must submit a PCN to the Norfolk District in accordance with General Condition 32 of the Nationwide Permits. In addition to the information required by General Condition 32, the prospective permittee must provide documentation of measures evaluated to minimize disruption of the movement of aquatic life as well as documentation of the cost, engineering factors, and site conditions that prohibit countersinking the pipe/culvert. The prospective permittee should design the pipe to be placed at a slope as steep as stream characteristics allow, countersink the inlet 3-6", and implement measures to minimize any disruption of fish movement. These measures can include constructing a stone step/pool structure, preferably using river rock/native stone rather than riprap, constructing low rock weirs to create a pool or pools, or other structures to allow for fish movements in both directions. Stone structures should be designed with sufficient-sized stone to prevent erosion or washout and should include keying-in as appropriate. These structures should be designed both to allow for fish passage and to minimize scour at the outlet. The quantities of fill discharged below ordinary high water necessary to comply with these requirements (i.e., the cubic yards of stone, riprap or other fill placed below the plane of ordinary high water) must be included in project totals. The prospective permittee may find it helpful to contact the regional fishery biologist for the VDGIF for recommendations about the measures to be taken to allow for fish movements. When seeking advice from DGIF, the prospective permittee should provide the DGIF biologist with all available information such as location, flow rates, stream bottom features, description of proposed pipe(s), slopes, etc. Any recommendations from DGIF should be included in the PCN. The Norfolk District will notify the prospective permittee whether the proposed work qualifies for the nationwide permit within 45 days of receipt of a complete PCN.

- h. Problems encountered during construction: When a pipe/culvert is being replaced, and the design calls for countersinking at both ends of the pipe/culvert, and during construction it is found that the streambed/banks are on bedrock, a utility line, or other documentable obstacle, then the permittee must stop work and contact the Norfolk District (contact by telephone and/or email is acceptable). The permittee must provide the Norfolk District with specific information concerning site conditions and limitations on countersinking. The Norfolk District will work with the permittee to determine an acceptable plan, taking into consideration the information provided by the permittee, but the permittee should recognize that the Norfolk District could determine that the work will not qualify for a nationwide permit.

- i. Emergency pipe replacements: In the case of an emergency situation, such as when a pipe/culvert washes out during a flood, a permittee is encouraged to countersink the replacement pipe at the time of replacement, in accordance with the conditions above. However, if conditions or timeframes do not allow for countersinking, then the pipe can be replaced as it was before the washout, but the permittee will have to come back and replace the pipe/culvert and countersink it in accordance with the guidance above. In other words, the replacement of the washed out pipe is viewed as a temporary repair, and a countersunk replacement should be made at the earliest possible date. The Norfolk District must be notified of all pipes/culverts that are replaced without countersinking at the time that it occurs, even if it is an otherwise non-reporting activity, and must provide the permittee's planned schedule for installing a countersunk replacement (it is acceptable to submit such notification by email). The permittee should anticipate whether bedrock or steep terrain will limit countersinking, and if so, should follow the procedures outlined in (g) and/or (h) above.

- 9. **Conditions for the Repair of Pipes:** This condition applies to: NWP 3, 7, 12, 14, 17, 18, 21, 23, 25, 27, 29, 32, 33, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 49, 50, 51, and 52.

NOTE: COUNTERSINKING IS NOT REQUIRED IN TIDAL WATERS. However, replacement pipes/culverts in tidal waters must be installed with invert elevations no higher than the existing pipe/culvert invert elevation, and a new pipe/culvert must be installed with the invert no higher than the stream bottom elevation. For Nontidal Waters: If any discharge of fill material will occur in conjunction with pipe maintenance, such as concrete being pumped over rebar into an existing deteriorated pipe for stabilization, then the following conditions apply:

- a. If the existing pipe or multi-barrel array of pipes are NOT currently countersunk:
 - i. As long as the inlet and outlet invert elevations of at least one pipe located in the low flow channel are not being altered, and provided that no concrete apron is being constructed, then the work may proceed under the NWP for the other pipes, provided it complies with all other NWP General Conditions, including Condition 9 for Management of Water Flows. In such cases, notification to the Norfolk District Commander is not required, unless specified in the NWP Conditions for other reasons, and the permittee may proceed with the work.
 - ii. Otherwise, the prospective permittee must submit a pre-construction notification (PCN) to the Norfolk District Commander prior to commencing the activity. For all such projects, the following information should be provided:
 - 1) Photographs of the existing inlet and outlet;
 - 2) A measurement of the degree to which the work will raise the invert elevations of both the inlet and outlet of the existing pipe;
 - 3) The reasons why other methods of pipe maintenance are not practicable (such as metal sleeves or a countersunk pipe replacement);

- 4) A vicinity map showing the pipe locations. Depending on the specific case, the Norfolk District may discuss potential fish usage of the waterway with the Virginia Department of Game and Inland Fisheries. The Norfolk District will assess all such pipe repair proposals in accordance with guidelines that can be found under "Pipe Repair Guidelines" at: <http://www.nao.usace.army.mil/Missions/Regulatory/GuidanceDocuments.aspx>
- iii. If the Norfolk District determines that the work qualifies for the NWP, additional conditions will be placed on the verification. Those conditions can be found at the web link above (in item ii).
 - iv. If the Norfolk District determines that the work does NOT qualify for the NWP, the applicant will be directed to apply for either Regional Permit 01 (applicable only for Virginia Department of Transportation projects) or an Individual Permit. However, it is anticipated that the applicant will still be required to perform the work such that the waterway is not blocked or restricted to a greater degree than its current conditions.
- b. If the existing pipe or at least one pipe in the multi-barrel array of pipes IS countersunk and at least one pipe located in the low flow channel will continue to be countersunk, and no concrete aprons are proposed: No PCN to the Norfolk District is required, unless specified in the NWP Conditions for other reasons, and the permittee may proceed with the work.
 - c. If the existing pipe or at least one pipe in the multi-barrel array of pipes IS countersunk and no pipe will continue to be countersunk in the low flow channel:
This work cannot be performed under the NWPs. The prospective permittee must apply for either a Regional Permit 01 (applicable only for VDOT projects) or an Individual Permit. However, it is anticipated that the prospective permittee will still be required to perform the work such that the waterway is not blocked or restricted more so than its current conditions.
 - d. In emergency situations, if conditions or timeframes do not allow for compliance with the procedure outlined herein, then the pipe can be temporarily repaired to the condition before the washout. If the temporary repair would require a PCN by the above procedures, the permittee must submit the PCN at the earliest practicable date, but no longer than 15 days after the temporary repair.
10. **Condition for Impacts Requiring a Mitigation Plan:** When a PCN is required, a mitigation plan needs to be submitted when the permanent loss of wetlands exceeds 1/10 acre and/or 300 linear feet of waters of the U.S., unless otherwise stated in the Regional Conditions (see Regional Condition 12).
 11. **Condition for Temporary Impacts:** All temporarily disturbed waters and wetlands must be restored to their pre-construction contours within 12 months of commencing the temporary impacts' construction. Impacts that will not be restored within 12 months (calculated from the start of the temporary impacts'

construction) will be considered permanent, unless otherwise approved by the Corps, and mitigation may be required. Once restored to their natural contours, soil in these areas must be mechanically loosened to a depth of 12 inches and wetland areas must be seeded or sprigged with appropriate native vegetation (see Regional Condition 7 regarding revegetation).

12. **Condition for Transportation Projects Funded in Part or in Total by State or Federal Funds:** For all impacts associated with transportation projects funded in part or in total by local, state or federal funds and requiring a PCN, compensatory mitigation will generally be required for all permanent wetland impacts (including impacts less than 1/10 acre). Therefore, the PCN must include a mitigation plan addressing the proposed compensatory mitigation.
13. **Condition for Projects Requiring Coordination Under Section 408:** General Condition 31 of the NWPs requires that prospective permittees submit a pre-construction notification (PCN) if an NWP activity also requires permission from the Corps pursuant to 33 U.S.C. 408 because it will alter or temporarily or permanently occupy or use a US Army Corps of Engineers (USACE) federally authorized civil works project. For information on the location of Norfolk District projects, prospective permittees are directed to the maps showing the locations of Norfolk District projects located at: http://www.nao.usace.army.mil/Portals/31/docs/regulatory/RPSPdocs/RP-17_Corps_Project_Maps.pdf. If the prospective permittee is uncertain whether the proposed activity might alter or temporarily or permanently occupy or use a Norfolk District federally authorized civil works project, the prospective permittee shall submit a PCN.
14. **Utility Line Activities - Conditions Specific to NWP 12:**
 1. Construction of access roads may not result in more than 1/3 acre of impacts to waters of the United States.
 2. A PCN is required for discharges associated with the construction of utility line substations that result in the permanent loss of greater than 5000 square feet of waters of the United States.
 3. For utility activities requiring a PCN the prospective permittee shall provide the following information:
 - a. A map of the entire utility corridor to assist with our completeness determination. The map should include a delineation of all wetlands and waters of the United States within the corridor. Aquatic resource information shall be submitted using the Cowardin Classification System mapping conventions (e.g. PFO, PEM, POW, etc.).
 - b. An alternatives analysis, which specifically addresses the following:
 - i. Selection of an alignment which avoids and minimizes wetland and stream impacts to the maximum extent practicable. The utility line should make a direct or perpendicular crossing of a stream. Directional drilling should be reviewed as an option. However, the Norfolk District recognizes that in certain areas (e.g. karst areas) directional drilling may not be the environmentally preferred option.
 - ii. Selection of an alignment which avoids fragmenting large tracts of forested wetlands by routing utility lines outside of forested tracts or on the edges of forested tracts. Consult the Virginia Conservation Vision,

a GIS analysis for identifying and prioritizing areas of un-fragmented natural cover in Virginia <http://www.dcr.virginia.gov/natural-heritage/vaconvision>.

- iii. Minimizing clearing of wetlands. Grubbing shall be limited to the permanent easement for underground utility lines. Outside of the permanent easement, wetland vegetation shall only be removed at or above the ground surface unless written justification is provided and the impacts are reviewed and approved by the Corps.
 - iv. For overhead utility lines, allowance of natural succession to restore and maintain the corridor in scrub-shrub wetlands except for a minimum corridor needed for access, to the maximum extent practicable.
 - v. For buried utility lines, allowance of natural succession to restore the area to tree and scrub/shrub except for a 20-foot wide access corridor, to the maximum extent practicable.
 - c. Compensatory mitigation may be required for permanent conversion of wetlands within the utility line corridor.
4. For all submerged utility lines across navigable waters of the United States, a location map and cross-sectional view showing the utility line crossing from bank to bank is required. In addition, the location and depth of any Federal Navigation Channels shall be shown in relation to the proposed utility line. In general, all utility lines shall be buried at least six (6) feet below the authorized bottom depth of Federal Navigation Channel and at least three (3) feet below the bottom depth in all subaqueous areas. When circumstances prevent the placement of at least three feet of cover over the line (outside of the Federal Navigation Channel), then written justification and an alternative method must be provided with the notification and the deviation must be reviewed and approved by the Corps. Section 408 permission may be required (see Regional Condition 13 under Section I).
5. Whenever practicable, excavated material shall be placed on a Corps confirmed upland site. However, when this is not practicable, temporary stockpiling is hereby authorized provided that:
- a. All excavated material stockpiled in a vegetated wetland area is placed on filter cloth, mats, or some other semi-permeable surface. The material will be stabilized with straw bales, filter cloth, etc. to prevent reentry into any waterway.
 - b. All excavated material must be placed back into the trench to the original contour and all excess excavated material must be completely removed from the wetlands within 30 days after the pipeline has been laid through the wetland areas. Permission must be granted by the District Commander or his authorized representatives if the material is to be stockpiled longer than 30 days.
6. When open-cut trenching in designated anadromous fish use areas or hydrostatic testing of a pipeline involving water withdrawals from tidal waters are proposed, the Corps will coordinate with the NOAA Fisheries Service and/or the Virginia Department of Game and Inland Fisheries. Written verification from this office must be received before performing the proposed work. In most cases, the following time-of-year restrictions (TOYRs) will apply:
- James River, below Rt. 17 bridge: No TOYR.

- James River, at Jamestown Island (Gray's Creek) downstream to Rt. 17 bridge: TOYR from February 15 through June 15 of any given year.
- James River, at Jamestown Island upstream to Boshers' Dam: TOYR from February 15 through June 30 of any given year.
- James River, above Boshers' Dam (including Rivanna River): TOYR from March 15 through June 30 of any given year.
- Rappahannock River, below Route 360 bridge: TOYR from February 15 through June 15 of any given year.
- York River, below Route 33 bridge: TOYR from February 15 through June 15 of any given year.
- Nansemond River: TOYR from February 15 through June 15 of any given year.
- Elizabeth River: If dredging upstream of the Mid-Town Tunnel on the mainstem and the West Norfolk Bridge (Route 164, Western Freeway) on the Western Branch of the Elizabeth River, then a TOYR is not required.
- Unless otherwise noted: TOYR from February 15 through June 30 of any given year.

7. Aerial Transmission Lines Crossing Navigable Waters:
- a. The following minimum clearances are required for aerial electric power transmission lines crossing navigable waters of the United States. These clearances are related to the clearances over the navigable channel provided by existing fixed bridges, or the clearances which would be required by the United States Coast Guard for new fixed bridges, in the vicinity of the proposed aerial transmission line. These clearances are based on the low point of the line under conditions producing the greatest sag, taking into consideration temperature, load, wind, length of span, and

Nominal System Voltage (kV)	Minimum additional clearance (ft.) above clearance required for bridges
115 and below	20
138	22
161	24
230	26
350	30
500	35
700	42
750 - 765	45

type of supports as outlined in the National Electrical Safety Code:

- b. Clearances for communication lines, stream gaging cables, ferry cables, and other aerial crossings must be a minimum of ten feet above clearances

required for bridges, unless otherwise specifically authorized by the District Engineer.

c. Corps of Engineer regulation ER 1110-2-4401 prescribes minimum vertical clearances for power communication lines over Corps lake projects. In instances where both this regional condition and ER 1110-2-4401 apply, the greater minimum clearance is required.

8. For utility lines landing in Virginia, from the Outer Continental Shelf (OCS), the applicant shall send the PCN to the following federal agencies:

Director, Naval Seafloor Cable Protection Office

Naval Facilities Engineering Command

1322 Patterson Ave SE, Suite 1000

Washington DC 20374

Bureau of Ocean Energy Management (BOEM)

Atlantic OCS Region

1201 Elmwood Park Blvd.

New Orleans, LA 70123-2394.

9. For utility line projects completed by horizontal directional drilling or other boring methods, a plan to address the prevention, containment, and cleanup of sediment or other materials caused by inadvertent returns of drilling fluids to waters of the U.S. through sub-soil fissures or fractures needs to be included with the PCN (if a PCN is required). If an inadvertent return of drilling fluids to waters of the U.S. occurs, and the remediation requires work within waters of the U.S., then the applicant must notify the Corps immediately and submit a remediation plan as soon as possible, regardless of whether a PCN was required for the original work.

10. When an intake is proposed in designated anadromous fish waters, the following design parameters will be incorporated as permit conditions to protect the sensitive life stages of anadromous fish:

- a. Screening over the mouth of the intake with mesh size that does not exceed 1mm;
- b. Intake velocities that do not exceed 0.25 feet per second;
- c. Intake must be positioned such that an unimpeded flow of water parallel to the screen surface occurs along the entire surface of the screen to take advantage of sweeping velocity.

GENERAL CONDITIONS:

Note: To qualify for NWP authorization, the prospective permittee must comply with the following general conditions, as applicable, in addition to any regional or case-specific conditions imposed by the division engineer or district engineer. Prospective permittees should contact the appropriate Corps district office to determine if regional conditions have been imposed on an NWP. Prospective permittees should also contact the appropriate Corps district office to determine the status of Clean Water Act Section 401 water quality certification and/or Coastal authorization under one or more NWPs, or who is currently relying on an existing or prior permit authorization under one or more NWPs, has been and is on notice that all of the provisions of 33 CFR §§ 330.1 through 330.6 apply to every NWP authorization. Note especially 33 CFR § 330.5 relating to the modification, suspension, or revocation of any NWP authorization.

1. Navigation.

(a) No activity may cause more than a minimal adverse effect on navigation.

(b) Any safety lights and signals prescribed by the U.S. Coast Guard, through regulations or otherwise, must be installed and maintained at the permittee's expense on authorized facilities in navigable waters of the United States.

(c) The permittee 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.

2. Aquatic Life Movements. No activity may substantially disrupt the necessary life cycle movements of those species of aquatic life indigenous to the waterbody, including those species that normally migrate through the area, unless the activity's primary purpose is to impound water. All permanent and temporary crossings of waterbodies shall be suitably culverted, bridged, or otherwise designed and constructed to maintain low flows to sustain the movement of those aquatic species. If a bottomless culvert cannot be used, then the crossing should be designed and constructed to minimize adverse effects to aquatic life movements.

3. Spawning Areas. Activities in spawning areas during spawning seasons must be avoided to the maximum extent practicable. Activities that result in the physical destruction (e.g., through excavation, fill, or downstream smothering by substantial turbidity) of an important spawning area are not authorized.

4. Migratory Bird Breeding Areas. Activities in waters of the United States that serve as breeding areas for migratory birds must be avoided to the maximum extent practicable.

5. Shellfish Beds. No activity may occur in areas of concentrated shellfish populations, unless the activity is directly related to a shellfish harvesting activity authorized by NWPs 4 and 48, or is a shellfish seeding or habitat restoration activity authorized by NWP 27.

6. Suitable Material. No activity may use unsuitable material (e.g., trash, debris, car bodies, asphalt, etc.). Material used for construction or discharged must be free from toxic pollutants in toxic amounts (see section 307 of the Clean Water Act).

7. Water Supply Intakes. No activity may occur in the proximity of a public water supply intake, except where the activity is for the repair or improvement of public water supply intake structures or adjacent bank stabilization.

8. Adverse Effects from Impoundments. If the activity creates an impoundment of water, adverse effects to the aquatic system due to accelerating the passage of water, and/or restricting its flow must be minimized to the maximum extent practicable.

9. Management of Water Flows. To the maximum extent practicable, the pre-construction course, condition, capacity, and location of open waters must be maintained for each activity, including stream channelization, storm water management activities, and temporary and permanent road crossings, except as provided below. The activity must be constructed to withstand expected high flows. The activity must not restrict or impede the passage of normal or high flows, unless the primary purpose of the activity is to impound water or manage high flows. The activity may alter the pre-construction course, condition, capacity, and location of open waters if it benefits the aquatic environment (e.g., stream restoration or relocation activities).

10. Fills Within 100-Year Floodplains. The activity must comply with applicable FEMA-approved state or local floodplain management requirements.

11. Equipment. Heavy equipment working in wetlands or mudflats must be placed on mats, or other measures must be taken to minimize soil disturbance.

12. 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. Permittees are encouraged to perform work within waters of the United States during periods of low-flow or no-flow, or during low tides.

13. Removal of Temporary Fills. Temporary fills must be removed in their entirety and the affected areas returned to pre-construction elevations. The affected areas must be revegetated, as appropriate.

14. Proper Maintenance. Any authorized structure or fill shall be properly maintained, including maintenance to ensure public safety and compliance with applicable NWP general conditions, as well as any activity-specific conditions added by the district engineer to an NWP authorization.

15. Single and Complete Project. The activity must be a single and complete project. The same NWP cannot be used more than once for the same single and complete project.

16. Wild and Scenic Rivers.

(a) No NWP 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.

(b) If a proposed NWP activity will 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, the permittee must submit a pre-construction notification (see general condition 32). The district engineer will coordinate the PCN with the Federal agency with direct management responsibility for that river. The permittee shall not begin the NWP

activity until notified by the district engineer that the Federal agency with direct management responsibility for that river has determined in writing that the proposed NWP activity will not adversely affect the Wild and Scenic River designation or study status.

(c) Information on Wild and Scenic Rivers may be obtained from the appropriate Federal land management agency responsible for the designated Wild and Scenic River or study river (e.g., National Park Service, U.S. Forest Service, Bureau of Land Management, U.S. Fish and Wildlife Service). Information on these rivers is also available at: <http://www.rivers.gov/>.

17. Tribal Rights. No NWP activity may cause more than minimal adverse effects on tribal rights (including treaty rights), protected tribal resources, or tribal lands.

18. Endangered Species.

(a) No activity is authorized under any NWP which is likely to directly or indirectly 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 (ESA), or which will directly or indirectly destroy or adversely modify the critical habitat of such species. No activity is authorized under any NWP which "may affect" a listed species or critical habitat, unless ESA section 7 consultation addressing the effects of the proposed activity has been completed. Direct effects are the immediate effects on listed species and critical habitat caused by the NWP activity. Indirect effects are those effects on listed species and critical habitat that are caused by the NWP activity and are later in time, but still are reasonably certain to occur.

(b) Federal agencies should follow their own procedures for complying with the requirements of the ESA. If pre-construction notification is required for the proposed activity, the Federal permittee must provide the district engineer with the appropriate documentation to demonstrate compliance with those requirements. The district engineer will verify that the appropriate documentation has been submitted. If the appropriate documentation has not been submitted, additional ESA section 7 consultation may be necessary for the activity and the respective federal agency would be responsible for fulfilling its obligation under section 7 of the ESA.

(c) Non-federal permittees must submit a pre-construction notification to the district engineer if any listed species or designated critical habitat might be affected or is in the vicinity of the activity, or if the activity is located in designated critical habitat, and shall not begin work on the activity until notified by the district engineer that the requirements of the ESA have been satisfied and that the activity is authorized. For activities that might affect Federally-listed endangered or threatened species or designated critical habitat, the pre-construction notification must include the name(s) of the endangered or threatened species that might be affected by the proposed activity or that utilize the designated critical habitat that might be affected by the proposed activity. The district engineer will determine whether the proposed activity "may affect" or will have "no effect" to listed species and designated critical habitat and will notify the non-Federal applicant of the Corps' determination within 45 days of receipt of a complete pre-construction notification. In cases where the non-Federal applicant has identified listed species or critical habitat that might be affected or is in the vicinity of the activity, and has so notified the Corps, the applicant shall not begin work until the Corps has provided notification that the proposed activity will have "no effect" on listed species or critical habitat, or until ESA section 7 consultation has been

completed. If the non-Federal applicant has not heard back from the Corps within 45 days, the applicant must still wait for notification from the Corps.

(d) As a result of formal or informal consultation with the FWS or NMFS the district engineer may add species-specific permit conditions to the NWP.

(e) Authorization of an activity by an NWP does not authorize the "take" of a threatened or endangered species as defined under the ESA. In the absence of separate authorization (e.g., an ESA Section 10 Permit, a Biological Opinion with "incidental take" provisions, etc.) from the FWS or the NMFS, the Endangered Species Act prohibits any person subject to the jurisdiction of the United States to take a listed species, where "take" means to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct. The word "harm" in the definition of "take" means an act which actually kills or injures wildlife. Such an act may include significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding or sheltering.

(f) If the non-federal permittee has a valid ESA section 10(a)(1)(B) incidental take permit with an approved Habitat Conservation Plan for a project or a group of projects that includes the proposed NWP activity, the non-federal applicant should provide a copy of that ESA section 10(a)(1)(B) permit with the PCN required by paragraph (c) of this general condition. The district engineer will coordinate with the agency that issued the ESA section 10(a)(1)(B) permit to determine whether the proposed NWP activity and the associated incidental take were considered in the internal ESA section 7 consultation conducted for the ESA section 10(a)(1)(B) permit. If that coordination results in concurrence from the agency that the proposed NWP activity and the associated incidental take were considered in the internal ESA section 7 consultation for the ESA section 10(a)(1)(B) permit, the district engineer does not need to conduct a separate ESA section 7 consultation for the proposed NWP activity. The district engineer will notify the non-federal applicant within 45 days of receipt of a complete pre-construction notification whether the ESA section 10(a)(1)(B) permit covers the proposed NWP activity or whether additional ESA section 7 consultation is required.

(g) Information on the location of threatened and endangered species and their critical habitat can be obtained directly from the offices of the FWS and NMFS or their World Wide Web pages at <http://www.fws.gov/> or <http://www.fws.gov/ipac> and <http://www.nmfs.noaa.gov/pr/species/esa/> respectively.

19. Migratory Birds and Bald and Golden Eagles. The permittee is responsible for ensuring their action complies with the Migratory Bird Treaty Act and the Bald and Golden Eagle Protection Act. The permittee is responsible for contacting appropriate local office of the U.S. Fish and Wildlife Service to determine applicable measures to reduce impacts to migratory birds or eagles, including whether "incidental take" permits are necessary and available under the Migratory Bird Treaty Act or Bald and Golden Eagle Protection Act for a particular activity.

20. Historic Properties.

(a) In cases where the district engineer determines that the activity may have the potential to cause effects to properties listed, or eligible for listing, in the National Register of Historic Places, the activity is not authorized, until the requirements of Section 106 of the National Historic Preservation Act (NHPA) have been satisfied.

(b) Federal permittees should follow their own procedures for complying with the requirements of section 106 of the National Historic Preservation Act. If pre-

construction notification is required for the proposed NWP activity, the Federal permittee must provide the district engineer with the appropriate documentation to demonstrate compliance with those requirements. The district engineer will verify that the appropriate documentation has been submitted. If the appropriate documentation is not submitted, then additional consultation under section 106 may be necessary. The respective federal agency is responsible for fulfilling its obligation to comply with section 106.

(c) Non-federal permittees must submit a pre-construction notification to the district engineer if the NWP activity might have the potential to cause effects to any historic properties listed on, determined to be eligible for listing on, or potentially eligible for listing on the National Register of Historic Places, including previously unidentified properties. For such activities, the pre-construction notification must state which historic properties might have the potential to be affected by the proposed NWP activity or include a vicinity map indicating the location of the historic properties or the potential for the presence of historic properties. Assistance regarding information on the location of, or potential for, the presence of historic properties can be sought from the State Historic Preservation Officer, Tribal Historic Preservation Officer, or designated tribal representative, as appropriate, and the National Register of Historic Places (see 33 CFR 330.4(g)). When reviewing pre-construction notifications, district engineers will comply with the current procedures for addressing the requirements of section 106 of the National Historic Preservation Act. The district engineer shall make a reasonable and good faith effort to carry out appropriate identification efforts, which may include background research, consultation, oral history interviews, sample field investigation, and field survey. Based on the information submitted in the PCN and these identification efforts, the district engineer shall determine whether the proposed NWP activity has the potential to cause effects on the historic properties. Section 106 consultation is not required when the district engineer determines that the activity does not have the potential to cause effects on historic properties (see 36 CFR 800.3(a)). Section 106 consultation is required when the district engineer determines that the activity has the potential to cause effects on historic properties. The district engineer will conduct consultation with consulting parties identified under 36 CFR 800.2(c) when he or she makes any of the following effect determinations for the purposes of section 106 of the NHPA: no historic properties affected, no adverse effect, or adverse effect. Where the non-Federal applicant has identified historic properties on which the activity might have the potential to cause effects and so notified the Corps, the non-Federal applicant shall not begin the activity until notified by the district engineer either that the activity has no potential to cause effects to historic properties or that NHPA section 106 consultation has been completed.

(d) For non-federal permittees, the district engineer will notify the prospective permittee within 45 days of receipt of a complete pre-construction notification whether NHPA section 106 consultation is required. If NHPA section 106 consultation is required, the district engineer will notify the non-Federal applicant that he or she cannot begin the activity until section 106 consultation is completed. If the non-Federal applicant has not heard back from the Corps within 45 days, the applicant must still wait for notification from the Corps.

(e) Prospective permittees should be aware that section 110k of the NHPA (54 U.S.C. 306113) prevents the Corps from granting a permit or other assistance to an applicant who, with intent to avoid the requirements of section 106 of the NHPA, has intentionally significantly adversely affected a historic property to which the permit would relate, or having legal power to prevent it, allowed such significant adverse

effect to occur, unless the Corps, after consultation with the Advisory Council on Historic Preservation (ACHP), determines that circumstances justify granting such assistance despite the adverse effect created or permitted by the applicant. If circumstances justify granting the assistance, the Corps is required to notify the ACHP and provide documentation specifying the circumstances, the degree of damage to the integrity of any historic properties affected, and proposed mitigation. This documentation must include any views obtained from the applicant, SHPO/THPO, appropriate Indian tribes if the undertaking occurs on or affects historic properties on tribal lands or affects properties of interest to those tribes, and other parties known to have a legitimate interest in the impacts to the permitted activity on historic properties.

21. Discovery of Previously Unknown Remains and Artifacts. If you discover any previously unknown historic, cultural or archeological remains and artifacts while accomplishing the activity authorized by this permit, you must immediately notify the district engineer of what you have found, and to the maximum extent practicable, avoid construction activities that may affect the remains and artifacts until the required coordination has been completed. The district engineer will initiate the Federal, Tribal, and state coordination required to determine if the items or remains warrant a recovery effort or if the site is eligible for listing in the National Register of Historic Places.

22. Designated Critical Resource Waters. Critical resource waters include, NOAA-managed marine sanctuaries and marine monuments, and National Estuarine Research Reserves. The district engineer may designate, after notice and opportunity for public comment, additional waters officially designated by a state as having particular environmental or ecological significance, such as outstanding national resource waters or state natural heritage sites. The district engineer may also designate additional critical resource waters after notice and opportunity for public comment.

(a) 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, 44, 49, 50, 51, and 52 for any activity within, or directly affecting, critical resource waters, including wetlands adjacent to such waters.

(b) For NWPs 3, 8, 10, 13, 15, 18, 19, 22, 23, 25, 27, 28, 30, 33, 34, 36, 37, 38, and 54, notification is required in accordance with general condition 32, 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 it is determined that the impacts to the critical resource waters will be no more than minimal.

23. Mitigation. The district engineer will consider the following factors when determining appropriate and practicable mitigation necessary to ensure that the individual and cumulative adverse environmental effects are no more than minimal:

(a) The activity must be designed and constructed to avoid and minimize adverse effects, both temporary and permanent, to waters of the United States to the maximum extent practicable at the project site (i.e., on site).

(b) Mitigation in all its forms (avoiding, minimizing, rectifying, reducing, or compensating for resource losses) will be required to the extent necessary to ensure that the individual and cumulative adverse environmental effects are no more than minimal.

(c) Compensatory mitigation at a minimum one-for-one ratio will be required for all wetland losses that exceed 1/10-acre and require pre-construction notification, unless the district engineer determines in writing that either some other form of mitigation would be more environmentally appropriate or the adverse environmental effects of the proposed activity are no more than minimal, and provides an activity-specific waiver of this requirement. For wetland losses of 1/10-acre or less that require pre-construction notification, the district engineer may determine on a case-by-case basis that compensatory mitigation is required to ensure that the activity results in only minimal adverse environmental effects.

(d) For losses of streams or other open waters that require pre-construction notification, the district engineer may require compensatory mitigation to ensure that the activity results in no more than minimal adverse environmental effects. Compensatory mitigation for losses of streams should be provided, if practicable, through stream rehabilitation, enhancement, or preservation, since streams are difficult-to-replace resources (see 33 CFR 332.3(e)(3)).

(e) Compensatory mitigation plans for NWP activities in or near streams or other open waters will normally include a requirement for the restoration or enhancement, maintenance, and legal protection (e.g., conservation easements) of riparian areas next to open waters. In some cases, the restoration or maintenance/protection of riparian areas may be the only compensatory mitigation required. Restored riparian areas should consist of native species. The width of the required riparian area will address documented water quality or aquatic habitat loss concerns. Normally, the riparian area will be 25 to 50 feet wide on each side of the stream, but the district engineer may require slightly wider riparian areas to address documented water quality or habitat loss concerns. If it is not possible to restore or maintain/protect a riparian area on both sides of a stream, or if the waterbody is a lake or coastal waters, then restoring or maintaining/protecting a riparian area along a single bank or shoreline may be sufficient. Where both wetlands and open waters exist on the project site, the district engineer will determine the appropriate compensatory mitigation (e.g., riparian areas and/or wetlands compensation) based on what is best for the aquatic environment on a watershed basis. In cases where riparian areas are determined to be the most appropriate form of minimization or compensatory mitigation, the district engineer may waive or reduce the requirement to provide wetland compensatory mitigation for wetland losses.

(f) Compensatory mitigation projects provided to offset losses of aquatic resources must comply with the applicable provisions of 33 CFR part 332.

(1) The prospective permittee is responsible for proposing an appropriate compensatory mitigation option if compensatory mitigation is necessary to ensure that the activity results in no more than minimal adverse environmental effects. For the NWPs, the preferred mechanism for providing compensatory mitigation is mitigation bank credits or in-lieu fee program credits (see 33 CFR 332.3(b)(2) and (3)). However, if an appropriate number and type of mitigation bank or in-lieu credits are not available at the time the PCN is submitted to the district engineer, the district engineer may approve the use of permittee-responsible mitigation.

(2) The amount of compensatory mitigation required by the district engineer must be sufficient to ensure that the authorized activity results in no more than minimal individual and cumulative adverse environmental effects (see 33 CFR 330.1(e)(3)). (See also 33 CFR 332.3(f)).

(3) Since the likelihood of success is greater and the impacts to potentially valuable uplands are reduced, aquatic resource restoration should be the first compensatory mitigation option considered for permittee-responsible mitigation.

(4) If permittee-responsible mitigation is the proposed option, the prospective permittee is responsible for submitting a mitigation plan. A conceptual or detailed mitigation plan may be used by the district engineer to make the decision on the NWP verification request, but a final mitigation plan that addresses the applicable requirements of 33 CFR 332.4(c)(2) through (14) must be approved by the district engineer before the permittee begins work in waters of the United States, unless the district engineer determines that prior approval of the final mitigation plan is not practicable or not necessary to ensure timely completion of the required compensatory mitigation (see 33 CFR 332.3(k)(3)).

(5) If mitigation bank or in-lieu fee program credits are the proposed option, the mitigation plan only needs to address the baseline conditions at the impact site and the number of credits to be provided.

(6) Compensatory mitigation requirements (e.g., resource type and amount to be provided as compensatory mitigation, site protection, ecological performance standards, monitoring requirements) may be addressed through conditions added to the NWP authorization, instead of components of a compensatory mitigation plan (see 33 CFR 332.4(c)(1)(ii)).

(g) Compensatory mitigation will not be used to increase the acreage losses allowed by the acreage limits of the NWPs. For example, if an NWP has an acreage limit of 1/2-acre, it cannot be used to authorize any NWP activity resulting in the loss of greater than 1/2-acre of waters of the United States, even if compensatory mitigation is provided that replaces or restores some of the lost waters. However, compensatory mitigation can and should be used, as necessary, to ensure that an NWP activity already meeting the established acreage limits also satisfies the no more than minimal impact requirement for the NWPs.

(h) Permittees may propose the use of mitigation banks, in-lieu fee programs, or permittee-responsible mitigation. When developing a compensatory mitigation proposal, the permittee must consider appropriate and practicable options consistent with the framework at 33 CFR 332.3(b). For activities resulting in the loss of marine or estuarine resources, permittee-responsible mitigation may be environmentally preferable if there are no mitigation banks or in-lieu fee programs in the area that have marine or estuarine credits available for sale or transfer to the permittee. For permittee-responsible mitigation, the special conditions of the NWP verification must clearly indicate the party or parties responsible for the implementation and performance of the compensatory mitigation project, and, if required, its long-term management.

(i) Where certain functions and services of waters of the United States are permanently adversely affected by a regulated activity, such as discharges of dredged or fill material into waters of the United States that will convert a forested or scrub-shrub wetland to a herbaceous wetland in a permanently maintained utility line right-of-way, mitigation may be required to reduce the adverse environmental effects of the activity to the no more than minimal level.

24. Safety of Impoundment Structures. To ensure that all impoundment structures are safely designed, the district engineer may require non-Federal applicants to demonstrate that the structures comply with established state dam safety criteria or have been designed by qualified persons. The district engineer may also require

documentation that the design has been independently reviewed by similarly qualified persons, and appropriate modifications made to ensure safety.

25. Water Quality. Where States and authorized Tribes, or EPA where applicable, have not previously certified compliance of an NWP with CWA section 401, individual 401 Water Quality Certification must be obtained or waived (see 33 CFR 330.4(c)). The district engineer or State or Tribe may require additional water quality management measures to ensure that the authorized activity does not result in more than minimal degradation of water quality.

26. Coastal Zone Management. In coastal states where an NWP has not previously received a state coastal zone management consistency concurrence, an individual state coastal zone management consistency concurrence must be obtained, or a presumption of concurrence must occur (see 33 CFR 330.4(d)). The district engineer or a State may require additional measures to ensure that the authorized activity is consistent with state coastal zone management requirements.

27. Regional and Case-By-Case Conditions. The activity must comply with any regional conditions that 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, Indian Tribe, or U.S. EPA in its section 401 Water Quality Certification, or by the state in its Coastal Zone Management Act consistency determination.

28. 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.

29. Transfer of Nationwide Permit Verifications. If the permittee sells the property associated with a nationwide permit verification, the permittee may transfer the nationwide permit verification to the new owner by submitting a letter to the appropriate Corps district office to validate the transfer. A copy of the nationwide permit verification must be attached to the letter, and the letter must contain the following statement and signature:

"When the structures or work authorized by this nationwide permit are still in existence at the time the property is transferred, the terms and conditions of this nationwide permit, including any special conditions, will continue to be binding on the new owner(s) of the property. To validate the transfer of this nationwide permit and the associated liabilities associated with compliance with its terms and conditions, have the transferee sign and date below."

(Transferee)

(Date)

30. Compliance Certification. Each permittee who receives an NWP verification letter from the Corps must provide a signed certification documenting completion of the authorized activity and implementation of any required compensatory mitigation. The success of any required permittee-responsible mitigation, including the achievement of ecological performance standards, will be addressed separately by the district engineer. The Corps will provide the permittee the certification document with the NWP verification letter. The certification document will include:

(a) A statement that the authorized activity was done in accordance with the NWP authorization, including any general, regional, or activity-specific conditions;

(b) A statement that the implementation of any required compensatory mitigation was completed in accordance with the permit conditions. If credits from a mitigation bank or in-lieu fee program are used to satisfy the compensatory mitigation requirements, the certification must include the documentation required by 33 CFR 332.3(l)(3) to confirm that the permittee secured the appropriate number and resource type of credits; and

(c) The signature of the permittee certifying the completion of the activity and mitigation.

The completed certification document must be submitted to the district engineer within 30 days of completion of the authorized activity or the implementation of any required compensatory mitigation, whichever occurs later.

31. Activities Affecting Structures or Works Built by the United States. If an NWP activity also requires permission from the Corps pursuant to 33 U.S.C. 408 because it will alter or temporarily or permanently occupy or use a U.S. Army Corps of Engineers (USACE) federally authorized Civil Works project (a "USACE project"), the prospective permittee must submit a pre-construction notification. See paragraph (b)(10) of general condition 32. An activity that requires section 408 permission is not authorized by NWP until the appropriate Corps office issues the section 408 permission to alter, occupy, or use the USACE project, and the district engineer issues a written NWP verification.

32. Pre-Construction Notification.

(a) Timing. Where required by the terms of the NWP, the prospective permittee must notify the district engineer by submitting a pre-construction notification (PCN) as early as possible. The district engineer must determine if the PCN is complete within 30 calendar days of the date of receipt and, if the PCN is determined to be incomplete, notify the prospective permittee within that 30 day period to request the additional information necessary to make the PCN complete. The request must specify the information needed to make the PCN complete. As a general rule, district engineers will request 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 until either:

(1) He or she is 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) 45 calendar days have passed from the district engineer's receipt of the complete PCN and the prospective permittee has not received written notice from the district or division engineer. However, if the permittee was required to notify the Corps pursuant to general condition 18 that listed species or critical habitat might be affected or are in the vicinity of the activity, or to notify the Corps pursuant to general condition 20 that the activity might have the potential to cause effects to historic properties, the permittee cannot begin the activity until receiving written notification from the Corps that there is "no effect" on listed species or "no potential to cause effects" on historic properties, or that any consultation required under Section 7 of the Endangered Species Act (see 33 CFR 330.4(f)) and/or section 106 of the National Historic Preservation Act (see 33 CFR 330.4(g)) has been completed. Also, work cannot begin under NWPs 21, 49, or 50 until the permittee has received written approval from the Corps. If the proposed activity requires a written waiver to exceed specified limits of an NWP, the permittee may not begin the activity until the district engineer issues the waiver. If the district or division engineer notifies the permittee in writing that an individual permit is required within 45 calendar days of receipt of a complete PCN, the permittee cannot begin the activity until an individual permit has been obtained. 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 Pre-Construction Notification: The PCN must be in writing and include the following information:

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

(2) Location of the proposed activity;

(3) Identify the specific NWP or NWP(s) the prospective permittee wants to use to authorize the proposed activity;

(4) A description of the proposed activity; the activity's purpose; direct and indirect adverse environmental effects the activity would cause, including the anticipated amount of loss of wetlands, other special aquatic sites, and other waters expected to result from the NWP activity, in acres, linear feet, or other appropriate unit of measure; a description of any proposed mitigation measures intended to reduce the adverse environmental effects caused by the proposed activity; and 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, including other separate and distant crossings for linear projects that require Department of the Army authorization but do not require pre-construction notification. The description of the proposed activity and any proposed mitigation measures should be sufficiently detailed to allow the district engineer to determine that the adverse environmental effects of the activity will be no more than minimal and to determine the need for compensatory mitigation or other mitigation measures. For single and complete linear projects, the PCN must include the quantity of anticipated losses of wetlands, other special aquatic sites, and other waters for each single and complete crossing of those wetlands, other special aquatic sites, and other waters. Sketches should be provided when necessary to show that the activity complies with the terms of the NWP. (Sketches usually clarify the activity and when provided results in a quicker decision. Sketches should contain sufficient detail to provide an illustrative description of the proposed

activity (e.g., a conceptual plan), but do not need to be detailed engineering plans);

(5) The PCN must include a delineation of wetlands, other special aquatic sites, and other waters, such as lakes and ponds, and perennial, intermittent, and ephemeral streams, on the project site. Wetland delineations must be prepared in accordance with the current method required by the Corps. The permittee may ask the Corps to delineate the special aquatic sites and other waters on the project site, but there may be a delay if the Corps does the delineation, especially if the project site is large or contains many wetlands, other special aquatic sites, and other waters. Furthermore, the 45 day period will not start until the delineation has been submitted to or completed by the Corps, as appropriate;

(6) If the proposed activity will result in the loss of greater than 1/10-acre of wetlands and a PCN is required, the prospective permittee must submit a statement describing how the mitigation requirement will be satisfied, or explaining why the adverse environmental effects are no more than minimal and why compensatory mitigation should not be required. As an alternative, the prospective permittee may submit a conceptual or detailed mitigation plan.

(7) For non-Federal permittees, if any listed species or designated critical habitat might be affected or is in the vicinity of the activity, or if the activity is located in designated critical habitat, the PCN must include the name(s) of those endangered or threatened species that might be affected by the proposed activity or utilize the designated critical habitat that might be affected by the proposed activity. For NWP activities that require pre-construction notification, Federal permittees must provide documentation demonstrating compliance with the Endangered Species Act;

(8) For non-Federal permittees, if the NWP activity might have the potential to cause effects to a historic property listed on, determined to be eligible for listing on, or potentially eligible for listing on, the National Register of Historic Places, the PCN must state which historic property might have the potential to be affected by the proposed activity or include a vicinity map indicating the location of the historic property. For NWP activities that require pre-construction notification, Federal permittees must provide documentation demonstrating compliance with section 106 of the National Historic Preservation Act;

(9) For an activity that will 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, the PCN must identify the Wild and Scenic River or the "study river" (see general condition 16); and

(10) For an activity that requires permission from the Corps pursuant to 33 U.S.C. 408 because it will alter or temporarily or permanently occupy or use a U.S. Army Corps of Engineers federally authorized civil works project, the pre-construction notification must include a statement confirming that the project proponent has submitted a written request for section 408 permission from the Corps office having jurisdiction over that USACE project.

(c) Form of Pre-Construction Notification: The standard individual permit application form (Form ENG 4345) may be used, but the completed application form must clearly indicate that it is an NWP PCN and must include all of the applicable information required in paragraphs (b)(1) through (10) of this general

condition. A letter containing the required information may also be used.

Applicants may provide electronic files of PCNs and supporting materials if the district engineer has established tools and procedures for electronic submittals.

(d) Agency Coordination:

(1) 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 activity's adverse environmental effects so that they are no more than minimal.

(2) Agency coordination is required for: (i) all NWP activities that require pre-construction notification and result in the loss of greater than 1/2-acre of waters of the United States; (ii) NWP 21, 29, 39, 40, 42, 43, 44, 50, 51, and 52 activities that require pre-construction notification and will result in the loss of greater than 300 linear feet of stream bed; (iii) NWP 13 activities in excess of 500 linear feet, fills greater than one cubic yard per running foot, or involve discharges of dredged or fill material into special aquatic sites; and (iv) NWP 54 activities in excess of 500 linear feet, or that extend into the waterbody more than 30 feet from the mean low water line in tidal waters or the ordinary high water mark in the Great Lakes.

(3) When agency coordination is required, the district engineer will immediately provide (e.g., via e-mail, facsimile transmission, overnight mail, or other expeditious manner) a copy of the complete PCN to the appropriate Federal or state offices (FWS, state natural resource or water quality agency, EPA, and, if appropriate, the NMFS). With the exception of NWP 37, these agencies will have 10 calendar days from the date the material is transmitted to notify the district engineer via telephone, facsimile transmission, or e-mail that they intend to provide substantive, site-specific comments. The comments must explain why the agency believes the adverse environmental effects will be more than minimal. If so contacted by an agency, the district engineer will wait an additional 15 calendar days before making a decision on the pre-construction notification. The district engineer will fully consider agency comments received within the specified time frame concerning the proposed activity's compliance with the terms and conditions of the NWPs, including the need for mitigation to ensure the net adverse environmental effects of the proposed activity are no more than minimal. The district engineer will provide no response to the resource agency, except as provided below. The district engineer will indicate in the administrative record associated with each pre-construction notification that the resource agencies' concerns were considered. For NWP 37, the emergency watershed protection and rehabilitation activity may proceed immediately in cases where there is an unacceptable hazard to life or a significant loss of property or economic hardship will occur. The district engineer will consider any comments received to decide whether the NWP 37 authorization should be modified, suspended, or revoked in accordance with the procedures at 33 CFR 330.5.

(4) In cases of where the prospective permittee is not a Federal agency, the district engineer will provide a response to NMFS within 30 calendar days of receipt of any Essential Fish Habitat conservation recommendations, as required by section 305(b)(4)(B) of the Magnuson-Stevens Fishery Conservation and Management Act.

(5) Applicants are encouraged to provide the Corps with either electronic files or multiple copies of pre-construction notifications to expedite agency coordination.

DISTRICT ENGINEER'S DECISION:

1. 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. If a project proponent requests authorization by a specific NWP, the district engineer should issue the NWP verification for that activity if it meets the terms and conditions of that NWP, unless he or she determines, after considering mitigation, that the proposed activity will result in more than minimal individual and cumulative adverse effects on the aquatic environment and other aspects of the public interest and exercises discretionary authority to require an individual permit for the proposed activity. For a linear project, this determination will include an evaluation of the individual crossings of waters of the United States to determine whether they individually satisfy the terms and conditions of the NWP(s), as well as the cumulative effects caused by all of the crossings authorized by NWP. If an applicant requests a waiver of the 300 linear foot limit on impacts to streams or of an otherwise applicable limit, as provided for in NWPs 13, 21, 29, 36, 39, 40, 42, 43, 44, 50, 51, 52, or 54, the district engineer will only grant the waiver upon a written determination that the NWP activity will result in only minimal individual and cumulative adverse environmental effects. For those NWPs that have a waivable 300 linear foot limit for losses of intermittent and ephemeral stream bed and a 1/2-acre limit (i.e., NWPs 21, 29, 39, 40, 42, 43, 44, 50, 51, and 52), the loss of intermittent and ephemeral stream bed, plus any other losses of jurisdictional waters and wetlands, cannot exceed 1/2-acre.

2. When making minimal adverse environmental effects determinations the district engineer will consider the direct and indirect effects caused by the NWP activity. He or she will also consider the cumulative adverse environmental effects caused by activities authorized by NWP and whether those cumulative adverse environmental effects are no more than minimal. The district engineer will also consider site specific factors, such as the environmental setting in the vicinity of the NWP activity, the type of resource that will be affected by the NWP activity, the functions provided by the aquatic resources that will be affected by the NWP activity, the degree or magnitude to which the aquatic resources perform those functions, the extent that aquatic resource functions will be lost as a result of the NWP activity (e.g., partial or complete loss), the duration of the adverse effects (temporary or permanent), the importance of the aquatic resource functions to the region (e.g., watershed or ecoregion), and mitigation required by the district engineer. If an appropriate functional or condition assessment method is available and practicable to use, that assessment method may be used by the district engineer to assist in the minimal adverse environmental effects determination. The district engineer may add case-specific special conditions to the NWP authorization to address site-specific environmental concerns.

3. If the proposed activity requires a PCN and will result in a loss of greater than 1/10-acre of wetlands, the prospective permittee should submit a mitigation proposal with the PCN. Applicants may also propose compensatory mitigation for NWP activities with smaller impacts, or for impacts to other types of waters (e.g., streams). The district engineer will consider any proposed compensatory mitigation or other

mitigation measures the applicant has included in the proposal in determining whether the net adverse environmental effects of the proposed activity are no more than minimal. The compensatory mitigation proposal may be either conceptual or detailed. If the district engineer determines that the activity complies with the terms and conditions of the NWP and that the adverse environmental effects are no more than minimal, after considering mitigation, the district engineer will notify the permittee and include any activity-specific conditions in the NWP verification the district engineer deems necessary. Conditions for compensatory mitigation requirements must comply with the appropriate provisions at 33 CFR 332.3(k). The district engineer must approve the final mitigation plan before the permittee commences work in waters of the United States, unless the district engineer determines that prior approval of the final mitigation plan is not practicable or not necessary to ensure timely completion of the required compensatory mitigation. 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 proposed compensatory mitigation plan within 45 calendar days of receiving a complete PCN and determine whether the proposed mitigation would ensure the NWP activity results in no more than minimal adverse environmental effects. If the net adverse environmental effects of the NWP activity (after consideration of the mitigation proposal) are determined by the district engineer to be no more than minimal, the district engineer will provide a timely written response to the applicant. The response will state that the NWP activity can proceed under the terms and conditions of the NWP, including any activity-specific conditions added to the NWP authorization by the district engineer.

4. If the district engineer determines that the adverse environmental effects of the proposed activity are more than minimal, then the district engineer will notify the applicant either: (a) that the activity does not qualify for authorization under the NWP and instruct the applicant on the procedures to seek authorization under an individual permit; (b) that the activity is authorized under the NWP subject to the applicant's submission of a mitigation plan that would reduce the adverse environmental effects so that they are no more than minimal; or (c) that the activity is authorized under the NWP with specific modifications or conditions. Where the district engineer determines that mitigation is required to ensure no more than minimal adverse environmental effects, the activity will be authorized within the 45-day PCN period (unless additional time is required to comply with general conditions 18, 20, and/or 31, or to evaluate PCNs for activities authorized by NWPs 21, 49, and 50), with activity-specific conditions that state the mitigation requirements. The authorization will include the necessary conceptual or detailed mitigation plan or a requirement that the applicant submit a mitigation plan that would reduce the adverse environmental effects so that they are no more than minimal. When compensatory mitigation is required, no work in waters of the United States may occur until the district engineer has approved a specific mitigation plan or has determined that prior approval of a final mitigation plan is not practicable or not necessary to ensure timely completion of the required compensatory mitigation.

Further Information:

1. District Engineers have authority to determine if an activity complies with the terms and conditions of an NWP.

2. NWP's do not obviate the need to obtain other federal, state, or local permits, approvals, or authorizations required by law.
3. NWP's do not grant any property rights or exclusive privileges.
4. NWP's do not authorize any injury to the property or rights of others.
5. NWP's do not authorize interference with any existing or proposed Federal project (see general condition 31).

SECTION 401 WATER QUALITY CERTIFICATION (4/7/17):

The State Water Control Board issued conditional §401 Water Quality Certification for NWP 12 as meeting the requirements of the Virginia Water Protection Permit Regulation, which serves as the Commonwealth's §401 Water Quality Certification, provided that: (1) the activities are not associated with a surface water withdrawal or the transport of non-potable raw surface water, except for the purpose of hydrostatic testing and when the associated discharges are authorized by a VPDES permit, if required; (2) any compensatory mitigation meets the requirements in the Code of Virginia, Section 62.1-44.15:23 A through C, except in the absence of same river watershed alternatives in Hydrologic Unit Codes (HUC) 02040303 and 02040304, single family dwellings or locality projects may use compensatory mitigation in HUC 02080102, 02080108, 02080110, or 02080111 in Virginia; (3) temporary diversions of surface water associated with "pump arounds" during the construction of utility crossings are specifically allowed.

COASTAL ZONE MANAGEMENT ACT CONSISTENCY DETERMINATION (4/5/17):

Based on the comments submitted by the agencies administering the enforceable policies of the Virginia CZM Program, DEQ concurs that the 2017 NWP's and Virginia Regional Conditions as proposed, are consistent with the Virginia CZM Program provided the following conditions, discussed below, are satisfied:

- 1) Prior to construction, applicants shall obtain all required permits and approvals for activities to be performed that are applicable to the Virginia CZM Program's enforceable policies, and that applicants adhere to all the conditions contained therein.

The Virginia Marine Resources Commission's (VMRC) concurrence of consistency with regard to the fisheries management, subaqueous lands management, wetlands management, and dunes management enforceable policies is based on the recognition that prospective permittees may be required to obtain additional state and/or local approvals from the VMRC and/or the local wetlands board prior to commencement of work in both tidal and nontidal waters under the agency's jurisdiction. Such approvals must precede implementation of the projects.

- 2) The DEQ Office of Wetlands and Stream Protection (OWSP) has provided §401 Clean Water Act (CWA) Water Quality Certification for the 2017 NWP's and Regional Conditions, applicable to the wetlands management and point source pollution control enforceable policies of the Virginia CZM Program. The activities that qualify for the NWP's must meet the requirements of DEQ's Virginia Water Protection Permit Regulation (9 VAC 25-210-130) and the permittee must abide by the conditions of the NWP. DEQ-OWSP has identified specific NWP exceptions. DEQ will process an individual application for a permit or a certificate or otherwise take action pursuant to 9

VAC 25-210-80 et seq. for those activities covered by an NWP's that have not received blanket §401 CWA Water Quality Certification.

The Corps should forward pre-construction notifications to DEQ for applicants that do not comply with or cannot meet the conditions of the §401 CWA Water Quality Certification. Further, the Commonwealth reserves its right to require an individual application for a permit or a certificate or otherwise take action on any specific project that could otherwise be covered under any of the NWP's when it determines on a case-by-case basis that concerns for water quality and the aquatic environment so indicate.

In accordance with the Federal Consistency Regulations at 15 CFR Part 930, section 930.4, this conditional concurrence is based on the applicants demonstrating to the Corps that they have obtained, or will obtain, all necessary authorizations prior to implementing a project which qualifies for a NWP. If the requirements of section 930.4, sub-paragraphs (a)(1) through (a)(3) are not met, this conditional concurrence becomes an objection under 15 CFR Part 930, section 940.43.

National Aeronautics and
Space Administration



**Joint Permit Application for
NASA Wallops Flight Facility
Marsh Fiber Project
NAO-2019-2038**

Revised
July 30, 2020

*In Cooperation with:
U.S. Fish and Wildlife Service*

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**JOINT PERMIT APPLICATION
MARSH FIBER PROJECT**

**NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
GODDARD SPACE FLIGHT CENTER
WALLOPS FLIGHT FACILITY
WALLOPS ISLAND, VIRGINIA 23337**

Lead Agency: National Aeronautics and Space Administration

Cooperating Agency: U.S. Fish and Wildlife Service

Proposed Action: Marsh Fiber Project

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Goddard Space Flight Center, Wallops Flight Facility
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Date: July 2020

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- Appendix B: Construction Plans and Specifications
- Appendix C: Wetland Delineation Index Map and Impact Areas Maps
- Appendix D: PJD Package and Wetland Report
- Appendix E: Threatened and Endangered Species Coordination Documentation
- Appendix F: NHPA Section 106 Documentation

Acronyms and Abbreviations

ac	acre
ADAS	Advanced Data Analytics System
APE	Area of Potential Effect
BCC	Birds of Conservation Concern
BMP	Best Management Practice
CFR	Code of Federal Regulations
cm	centimeter
DoD	U.S. Department of Defense
EA	Environmental Assessment
EFH	Essential Fish Habitat
ESA	Endangered Species Act
ESC	Erosion and Sediment Control
FEMA	Federal Emergency Management Agency
FIRM	Flood Insurance Rate Map
FONSI	Finding of No Significant Impact
HDD	Horizontal Directional Drilling
HDPE	High-density Polyethylene
ICP	Integrated Contingency Plan
IT	Information Technology
m	meter
MARS	Mid-Atlantic Regional Spaceport
MBTA	Migratory Bird Treaty Act
MSA	Magnuson-Stevens Fishery Conservation and Management Act
MSL	mean sea level
NASA	National Aeronautics and Space Administration
NEPA	National Environmental Policy Act of 1969
NMFS	National Marine Fisheries Service
NOAA	National Oceanic and Atmospheric Administration
NWI	National Wetlands Inventory
NWR	National Wildlife Refuge
PCN	Pre-Construction Notification
PJD	Preliminary Jurisdictional Determination
SWPPP	Stormwater Pollution Prevention Plan
TOYR	Time-of-year Restriction
USACE	United States Army Corps of Engineer
UAS	Unmanned Aircraft Systems
USCG	United States Coast Guard
USEPA	United States Environmental Protection Agency
USFWS	United States Fish and Wildlife
USGS	United States Geological Survey
VAC	Virginia Administrative Code
VDCCR	Virginia Department of Conservation and Recreation
VDEQ	Virginia Department of Environmental Quality

VDHR	Virginia Department of Historic Resources
VDGIF	Virginia Department of Game and Inland Fisheries
VESCH	Virginia Erosion and Sediment Control handbook
VPDES	Virginia Pollutant Discharge Elimination System
VMRC	Virginia Marine Resources Commission
VSMP	Virginia Stormwater Management Program
WFF	NASA Goddard Space Flight Center's Wallops Flight Facility
WOTUS	Waters of the United States

1.0 APPLICANT CONTACT AND PERMIT INFORMATION

This document presents a Joint Permit Application (JPA) for the installation of a new fiber optic cable, referred to as the “Marsh Fiber” (Proposed Action), by the National Aeronautics and Space Administration (NASA) Wallops Flight Facility (WFF). The Marsh Fiber would be installed along a pathway between the U.S. Fish and Wildlife’s (USFWS) Wallops Island National Wildlife Refuge (NWR) and the Mid-Atlantic Regional Spaceport (MARS) Unmanned Aircraft Systems (UAS) Airstrip on Wallops Island (**Figure 1** and **Figure 2**).

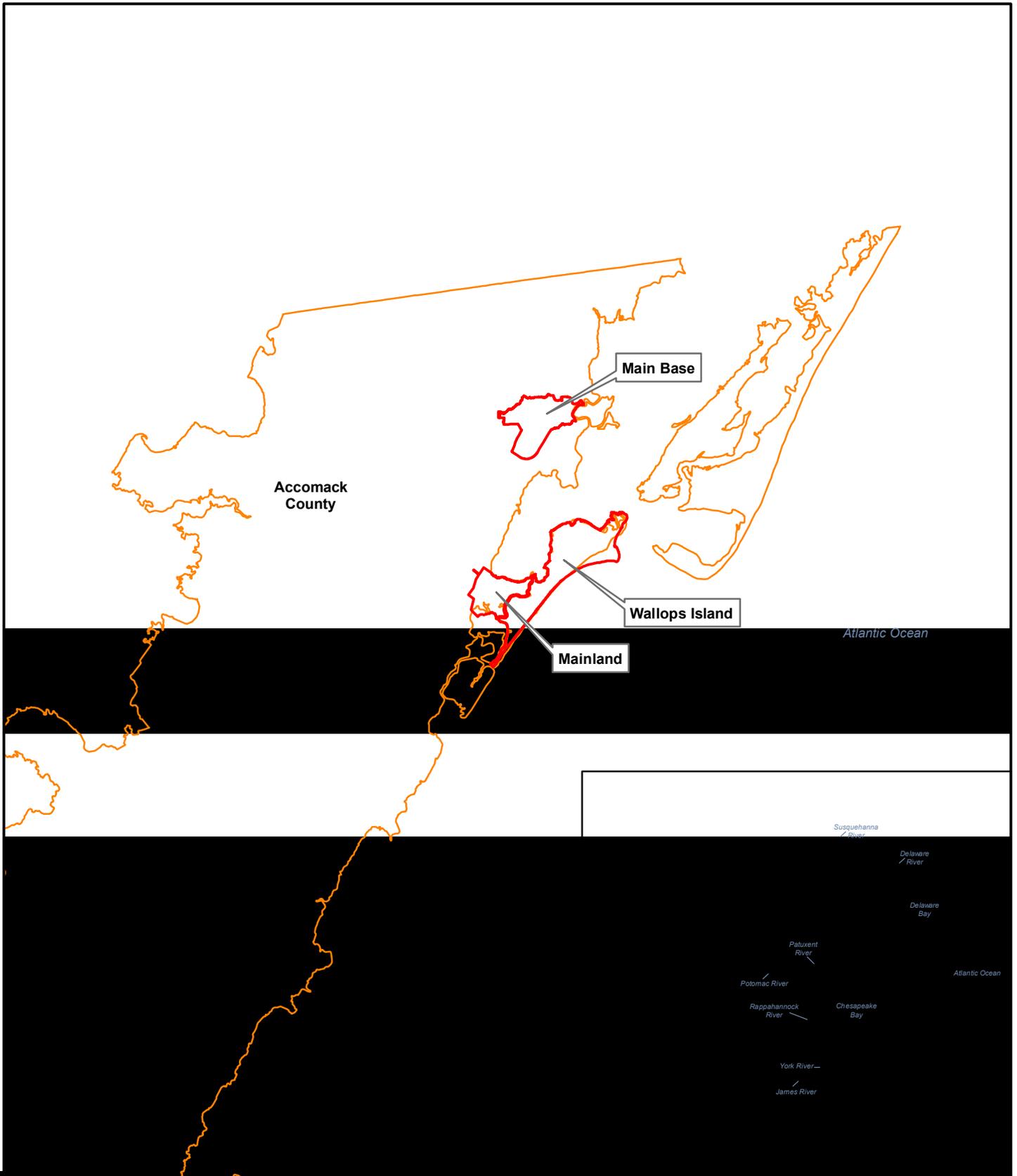
NASA is the lead federal agency and Applicant. The USFWS is serving as a cooperating agency in the National Environmental Policy Act (NEPA) process as well as the National Historic Preservation Act Section 106 and Endangered Species Act compliance processes. NASA prepared a Draft Environmental Assessment (EA) dated April 2020 in compliance with NEPA. The EA provides a description of the existing conditions of the project setting and evaluates the environmental consequences of the Proposed Action and the No Action Alternative. NASA is preparing a Final EA that incorporates comments received on the Draft EA and a new alignment for a portion of the Marsh Fiber pathway (the portion from the Wallops Island NWR to Walker Marsh). The EA is hereby incorporated by reference to provide information related to the submission of this JPA.

The JPA is submitted to the Virginia Marine Resources Commission (VMRC) to apply for a Tidal Wetlands Permit and a Subaqueous Bed Permit (SAB) under Title 28.2 Code of Virginia and appertaining Virginia Administrative Code (VAC) regulations.

The JPA also serves as a Pre-Construction Notification (PCN) requesting a U.S. Army Corps of Engineers (USACE) Nationwide Permit (NWP) 12 (Utility Line Activities; effective March 19, 2017). The Standard JPA Form (October 2019 version) is attached as **Appendix A**.

Construction activities would affect tidal waters and wetlands in the project area; therefore, the permits mentioned above are required. Based on a pre-application meeting held on August 19, 2019, and a subsequent pre-application conference call on January 29, 2020, neither the Accomack County Wetlands Board or the Virginia Department of Environmental Quality require additional permitting. Additionally, the USACE indicated that an NWP 12 (Utility Line Activities) was the appropriate permit since this NWP authorizes activities required for the construction, maintenance, repair, and removal of utility lines and associated facilities in Waters of the United States (WOTUS) for activities that do not result in the loss of greater than 0.5 acres of WOTUS. Since the length of the utility line exceeds 500 linear feet, a PCN is required.

NASA has determined that Clean Water Act Section 408 navigation channel coordination and a Section 10 Rivers and Harbors Act of 1899 permit are not required.



Legend

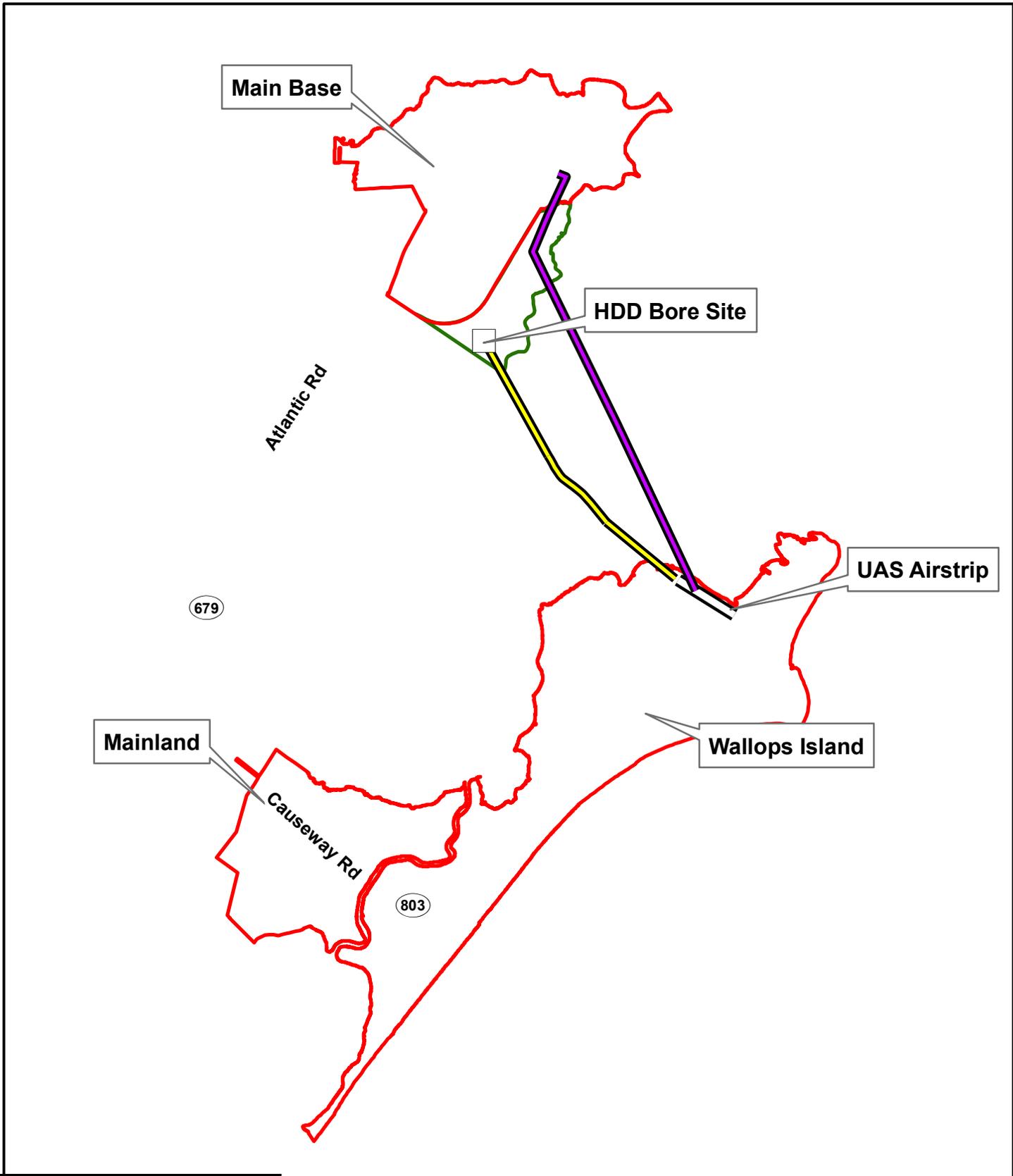
- Wallops Flight Facility Boundary
- Virginia County Boundaries

World Street Basemap / Prepared by: 3e 19-756 MM 02/21/2020
Projection: NAD 1983 StatePlane Virginia South FIPS 4502 Feet

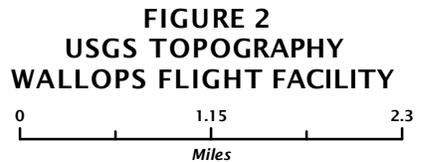
**FIGURE 1
PROJECT LOCATION MAP
WALLOPS FLIGHT FACILITY**

0 4.5 9
Miles

NASA WFF Marsh Fiber JPA



Marsh Fiber Path
 Proposed Marsh Fiber Path
 Wallops Flight Facility Boundary
 Wallops Island National Wildlife Refuge



Esri USA Topo Basemap / Prepared by: 3e 19-756 MM 07/23/2020
 Projection: NAD 1983 StatePlane Virginia South FIPS 4502 Feet

NASA WFF Marsh Fiber JPA

2.0 PROJECT BACKGROUND, PURPOSE, AND NEED

In the early 1990s, NASA installed a fiber optic cable via a direct route through waterways and saltmarsh between the Main Base and Wallops Island. This original Marsh Fiber cable was buried underneath land, including under the saltmarsh, and was laid on the subaqueous bottom where the route crossed through bays and open water. Even though the subaqueous cable was encased in pipe, it was exposed to damages and movement from dredge fishing operations as well as waves and tides. Prior breaks in the cable have been spliced together, although its subaqueous location made repair difficult. These splices have subsequently failed and have rendered the cable inoperable. The location of the abandoned cable is shown on **Figure 2**.

Prior to complete failure of the old Marsh Fiber cable, NASA connected all circuits through an alternate fiber optic cable system to ensure the facilities on Wallops Island had continuous fiber optic service. This alternate cable is routed from the Main Base, along the right-of-way adjacent to Atlantic Road, and across the causeway (Route 803) to Wallops Island. The existing Atlantic Road cable system would remain in operation as the redundant source of a fiber optic cable for command and communication.

A robust, reliable, secure, and redundant fiber optic communications pathway is critical to support NASA's mission, WFF tenant missions, and facility network communications services. A single cable system does not provide redundancy (i.e., multiple cable systems in case one system fails) or diversity (i.e., non-congruous in case one system is impaired or cut) in communication pathways. Redundancy and diversification of communication systems are NASA Office of the Chief Information Officer (OCIO) requirements as well as a NASA Range Safety requirement for command and destruct operations and system operability. Additionally, the existing cable system is not likely to meet the future information technology (IT) needs of NASA and its tenants on Wallops Island as technology in data communications progresses and the demand for highspeed data and large bandwidth increases.

A new, second fiber optic cable system accessing Wallops Island from the north across the saltmarsh would serve as the primary fiber optic cable route, completing the WFF communications ring between the Main Base, Wallops Island, and Wallops Mainland. The new Marsh Fiber would provide redundancy; diversification; increased data capacity due to an upgrade in materials, technology, and reliability; and security compared to the abandoned marsh cable route and the existing fiber optic cable system along Atlantic Road.

The Proposed Action would be implemented on USFWS-owned land under easement to NASA, on land owned and managed by the Commonwealth of Virginia (Walker Marsh and the subaqueous bottom lands), and on NASA-owned land (at the UAS Airstrip).

The alignment of the Marsh Fiber pathway between the Wallops Island NWR and the west side of Walker Marsh has changed from what was presented in the April 2020 Draft EA. Because the alignment changed, the location of the HDD site at the Wallops Island NWR has moved from the area near the NASA Boresight Antenna (see Figure 3) to a new location approximately 425 feet

northeast of the Boresight Antenna. Project activities at Walker Marsh, the subaqueous bottom of Watts Bay and Ballast Narrows, and the UAS Airstrip have not changed from the information presented in the April 2020 Draft EA and the initial submission of this JPA (April 2020).

3.0 PROJECT DESCRIPTION AND LOCATION

The project area is east of the WFF Main Base and west-southwest of the south end of the Town of Chincoteague, in northeastern Accomack County, Virginia (**Figure 1**). Elevations in the proposed project areas were surveyed in July 2019 by a contractor to NASA (Rauch). Elevation at the Wallops Island NWR project area is approximately 11 feet above mean sea level (MSL). Elevation at the UAS Airstrip project area ranges from 4 to 6 feet above MSL; this area has been built up with fill for construction of the runway. Elevations in the Walker Marsh project area range from sea level to less than 3 feet above MSL, with portions of the project area inundated by marine waters during high tide. The project area lies within the Atlantic Ocean-Chincoteague Bay watershed (HUC 02040303).

Approximate centroid coordinates are 37.550037°N and 75.281793° W. The western, landward project terminus coordinates are 37.918135°N and 75.470532°W and the seaward eastern project terminus coordinates are 37.916582°N and 75.471778°W. The proposed utility corridor pathway is depicted on an aerial image (**Figure 3**).

Existing conditions in the project area consist of developed institutional buildings, agency infrastructure, utility rights-of-way, lawns, fields, maintained roadways, woodlands, and extensive tidal wetlands with open water, salt flats, and tidal guts. There are no non-tidal wetlands or non-tidal streams in the project area. Details of the project design and construction impacts are provided in the following narratives, with further information provided in the EA.

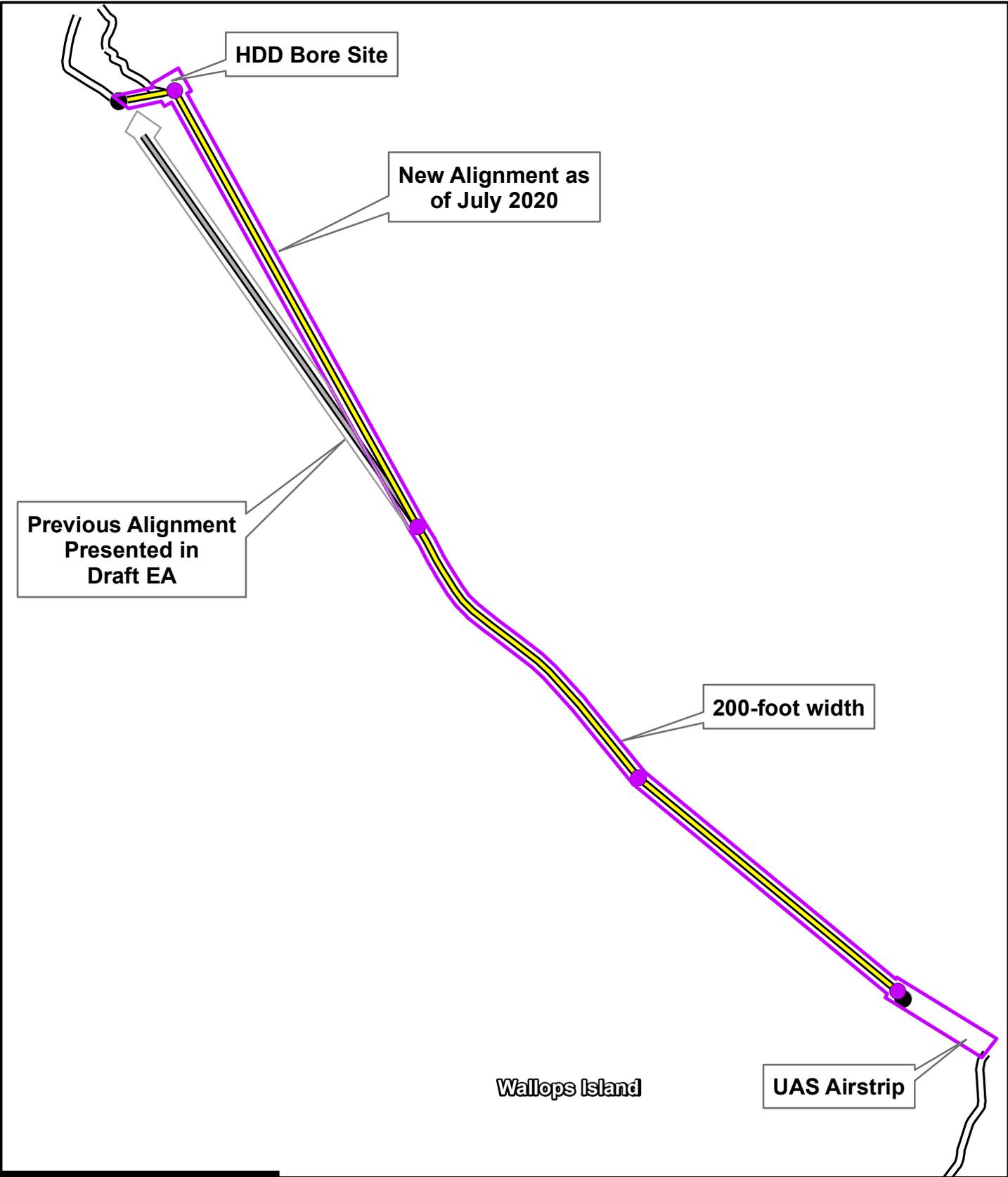
4.0 ALTERNATIVES CONSIDERED

As described in the EA Section 2.2.2, NASA initially considered seven alternatives for implementing the Proposed Action. Six of the alternatives were dismissed from further consideration because they failed to meet the Purpose and Need and/or screening criteria. The six alternatives considered but dismissed and rationale for dismissing the alternatives are presented in the EA (Section 2.2.5).

5.0 PROPOSED ACTION METHODS

Under the Proposed Action, NASA would install a new fiber optic cable in three segments (**Figure 4**) between the Wallops Island NWR and the MARS UAS Airstrip on Wallops Island using the following methods, which are described in more detail below:

- **Maxi HDD** to install the fiber optic cable under Watts Bay (exiting on the west edge of Walker Marsh), and under Ballast Narrows (exiting on the east edge of Walker Marsh).
- **Vibratory trenching** using low-pressure equipment across and between three guts on Walker Marsh.
- **Mini HDD** beneath three open water guts on Walker Marsh.



HDD Bore Site

New Alignment as of July 2020

Previous Alignment Presented in Draft EA

200-foot width

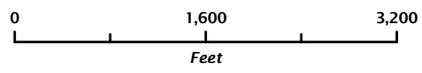
UAS Airstrip

Wallops Island

Fiber Path ● Existing Handhole
 Review Area ● New Handhole
 Flight Facility Boundary
 Wallops Island National Wildlife Refuge

BMP 2017 Orthoimagery / Prepared by: 3e 19-756 MM 7/23/2020
 Projection: NAD 1983 StatePlane Virginia South FIPS 4502 Feet

FIGURE 3
 AERIAL IMAGERY



NASA WFF Marsh Fiber JPA

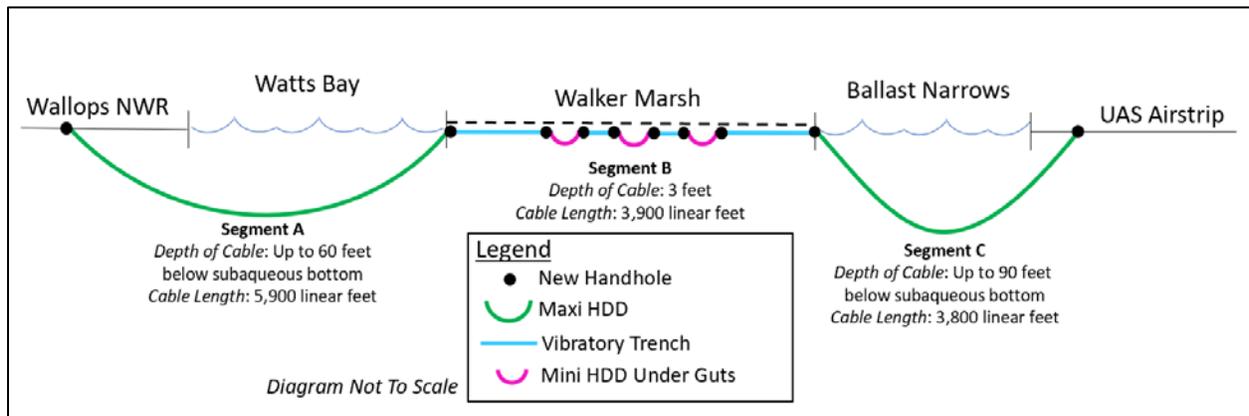


Figure 4. Profile View of the Representation of the Proposed Action

As described in the EA, to distinguish between the larger and smaller methods of HDD, NASA refers to the larger HDD method as “Maxi HDD,” and the smaller HDD method as “Mini HDD.” The differences in these HDD methods include the size of equipment used, size of borehole, installation method details, length of cable installed, as well as the size of the staging and access areas. For this project, Maxi HDD would be used under Watts Bay and Ballast Narrows to install cable lengths between 2,000 feet and 6,000 feet and at a borehole depth of approximately 60 to 85 feet. Mini HDD would be used beneath the tidal open water guts in Walker Marsh to install cable lengths of 200 feet or less and at a borehole depth of less than 20 feet below ground surface.

Two new handhole enclosures would be required at east and west ends of Walker Marsh to connect the fiber optic cable from the HDD installations to the Walker Marsh cable segment. The handhole enclosures also provide access to the fiber optic cable for future repair, as needed.

Design plans and construction specifications for the cable installation are provided in **Appendix B**. The following sections summarize the cable installation procedures and equipment. Additional details on the cable installation process are provided in Sections 2.2 and 2.3 of the EA.

5.1. Horizontal Directional Drilling (HDD)

HDD is a technique commonly used to install utilities such as cables, conduits, and pipes under environmentally sensitive areas or infrastructure. HDD is a boring method where a borehole is drilled along an engineered design path.

Maxi HDD

NASA would install a fiber optic cable using the Maxi HDD method for Segments A and C (segments shown on **Figure 4**) in upland areas at the Wallops Island NWR and UAS Airstrip sites. Segment A would be approximately 5,900 linear feet and Segment C would be approximately 3,800 linear feet. Maxi HDD equipment would be placed at the west end of Segment A at the HDD Bore Site (shown on **Figure 3**), and at the east end of Segment C near the UAS Airstrip. The HDD boring would start at each end of the proposed project, with the exit points on each side of Walker Marsh where the new handholes would be placed. Maxi HDD boreholes would be approximately 7 to 8 inches in diameter and would reach a depth of approximately 60 feet below the subaqueous bottom of Watts Bay for Segment A and up to 90 feet below the subaqueous bottom of Ballast Narrows for Segment C. **Figure 5** depicts a conceptual view the HDD method.

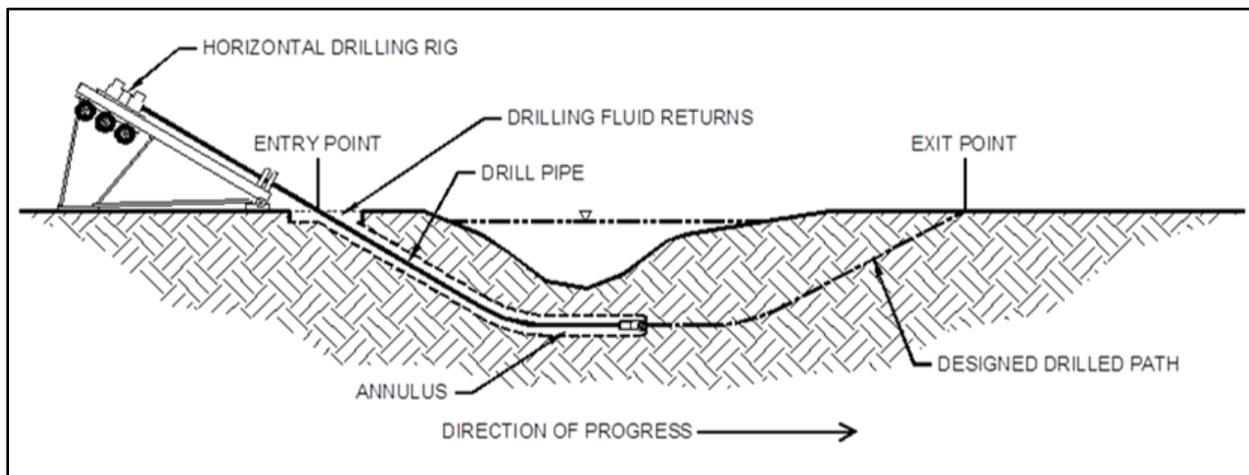


Figure 5. Overview of HDD Method (Courtesy J.D. Hair & Associates, Inc.)

For the Proposed Action, the size of the borehole diameter and the softness of the substrate would allow the borehole to be drilled without a pilot hole using sacrificial 6 and 5/8 inch diameter steel drill pipe that would be left in place as the outermost conduit encasing the inner-duct and fiber optic cable. Two high-density 1.5-inch diameter polyethylene (HDPE) conduits (inner-duct) would then be installed through the sacrificial drill pipe. A transmitter or steering tool located near the drill head would track the exact location, depth, alignment and percent slope of the drilling operation. The alignment of the drill head would be adjusted to the pre-engineered path as drilling progresses.

Depending on the borehole diameter and length, most HDD requires the use of a viscous fluid known as drilling fluid (also called “drilling mud”) that is pumped through the drill pipe to the drill bit. The drilling mud consists mainly of a bentonite clay/water mixture (slurry) that is conditioned with various polymers and additives to achieve optimal density and viscosity of the drilling fluids to remove drill cuttings, lubricate the drill bit, and maintain the integrity of the

borehole (acts as a sealant of the borehole walls). The drilling mud carries the cuttings back through the borehole to the entrance pit at the drill rig.

At the entrance pit, the cuttings-laden drilling mud would be recycled through a machine called a reclaimer that separates excess solids by removing the drill cuttings from the drilling mud and reconditions the drilling mud to the proper viscosity and density of the fluid for reuse. The proposed HDD operation would maximize the recirculation and reuse of drilling mud to minimize waste disposal.

A fluorescent, non-toxic dye is typically added to the drilling fluid during subsurface drilling of waterbodies so that any “frac-outs” can be easily detected. A frac-out occurs when drilling mud is released through fractured rock or overburden into the surrounding rock/soil and travels toward the surface. Borehole pressure must be maintained throughout the drilling process or the hole would collapse. Therefore, once started, HDD drilling would continue 24 hours a day until the hole is completed, thereby maintaining a constant borehole pressure and proper lubrication, which would both dissipate if drilling were stopped. NASA would conduct the HDD operation in a manner that avoids the discharge of water, drilling mud, and cuttings outside the HDD entry and exit work areas during the installation process. The HDD contractor would be required to prepare a frac-out plan that would be submitted to the VMRC, USACE, and VDEQ prior to start of construction.

Mini HDD

For the Mini HDD operations on Walker Marsh, which would be up to 200 feet long and less than 20 feet deep, smaller and fewer pieces of equipment would be required compared to the Maxi HDD operations. Typically, a small track-mounted and self-contained Mini HDD rig would be used to complete the operation. Mini HDD installations for small utilities can be completed without drilling mud. For these types of installations, the pull-back method is usually employed.

The pull-back method involves drilling the borehole (with or without a pilot hole) to the required diameter. The drill bit and collar are removed at the exit pit, and the pipe or conduit is attached to the drill pipe. The pipe or conduit is then pulled back through the borehole to the entry pit. The Mini HDD borehole would be large enough to accommodate two, 1.5-inch diameter HPDE conduits and would be installed a minimum of 3 feet beneath each gut bottom. Cuttings would be removed from the borehole at the entry pit and placed on the marsh buggy for off-site transfer and disposal.

The limits of disturbance (LOD) for the Mini HDD work areas would be 50 by 25 feet (1,250 square foot [0.02 acre]), which would be set back approximately 30 feet landward from the edge of the tidal guts. There would be six Mini HDD work areas—one for each side of three guts. The work areas are depicted on the Impact Area Maps as rectangular polygons (**Appendix C**). No handholes would be installed in association with the Mini HDD.

5.2. Vibratory Trenching

Vibratory trenching would employ a small piece of machinery (a low ground pressure marsh buggy) with a vibratory plow attachment, as shown in **Figure 6**.



Figure 6. Example of Marsh Buggy and Plow Attachment

During use, the long, slender plow blade extends into the ground, and the plow motor rapidly vibrates the blade vertically. The trench created is extremely narrow (1.5 inches for this project), resulting in very little direct damage to the marsh surface and eliminating the need for backfilling or trench cut smoothing. Use of the vibratory plow attached to the marsh buggy would result in the following disturbances to the marsh:

- Direct disturbance of 1.5 inches wide to a depth of a little over 3 feet below ground surface from the vibratory plow blade and installation of the conduit.
- Indirect disturbance up to approximately 6 inches wide on both sides of the vibratory plow blade centerline where soils would be disturbed through vibration (i.e., a 12-inch-wide swath of indirect disturbance centered on the plow trench).
- Direct disturbance in a path up to 14-foot-wide along the vibratory plow trench (extending up to 7 feet on both sides of the vibratory plow trench centerline) where the marsh buggy would be driving over soils and compaction/disturbance of vegetation could occur.

The use of low ground pressure trenching equipment would minimize the pressure of the machinery as it operates on the marsh surface, and thereby minimize the compaction of the mostly mineral, marsh soils of the project area. NASA would place synthetic composite matting on the ground where equipment, conduit material, and fiber optic cables would be transported between the shore and the HDD work area. Composite matting is designed to reduce disturbance to the maximum extent practicable, to prevent permanent impacts, and to promote rapid stabilization and re-vegetative of the disturbed areas. All temporarily disturbed areas impacted by access, equipment, exit pit excavations, shoreline points for barge access, or matting compression would be restored by NASA to pre-construction conditions.

5.3. Access and Staging

Access to the marsh work areas would be via barge, with a single barge in place at one end of the marsh and serving as a staging area for equipment, conduit material, handholes, and the fiber optic cable. The barge would transport the marsh buggy and vibratory trenching equipment, which would be offloaded at the approximate areas shown on impact maps in **Appendix C**. The construction contractor may use a spud barge, which is a type of barge that is moored by using pilings or “spuds” to provide a solid platform in which to work from. Two to four spuds may be used if this type of barge is employed. The exact number and location of the moorings would be determined at the beginning of construction. Mooring locations would be selected based on avoiding impacts to oyster beds, the draft of the barges, water depth, and proximity to shoreline. The moorings would be removed following construction.

5.4. HDD Handholes and Signage

HDD boreholes would exit on Walker Marsh. HDD personnel and a barge with containment equipment would be pre-staged at the Maxi HDD exit point(s) immediately prior to when the HDD drill is anticipated to come to the surface. Once the HDD drill surfaces, the HDD contractor would immediately implement a containment system with turbidity curtains and/or silt fence around the exit hole to contain sediment and drilling mud. Since Maxi HDD installations are using sacrificial drill pipe that would be left in place as the outer conduit, only the drill bit and collar would be removed from the drill pipe. For the Mini HDD installations under the tidal guts, the entire drill string would be removed, and the conduit would be pulled back through the borehole.

To access the fiber optic cable where the segments connect, NASA would excavate a small pit to a depth of approximately 4.5 feet and install a concrete polymer handhole enclosure. **Figure 7** shows an example of the type of handhole enclosure that would be used.

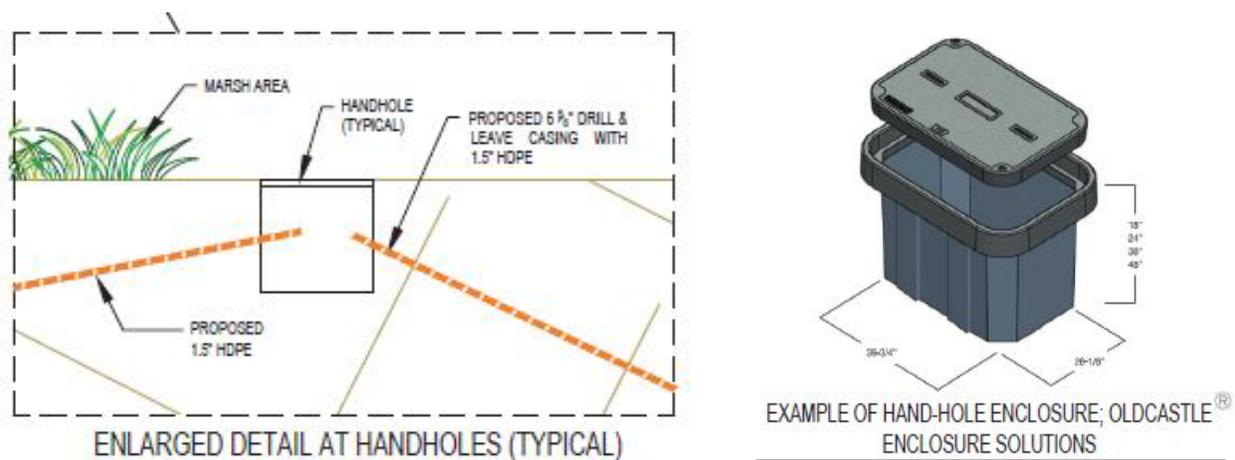


Figure 7. Examples of Typical Handhole Enclosures

The proposed handhole enclosure would be approximately 8 feet long by 4 feet wide and 4 feet deep and would be large enough to access the cable by hand for repair. Each handhole would have an area of approximately 32 feet² and volume of 128 feet³. The handhole enclosure would be installed around the HDD conduit and anchored in place with a layer of gravel and geotextile fabric surrounding the structure where it contacts the soil. Handhole enclosures would also be installed at the HDD entry points for connection of the new fiber optic cable to the existing land-based fiber optic cable. The enclosure and equipment to install the handholes in the marsh would be transported to the marsh via barge.

Public signage, as appropriate, would be placed on Walker Marsh to alert the public of project activities at Walker Marsh. NASA assumes that up to five small signs would be hand-installed on small posts at each end of Walker Marsh and the three open water gut crossings. No permanent impacts would be incurred through installation of the signs.

5.5. Alternative Methods

Any alternate construction method (as applicable) selected by NASA's construction contractor would be subject to review and approval by NASA and to the authorization limits of the issued permits. Prior to construction, any impacts proposed that exceed those authorized by the NWP 12 or VMRC permit limits, would require mandatory pre-activity coordination with the USACE and VMRC.

6.0 DELINEATION SUMMARY

NASA's contractor EEE Consulting, Inc. conducted a surface waters delineation on September 16 and 17, 2019 of the project area for the pathway presented in the April 2020 Draft EA and previous April 2020 submission of this JPA. The new HDD work area and access road (an existing gravel road) are approximately 425 feet northeast of the wetland delineation at the previous HDD site on the Wallops Island NWR (at the Boresight Antenna, as shown on the Overview and Index map in Appendix C). The new HDD work area and access road are situated on the same topographic upland ridge and non-hydric soils (Molena loamy sand, 0 to 6 percent slopes) as the previous HDD work area near the Boresight Antenna. The delineated project areas at Walker Marsh and the UAS Airstrip have not changed.

EEE Consulting, Inc. used the November 2010 USACE Regional Supplement to the Manual: Atlantic and Gulf Coastal Plain Region Version 2.0 in conjunction with the 1987 USACE Wetland Delineation Manual, and applicable prevailing regulatory guidance to conduct the delineation. The 2016 USACE Plant List was used to establish and determine hydrophytic vegetation status.

The potential WOTUS along the HDD pathway beneath Watts Bay, Ballast Narrows, and Walker Marsh were mapped using a combination of interpretation of project aerial imagery, the USFWS National Wetlands Inventory (NWI) mapper website data, the Virginia Institute of Marine

Sciences (VIMS) Accomack County Marsh Inventory Report, and spot checks of existing wetland and open water cover types using boats during the September 2019 field delineation.

NASA submitted the delineation report and request for a Preliminary Jurisdictional Determination (PJD) to the USACE on December 12, 2019. Based on USACE comments, revised delineation mapping and revised formwork was submitted on December 16, 2019. Appendix A of the EA presents the delineation report and forms. The USACE issued a PJD on January 28, 2020, for the Marsh Fiber Project (NAO-2019-2038) to include vegetated tidal wetlands and open waters mapping (UAS Airstrip; original Boresight Antenna location; Walker Marsh; HDD Section). The PJD is presented in **Appendix D**.

Tables 1, 2 and 3 below show the results of the wetland delineations (the tables are summarized from the Wetland Report included as an attachment to the PJD in **Appendix D**).

Table 1. Summary of Delineated WOTUS Features at the UAS Airstrip

Wetland or Waters ID*	Type	Acres
Wetland 1	E2EM1P High Marsh	1.50
Wetland 2	E2EM1N Low Marsh	1.96
Wetland Total		3.46
Open Water 1	E1UBL Unconsolidated Bottom Subtidal	0.03
Open Water 2	E1UBL Unconsolidated Bottom Subtidal	0.08
Open Water 3	E1UBL Unconsolidated Bottom Subtidal	0.04
Open Water 4	E1UBL Unconsolidated Bottom Subtidal	0.02
Open Water 5	E1UBL Unconsolidated Bottom Subtidal	0.06
Open Waters Total		0.23

*WOTUS are shown on Figure 8 in the PJD documentation in Appendix D

Table 2. Summary of Delineated WOTUS Features at Walker Marsh

Wetland or Waters ID*	Type	Acres
Wetland 2	E2EM1N Low Marsh	19.23
Wetland Total		19.23
Open Water (Gut 1)	E1UBL Unconsolidated Bottom Subtidal	0.20
Open Water (Gut 2)	E1UBL Unconsolidated Bottom Subtidal	0.22
Open Water (Gut 3)	E1UBL Unconsolidated Bottom Subtidal	0.15
Open Water	E1UBL Unconsolidated Bottom Subtidal	0.09
Open Water (S Terminus)	E1UBL Unconsolidated Bottom Subtidal	0.34
Open Waters Total		1.00

*WOTUS are shown on Figure 9 in the PJD documentation in Appendix D

Table 3. Summary of Delineated WOTUS Features in the Marsh Fiber Project Area Outside of Walker Marsh and the UAS Airstrip

Wetland or Waters ID*	Type	Acres
Wetland 1	E2SS4P	0.05
Wetland 2	E2EM1N Low Marsh	8.42
Wetland 3	E2EM1P	2.15
Wetland 4		0.69
Wetland Total		11.31
Open Water (Gut 1)	E1UBL Unconsolidated Bottom Subtidal	26.77
Open Water (Gut 2)	E1ABL	1.48
Open Water (Gut 3)	E2RF2N	1.02
Open Waters Total		29.27

*WOTUS are shown on Figure 10 in the PJD documentation in Appendix D

7.0 SHELLFISH GROUNDS

The VMRC promotes and regulates clam and oyster farming and gardening, also known as shellfish aquaculture, in the subaqueous lands of Virginia. The VMRC provides oyster ground leases to individuals to conduct aquaculture in approved areas, and the agency issues permits and licenses according to location, aquaculture method, and commercial sale options. In addition to issuing private aquaculture leases, Virginia committed to maintain public access to the natural oyster beds identified in the 1890's by James Baylor of the U.S. Coast and Geodetic Survey. These public areas are designated by VMRC as Baylor grounds and are mandated to be "... held in trust for the benefit of the people of the Commonwealth." Baylor Grounds and private oyster leases exist in portions of the waterbodies surrounding Walker Marsh (Watts Bay, The Narrows, Ballast Narrows), and within one of the guts that would be crossed by the marsh buggy.

During consultation with VMRC regarding potential impacts to Baylor Grounds, VMRC's Chief of the Habitat Management Division stated that the Maxi HDD portions of the Proposed Action would be considered a federal action and would constitute a public use of Baylor Grounds. VMRC stated that the Proposed Action would not impact Baylor Grounds as the fiber optic cable would run under the subaqueous bottomlands (Personal Communication Watkinson 2019). For the same reasons, NASA does not anticipate any impacts to the subaqueous bottom of private oyster leases.

8.0 UNAVOIDABLE IMPACTS

NASA believes that the Proposed Action as shown in the design plans and JPA represents the least environmentally damaging practicable alternative. The design team has made every effort to avoid and minimize impacts to WOTUS within the project area while meeting the project purpose and need. NASA has undertaken significant effort in the project design and construction approach to eliminate and minimize the unavoidable temporary and permanent impacts to WOTUS resulting

from anticipated construction activity. The EA (Section 4.2 and Table 4-1) provides additional documentation of these mitigative actions.

Impact avoidance and minimization would be accomplished as follows:

- All soil disturbing activities would follow the Virginia Erosion and Sediment Control Handbook (VESCH, current version) and 9 VAC 25-840 regulations. In accordance with Virginia Stormwater Management Program (VSMP) requirements, the selected contractor would also be required to prepare and submit for a Virginia Pollutant Discharge Elimination System (VPDES) Stormwater Construction General Permit, which would include a Stormwater Pollution Prevention Plan (SWPPP).
- All other stormwater-related compliance procedures including VSMP requirements would be followed (see **Appendix B**, Sheet CP-5). The selected contractor would be required to prepare and file for approvals, which would be part of the permit compliance package.
- The excavation of entry/exit pits and installation of the fiber optic cable would be done while preventing re-entry of excavated materials into the surrounding waterbody (Walker Marsh) using adequate, approved methods as shown on construction plans (**Appendix B**, Sheet CD-2 and CP-5), and as amended by contractor bid documents or construction plan revisions after contract award. As described in the EA, the vibratory trenching, entry/exit pits management, and careful implementation of matting within the project area would be implemented to minimize adverse effects and minimize impacts to aquatic life.
- HDD Best Management Practices as found in the WFF Fiber Upgrades Construction Specifications would be adhered to during the construction of the proposed project (**Appendix B**).
- Per the conditions for project Endangered Species Act (ESA) and Essential Fish Habitat (EFH) responses by the National Oceanic and Atmospheric Administration (NOAA) National Marine Fisheries Service (NMFS), NASA's contractor would contain sediment and drilling mud with turbidity curtains and other erosion and sediment control measures in areas involving HDD drill surfaces.
- Accidental spills of fuel, oil, hydraulic fluid, or other potentially hazardous substances would be prevented or minimized through the contractor's adherence to spill prevention and control measures, as specified in WFF's Integrated Contingency Plan and the project-specific Spill Prevention, Control, and Countermeasure plan.
- An inadvertent release of drilling mud could occur during HDD. Drilling mud is nontoxic, and any release would be short-term. Potential effects could include increased turbidity from suspended clay particles in the immediate vicinity of the release. The impacted area would return quickly to pre-disturbance conditions once particles disperse in the water column and/or settle to the bottom. Any effects on water quality from inadvertent releases of such substances or increases in turbidity would be highly localized and temporary. NASA's construction contractor would develop a Frac-Out Contingency Plan outlining

emergency procedures to follow should drilling muds escape any point of the drilling operations (per NMFS EFH coordination response comments).

- Utility line trenches would not be constructed or backfilled in such a manner that would drain or convert WOTUS to other uses by creating a French drain effect.

8.1. Temporary Impacts

8.1.1. Vegetated Wetlands

Temporary impacts to approximately 1.55 acres (67,531 square feet) of E2EM1N Type I Low Marsh at Walker Marsh are anticipated from multiple construction activities that include temporary disturbance from placement and removal of matting; equipment movement and use near the Maxi HDD exit pits, excavation, and work areas; movement of the marsh buggy with Mini HDD across guts; installation of handhole enclosures; and vibratory trenching along the 14-foot-wide vibratory trench pathway location (see maps for Impact Areas 1, 2, and 3 in **Appendix C**).

8.1.2. Shellfish Grounds and Subaqueous Bottoms

Temporary moorings including barge spuds and anchors would be required at two nearshore locations at the western and eastern ends of Walker Marsh. Temporary impacts to subaqueous bottom at each mooring location (see Impact Area 1 and Impact Area 3 maps in **Appendix C**) would be necessary to temporarily secure and stabilize the barge and other construction watercraft. The exact locations and type of moorings have not been determined. Mooring locations would be selected based on avoiding impacts to oyster beds, the draft of the barges, water depth, and proximity to shoreline. Barges would be positioned and barge anchors and spuds deployed in a manner to avoid disturbance to oyster beds to the maximum extent practicable. NASA anticipates that disturbance to the subaqueous bottom would total a maximum of approximately 80 square feet.

Potential temporary disturbances to the subaqueous bottom and shellfish grounds could result from the marsh buggy crossing the Walker Marsh guts. During field reviews, additional mitigation measures in the guts could be implemented if determined necessary. These measures may include use of the synthetic or timber matting and/or crossing the guts at high tide to avoid and minimize impacts to shellfish grounds and subaqueous bottoms.

Disturbance of the subaqueous bottom in the guts at Walker Marsh or from mooring the barge would not affect the long-term viability of public or private oyster grounds in those areas.

Intermittent project-related activity around Walker Marsh, such as the movement and presence of barges and boats, could result in the inability to access some areas for shellfish harvesting. Interruptions could occur during mobilization, installation, and demobilization activities for the work at Walker Marsh. Harvesting delays could last for 30 to 90 days but would be intermittent during that time.

8.2. Permanent Impacts

Handhole excavations and placements of the enclosures would occur at two locations on Walker Marsh, at approximately Stations 59+12 and 99+39 (**Appendix B**, Sheets C-4 and C-5). Each handhole would be excavated and the enclosure buried in the substrate per plan specifications.

Each 8 foot by 4 foot handhole enclosure would result in 32 square feet (<0.001 acre) of permanent impact to E2EM1N Type I Low Marsh habitat at two locations for a **total 64 sf [<0.0015 acre]** of permanent impacts, as depicted in **Appendix C** (Impact Areas 1 and 3).

8.3. Impact Summary

To present impacts visually on maps, Walker Marsh was divided into three Impact Areas, which are shown on the Project Overview and Impact Area Index Map in **Appendix C**. Impacts associated with the Marsh Fiber Project are summarized in **Table 4** by Impact Area.

Table 4. Summary of Vegetated Wetland and Subaqueous Bottom Impacts

Impact ID	Impact Area 1	Impact Area 2	Impact Area 3	TOTAL
Temporary E2EM1N	0.49 acres (21,223 sf)	0.53 acres (22,860 sf)	0.54 acres (23,448 sf)	1.55 acres (67,531 sf)
Permanent E2EM1N	<0.001 acre (32 sf)	0	<0.001 acre (32 sf)	0.0015 acre (64 sf)
Subaqueous Bottom	0.001 acre (40 sf)	0	0.001 acre (40 sf)	0.002 acre (80 sf)

Note: Impacts have not been verified by any agency.

sf = square feet

All LOD boundaries depicted on design drawings would be clearly marked on site and the maintenance of the marking would be coordinated with NASA inspection personnel for regulatory compliance (see **Appendix B**, Sheet CP-5).

9.0 GENERAL CONSTRUCTION SEQUENCE

Construction is expected to occur from November 2020 to February 2021 and is expected to last 90 days once started. The project's general construction sequence is described below. Some of the activities may be concurrent. Depending on timing of unrelated projects at the UAS Airstrip, the sequence of construction may begin with the Maxi HDD at the UAS Airstrip instead of at the Wallops Island NWR. Construction would proceed in the opposite direction as outlined above, but with the same steps and sequencing.

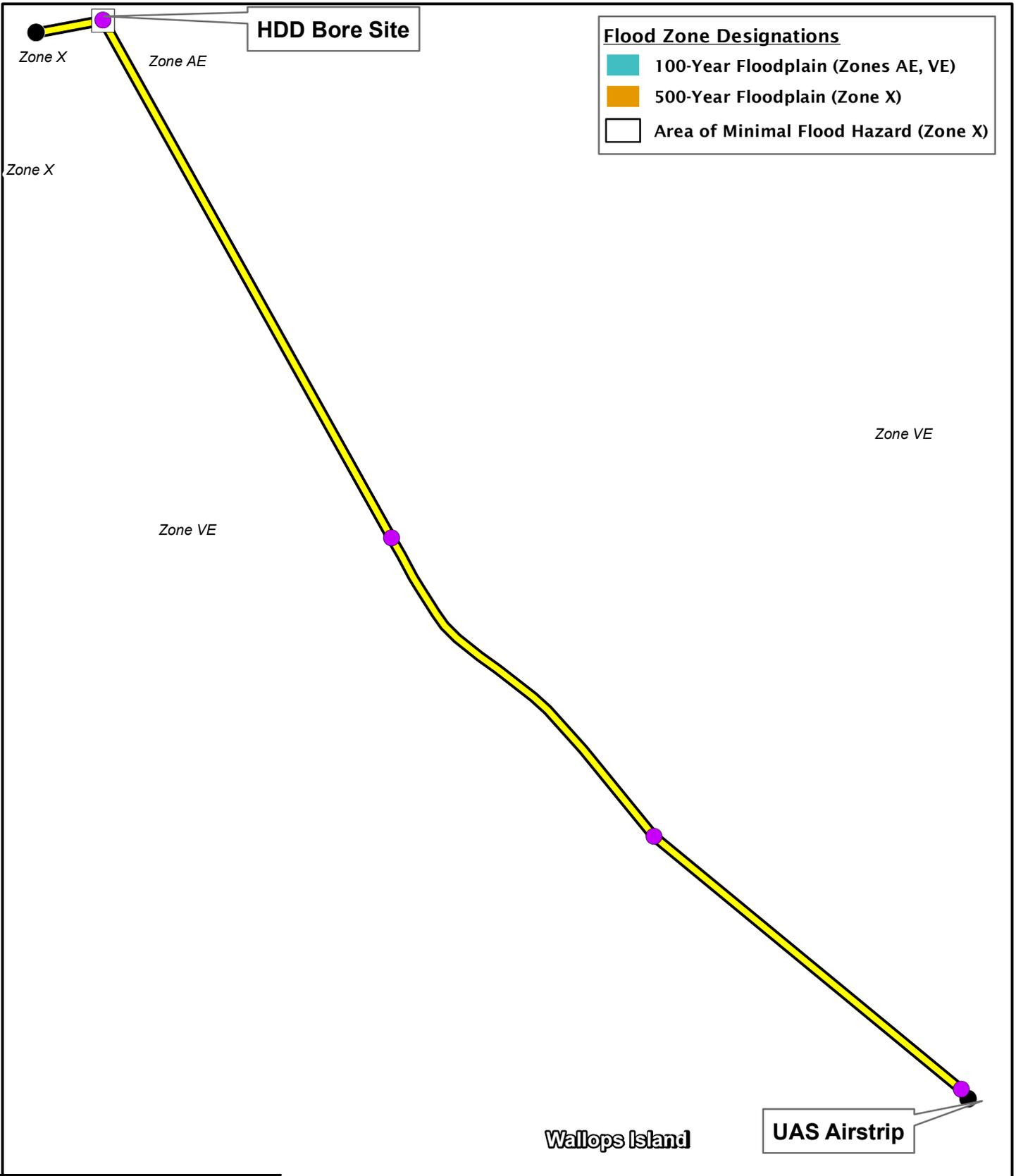
- Mobilization of equipment and establishing LOD at Wallops Island NWR
- Drilling mini HDD starting from the handhole along the access route to the Boresight Antenna and ending at the Maxi HDD LOD at the Wallops Island NWR
- Drilling Maxi HDD from Wallops Island NWR site to western end of Walker Marsh (1 rod/33 feet per hour)
- LOD establishment on Walker Marsh (western end)
- Placement of handhole at western Walker Marsh
- Placement of Wallops Island NWR handhole and trenching of 4-inch conduit
- Equipment mobilization and LOD establishment at UAS Airstrip Maxi HDD site
- Drilling from UAS Airstrip Maxi HDD site to eastern end of Walker Marsh (1 rod/33 feet/hour)
- LOD establishment on Walker Marsh (eastern end)
- Placement of handhole at eastern Walker Marsh
- Placement of UAS Airstrip handhole and trenching of 4-inch conduit
- Mobilization and begin vibratory trenching on Walker Marsh
- Conduct Mini HDD on Walker Marsh
- Install inner-duct from Wallops Island NWR to Walker Marsh west
- Install inner-duct from UAS Airstrip to Walker Marsh east

10.0 NATIONWIDE PERMIT 12 COMPLIANCE

NASA would provide oversight and monitoring of all construction activities to ensure the NWP 12 requirements and conditions are met. Daily monitoring logs and weekly summaries would be developed and maintained by NASA and would be made available to VMRC and the USACE upon request.

11.0 FLOODPLAIN COMPLIANCE

The entire Marsh Fiber project area is included on FIRM Community Panel 51001C0265G. All of Wallops Island and Walker Marsh are in the 100-year floodplain (Zone VE). Zone VE is defined as areas along coasts subject to inundation by the 1-percent-annual-chance flood event with additional hazards associated with storm-induced waves. The entire Wallops Island NWR project area is in Zone X, outside of the 100- and 500-year floodplains (**Figure 8**).



Existing Handhole ● New Handhole

— Closed Marsh Fiber Path

□ Wallops Flight Facility Boundary

VGIN VBMP 2017 Orthoimagery, FEMA FIRM PANEL 51001C0265G
020: Projection: NAD 1983 StatePlane Virginia South FIPS 4502 Feet

**FIGURE 8
FEMA FLOOD MAP**

0 1,350 2,700
Feet

NASA WFF Marsh Fiber JPA

N

12.0 MITIGATION PLAN

Compensation for temporary and permanent impacts to tidal wetlands and subaqueous bottoms would be completed in accordance with VMRC Wetlands Mitigation-Compensation Policy and Supplemental Guidelines Regulation 4 VAC 20-390-10 et seq. and the NWP 12 conditions. A compensatory mitigation plan for the unavoidable impacts to state waters and resources from the Marsh Fiber project is described below.

Per VMRC policy, regulations, and coordination with VMRC staff, the proposed project would require compensation for minor unavoidable permanent impacts to tidal vegetated wetlands. A compensatory mitigation plan is not required for the NWP 12 permit because permanent project impacts are less than 0.10 acre and/or 300 linear feet of WOTUS.

In accordance with NWP 12 all temporarily disturbed waters and wetlands must be restored to their pre-construction contours within 12 months of commencing the temporary impacts' construction. Once restored to their natural contours, soil in these areas must be mechanically loosened to a depth of 12 inches and wetland areas must be seeded or sprigged with appropriate native vegetation.

NASA would mitigate temporary impacts to tidal wetlands by restoring marsh vegetation in areas where the degree of disturbance to plants would hinder natural revegetation from the existing root mat. NASA would restore soils, substrate, and contours to pre-construction conditions to the extent practicable, and would re-establish native vegetation in accordance with the NWP 12 conditions and VMRC policy, regulations, and permit conditions.

Potential areas for revegetation include, but are not limited to: vibratory plow indirect disturbance (up to 12 inches wide along the plow cut centerline where soils would be disturbed through vibration), underneath synthetic composite matting especially in equipment loading/unloading areas, the Maxi and Mini HDD exit points, and the Mini HDD entry pits. The extent of revegetation would be determined as the work progresses and would be documented and conducted in accordance with permit conditions.

NASA anticipates that the minimum amount of disturbance that may require restoration via replanting is as follows:

- 0.09 acres of disturbance associated with the vibratory plow based on a vibratory trench length of 3,730 linear feet multiplied by 12 inches.
- 0.04 acres of disturbance associated with the three Mini HDD entrance pit excavation and backfill areas of approximately 600 square feet each for a total of approximately 1,800 square feet.

Mitigation planting for temporary impacts is proposed as follows:

- A replanting plan would be implemented for temporarily impacted areas of the marsh where pre-construction density is visibly decreased, or above-ground stems are damaged, missing, removed, or crushed.
- The temporary impact areas would be identified and quantified during construction.
- Impacted areas would be replanted with local stock/ecotype of saltmarsh cordgrass (*Spartina alterniflora*) (2-inch peat plugs).
- The saltmarsh cordgrass should be acquired from a local nursery vendor (such as Delmarva Native Plants, Mid-Atlantic Natives, Pinelands Nursery and Supply, etc.) and established at a 10-inch spacing array in linear or curvilinear rows set parallel/perpendicular to the disturbed areas.

13.0 MONITORING PLAN

NASA would monitor for the restoration planting areas over a 3-year period to include:

- biannual monitoring (June and December) of site conditions;
- data collection (plant mortality, standing cover of living stock, benchmark density in area of viable creation wetlands, wildlife use, soils, and overall health/condition); and biannual reporting of data to VMRC and USACE, within 30 days of June 30th and December 31st.

14.0 THREATENED AND ENDANGERED SPECIES COMPLIANCE

In 2019, USFWS issued a combined Biological Opinion (BO) for Proposed and Ongoing Operations and Shoreline Restoration/Infrastructure Protection Program at WFF. As part of the terms and conditions of the BO to manage special-status species, WFF annually updates and administers a *Protected Species Monitoring Plan*. This plan outlines procedures for monitoring protected species that are likely to occur at Wallops Island including: seabeach amaranth, red knot, piping plover, northern long-eared bat, and sea turtles. Monitoring reports for these species are prepared annually by WFF and submitted to USFWS. The EA (Section 3.11 and Table 3-3) provides summary details for threatened and endangered coordination for the WFF Marsh Fiber Project.

Threatened and Endangered Species coordination was completed with the USFWS and the National Marine Fisheries Service (NMFS) throughout development of the EA. Section 3.11 of the EA presents detailed analysis, impact assessment, mitigation measures, and consultation with federal and state agencies regarding special status species.

Through informal conference with USFWS conducted on 16 August 2019, NASA would incorporate a time-of-year restriction (TOYR) between April 1 and August 31 into the proposed project to avoid potentially adverse effects on the Eastern black rail (*Laterallus jamaicensis*

jamaicensis). Therefore, NASA anticipates that the species would not be present during project activities. A summary of agency coordination and responses for special status species is provided below. NASA's submittals and the agency responses are provided in Appendix D of the EA.

- **USFWS under Section 7 of the ESA:** On September 17, 2019 NASA submitted its determination of effects to species to the USFWS Virginia Field Office as part of the Information, Planning, and Consultation System process. On September 27, 2019, USFWS responded stating they had no further comments or concerns regarding the project. Therefore, USFWS has concurred with NASA's determinations of effect (**Appendix E**).
- **NMFS Protected Resources Division under Section 7 of the ESA:** On September 17, 2019, NASA submitted a letter to NMFS requesting concurrence with NASA's determination of effects to species under NOAA jurisdiction. On September 26, 2019, NMFS responded that they did not believe consultation in accordance with Section 7 of the ESA is necessary for the Marsh Fiber Project and as such, no further coordination with the NMFS Protected Resources Division is necessary (**Appendix E**).
- **NMFS Habitat Conservation Division under the MSA for EFH:** On September 17, 2019, NASA submitted a letter to NMFS requesting concurrence with NASA's evaluation of effects to EFH. In a letter dated October 10, 2019, NMFS responded that they have "no objections to the proposed installation of the fiber optic cable and have no conservation recommendations to provide" provided that BMPs (including those proposed by NASA and recommended by NMFS in their October 10, 2019 letter) are incorporated into project design.

No other listed, proposed, threatened, and endangered species or protected species management is required. Conditional EFH concurrence was provided and included the following best management practices:

- Contain sediment and drilling mud with turbidity curtains and other erosion and sediment control measures in areas the HDD drill surfaces.
- Develop a frac-out contingency plan outlining emergency procedures to follow should drilling muds escape the bore hole.
- Restore pre-construction contours and re-establish appropriate native vegetation at the two hand holes and three tidal gut excavation areas and temporary storage areas on Walker Marsh following NASA WFF vegetation management policies, including the monitoring and adaptive management of re-established vegetation areas.
- Use upstream and downstream turbidity curtains during hand jetting of the cable across the three tidal guts to contain resuspended sediment in the immediate work area.

15.0 CULTURAL AND HISTORIC RESOURCES COMPLIANCE

15.1. Architectural Resources

The Proposed Action would have no potential to affect architectural resources. The Virginia Department of Historic Resources (VDHR) Virginia Cultural Resource Information System (V-CRIS) shows one architectural resource within one-half mile (the architectural Areas of Potential Effect [APE]) of the proposed Marsh Fiber path: DHR ID 001-0027-0214, the Advanced Data Analytics System (ADAS) Boresight Facility. However, on August 7, 2018, VDHR concurred with NASA's determination that the ADAS Boresight Facility is not eligible for the National Register of Historic Places (DHR #2018-0157).

15.2. Archaeological Resources

The affected environment for archaeological resources consists of the areas where ground disturbance would occur, which are collectively referred to as the Area of Potential Effect (APE).

Although V-CRIS does not identify potential archaeological resources at or near the Walker Marsh APE, this area has the potential for maritime resources and/or buried prehistoric resources, with no archaeological potential at or near the surface. Review of nineteenth and early twentieth-century nautical charts and historic maps, however, did not reveal the potential for significant shipwrecks or potentially submerged maritime industry resources. The marsh and shallow waterway are an area of sediment accretion, which may have buried early prehistoric resources, if present.

In 2003, NASA modeled all property within WFF's boundaries for the potential of archaeological resources. According to NASA's predictive model for prehistoric and historic archaeological sites (which applies only to NASA's lands, including the UAS Airstrip), the APE at the UAS Airstrip site falls within the area of high archaeological potential. During the NEPA analysis for the construction and operation of the UAS Airstrip, NASA performed a Phase I archaeological survey which did not result in identification of archaeological resources with potential to extend into the proposed project's APE. Moreover, the entire APE near the UAS Airstrip has been previously disturbed during construction of the airstrip. Only one resource was identified during the Phase I, Site 44AC0089, a Revolutionary War Earth Works. The airstrip separates Site 44AC0089 from the APE at the UAS Airstrip site. NASA would ensure that all proposed project activities would remain outside the protective fencing surrounding Site 44AC0089. Therefore, the Proposed Action would have no potential to disturb this site.

NASA would install approximately 450 feet of fiber optic cable via mini HDD between the handhole along the access route to the NASA Boresight Antenna and the Maxi HDD site at the Wallops Island NWR. NASA determined that this area would be below the soil horizon for artifacts, features, or cultural deposits.

In accordance with Section 106 of the National Historic Preservation Act (NHPA), on September 17, 2019, NASA submitted a letter to the VDHR, the State Historic Preservation Office for the Commonwealth of Virginia, concluding that there would be no historic properties affected by the Proposed Action. In an email to NASA dated October 16, 2019, VDHR concurred with NASA's determination (**Appendix F**).

In the event that undocumented archaeological resources or traditional cultural resources are inadvertently discovered during ground disturbing activities associated with the proposed project, the contractor would halt work immediately and contact the WFF Historic Preservation Officer.

Appendix A: JPA Form

STANDARD JOINT PERMIT APPLICATION



United States Army Corps of Engineers (USACE) - Norfolk District
803 Front Street, ATTN: CENAO-WR-R
Norfolk, Virginia 23510-1011
Phone: (757) 201-7652, Fax: (757) 201-7678
Website: <http://www.nao.usace.army.mil/Missions/Regulatory.aspx>



Virginia Marine Resources Commission (VMRC)
Habitat Management Division
380 Fenwick Road, Building 96
Fort Monroe, VA 23651
Phone: (757) 247-2200, Fax: (757) 247-8062
Website: <http://www.mrc.virginia.gov/hmac/hmoverview.shtm>



Virginia Department of Environmental Quality (DEQ)
Virginia Water Protection Permit Program
Post Office Box 1105
Richmond, Virginia 23218
Phone: (804) 698-4000
Websites: <http://www.deq.virginia.gov/>
<http://www.deq.virginia.gov/Locations.aspx>

The following instructions and information are designed to assist you in applying for permits from federal, state, and local regulatory agencies for work in waters and/or wetlands within the Commonwealth of Virginia. The intent is to provide general information on the permit process, not to act as a complete legal and technical reference. Refer to the applicable laws, regulations, and/or guidance materials of each agency for a complete understanding of each agency's application requirements.

JOINT PERMIT APPLICATION PROCESS

The Joint Permit Application (JPA) process and Standard JPA form are used by the United States Army Corps of Engineers (USACE), the Virginia Marine Resources Commission (VMRC), the Virginia Department of Environmental Quality (DEQ), and the Local Wetlands Boards (LWB) for permitting purposes involving water, wetlands, and dune/beach resources, including water supply and water withdrawals projects (as defined in DEQ Regulation 9 VAC 25-210).

The Tidewater Joint Permit Application form is used for proposed private or commercial aquaculture projects and most commercial and noncommercial projects in **tidal waters, tidal wetlands, and coastal primary sand dunes and beaches in Virginia** that require the review and/or authorization by the LWB, the VMRC, the DEQ, and/or the USACE. The Tidewater JPA may be downloaded from the same web page on which the Standard JPA is located: <http://www.nao.usace.army.mil/Missions/Regulatory/JPA.aspx>. *If using the Tidewater JPA, follow the instructions provided with that form.*

Please note that some health departments and local agencies, such as local building officials and erosion and sediment control authorities, do not use the Joint Permit Application process or forms and may have different informational requirements. The applicant is responsible for contacting these agencies for information regarding those permitting requirements.

REGULATORY AUTHORITIES OF PARTICIPATING AGENCIES: The USACE regulates activities in waters of the United States, including wetlands, under Section 404 of the Clean Water Act (33 U.S.C. §1344), Section 10 of the Rivers and Harbors Act of 1899 (33 U.S.C. §403), and Section 103 of the Marine Protection Research and Sanctuaries Act of 1972 (33 U.S.C. §1413).

The VMRC regulates activities on state-owned submerged lands, tidal wetlands, and dunes/beaches under Code of Virginia Title 28.2, Chapters 12, 13, and 14.

The DEQ regulates activities in state surface waters and wetlands under Section 401 of the Clean Water Act (33 U.S.C. §1341), under State Water Control Law (Code of Virginia Title 62.1), and Virginia Administrative Code Regulations 9VAC25-210 et seq., 9VAC25-660 et seq., 9VAC25-670 et seq., 9VAC25-680 et seq., and 9VAC25-690 et seq.

The LWBs regulate activities in tidal wetlands and dunes/beaches under Code of Virginia Title 28.2, Chapters 13 and 14.

LOCAL WETLANDS BOARD CONTACT INFORMATION: Links to LWB information on the Web can be found at http://ccrm.vims.edu/permits_web/guidance/local_wetlands_boards.html.

USACE FIELD OFFICE INFORMATION AND DEQ REGIONAL OFFICE INFORMATION: Answers to technical questions and detailed information about specific aspects of the various permit programs may be obtained from the USACE field office in your project area (please refer to the Contact Information on the Regulatory web page at: <http://www.nao.usace.army.mil/Missions/Regulatory.aspx> or call 757-201-7652), or from the DEQ regional office in your project area (please refer to <http://www.deq.virginia.gov/Locations.aspx> or call 804-698-4000). Applicants may also seek assistance with completing the informational requirements and/or submittals from private consulting and/or engineering firms for hire.

CHESAPEAKE BAY PRESERVATION ACT INFORMATION: Development within the 84 Counties, Cities, and Towns of "Tidewater Virginia" (as defined in §62.1-44.15:68 of the Code of Virginia) is subject to the requirements of the Chesapeake Bay Preservation

FOR AGENCY USE ONLY

	Notes:
JPA#	

APPLICANTS

PLEASE PRINT OR TYPE ALL ANSWERS. If a question does not apply to your project, please print N/A (not applicable) in the space provided. **If additional space is needed, attach extra 8 1/2 x 11 inch sheets of paper.**

Check all that apply

<input checked="" type="checkbox"/> Pre-Construction Notification (PCN)	<input type="checkbox"/> SPGP	<input type="checkbox"/> DEQ Reapplication Existing permit number: _____	<input checked="" type="checkbox"/> Receiving federal funds Agency providing funding: <u>National Aeronautics and Space Administration</u>
<input checked="" type="checkbox"/> NWP # <u>12</u>			
<input type="checkbox"/> RP # 05 <i>(For NWP's & RP 05 ONLY - No DEQ-VWP permit writer will be assigned)</i>			
<input type="checkbox"/> Regional Permit 17 Checklist (RP-17)			

PREVIOUS ACTIONS RELATED TO THE PROPOSED WORK (Include all federal, state, and local pre application coordination, site visits, previous permits, or applications whether issued, withdrawn, or denied)

Historical information for past permit submittals can be found online with VMRC - <https://webapps.mrc.virginia.gov/public/habitat/> - or VIMS - <http://ccrm.vims.edu/perms/newpermits.html>

Agency	Action / Activity	Permit/Project number, including any non-reporting Nationwide permits previously used (e.g., NWP 13)	Date of Action	If denied, give reason for denial
USACE VMRC VDGIF NASA	Pre-Application	NAO-2019-2038	8/19/2019	See also JPA Section 10
VDHR	Geotechnical Coordination	File #2019-3371	5/13/2019	N/A

1. APPLICANT, AGENT, PROPERTY OWNER, AND CONTRACTOR INFORMATION

The applicant(s) is/are the legal entity to which the permit may be issued (see How to Apply at beginning of form). The applicant(s) can either be the property owner(s) or the person/people/company(ies) that intend(s) to undertake the activity. The agent is the person or company that is representing the applicant(s). If a company, please also provide the company name that is registered with the State Corporation Commission (SCC), or indicate no registration with the SCC.

Legal Name(s) of Applicant(s) National Aeronautics & Space Administration			Agent (if applicable)		
Mailing address Attn: Paul C. Bull PE., WFF, Wallops Flight Facility 34200 Fulton Street			Mailing address		
City Wallops Island	State VA	ZIP Code 23337	City	State	ZIP Code
Phone number w/area code (757) 824-2327	Fax		Phone number w/area code	Fax	
Mobile	E-mail paul.c.bull@nasa.gov		Mobile	E-mail	
State Corporation Commission Name and ID number (if applicable) <p align="center">NOT APPLICABLE</p>			State Corporation Commission Name and ID number (if applicable)		

Certain permits or permit authorizations may be provided via electronic mail. If the applicant wishes to receive their permit via electronic mail, please provide an e-mail address here: _____

1. APPLICANT, AGENT, PROPERTY OWNER, AND CONTRACTOR INFORMATION (Continued)

Property owner(s) legal name, if different from applicant National Aeronautics & Space Administration			Contractor, if known		
Mailing address Attn: Paul C. Bull PE., WFF, Wallops Flight Facility 34200 Fulton Street			Mailing address		
City Wallops Island	State VA	ZIP code 23337	City	State	ZIP code
Phone number w/area code (757) 824-2327	Fax		Phone number w/area code	Fax	
Mobile	E-mail paul.c.bull@nasa.gov		Mobile	E-mail	
State Corporation Commission Name and ID number (if applicable) <p style="text-align: center;">Not Applicable</p>			State Corporation Commission Name ID number (if applicable)		

2. PROJECT LOCATION INFORMATION

(Attach a copy of a detailed map, such as a USGS topographic map or street map showing the site location and project boundary, so that it may be located for inspection. Include an arrow indicating the north direction. Include the drainage area if the SPGP box is checked on Page 7.)

Street Address (911 address if available) Wallops Flight Facility 34200 Fulton Street	City/County/ZIP Code Wallops Island, VA 23337
Subdivision N/A	Lot/Block/Parcel # N/A
Name of water body(ies) within project boundaries and drainage area (acres or square miles). Watts Bay; Old Root Narrows; The Narrows (all tidal open water)	
Tributary(ies) to: <u>Atlantic Ocean</u> Basin: <u>Chincoteague Bay</u> Sub-basin: <u>Lower Chincoteague Bay</u> (Example: Basin: <u>James River</u> Sub-basin: <u>Middle James River</u>)	
Special Standards (based on DEQ Water Quality Standards 9VAC25-260 et seq.): <u>None Applicable</u>	
Project type (check one) <input type="checkbox"/> Single user (private, non-commercial, residential) <input checked="" type="checkbox"/> Multi-user (community, commercial, industrial, government) <input type="checkbox"/> Surface water withdrawal	
Latitude and longitude at center of project site (decimal degrees): <u>37.899137</u> / <u>-75.45651</u> (Example: 37.33164/-77.68200)	
USGS topographic map name: <u>Chincoteague, VA (1999)</u>	
8-digit USGS Hydrologic Unit Code (HUC) for your project site (See http://cfpub.epa.gov/surf/locate/index.cfm): <u>02040303 Chincoteague Bay</u> If known, indicate the 10-digit and 12-digit USGS HUCs (see http://consapps.dcr.virginia.gov/htdocs/maps/HUEXplorer.htm): <u>0204030305 Lower Chincoteague Bay</u> <u>020403030504 Chincoteague Bay-Chincoteague Inlet</u>	
Name of your project (Example: <i>Water Creek driveway crossing</i>) <u>NASA WFF Marsh Fiber</u>	
Is there an access road to the project? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No. If yes, check all that apply: <input checked="" type="checkbox"/> public <input checked="" type="checkbox"/> private <input checked="" type="checkbox"/> improved <input checked="" type="checkbox"/> unimproved	
Total size of the project area (in acres): <u>2.56</u>	

2. PROJECT LOCATION INFORMATION (Continued)

Provide driving directions to your site, giving distances from the best and nearest visible landmarks or major intersections:

From US Route 17 at Nash Corner, follow Route 175 approx. 3.6 miles E to the the eastern terminus of the project at Borehole Antenna entry road (in the curve at the WFF runway end). The corridor traverses to the southeast through open water/marsh to the western project terminus at the end of the UAS Airstrip, which is accessed through secure WFF gate at the end of Causeway Road (Route 803) at a point 1.2 miles southeast of its intersection with Atlantic Road (Route 803), south of Atlantic, VA.

Does your project site cross boundaries of two or more localities (i.e., cities/counties/towns)? Yes No

If so, name those localities: Project Wholly Within Accomack County, VA

3. DESCRIPTION OF THE PROJECT, PROJECT PRIMARY AND SECONDARY PURPOSES, PROJECT NEED, INTENDED USE(S), AND ALTERNATIVES CONSIDERED (Attach additional sheets if necessary)

- The purpose and need must include any new development or expansion of an existing land use and/or proposed future use of residual land.
- Describe the physical alteration of surface waters, including the use of pilings (#, materials), vibratory hammers, explosives, and hydraulic dredging, when applicable, and whether or not tree clearing will occur (include the area in square feet and time of year).
- Include a description of alternatives considered and measures taken to avoid or minimize impacts to surface waters, including wetlands, to the maximum extent practicable. Include factors such as, but not limited to, alternative construction technologies, alternative project layout and design, alternative locations, local land use regulations, and existing infrastructure
- For utility crossings, include both alternative routes and alternative construction methodologies considered
- For surface water withdrawals, public surface water supply withdrawals, or projects that will alter in stream flows, include the water supply issues that form the basis of the proposed project.

See JPA Narratives for:

Project Background, Purpose/Need, Proposed Action, Alternatives Considered, Methods/Technology Descriptions, Impacts, Avoidance/Minimization and Compensatory Mitigation/Threatened & Endangered Species/Cultural Resources

Date of proposed commencement of work (MM/DD/YYYY)

September 2020

Date of proposed completion of work (MM/DD/YYYY)

December 2020

Are you submitting this application at the direction of any state, local, or federal agency? Yes No

National Aeronautics and Space Administration

Has any work commenced or has any portion of the project for which you are seeking a permit been completed?

Yes No

If you answered "yes" to either question above, give details stating when the work was completed and/or when it commenced, who performed the work, and which agency (if any) directed you to submit this application. In addition, you will need to clearly differentiate between completed work and proposed work on your project drawings.

NOT APPLICABLE

Are you aware of any unresolved violations of environmental law or litigation involving the property? Yes No
(If yes, please explain)

No Unresolved Violations Known or Suspected

4. PROJECT COSTS

Approximate cost of the entire project, including materials and labor: \$ \$5.288M

Approximate cost of only the portion of the project affecting state waters (channelward of mean low water in tidal areas and below ordinary high water mark in nontidal areas): \$ \$5.146M

5. PUBLIC NOTIFICATION (Attach additional sheets if necessary)

Complete information for all property owners adjacent to the project site and across the waterway, if the waterway is less than 500 feet in width. If your project is located within a cove, you will need to provide names and mailing addresses for all property owners within the cove. If you own the adjacent lot, provide the requested information for the first adjacent parcel beyond your property line. Per Army Regulation (AR 25-51) outgoing correspondence must be addressed to a person or business.

Failure to provide this information may result in a delay in the processing of your application by VMRC.

Property owner's name	Mailing address	City	State	ZIP code
USFWS, Chincoteague National Wildlife Refuge, attn: Bob Leffel	8231 Beach Road	Chincoteague	VA	23336
VMRC to Notify Private Oyster Leasees				

Name of newspaper having general circulation in the area of the project: Chincoteague Beacon

Address and phone number (including area code) of newspaper 25 Market Street, Onancock, VA 23417 (757) 787-1200 newshub@delmarvanow.com

Have adjacent property owners been notified with forms in Appendix A? Yes No (attach copies of distributed forms)

6. THREATENED AND ENDANGERED SPECIES INFORMATION

Please provide any information concerning the potential for your project to impact state and/or federally threatened and endangered species (listed or proposed). Attach correspondence from agencies and/or reference materials that address potential impacts, such as database search results or confirmed waters and wetlands delineation/jurisdictional determination. Include information when applicable regarding the location of the project in Endangered Species Act-designated or -critical habitats. Contact information for the U.S. Fish and Wildlife Service, National Oceanic and Atmospheric Administration, Virginia Dept. of Game and Inland Fisheries, and the Virginia Dept. of Conservation and Recreation-Division of Natural Heritage can be found on page 4 of this package.

7. HISTORIC RESOURCES INFORMATION

Note: Historic properties include but are not limited to archeological sites, battlefields, Civil War earthworks, graveyards, buildings, bridges, canals, etc. Prospective permittees should be aware that section 110k of the NHPA (16 U.S.C. 470h-2(k)) prevents the USACE from granting a permit or other assistance to an applicant who, with intent to avoid the requirements of Section 106 of the NHPA, has intentionally significantly adversely affected a historic property to which the permit would relate, or having legal power to prevent it, allowed such significant adverse effect to occur, unless the USACE, after consultation with the Advisory Council on Historic Preservation (ACHP), determines that circumstances justify granting such assistance despite the adverse effect created or permitted by the applicant.

Are any historic properties located within or adjacent to the project site? Yes No Uncertain
If Yes, please provide a map showing the location of the historic property within or adjacent to the project site.

Are there any buildings or structures 50 years old or older located on the project site? Yes No Uncertain
If Yes, please provide a map showing the location of these buildings or structures on the project site.

Is your project located within a historic district? Yes No Uncertain

If Yes, please indicate which district:

7. HISTORIC RESOURCES INFORMATION (Continued)

Has a survey to locate archaeological sites and/or historic structures been carried out on the property? Yes No (Note: previously disturbed, low potential) Uncertain

If Yes, please provide the following information: Date of Survey: _____

Name of firm: _____

Is there a report on file with the Virginia Department of Historic Resources? Yes No Uncertain

Title of Cultural Resources Management (CRM) report: See JPA Narrative for all Section 106 Details

Was any historic property located? Yes No Uncertain

8. WETLANDS, WATERS, AND DUNES/BEACHES IMPACT INFORMATION

Report each impact site in a separate column. If needed, attach additional sheets using a similar table format. Please ensure that the associated project drawings clearly depict the location and footprint of each numbered impact site. For dredging, mining, and excavating projects, use Section 17.

	Impact site number 1	Impact site number 2	Impact site number 3	Impact site number 4	Impact site number 5
Impact description (use all that apply): F=fill EX=excavation S=Structure T=tidal NT=non-tidal TE=temporary PE=permanent PR=perennial IN=intermittent SB=subaqueous bottom DB=dune/beach IS=hydrologically isolated V=vegetated NV=non-vegetated MC=Mechanized Clearing of PFO (Example: F, NT, PE, V)	EX/F, T, V, TE 21,223 sf EX/F, T, V, PE 32 sf F, T, SB 20 sf	EX/F, T, V, TE 22,860 sf See Also	EX/F, T, V, TE 23,448 sf EX/F, T, V, PE 32 sf F, T, SB 20 sf JPA Impacts	Narrative	Section 10
Latitude / Longitude (in decimal degrees)	37.903556; -75.461027	37.899137; -75.45651	37.895016; -77.452087		
Wetland/waters impact area (square feet / acres)	See Above	See Above	See Above		
Dune/beach impact area (square feet)	0	0	0		
Stream dimensions at impact site (length and average width in linear feet, and area in square feet)	N/A	N/A	N/A		
Volume of fill below Mean High Water or Ordinary High Water (cubic yards)	1 cyds		1 cyds		

8. WETLANDS/WATERS IMPACT INFORMATION (Continued)

<p>Cowardin classification of impacted wetland/water or geomorphological classification of stream <i>Example wetland: PFO;</i> <i>Example stream: 'C' channel and if tidal, whether vegetated or non-vegetated wetlands per Section 28.2-1300 of the Code of Virginia</i></p>	<p>All Marsh Vegetated</p>				
<p>Average stream flow at site (flow rate under normal rainfall conditions in cubic feet per second) and method of deriving it (gage, estimate, etc.)</p>		<p>NOT</p>	<p>APPLICABLE</p>		
<p>Contributing drainage area in acres or square miles (VMRC cannot complete review without this information)</p>		<p>NOT</p>	<p>APPLICABLE</p>		
<p>DEQ classification of impacted resource(s): Estuarine Class II Non-tidal waters Class III Mountainous zone waters Class IV Stockable trout waters Class V Natural trout waters Class VI Wetlands Class VII https://law.lis.virginia.gov</p>		<p>All Wetlands</p>	<p>are Class II</p>	<p>Waters</p>	

For DEQ permitting purposes, also submit as part of this section a wetland and waters boundary delineation map – see (3) in the Footnotes section in the form instructions.

For DEQ permitting purposes, also submit as part of this section a written disclosure of all wetlands, open water, or streams that are located within the proposed project or compensation areas that are also under a deed restriction, conservation easement, restrictive covenant, or other land-use protective instrument.

9. APPLICANT, AGENT, PROPERTY OWNER, AND CONTRACTOR CERTIFICATIONS

READ ALL OF THE FOLLOWING CAREFULLY BEFORE SIGNING

PRIVACY ACT STATEMENT: The Department of the Army permit program is authorized by Section 10 of the Rivers and Harbors Act of 1899, Section 404 of the Clean Water Act, and Section 103 of the Marine Protection Research and Sanctuaries Act of 1972. These laws require that individuals obtain permits that authorize structures and work in or affecting navigable waters of the United States, the discharge of dredged or fill material into waters of the United States, and the transportation of dredged material for the purpose of dumping it into ocean waters prior to undertaking the activity. Information provided in the Joint Permit Application will be used in the permit review process and is a matter of public record once the application is filed. Disclosure of the requested information is voluntary, but it may not be possible to evaluate the permit application or to issue a permit if the information requested is not provided.

CERTIFICATION: I am hereby applying for permits typically issued by the DEQ, VMRC, USACE, and/or Local Wetlands Boards for the activities I have described herein. I agree to allow the duly authorized representatives of any regulatory or advisory agency to enter upon the premises of the project site at reasonable times to inspect and photograph site conditions, both in reviewing a proposal to issue a permit and after permit issuance to determine compliance with the permit.

In addition, I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

9. APPLICANT, AGENT, PROPERTY OWNER, AND CONTRACTOR CERTIFICATIONS (Continued)

Is/Are the Applicant(s) and Owner(s) the same? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Legal name & title of Applicant NASA WFF by Paul E. Bull, P.E.	Second applicant's legal name & title, if applicable Not Applicable
Applicant's signature PAUL BULL Digitally signed by PAUL BULL Date: 2020.04.13 16:09:15 -04'00'	Second applicant's signature Not Applicable
Date	Date
Property owner's legal name, if different from Applicant NASA Wallops Flight Facility	Second property owner's legal name, if applicable USFWS
Property owner's signature, if different from Applicant	Second property owner's signature
Date	Date

CERTIFICATION OF AUTHORIZATION TO ALLOW AGENT(S) TO ACT ON APPLICANT'S(S)' BEHALF (IF APPLICABLE)

I (we), NASA Wallops Flight Facility (and) _____,
 APPLICANT'S LEGAL NAME(S) – complete the second blank if more than one Applicant

hereby certify that I (we) have authorized Paul Bull (and) _____
 AGENT'S NAME(S) – complete the second blank if more than one Agent

to act on my (our) behalf and take all actions necessary to the processing, issuance, and acceptance of this permit and any and all standard and special conditions attached. I (we) hereby certify that the information submitted in this application is true and accurate to the best of my (our) knowledge.

Applicant's signature	Second applicant's signature, if applicable
Date	Date
Agent's signature and title	Second agent's signature and title, if applicable
Date	Date

CONTRACTOR ACKNOWLEDGEMENT (IF APPLICABLE)

I (we), _____ (and) _____,
 APPLICANT'S LEGAL NAME(S) – complete the second blank if more than one Applicant

have contracted _____ (and) _____
 CONTRACTOR'S NAME(S) – complete the second blank if more than one Contractor

to perform the work described in this Joint Permit Application, signed and dated _____.

I (we) will read and abide by all conditions as set forth in all federal, state, and local permits as required for this project. I (we) understand that failure to follow the conditions of the permits may constitute a violation of applicable federal, state, and local statutes and that we will be liable for any civil and/or criminal penalties imposed by these statutes. In addition, I (we) agree to make available a copy of any permit to any regulatory representative visiting the project site to ensure permit compliance. If I (we) fail to provide the applicable permit upon request, I (we) understand that the representative will have the option of stopping our operation until it has been determined that we have a properly signed and executed permit and are in full compliance with all of the terms and conditions.

Contractor's name or name of firm (printed/typed)	Contractor's or firm's mailing address	
Contractor's signature and title	Contractor's license number	Date
Applicant's signature	Second applicant's signature, if applicable	
Date	Date	

16. BEACH NOURISHMENT (Continued)

Describe the type(s) of vegetation proposed for stabilization and the proposed planting plan, including schedule, spacing, monitoring, etc. Attach additional sheets if necessary.

NOT APPLICABLE

17. DREDGING, MINING, AND EXCAVATING

FILL OUT THE FOLLOWING TABLE FOR DREDGING PROJECTS

	NEW dredging				MAINTENANCE dredging			
	Hydraulic		Mechanical (clamshell, dragline, etc.)		Hydraulic		Mechanical (clamshell, dragline, etc.)	
	Cubic yards	Square feet	Cubic yards	Square feet	Cubic yards	Square feet	Cubic yards	Square feet
Vegetated wetlands								
Non-vegetated wetlands								
Subaqueous land								
Totals				See	Impacts	Narrative	and Tables	

Is this a one-time dredging event? Yes No If "no", how many dredging cycles are anticipated: N/A
 (initial cycle in cu. yds.) (subsequent cycles in cu. yds.)

Composition of material (percentage sand, silt, clay, rock):
 Provide documentation (i.e., laboratory results or analytical reports) that *dredged* material from on-site areas is free of toxics. If not free of toxics, provide documentation of proper disposal (i.e., bill of lading from commercial supplier or disposal site).

See JPA Narratives and Appendices

Please include a dredged material management plan that includes specifics on how the dredged material will be handled and retained to prevent its entry into surface waters or wetlands. If on-site dewatering is proposed, please include plan view and cross-sectional drawings of the dewatering area and associated outfall.

See JPA Impacts and Avoidance/Minimization Narratives and Appendix

Will the dredged material be used for any commercial purpose or beneficial use? Yes No
 If yes, please explain:

See JPA Narrative and Appendix

If this is a maintenance dredging project, what was the date that the dredging was last performed? NOT APPLICABLE
 Permit number of original permit: NOT APPLICABLE (It is important that you attach a copy of the original permit.)

17. DREDGING, MINING, AND EXCAVATING (Continued)

For mining projects: On separate sheets of paper, explain the operation plans, including: 1) the frequency (e.g., every six weeks), duration (i.e., April through September), and volume (in cubic yards) to be removed per operation; 2) the temporary storage and handling methods of mined material, including the dimensions of the containment berm used for upland disposal of dredged material and the need (or no need) for a liner or impermeable material to prevent the leaching of any identified contaminants into ground water; 3) how equipment will access the mine site; and 4) verification that dredging: a) will not occur in water body segments that are currently on the effective Section 303(d) Total Maximum Daily Load (TMDL) priority list ([available at http://www.deq.virginia.gov/Programs/Water/WaterQualityInformationTMDLs/TMDL/TMDLDevelopment/TMDLProgramPriorities.aspx](http://www.deq.virginia.gov/Programs/Water/WaterQualityInformationTMDLs/TMDL/TMDLDevelopment/TMDLProgramPriorities.aspx)) or that have an approved TMDL; b) will not exacerbate any impairment; and c) will be consistent with any waste load allocation/limit/conditions imposed by an approved TMDL (see, "What's in my backyard" or subsequent spatial files at <http://www.deq.virginia.gov/ConnectWithDEQ/VEGIS.aspx> to determine the extent of TMDL watersheds and impairment segments).

Have you applied for a permit from the Virginia Department of Mines, Minerals and Energy? N/A Yes N/A No If Yes:
 Existing permit number: NOT APPLICABLE Date permit issued: N/A

Contributing drainage area: N/A square miles

Average stream flow at site (flow rate under normal rainfall conditions): N/A cfs

18. FILL (not associated with backfilled shoreline structures) AND OTHER STRUCTURES (other than piers and boathouses) IN WETLANDS OR WATERS, OR ON DUNES/BEACHES

Source and composition of fill material (percentage sand, silt, clay, rock):

Existing materials will be used.

Provide documentation (i.e., laboratory results or analytical reports) that fill material from off-site locations is free of toxics. If not free of toxics, provide documentation of proper disposal (i.e., bill of lading from commercial supplier or disposal site). Documentation is not necessary for fill material obtained from on-site areas.

Explain the purpose of the filling activity and the type of structure to be constructed over the filled area (if any):

Temporary Barge Mooring pilings (2) (1884 cf/0.70 cyds ea) per JPA narrative and Impact Figures. Structure/backfill for Handhole enclosures (64 sf permanent impact).

Describe any structure that will be placed in wetlands/waters or on a beach dune and its purpose:

HDD Handhole cable enclosure boxes; See JPA Narratives and drawings for full details.

Will the structure be placed on pilings? x Yes No

Total area occupied by any structure.
 64 Square Feet

How far will the structure be placed channelward from the back edge of the dune? feet

How far will the structure be placed channelward from the back edge of the beach? feet

19. NONTIDAL STREAM CHANNEL MODIFICATIONS FOR RESTORATION OR ENHANCMENT, or TEMPORARY OR PERMANENT RELOCATIONS

If proposed activities are being conducted for the purposes of compensatory mitigation, please attach separate sheets of paper providing all information required by the most recent version of the stream assessment methodology approved by the Norfolk District of the U.S. Army Corps of Engineers and the Virginia Department of Environmental Quality, in lieu of completing the questions below. Required information outlined by the methodology can be found at: <http://www.nao.usace.army.mil/Missions/Regulatory/UnifiedStreamMethodology.aspx> or <http://www.deq.virginia.gov/Programs/Water/WetlandsStreams/Mitigation.aspx>.

For all projects proposing stream restoration provide a completed Natural Channel Design Review Checklist and Selected Morphological Characteristics form. These forms and the associated manual can be located at: <https://www.fws.gov/chesapeakebay/StreamReports/NCD%20Review%20Checklist/Natural%20Channel%20Design%20Checklist%20Doc%20V2%20Final%2011-4-11.pdf>

Has the stream restoration project been designed by a local, state, or federal agency? Yes No. If yes, please include the name of the agency here: NOT APPLICABLE

Is the agency also providing funding for this project? Yes No

Stream dimensions at impact site (length and average width in linear feet, and area in square feet):

L: N/A (feet) AW: N/A (feet) Area: N/A (square feet)

Contributing drainage area: N/A acres or N/A square miles

19. NONTIDAL STREAM CHANNEL MODIFICATIONS FOR RESTORATION OR ENHANCMENT, or TEMPORARY OR PERMANENT RELOCATIONS (Continued) 19. NONTIDAL STREAM CHANNEL MODIFICATIONS FOR RESTORATION OR ENHANCMENT, or TEMPORARY OR PERMANENT RELOCATIONS (Continued)19. NONTIDAL STREAM CHANNEL MODIFICATIONS FOR RESTORATION OR ENHANCMENT, or TEMPORARY OR PERMANENT RELOCATIONS (Continued)

Existing average stream flow at site (flow rate under normal rainfall conditions): _____^{N/A}_____cfs

Proposed average stream flow at site after modifications (flow rate under normal rainfall conditions): _____^{N/A}_____cfs

Explain, in detail, the method to be used to stabilize the banks:

NOT APPLICABLE

Explain the composition of the existing stream bed (percent cobble, rock, sand, etc.):

NOT APPLICABLE

Will low-flow channels be maintained in the modified stream channel? ____Yes ____No.
Describe how:

NOT APPLICABLE

Will any structure(s) be placed in the stream to create riffles, pools, meanders, etc.? ____Yes ____No
If yes, please explain:

NOT APPLICABLE

20. UTILITY CROSSINGS

Type of crossing: ____overhead trenched directionally-drilled

Method of clearing corridor of vegetation (check all that apply): mechanized land clearing that disturbs the soil surface
cutting vegetation above the soil surface

Describe the materials to be used in the installation of the utility line (including gravel bedding for trenched installations, bentonite slurries used during direction-drilling, etc.) and a sequence of events to detail how the installation will be accomplished (including methods used for in-stream and dry crossings).

SEE JPA NARRATIVE FOR FULL DETAILS AND DRAWINGS

Will the proposed utility provide empty conduits for any additional utilities that may propose to co-locate at a later date? ____Yes No.

For overhead crossings over navigable waterways (including all tidal waterways), please indicate the height of other overhead crossings or bridges over the waterway relative to mean high water, mean low water, or ordinary high water mark:

NOT APPLICABLE

Nominal system voltage, if project involves power lines: _____^{N/A}_____

Total number of electrical circuits: _____^{N/A}_____

20. UTILITY CROSSINGS (Continued)

Will there be an excess of excavated material? Yes No
If so, describe the method that will be undertaken to dispose of, and transport, the material to its permanent disposal location and give that location:

Any excess excavated material will be hauled off by barge and disposed of in upland location.

Will any excess material be stockpiled in wetlands? Yes No
If so, will the stockpiled material be placed on filter fabric or some other type of impervious surface? Yes No

Will permanent access roads be placed through wetlands/streams? Yes No
If yes, will the roads be (check one) at grade above grade?

Will the utility line through wetlands/waters be continually maintained (e.g. via mowing or herbicide)? Yes No
If maintained, what is the maximum width? N/A feet

21. ROAD CROSSINGS

Have you conducted hydraulic studies to verify the adequacy of the culverts? Yes No
If so, please attach a copy of the hydraulic study/report.
Virginia Department of Transportation (VDOT) standards require that the backwater for a 100 year storm not exceed 1 foot for all road, culvert, and bridge projects within FEMA-designated floodplains. Virginia Department of Environmental Quality (DEQ) requires pipes and culverts 24 inches or less in diameter to be countersunk three inches below the natural stream bed elevations, and pipes and culverts greater than 24 inches to be countersunk at least six inches below the natural stream bed elevations. Hydraulic capacity is determined based on the reduced capacity due to the countersunk position.

Will the culverts be countersunk below the stream bottom? Yes No. If no, explain:

NOT APPLICABLE

If the project entails a bridged crossing and there are similar crossings in the area, what is the vertical distance above mean high water, mean low water, or ordinary high water mark of those similar structures? _____ feet above _____
For all bridges proposed over navigable waterways (including all tidal water bodies), you will be required to contact the U.S. Coast Guard to determine if a permit is required of their agency.

On separate sheets of paper, describe the materials to be used, the method of construction (including the use of cofferdams), the sequence of construction events, and if bedrock conditions may be encountered. Include cross-sections and profile plans of the culvert crossings including wing walls or rip rap.

22. IMPOUNDMENTS, DAMS, AND STORMWATER MANAGEMENT FACILITIES

If the impoundment or dam is a component of a water withdrawal project, also complete Sections 24 through 26.

Will the proposed impoundment, dam, or stormwater management facility be used for agricultural purposes (e.g., in the operation of a farm)? For DEQ permitting purposes, a farm is considered to be a property or operation that produces goods for market.
 Yes No

What type of materials will be used in the construction (earth, concrete, rock, etc.)? NOT APPLICABLE

What is the source of these materials? _____

Provide the dimensions of proposed impoundment, dam, or stormwater management facility, including the height and width of all structures.

NOT APPLICABLE

Storage capacity* of impoundment: _____ acre-feet
*should be given for the normal pool of recreational or farm ponds, or design pool for stormwater management ponds or reservoirs (the elevation the pond will be at for the design storm, e.g., 10-year, 24-hour storm)

Surface area** of impoundment: _____ acres
**should be given for the normal pool of recreational or farm ponds, or design pool for stormwater management ponds or reservoirs (the elevation the pond will be at for the design storm, e.g., 10-year, 24-hour storm)

APPENDIX A

Adjacent Property Owner's Acknowledgement Form

I, _____, own land next to/ across the water from/ in the same cove
(print adjacent property owner's name)

as the land of _____.
(print applicant's name)

I have reviewed the applicant's project drawings dated _____ to be submitted for all
(date of drawings)

necessary federal, state, and local permits.

_____ I have no comment regarding the proposal

_____ I do not object to the proposal

_____ I object to the proposal

The applicant has agreed to contact me for additional comments if the proposal changes prior to construction of the project.

(Before signing this form, please be sure that you have checked the appropriate option above)

Adjacent property owner's signature

Date

NOTE: IF YOU OBJECT TO THE PROPOSAL, THE REASON(S) YOU OPPOSE THE PROJECT MUST BE SUBMITTED TO VMRC IN WRITING. AN OBJECTION WILL NOT NECESSARILY RESULT IN A DENIAL OF A PERMIT FOR THE PROPOSED WORK. HOWEVER, VALID COMPLAINTS WILL BE GIVEN FULL CONSIDERATION DURING THE PERMIT REVIEW PROCESS.

APPENDIX A

Adjacent Property Owner's Acknowledgement Form

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(print adjacent property owner's name)

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(print applicant's name)

I have reviewed the applicant's project drawings dated _____ to be submitted for all
(date of drawings)

necessary federal, state, and local permits.

_____ I have no comment regarding the proposal

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(Before signing this form, please be sure that you have checked the appropriate option above)

Adjacent property owner's signature

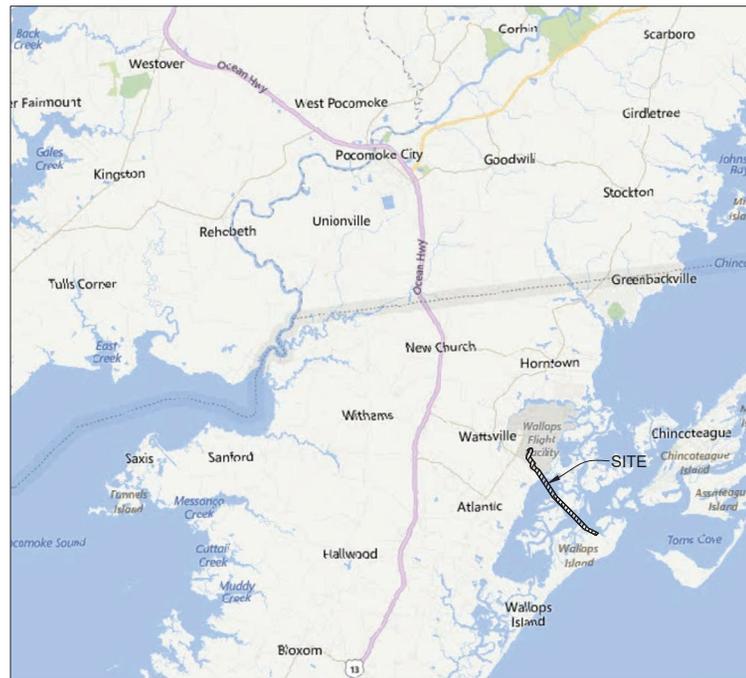
Date

NOTE: IF YOU OBJECT TO THE PROPOSAL, THE REASON(S) YOU OPPOSE THE PROJECT MUST BE SUBMITTED TO VMRC IN WRITING. AN OBJECTION WILL NOT NECESSARILY RESULT IN A DENIAL OF A PERMIT FOR THE PROPOSED WORK. HOWEVER, VALID COMPLAINTS WILL BE GIVEN FULL CONSIDERATION DURING THE PERMIT REVIEW PROCESS.

Appendix B: Construction Plans and Specifications

NASA WALLOPS FLIGHT FACILITY MARSH FIBER UPGRADE

SITE PLAN



VICINITY MAP
1" = 2 MI.

SHEET INDEX

T-1	TITLE SHEET
OS-1	OVERALL SITE PLAN AND LEGEND
C-1	PROPOSED SITE PLAN
C-2	PROPOSED SITE PLAN
C-3	PROPOSED SITE PLAN
C-4	PROPOSED SITE PLAN
C-5	PROPOSED SITE PLAN
C-6	PROPOSED SITE PLAN
C-7	PROPOSED SITE PLAN
CP-1	PROFILES STA. 0+00 THRU STA. 30+00
CP-2	PROFILES STA. 30+00 THRU STA. 60+00
CP-3	PROFILES STA. 60+00 THRU STA. 90+00
CP-4	PROFILES STA. 90+00 THRU STA. 120+00
CP-5	PROFILES STA. 120+00 THRU STA. 149+00
CD-1	DETAILS AND EROSION AND SEDIMENT CONTROL NOTES
CD-2	DETAILS

CUSTOMER
SAIC / NICS

ENGINEER
RAUCH, INC.
100 N. HARRISON STREET
EASTON, MARYLAND 21601
PHONE: 410-770-9081

TITLE SHEET
MARSH FIBER UPGRADE
NASA WALLOPS FLIGHT FACILITY
WALLOPS ISLAND
ACCOMACK COUNTY, VIRGINIA
PREPARED FOR: CROFTON DRYING / SPRING ASSOCIATES

Professional Certification.
I hereby certify that these drawings were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Virginia, License No. 11024.
RAUCH
engineering design & development services
www.rauchdesign.com
address: 100 N. Harrison St., Easton, MD 21601
Expiration Date: July 24, 2020

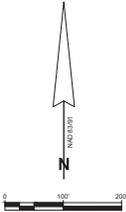
SEAL _____
DATE _____

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2	07/22/2019	PER CLIENT COMMENTS
3	07/22/2019	PER CLIENT COMMENTS
4	07/22/2019	PER CLIENT COMMENTS
5	07/22/2019	PER CLIENT COMMENTS
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7	07/22/2019	PER CLIENT COMMENTS
8	07/22/2019	PER CLIENT COMMENTS
9	07/22/2019	PER CLIENT COMMENTS
10	07/22/2019	PER CLIENT COMMENTS

DATE:	JULY 2019
JOB NUMBER:	190033
SCALE:	AS NOTED
DRAWN BY:	AF / W. BONNETT
DESIGNED BY:	
APPROVED BY:	
FOLDER REF:	
SHEET NO.:	1 OF 16
FILE NO.:	T-1



SCALE: 1" = 1,000'



- LEGEND**
- L50 — DENOTES LIMIT OF DISTURBANCE
 - ~ DENOTES EXISTING TREE LINE
 - - - DENOTES EXISTING CONTOUR
 - - - 36 - - - DENOTES EXISTING 4" HDPE CONDUIT INSTALLED
 - - - DENOTES EXISTING FENCE
 - x - DENOTES EXISTING FENCE POST
 - o DENOTES EXISTING UTILITY POLE
 - Y | DENOTES EXISTING GUY WIRE

OVERALL SITE PLAN
 MARSH FIBER UPGRADE
NASA WALLOPS FLIGHT FACILITY
 WALLOPS ISLAND
 ACCOMACK COUNTY, VIRGINIA
 PREPARED FOR: CROFTON DRYING / SPRING ASSOCIATES

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 engineering design &
 development services
 100 N. Herndon St. E. Suite 102-1021
 Herndon, VA 20185
 Phone: 703.461.9900
 Fax: 703.461.9901
 Email: info@rauch.com
 Website: www.rauch.com

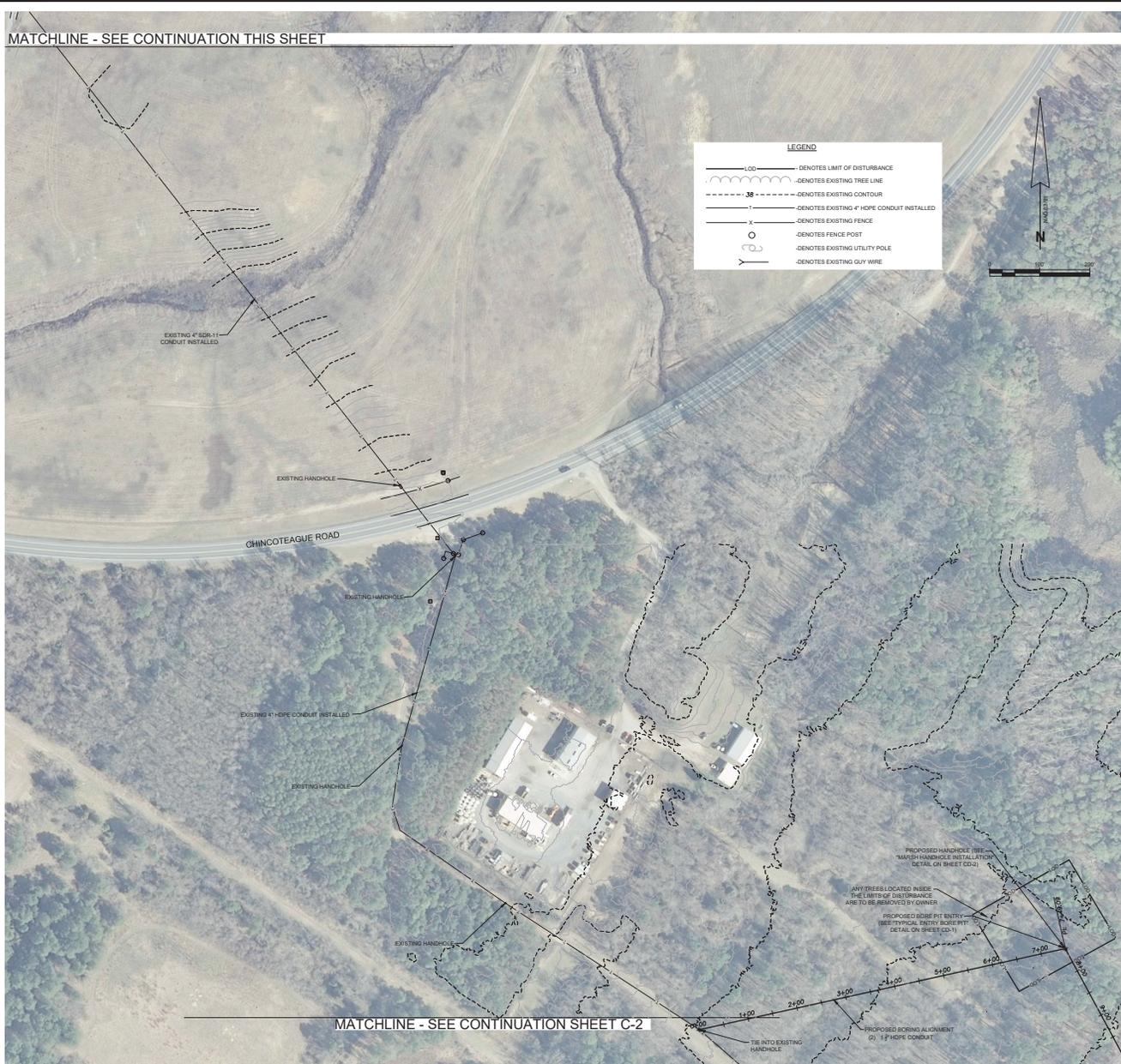
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 License No. 111024
 Expiration Date: July 24, 2020

REV #	DATE	DESCRIPTION
1	07/22/2019	PER CLIENT COMMENTS
2	08/02/2019	PER CLIENT COMMENTS
3	08/20/2019	PER CLIENT COMMENTS
4	09/03/2019	PER CLIENT COMMENTS
5	09/10/2019	PER CLIENT COMMENTS
6	09/17/2019	PER CLIENT COMMENTS
7	09/24/2019	PER CLIENT COMMENTS
8	10/01/2019	PER CLIENT COMMENTS
9	10/08/2019	PER CLIENT COMMENTS
10	10/15/2019	PER CLIENT COMMENTS
11	10/22/2019	PER CLIENT COMMENTS
12	10/29/2019	PER CLIENT COMMENTS
13	11/05/2019	PER CLIENT COMMENTS
14	11/12/2019	PER CLIENT COMMENTS

DATE:	JULY 2019
JOB NUMBER:	190033
SCALE:	AS NOTED
DRAWN BY:	AW / W. BONNETT
DESIGNED BY:	
APPROVED BY:	
FOLDER REF:	
SHEET NO.:	2 OF 16
FILE NO.:	OS-1



SCALE: 1" = 100'



LEGEND

- DENOTES LIMIT OF DISTURBANCE
- DENOTES EXISTING TREE LINE
- DENOTES EXISTING CONTOUR
- DENOTES EXISTING 4" HOPE CONDUIT INSTALLED
- DENOTES EXISTING FENCE
- DENOTES FENCE POST
- DENOTES EXISTING UTILITY POLE
- DENOTES EXISTING GUY WIRE



MATCHLINE - SEE CONTINUATION SHEET C-2

SCALE: 1" = 100'

HDD DESIGN SITE PLAN
 MARSH FIBER UPGRADE
NASA WALLOPS FLIGHT FACILITY
 WALLOPS ISLAND
 ACCOMACK COUNTY, VIRGINIA
 PREPARED FOR: CROFTON DRYING / SPRING ASSOCIATES

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 Expiration Date: July 24, 2020
 Address: 105 N. Harrison St. E. Suite 102, 26011

SEAL _____
 DATE _____

REV #	DATE	DESCRIPTION
1	07/22/2019	PER CLIENT COMMENTS
2	08/02/2019	PER CLIENT COMMENTS
3	08/23/2019	PER CLIENT COMMENTS
4	09/05/2019	PER CLIENT COMMENTS
5	09/24/2019	PER CLIENT COMMENTS
6	10/02/2019	PER CLIENT COMMENTS
7	10/24/2019	PER CLIENT COMMENTS
8	11/22/2019	PER CLIENT COMMENTS
9	01/15/2020	PER CLIENT COMMENTS
10	01/15/2020	PER CLIENT COMMENTS

DATE:	JULY 2019
JOB NUMBER:	190033
SCALE:	AS NOTED
DRAWN BY:	AV. W. BONNETT
DESIGNED BY:	
APPROVED BY:	
FOLDER REF:	
SHEET NO.:	3 OF 16
FILE NO.:	C-1

MATCHLINE - SEE CONTINUATION SHEET C-1



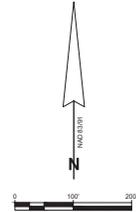
MATCHLINE - SEE CONTINUATION SHEET C-3

SCALE: 1" = 100'

LEGEND

- DENOTES LIMIT OF DISTURBANCE
- DENOTES EXISTING TREE LINE
- DENOTES EXISTING CONTOUR
- DENOTES EXISTING 4\"/>

- NOTES**
- CONTRACTOR IS REQUIRED TO RESTORE ALL ACCESS ROADS TO ORIGINAL CONDITION.
 - TRACER WIRE IS TO BE USED ALONG ALL TRENCHED SEGMENTS.
 - ANY TREES LOCATED WITHIN THE LIMITS OF DISTURBANCE ARE TO BE REMOVED BY OWNER.



HDD DESIGN SITE PLAN
 MARSH FIBER UPGRADE
NASA WALLOPS FLIGHT FACILITY
 WALLOPS ISLAND
 ACCOMACK COUNTY, VIRGINIA
 PREPARED FOR: CROFTON DRYING / SPRING ASSOCIATES

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RAUCH
 engineering design & development services
 100 N. Harrison St. E. Suite 102-101
 Norfolk, VA 23510
 Phone: 757-647-8900
 Fax: 757-647-8901

SEAL _____
 DATE _____

REVISIONS

REV #	DATE	DESCRIPTION
1	02/22/2019	PER CLIENT COMMENTS
2	03/05/2019	PER CLIENT COMMENTS
3	03/15/2019	PER CLIENT COMMENTS
4	03/20/2019	PER CLIENT COMMENTS
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6	03/20/2019	PER CLIENT COMMENTS
7	03/20/2019	PER CLIENT COMMENTS
8	03/20/2019	PER CLIENT COMMENTS
9	03/20/2019	PER CLIENT COMMENTS
10	03/20/2019	PER CLIENT COMMENTS

DATE: JULY 2019
 JOB NUMBER: 190033
 SCALE: AS NOTED
 DRAWN BY: AW: W. BONNETT
 DESIGNED BY:
 APPROVED BY:
 FOLDER REF:
 SHEET NO.: 4 OF 16
 FILE NO.: C-2

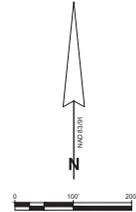
MATCHLINE - SEE CONTINUATION SHEET C-2



SCALE: 1" = 100'

MATCHLINE - SEE CONTINUATION SHEET C-4

- LEGEND**
- DENOTES LIMIT OF DISTURBANCE
 - DENOTES EXISTING TREE LINE
 - DENOTES EXISTING CONTOUR
 - DENOTES EXISTING 4" HDPE CONDUIT INSTALLED
 - DENOTES EXISTING FENCE
 - DENOTES FENCE POST
 - DENOTES EXISTING UTILITY POLE
 - DENOTES EXISTING GLY WIRE



HDD DESIGN SITE PLAN
 MARSH FIBER UPGRADE
NASA WALLOPS FLIGHT FACILITY
 WALLOPS ISLAND
 ACCOMACK COUNTY, VIRGINIA
 PREPARED FOR: CROFTON DIXON / SPRING ASSOCIATES

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REV #	DATE	PER CLIENT COMMENTS	DESCRIPTION
1	07/22/2019	PER CLIENT COMMENTS	
2	07/22/2019	PER CLIENT COMMENTS	
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6	07/22/2019	PER CLIENT COMMENTS	
7	07/22/2019	PER CLIENT COMMENTS	
8	07/22/2019	PER CLIENT COMMENTS	
9	07/22/2019	PER CLIENT COMMENTS	
10	07/22/2019	PER CLIENT COMMENTS	

DATE: JULY 2019
 JOB NUMBER: 190033
 SCALE: AS NOTED
 DRAWN BY: AW: W. BONNETT
 DESIGNED BY:
 APPROVED BY:
 FOLDER REF:
 SHEET NO.: 5 OF 16
 FILE NO.: C-3



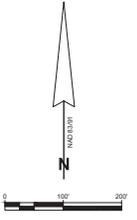
MATCHLINE - SEE CONTINUATION SHEET C-3

LEGEND

- DENOTES LIMIT OF DISTURBANCE
- - - DENOTES EXISTING TREE LINE
- - - DENOTES EXISTING CONTOUR
- - - DENOTES EXISTING 4" HOPE CONDUIT INSTALLED
- - - DENOTES EXISTING FENCE
- - - DENOTES EXISTING UTILITY POLE
- - - DENOTES EXISTING GLY WIRE

NOTES

- TRACER WIRE IS TO BE USED ALONG ALL TRENCHED SEGMENTS.



SCALE: 1" = 100'

MATCHLINE - SEE CONTINUATION SHEET C-5

HDD DESIGN SITE PLAN
 MARSH FIBER UPGRADE
NASA WALLOPS FLIGHT FACILITY
 WALLORS ISLAND
 ACCOMACK COUNTY, VIRGINIA
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 100 N. Harrison St. E. Suite 102-101
 Norfolk, VA 23510
 Phone: 757.647.8100
 Email: info@rauch.com

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REV #	DATE	DESCRIPTION
1	8/22/2019	PER CLIENT COMMENTS
2	9/26/2019	PER CLIENT COMMENTS
3	10/15/2019	PER CLIENT COMMENTS
4	10/16/2019	PER CLIENT COMMENTS
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7	12/11/2019	PER CLIENT COMMENTS
8	1/15/2020	PER CLIENT COMMENTS

DATE: JULY 2019
 JOB NUMBER: 190333
 SCALE: AS NOTED
 DRAWN BY: AW: W. BONNETT
 DESIGNED BY:
 APPROVED BY:
 FOLDER REF:
 SHEET NO.: 6 OF 16
 FILE NO.: C-4



MATCHLINE - SEE CONTINUATION SHEET C-4

MATCHLINE - SEE CONTINUATION SHEET C-6

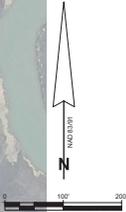
SCALE: 1" = 100'

LEGEND

- DENOTES LIMIT OF DISTURBANCE
- DENOTES EXISTING TREE LINE
- DENOTES EXISTING CONTOUR
- DENOTES EXISTING 4" HOPE CONDUIT INSTALLED
- DENOTES EXISTING FENCE
- DENOTES FENCE POST
- DENOTES EXISTING UTILITY POLE
- DENOTES EXISTING GLY WIRE

NOTES

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HDD DESIGN SITE PLAN
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 WALLOPS ISLAND
 ACCOMACK COUNTY, VIRGINIA
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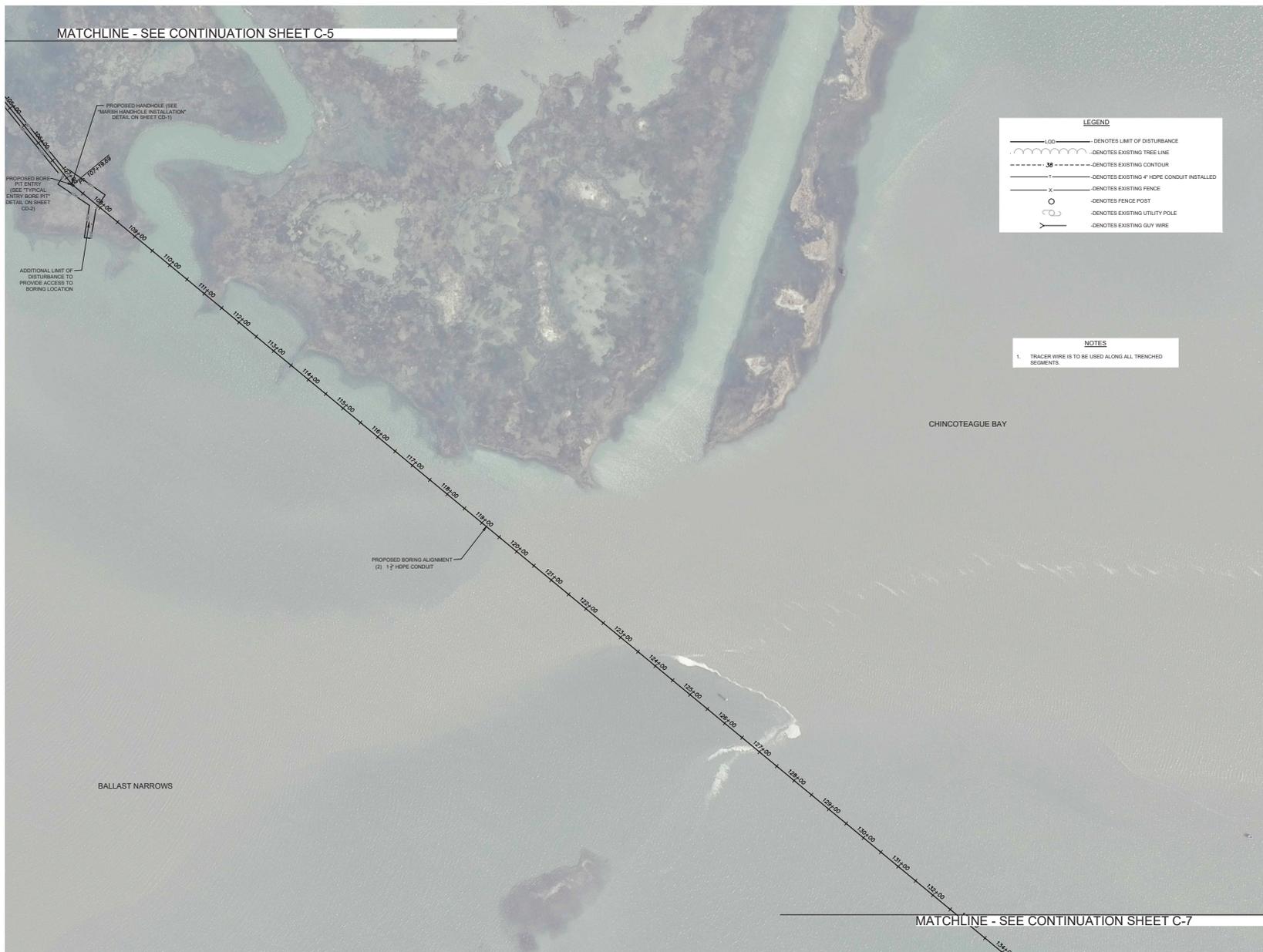
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8	07/22/2019	PER CLIENT COMMENTS
9	07/22/2019	PER CLIENT COMMENTS
10	07/22/2019	PER CLIENT COMMENTS

DATE: JULY 2019
 JOB NUMBER: 190033
 SCALE: AS NOTED
 DRAWN BY: JF W. BONNETT
 DESIGNED BY:
 APPROVED BY:
 FOLDER REF:
 SHEET NO.: 7 OF 16
 FILE NO.: C-5

MATCHLINE - SEE CONTINUATION SHEET C-5

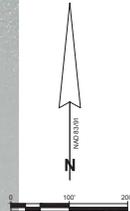


LEGEND

	• DENOTES LIMIT OF DISTURBANCE
	• DENOTES EXISTING TREE LINE
	• DENOTES EXISTING CONTOUR
	• DENOTES EXISTING 4" HOPE CONDUIT INSTALLED
	• DENOTES EXISTING FENCE
	• DENOTES FENCE POST
	• DENOTES EXISTING UTILITY POLE
	• DENOTES EXISTING GLY WIRE

NOTES

1. TRACER WIRE IS TO BE USED ALONG ALL TRENCHED SEGMENTS.



CHINCOTEAGUE BAY

BALLAST NARROWS

MATCHLINE - SEE CONTINUATION SHEET C-7

SCALE: 1" = 100'

HDD DESIGN SITE PLAN
 MARSH FIBER UPGRADE
NASA WALLOPS FLIGHT FACILITY
 WALLOPS ISLAND
 ACCOMACK COUNTY, VIRGINIA
 PREPARED FOR: CROFTON DRYING / SPRING ASSOCIATES

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 development services
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 Address: 100 N. Harrison St. E. Suite 102-101

SEAL _____ DATE _____

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REV #	DATE	DESCRIPTION
1	8/22/2019	PER CLIENT COMMENTS
2	9/20/2019	PER CLIENT COMMENTS
3	10/15/2019	PER CLIENT COMMENTS
4	10/16/2019	PER CLIENT COMMENTS
5	10/24/2019	PER CLIENT COMMENTS
6	11/20/2019	PER CLIENT COMMENTS
7	11/20/2019	PER CLIENT COMMENTS
8	11/20/2019	PER CLIENT COMMENTS

DATE: JULY 2019
 JOB NUMBER: 190033
 SCALE: AS NOTED
 DRAWN BY: AW. BONNETT
 DESIGNED BY:
 APPROVED BY:
 FOLDER REF:
 SHEET NO.: 8 OF 16
 FILE NO.: C-6

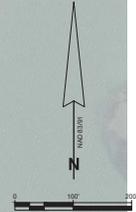
MATCHLINE - SEE CONTINUATION SHEET C-6



SCALE: 1" = 100'

LEGEND

- DENOTES LIMIT OF DISTURBANCE
- DENOTES EXISTING TREE LINE
- DENOTES EXISTING CONTOUR
- DENOTES EXISTING 4" HDPE CONDUIT INSTALLED
- DENOTES EXISTING FENCE
- DENOTES FENCE POST
- DENOTES EXISTING UTILITY POLE
- DENOTES EXISTING GLY WIRE



- NOTES**
- NO STORAGE OR PARKING IS ALLOWED ON THE RUNWAY.
 - TRACER WIRE IS TO BE USED ALONG ALL TRENCHED SEGMENTS.
 - THERE IS TO BE NO PARKING OR STAGING OF EQUIPMENT OR MATERIALS ON THE LANE RUNWAY.

PROPOSED HANDHOLE (SEE "MARSH HANDHOLE INSTALLATION" DETAIL ON SHEET C-5)
 CONTRACTOR TO DIRECT BURY (1) 4" HDPE CONDUIT WITH SPECIFIED TRACER WIRE A MINIMUM OF 36" COVER TO EXISTING HANDHOLE LOCATION

EXISTING HANDHOLE LOCATION

EXISTING 4" HDPE SC9.0 IPS CONDUIT INSTALLED

CONCRETE HEADWALL

RPRAP

CONCRETE HEADWALL

EXISTING HANDHOLE LOCATION

CONCRETE HEADWALL

SEE DETAIL "LANS RUNWAY BORE SITE" ON SHEET C-4

146+87.61.08

HDD DESIGN SITE PLAN
 MARSH FIBER UPGRADE
NASA WALLOPS FLIGHT FACILITY
 WALLORS ISLAND
 ACCOMACK COUNTY, VIRGINIA
 PREPARED FOR: CROFTON DRYING / SPRING ASSOCIATES

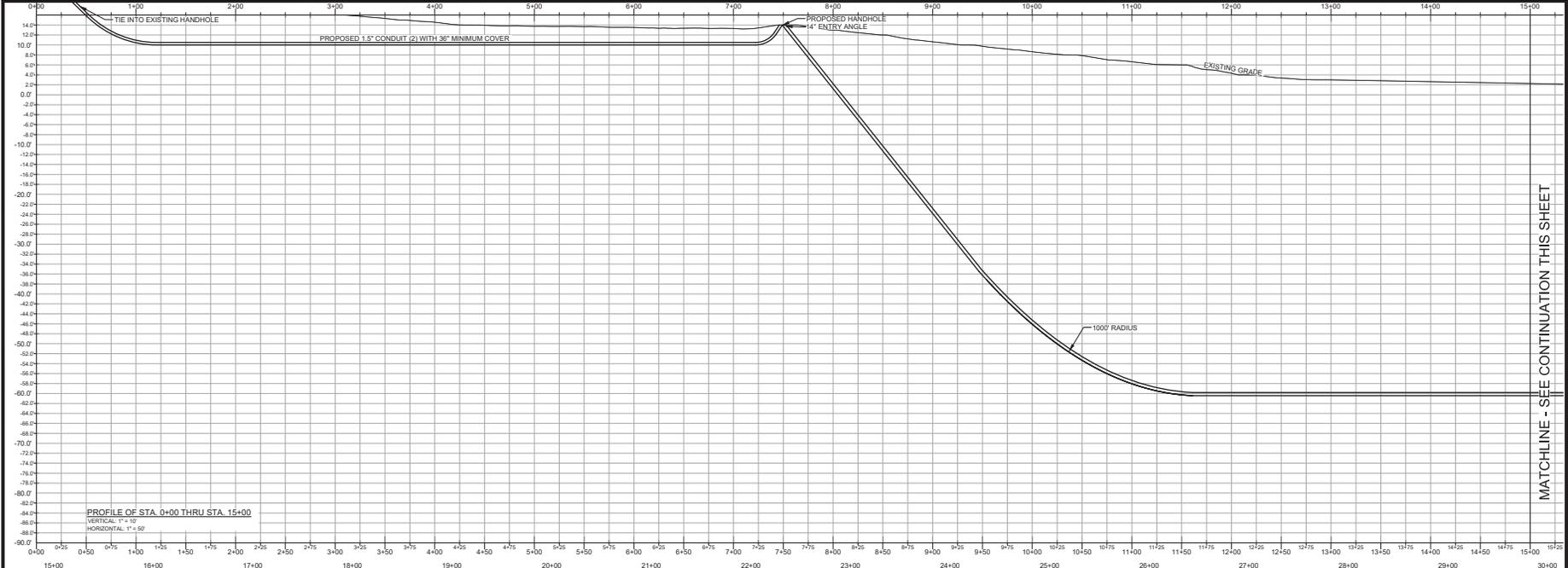
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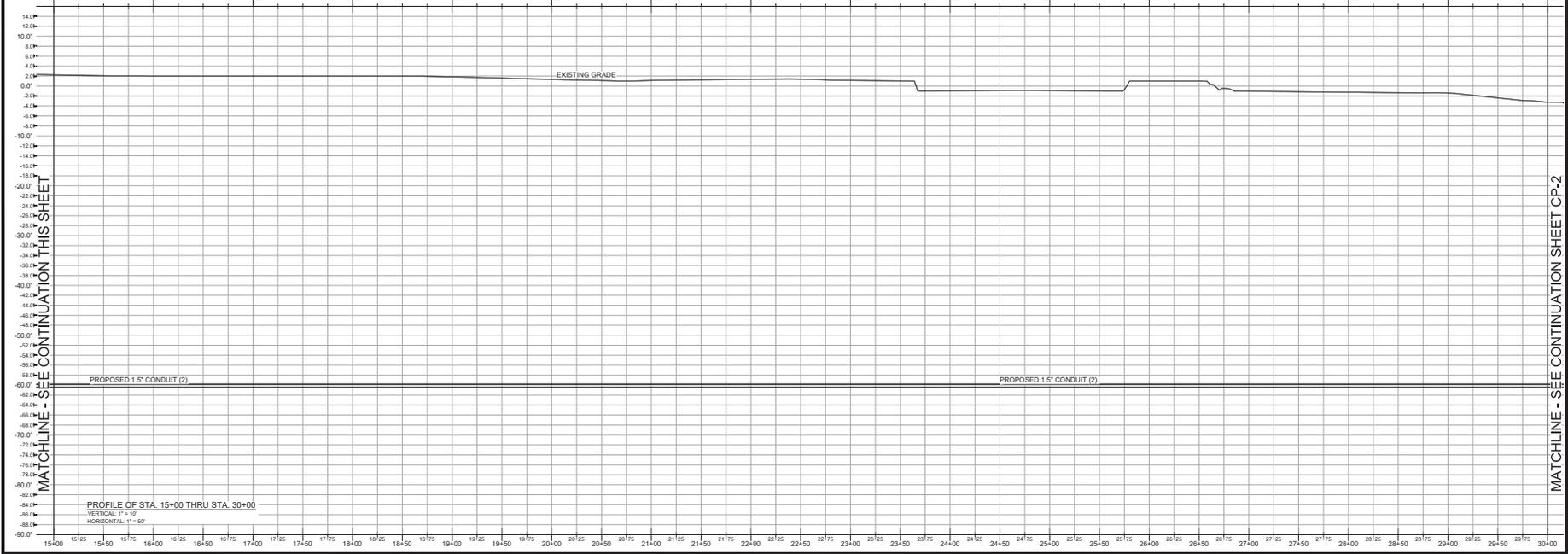
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 DESIGNED BY:
 APPROVED BY:
 FOLDER REF:
 SHEET NO.: 9 OF 16
 FILE NO.: C-7



PROFILE OF STA. 0+00 THRU STA. 15+00
VERTICAL 1" = 10'
HORIZONTAL 1" = 50'



PROFILE OF STA. 15+00 THRU STA. 30+00
VERTICAL 1" = 10'
HORIZONTAL 1" = 50'

MATCHLINE - SEE CONTINUATION THIS SHEET

MATCHLINE - SEE CONTINUATION THIS SHEET

HDD DESIGN PROFILES
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NASA WALLOPS FLIGHT FACILITY
WALLOPS ISLAND
ACCOMACK COUNTY, VIRGINIA
PREPARED FOR: CROFTON DRYING, SPRING ASSOCIATES

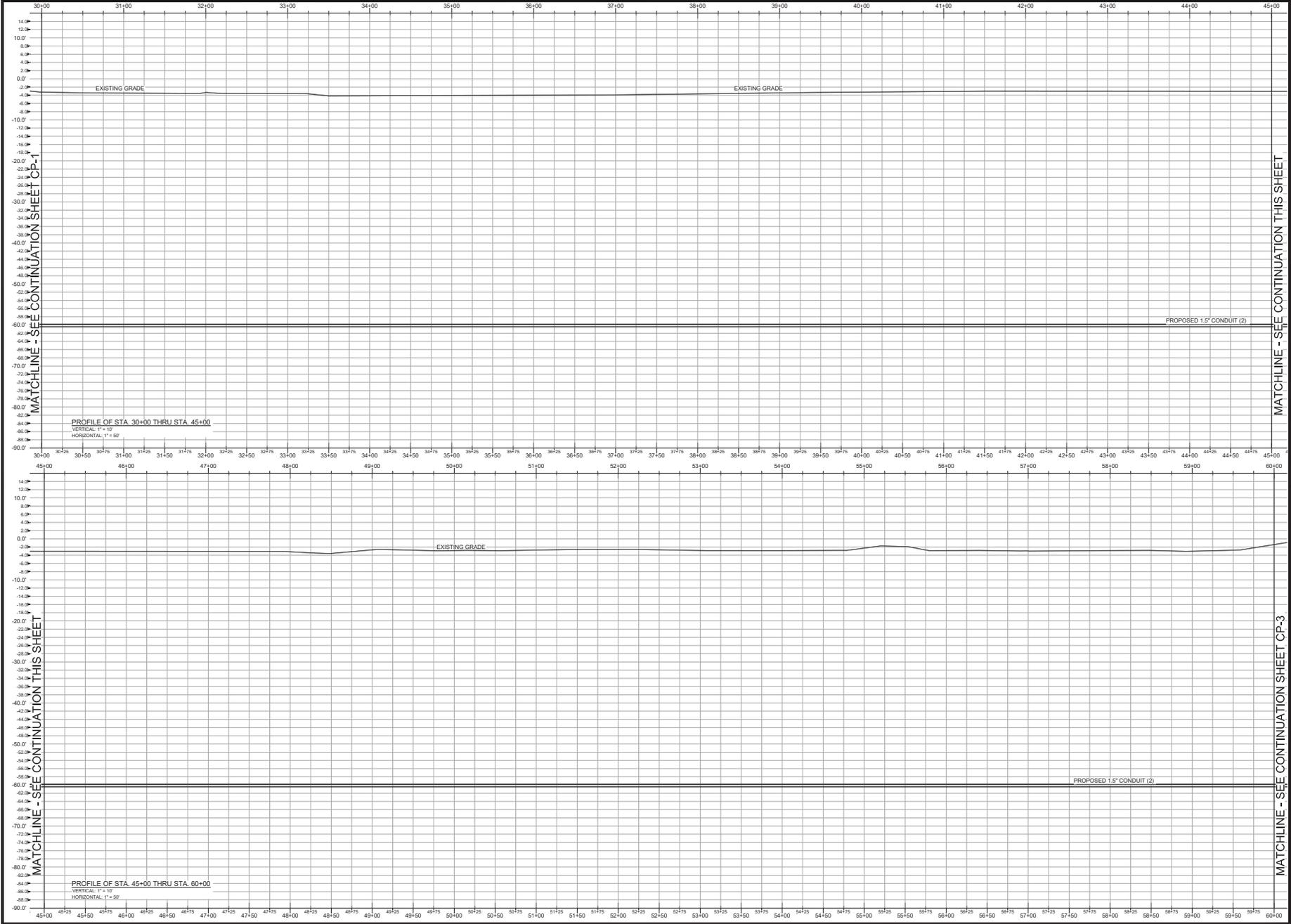
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APPROVED BY:
FOLDER REF:
SHEET NO.: 10 OF 16
FILE NO.: CP-1

SEAL
DATE



PROFILE OF STA. 30+00 THRU STA. 45+00
 VERTICAL 1" = 4'
 HORIZONTAL 1" = 50'

PROFILE OF STA. 45+00 THRU STA. 60+00
 VERTICAL 1" = 4'
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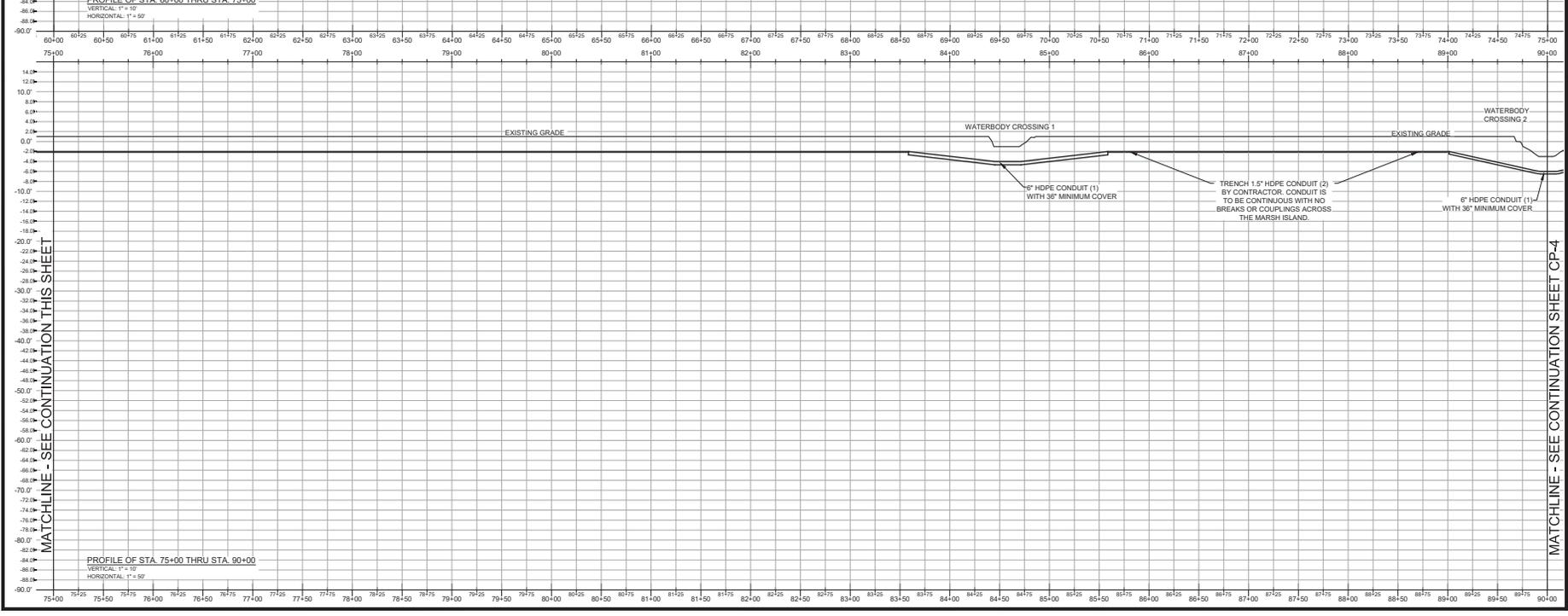
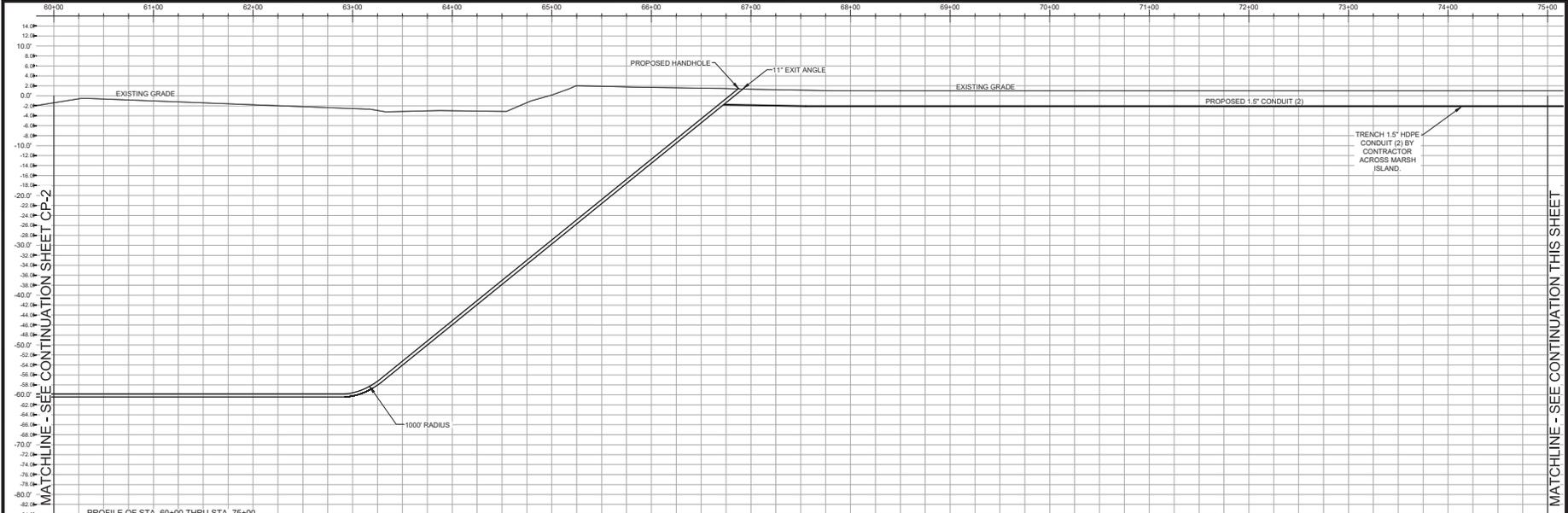
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 FILE NO.: CP-2



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MATCHLINE - SEE CONTINUATION SHEET CP-4

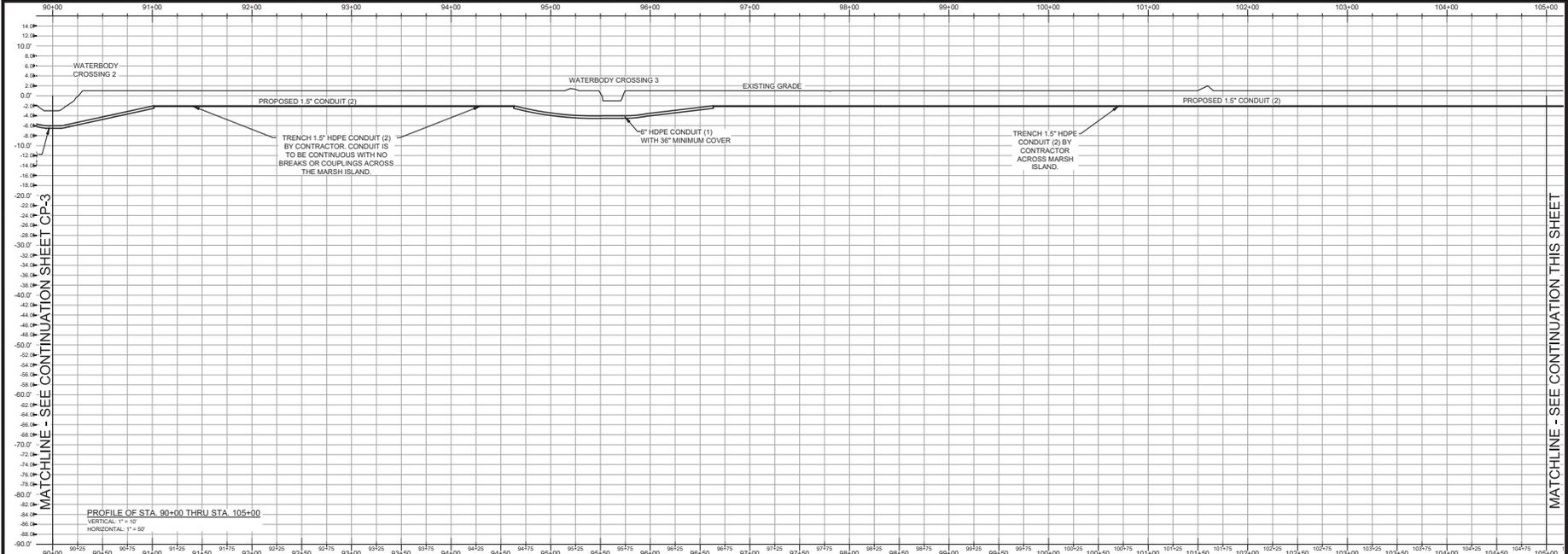
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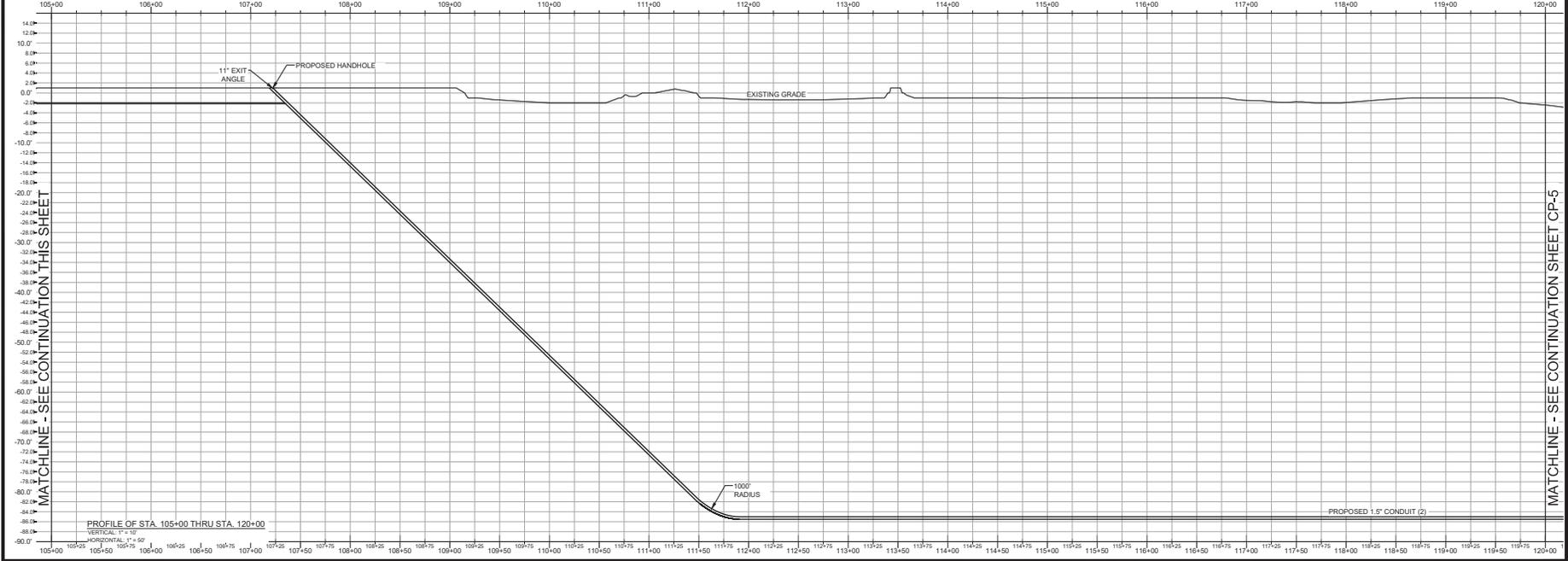
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DATE: JULY 2019
JOB NUMBER: 190033
SCALE: AS NOTED
DRAWN BY: AW W. BONNETT
DESIGNED BY:
APPROVED BY:
FOLDER REF:
SHEET NO.: 12 OF 16
FILE NO.: CP-3



PROFILE OF STA. 90+00 THRU STA. 105+00
VERTICAL 1" = 4'
HORIZONTAL 1" = 50'



PROFILE OF STA. 105+00 THRU STA. 120+00
VERTICAL 1" = 4'
HORIZONTAL 1" = 50'

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MATCHLINE - SEE CONTINUATION THIS SHEET

MATCHLINE - SEE CONTINUATION SHEET CP-5

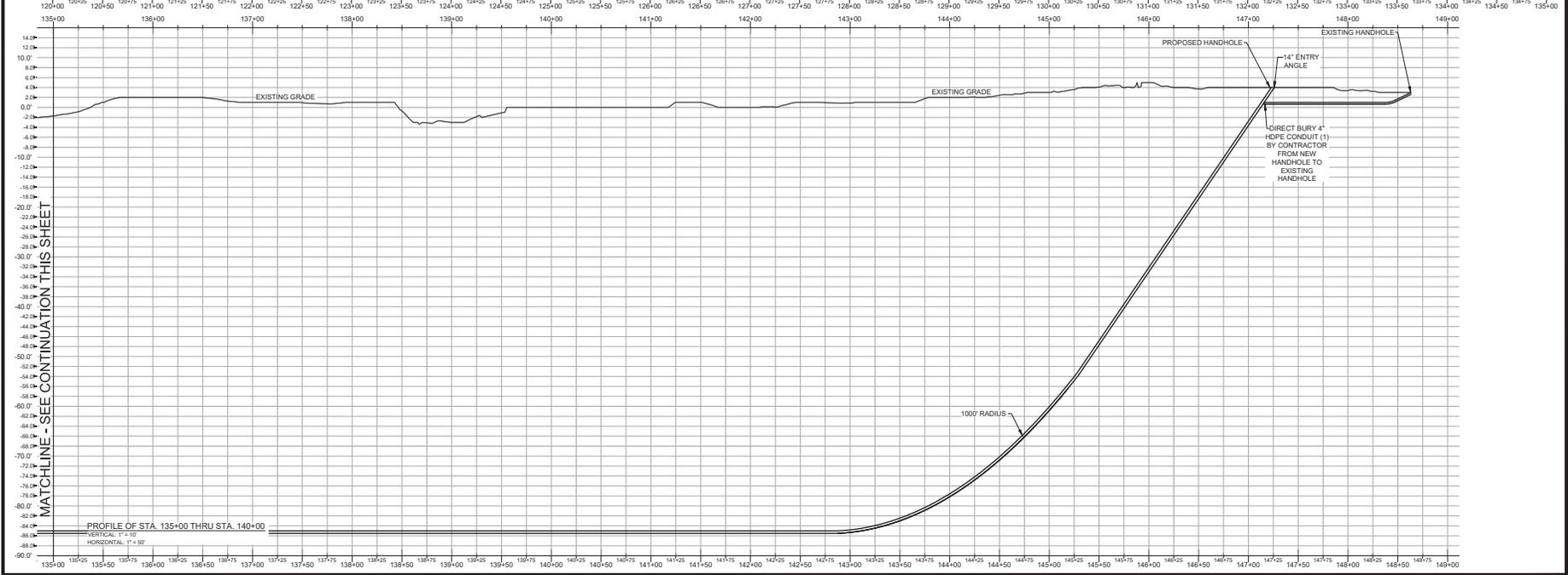
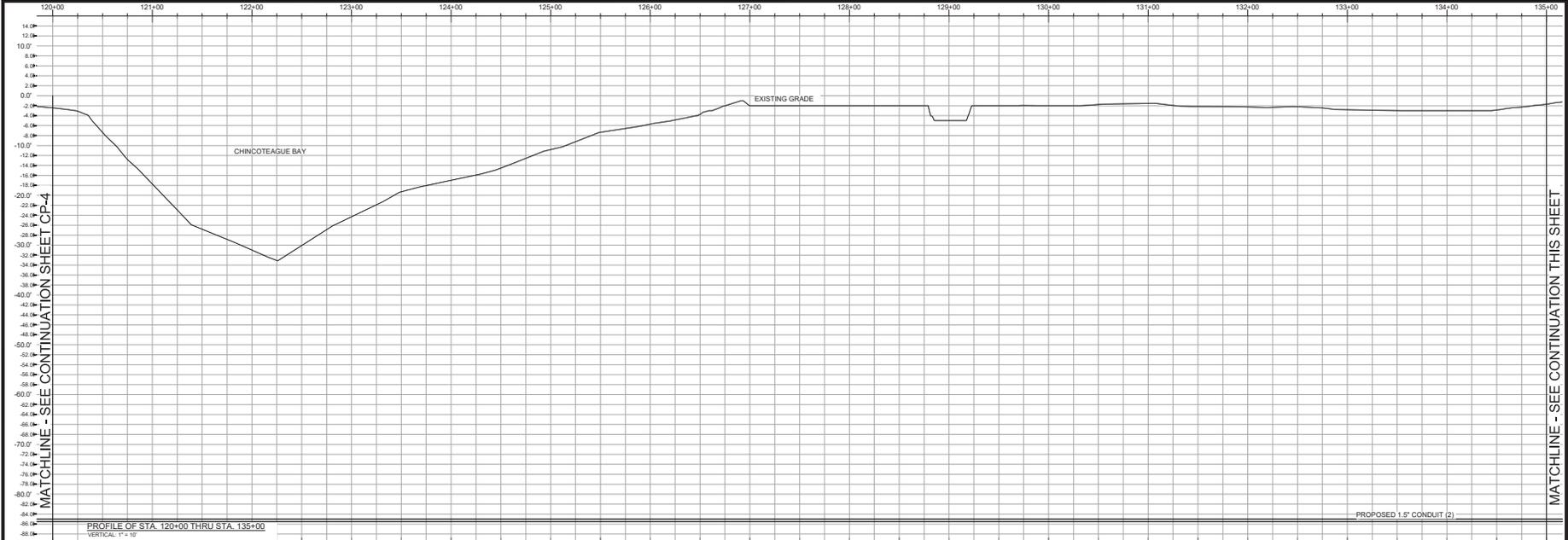
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Checked by: [Signature] Date: [Blank]
Reviewed by: [Signature] Date: [Blank]

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FILE NO.: CP-4



MATCHLINE - SEE CONTINUATION SHEET CP-4

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10	08/26/2019	PER CLIENT COMMENTS

DATE:	JULY 2019
JOB NUMBER:	190033
SCALE:	AS NOTED
DRAWN BY:	AW W. BONNETT
DESIGNED BY:	
APPROVED BY:	
FOLDER REF:	
SHEET NO.:	14 OF 16
FILE NO.:	CP-5

MARSH FIBER UPGRADE
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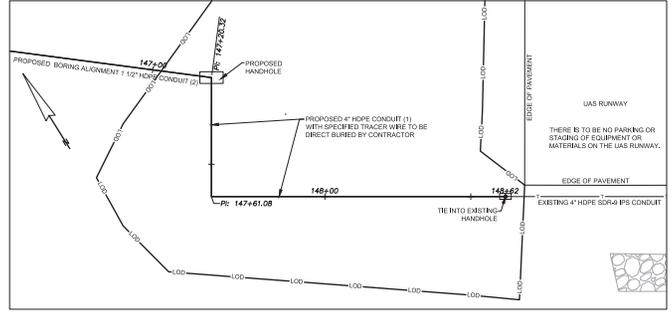
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JOB NUMBER:	190033
SCALE:	AS NOTED
DRAWN BY:	AW / W. BONNETT
DESIGNED BY:	
APPROVED BY:	
FOLDER REF:	
SHEET NO.:	15 OF 16
FILE NO.:	CD-1

VIRGINIA EROSION AND SEDIMENT CONTROL MINIMUM STANDARDS

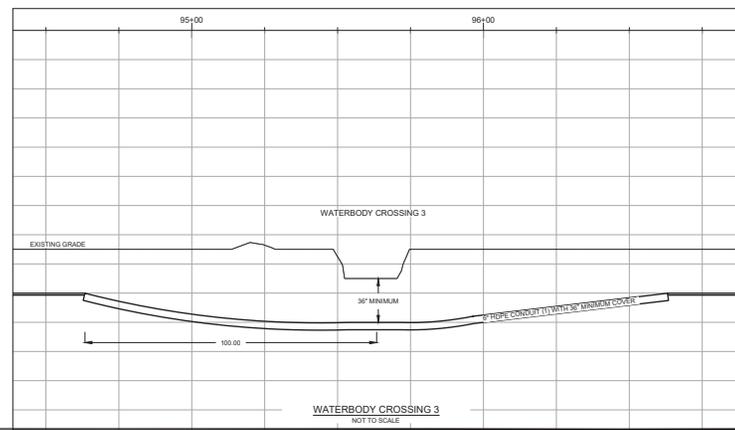
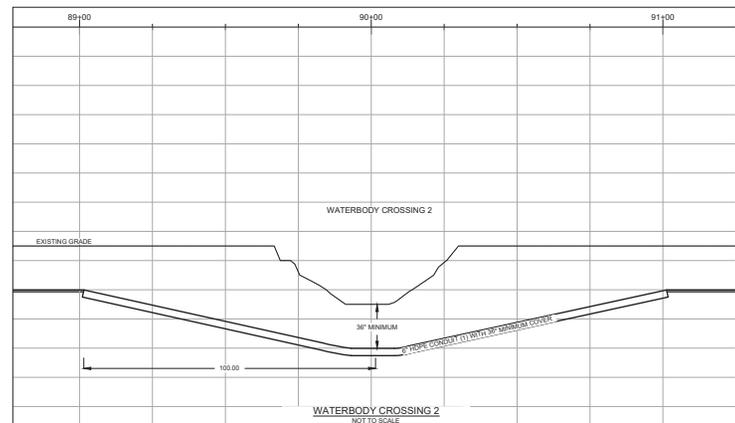
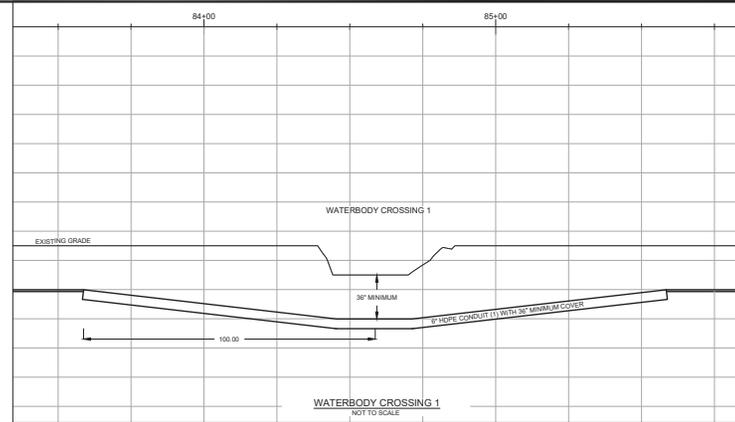
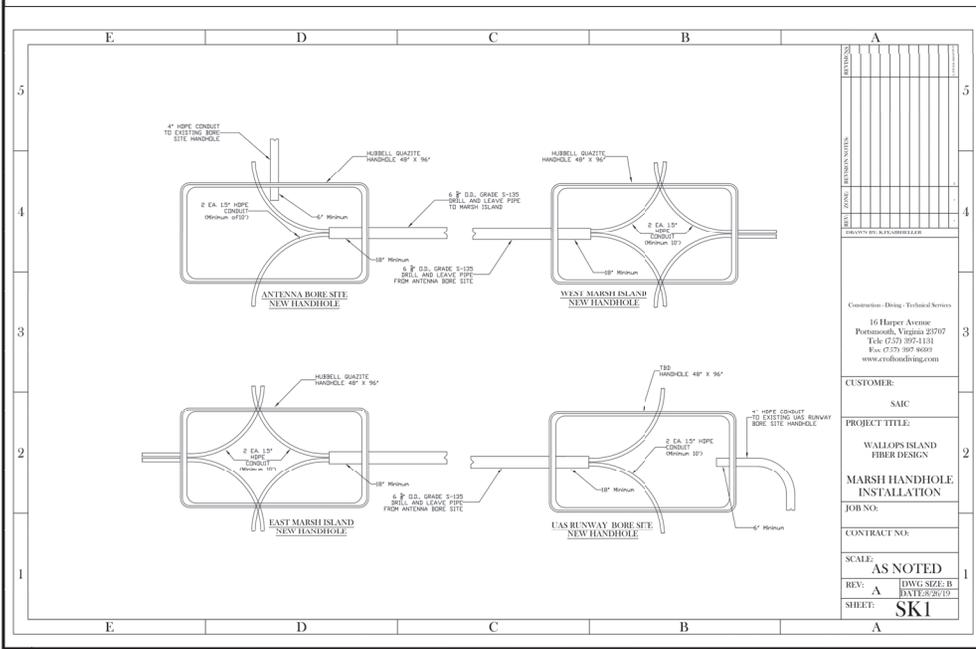
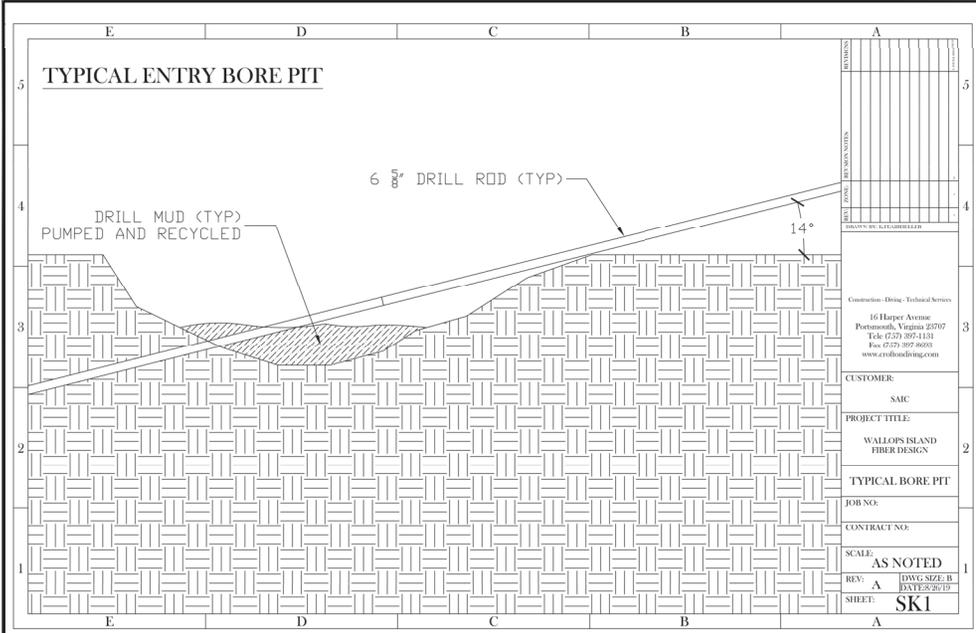
A VESCP must be consistent with the following criteria, techniques and methods:

- Permanent or temporary soil stabilization shall be applied to denuded areas within seven days after final grade is reached on any portion of the site. Temporary soil stabilization shall be applied within seven days to denuded areas that may not be at final grade but will remain denuded for longer than 14 days. Permanent stabilization shall be applied to areas that are to be left denuded for more than one year.
- During construction of the project, soil stock piles and borrow areas shall be stabilized or protected with sediment trapping measures. The applicant is responsible for the temporary protection and permanent stabilization of soil stockpiles on site as well as borrow areas and soil intentionally transported from the project site.
- A permanent vegetative cover shall be established on denuded areas not otherwise permanently stabilized. Permanent vegetation shall not be considered established until a ground cover is achieved that is uniform, mature enough to survive and will inhibit erosion.
- Sediment basins and traps, perimeter dikes, sediment barriers and other measures (flexible) to trap sediment shall be constructed as a first step in any land-disturbing activity and shall be made functional before land disturbance takes place.
- Stabilization measures shall be applied to earthen structures such as dams, dikes and diversions immediately after installation.
- Stabilization traps and sediment basins shall be designed and constructed based upon the total drainage area to be served by the trap or basin.
 - The minimum storage capacity of a sediment trap shall be 134 cubic yards per acre of drainage area and the trap shall only control drainage areas less than three acres.
 - Surface runoff from disturbed areas that is comprised of flow from drainage areas greater than or equal to three acres shall be controlled by a sediment basin. The minimum storage capacity of a sediment basin shall be 134 cubic yards per acre of drainage area. The outlet system shall, at a minimum, maintain the structural integrity of the basin during a 25-year storm of 24-hour duration. Runoff coefficients used in runoff calculations shall correspond to a bare earth condition or those conditions expected to exist while the sediment basin is utilized.
- Cut and fill slopes shall be designed and constructed in a manner that will minimize erosion. Slopes that are found to be eroding excessively within one year of permanent stabilization shall be provided with additional slope stabilizing measures until the problem is corrected.
- Contourcut runoff shall not flow down cut or fill slopes unless contained within an adequate temporary or permanent channel, flume or slope stave structure.
- Whenever water seeps from a slope face, adequate drainage or other protection shall be provided.
- All storm sewer inlets that are made operational during construction shall be protected so that sediment-laden water cannot enter the conveyance system without first being filtered or otherwise treated to remove sediment.
- Before newly constructed stormwater conveyance channels or pipes are made operational, adequate outlet protection and any required temporary or permanent channel lining shall be installed in both the conveyance channel and receiving channel.
- When work in a live watercourse is performed, precautions shall be taken to minimize encroachment, control sediment transport and stabilize the work area to the greatest extent possible during construction. Nonerodible material shall be used for the construction of cofferdams and cofferdams. Earthen fill may be used for these structures if armored by nonerodible cover materials.
- When a live watercourse must be crossed by construction vehicles more than twice in any six-month period, a temporary vehicular stream crossing constructed of nonerodible material shall be provided.
- All applicable federal, state and local requirements pertaining to working in or crossing live watercourses shall be met.
- The bed and banks of a watercourse shall be stabilized immediately after work in the watercourse is completed.
- Underground utility lines shall be installed in accordance with the following standards in addition to other applicable criteria:
 - No more than 500 linear feet of trench may be opened at one time.
 - Excavator material shall be placed on the uphill side of trenches.
- Effluent from dewatering operations shall be filtered or passed through an approved sediment trapping device, or both, and discharged in a manner that does not adversely affect flowing streams or off-site property.
- Material used for backfilling trenches shall be properly compacted in order to minimize erosion and promote stabilization.
- Restabilization shall be accomplished in accordance with this chapter.
- Applicable safety requirements shall be complied with.
- Where construction vehicle access routes intersect paved or public roads, provisions shall be made to minimize the transport of sediment by vehicular tracking onto the paved roadway. Where sediment is transported onto a paved or public road surface, the road surface shall be cleaned thoroughly by the end of each day. Sediment shall be removed from the roads by hosing or sweeping and transported to a sediment control disposal area. Street washing shall be allowed only after sediment is removed in this manner. This provision shall apply to individual development lots as well as to larger land-disturbing activities.
- All temporary erosion and sediment control measures shall be removed within 30 days after final site stabilization or after the temporary measures are no longer needed, unless otherwise authorized by the VESCP authority. Regrasp sediment and the disturbed soil areas resulting from the disposition of temporary measures shall be permanently stabilized to prevent further erosion and sedimentation.

- Properties and waterways downstream from development sites shall be protected from sediment deposition, erosion and damage due to increases in volume, velocity and peak flow rate of stormwater runoff for the stated frequency storm of 24-hour duration in accordance with the following standards and criteria. Erosion restoration and relocation projects that incorporate natural channel design concepts and non-man-made channels shall be exempt from any flow rate capacity and velocity requirements for natural or man-made channels.
 - Concentration and stormwater runoff having a development site shall be discharged directly into an adequate natural or man-made receiving channel, pipe or storm sewer system. For those sites where runoff is discharged into a pipe or pipe system, downstream stability analyses at the outlet of the pipe or pipe system shall be performed.
 - Adequacy of all channels and pipes shall be verified in the following manner:
 - The applicant shall demonstrate that the total drainage area to the point of analysis within the channel is 100 times greater than the contributing drainage area of the project in question;
 - (a) Natural channels shall be analyzed by the use of a two-year storm to verify that stormwater will not overtop channel banks nor cause erosion of channel bed or banks;
 - (b) All previously constructed man-made channels shall be analyzed by the use of a 10-year storm to verify that stormwater will not overtop its banks and by the use of a two-year storm to demonstrate that stormwater will not cause erosion of channel bed or banks; and
 - (c) Pipes and storm sewer systems shall be analyzed by the use of a 10-year storm to verify that stormwater will be contained within the pipe or system;
 - If existing natural receiving channels or previously constructed non-man-made channels or pipes are not adequate, the applicant shall:
 - Improve the channels to a condition where a 10-year storm will not overtop the banks and a two-year storm will not cause erosion to the channel, the bed, or the banks;
 - Improve the pipe or pipe system to a condition where the 10-year storm is contained within the appurtenances;
 - Develop a site design that will not cause the pre-development peak runoff rate from a two-year storm to increase when runoff outfalls into a natural channel or will not cause the pre-development peak runoff rate from a 10-year storm to increase when runoff outfalls into a man-made channel; or
 - Provide a combination of channel improvement, stormwater detention or other measures which is satisfactory to the VESCP authority to prevent downstream erosion.
 - The applicant shall provide evidence of permission to make the improvements.
 - All hydrologic analyses shall be based on the existing watershed characteristics and the ultimate development condition of the subject project.
 - If the applicant chooses an option that includes stormwater detention, he shall obtain approval from the VESCP of a plan for maintenance of the detention facilities. The plan shall set forth the maintenance requirements of the facility and the person responsible for performing the maintenance.
 - Outfall from a detention facility shall be discharged to a receiving channel, and energy dissipators shall be placed at the outlet of all detention facilities as necessary to provide a stabilized transition from the facility to the receiving channel.
 - On-site channels shall be verified to be adequate.
 - Increased volumes of sheet flows that may cause erosion or sedimentation on adjacent property shall be diverted to a stable outlet, adequate channel, pipe or pipe system, or to a detention facility.
 - In applying these stormwater management criteria, individual lots or parcels in a residential, commercial or industrial development shall not be considered to be separate development projects. Instead, the development, as a whole, shall be considered to be a single development project. Hydrologic parameters that reflect the ultimate development condition shall be used in all engineering calculations.
 - All measures used to protect properties and waterways shall be employed in a manner which minimizes impacts on the physical, chemical and biological integrity of rivers, streams and other waters of the state.
 - Any plan approved prior to July 1, 2014, that provides for stormwater management that addresses any flow rate capacity and velocity requirements for natural or man-made channels shall satisfy the flow rate capacity and velocity requirements for natural or man-made channels if the practices are designed to (i) detain the water quality volume and to release it over 48 hours (1) detain and release over a 24-hour period the expected rainfall resulting from the one-year, 24-hour storm; and (ii) reduce the ultimate peak flow rate resulting from the 15, 2, and 10-year, 24-hour storms to a level that is less than or equal to the peak flow rate from the site assuming a 4-year peak release condition, achieved through multiplication of the treated peak flow rate by a reduction factor that is equal to the runoff volume from the site when it was in a good forested condition divided by the runoff volume from the site in its proposed condition; and shall be exempt from any flow rate capacity and velocity requirements for natural or man-made channels as defined in any regulations promulgated pursuant to § 62.1-44, 15.54 or 62.1-44, 15.65 of the Act.
 - For plans approved on and after July 1, 2014, the flow rate capacity and velocity requirements of § 62.1-44, 15.52 A of the Act and the subsection shall be satisfied by compliance with water quality requirements in the Stormwater Management Act (§ 62.1-44, 15.24 et seq. of the Code of Virginia) and attendant regulations, unless such land-disturbing activities (i) are in accordance with provisions for the limits of applicability of approved design criteria in § 62.1-44, 15.47 or grandfathering in § 62.1-44, 15.48 of the Virginia Stormwater Management Program (VSMMP) Regulations, in which case the flow rate, capacity and velocity requirements of § 62.1-44, 15.52 A of the Act shall apply; or (ii) are exempt pursuant to § 62.1-44, 15.34 C7 of the Act.
 - Compliance with the water quality minimum standards set out in § 62.1-44, 15.48 of the Virginia Stormwater Management Program (VSMMP) Regulation shall be deemed to satisfy the requirements of this subdivision 15.



UAS RUNWAY BORE SITE
 SCALE: 1" = 20'



DETAILS

MARSH FIBER UPGRADE

NASA WALLOPS FLIGHT FACILITY

WALLOPS ISLAND
ACCOMACK COUNTY, VIRGINIA

PREPARED FOR: CROFTON OLING | SPRING ASSOCIATES

Professional Certification:
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www.rauchdesign.com

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DATE: JULY 2019

JOB NUMBER: 190033

SCALE: AS NOTED

DRAWN BY: AW W. BONNETT

DESIGNED BY:

APPROVED BY:

FOLDER REF:

SHEET NO.: 16 OF 16

FILE NO.: CD-2

Appendix C: Wetland Delineation Index Map and Impact Areas Maps

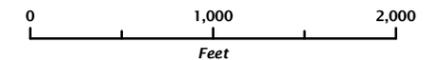


Legend

- New Handhole
- Existing Handhole
- Proposed Marsh Fiber Path
- Previous Marsh Fiber Path Alignment
- Impact Area Index
- Project Area as of July 2020 (200-foot Width)
- Previous Alignment Delineation Limits

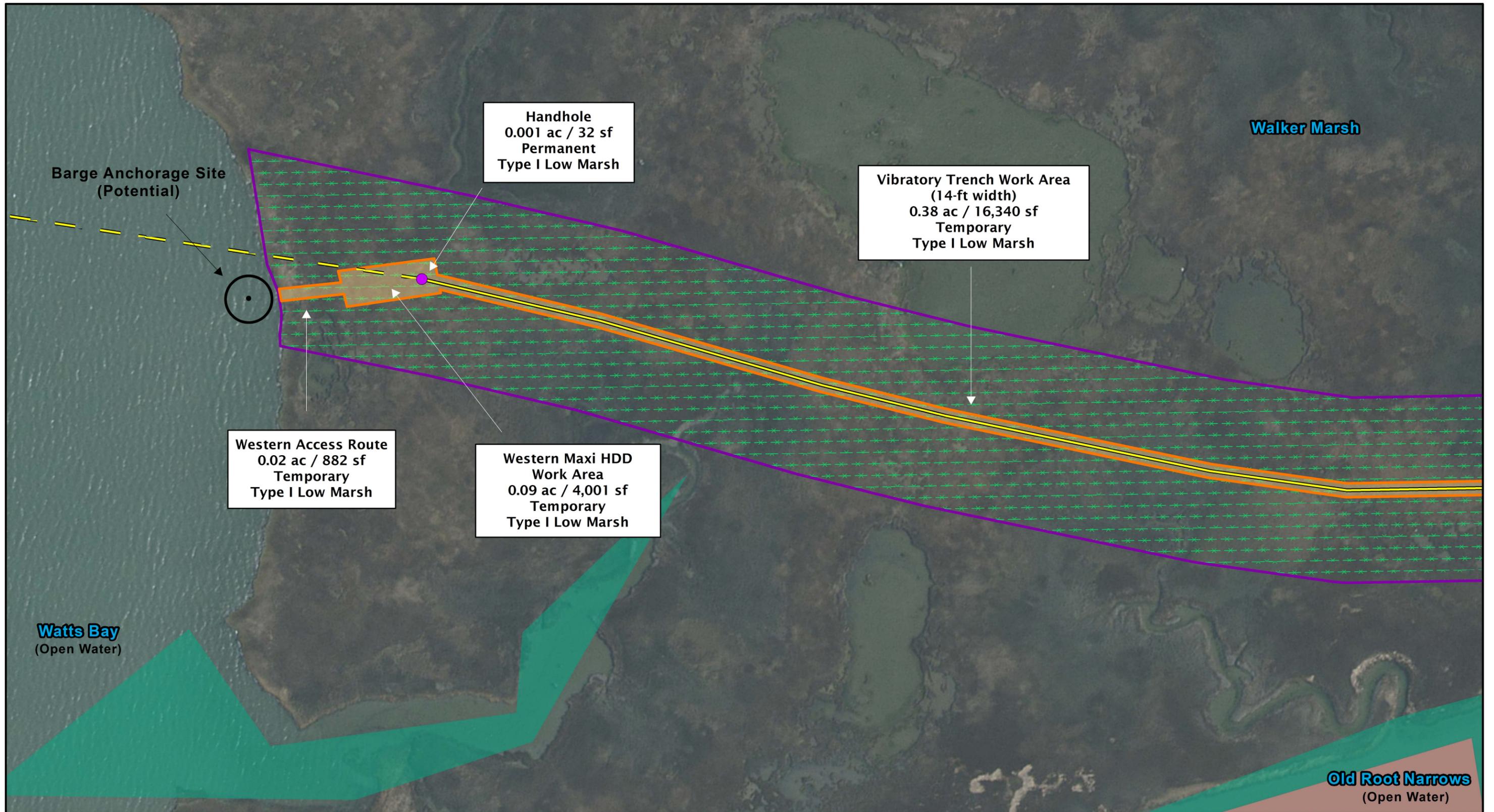


PROJECT OVERVIEW AND INDEX MAP



NASA WFF Marsh Fiber JPA

Sources: NASA, VGIN VBMP 2017 Orthoimagery / Prepared by: 3e 19-756 MM 07/23/2020
Projection: NAD 1983 StatePlane Virginia South FIPS 4502 Feet

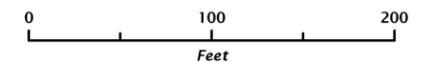


Legend

- New Handhole
- Proposed Marsh Fiber Vibratory Trench Path
- Proposed Marsh Fiber HDD Path
- Project Area/Delineation Limits
- HDD Limits of Disturbance (LOD)
- E2EM1N Low Marsh Wetland
- Private Oyster Ground Leases
- Baylor Grounds (Public Oyster Grounds)

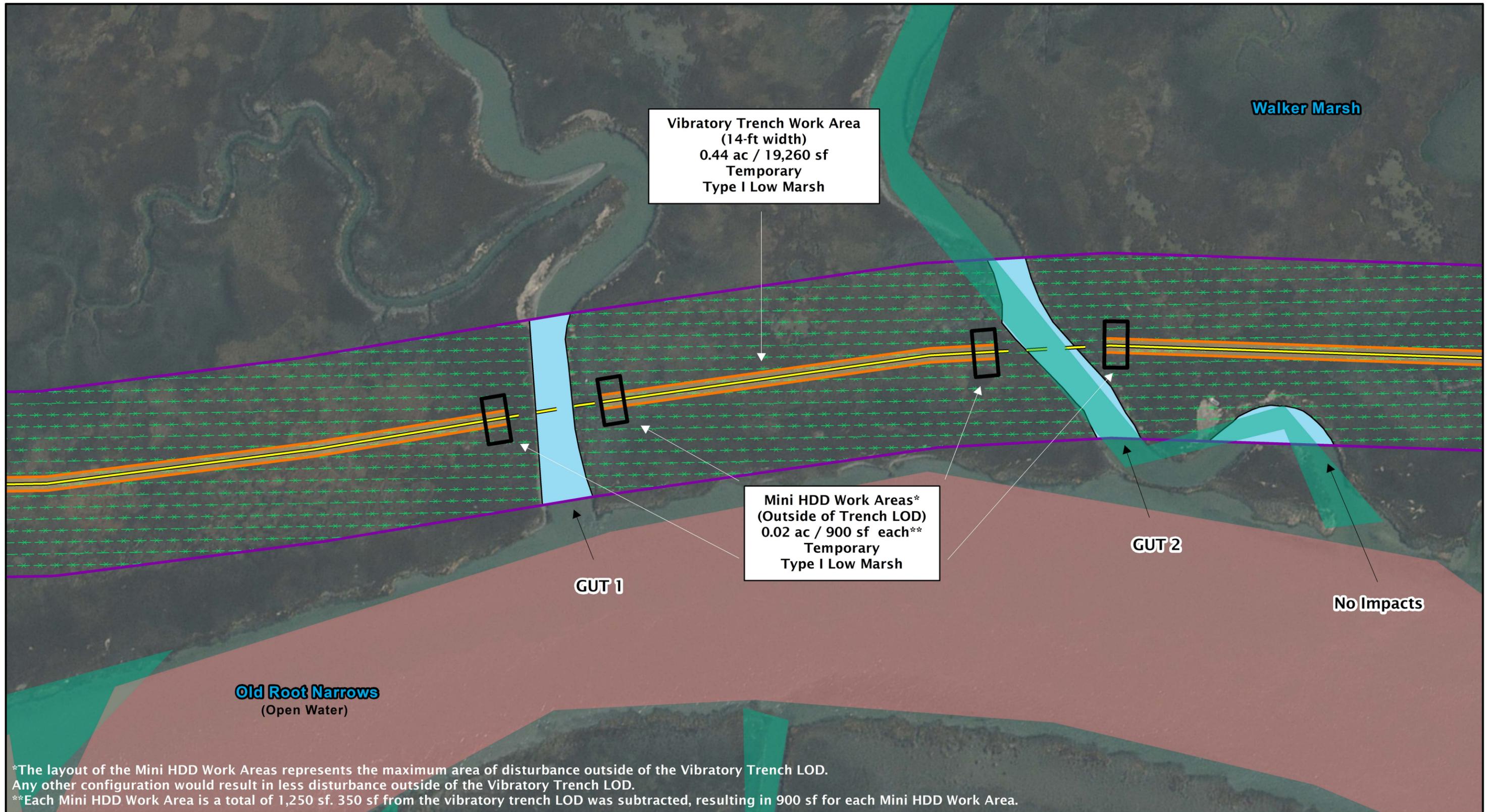


**IMPACT AREA 1
WALKER MARSH**



NASA WFF Marsh Fiber JPA

Sources: NASA, VGIN VBMP 2017 Orthoimagery / Prepared by: 3e 19-756 MM 04/08/2020 / Projection: NAD 1983 StatePlane Virginia South FIPS 4502 Feet



*The layout of the Mini HDD Work Areas represents the maximum area of disturbance outside of the Vibratory Trench LOD. Any other configuration would result in less disturbance outside of the Vibratory Trench LOD.
 **Each Mini HDD Work Area is a total of 1,250 sf. 350 sf from the vibratory trench LOD was subtracted, resulting in 900 sf for each Mini HDD Work Area.

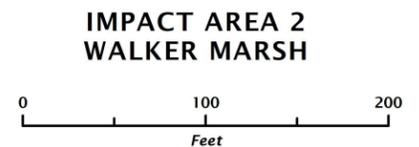


Legend

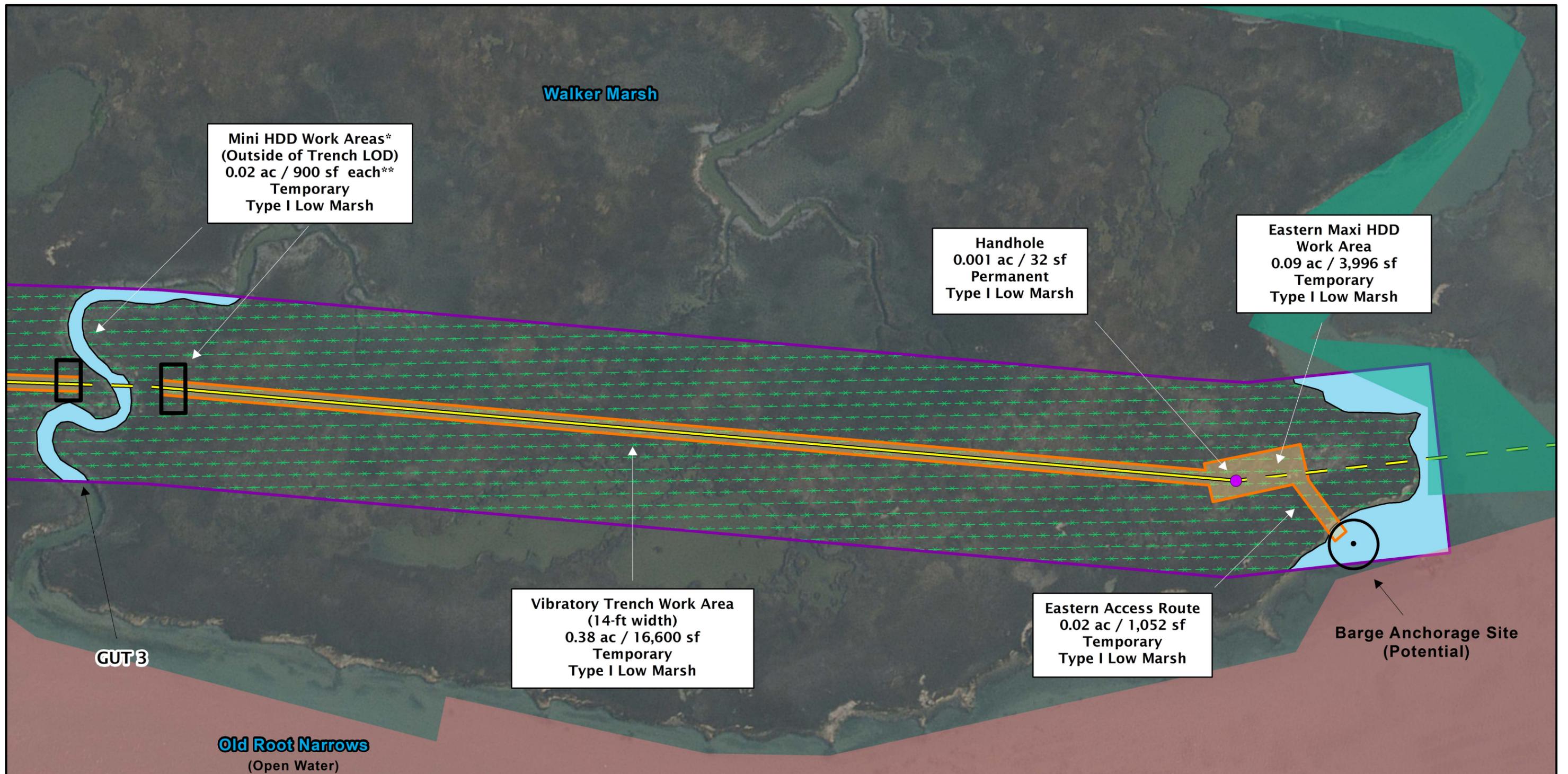
- Proposed Marsh Fiber Vibratory Trench Path
- Proposed Marsh Fiber HDD Path

- HDD Limits of Disturbance (LOD)
- Project Area/Delineation Limits
- Private Oyster Ground Leases

- E2EM1N Low Marsh Wetland
- Open Water/Unconsolidated Bottom (E1UBL)
- Baylor Grounds (Public Oyster Grounds)



NASA WFF Marsh Fiber JPA



*The layout of the Mini HDD Work Areas represents the maximum area of disturbance outside of the Vibratory Trench LOD.

Any other configuration would result in less disturbance outside of the Vibratory Trench LOD.

**Each Mini HDD Work Area is a total of 1,250 sf. 350 sf from the vibratory trench LOD was subtracted, resulting in 900 sf for each Mini HDD Work Area.

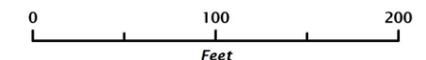


Legend

- New Handhole
- HDD Limits of Disturbance (LOD)
- E2EM1N Low Marsh Wetland
- Proposed Marsh Fiber Vibratory Trench Path
- Project Area/Delineation Limits
- Open Water/Unconsolidated Bottom (E1UBL)
- Proposed Marsh Fiber HDD Path
- Private Oyster Ground Leases
- Baylor Grounds (Public Oyster Grounds)



**IMPACT AREA 3
WALKER MARSH**



NASA WFF Marsh Fiber JPA

Appendix D: PJD Package and Wetland Report



DEPARTMENT OF THE ARMY
US ARMY CORPS OF ENGINEERS
NORFOLK DISTRICT
FORT NORFOLK
803 FRONT STREET
NORFOLK VA 23510-1011

January 28, 2020

PRELIMINARY JURISDICTIONAL DETERMINATION

Eastern Virginia Regulatory Section
NAO-2019-2038 (Watts Bay, Old Root Narrows, and The Narrows)

Shari A. Miller
Center NEPA Manager &
Environmental Planning Lead
NASA GSFC Wallops Flight Facility
Wallops Island, VA 23337

Dear Ms. Miller:

This letter is in regard to your request for a preliminary jurisdictional determination for waters of the U.S. (including wetlands) within the construction limits of the project known as NASA WFF Marsh Fiber.

The maps entitled "Figure 7, Potential Waters of the US Delineation Map, UAS Airstrip", "Figure 8, Potential Waters of the US Delineation Map, Boresight Antenna", "Figure 9, Potential Waters of the US Delineation Map, Walker Marsh", and Figure 10 "Mapped Potential WOUS in Watts Bay, Old Root Narrows and Proximal Areas" (*copy enclosed*) provides the location(s) of waters and/or wetlands within the limits of the project listed above. The basis for this delineation includes application of the Corps' 1987 Wetland Delineation Manual, the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Atlantic and Gulf Coastal Plain Region*, positive indicators of wetland hydrology, hydric soils, and hydrophytic vegetation and the presence of an ordinary high water mark. This letter is not confirming the Cowardin classifications of these aquatic resources.

The Norfolk District has relied on the information and data provided by the applicant or agent. If such information and data subsequently prove to be materially false or materially incomplete, this verification may be suspended or revoked, in whole or in part, and/or the Government may institute appropriate legal *proceedings*.

Discharges of dredged or fill material, including those associated with mechanized landclearing, into waters and/or wetlands on this site may require a Department of the Army permit and authorization by state and local authorities including a Virginia Water Protection Permit from the Virginia Department of Environmental Quality (DEQ), a permit from the Virginia Marine Resources Commission (VMRC) and/or a permit from your local wetlands board. This letter is a confirmation of the Corps preliminary jurisdiction for the waters and/or wetlands on the subject property and does not

authorize any work in these areas. Please obtain all required permits before starting work in the delineated waters/wetland areas.

This is a preliminary jurisdictional determination and is therefore not a legally binding determination regarding whether Corps jurisdiction applies to the waters or wetlands in question. Accordingly, you may either consent to jurisdiction as set out in this preliminary jurisdictional determination and the attachments hereto if you agree with the determination, or you may request and obtain an approved jurisdictional determination. This preliminary jurisdictional determination and associated wetland delineation map may be submitted with a permit application.

Enclosed is a copy of the "Preliminary Jurisdictional Determination Form". Please review the document, sign, and return one copy to me either via email (brian.c.denson@usace.army.mil) or via standard mail to US Army Corps of Engineers, Regulatory Office, and ATTN: Mr. Brian Denson, 803 Front Street Norfolk, Virginia 23510 within 30 days of receipt and keep one for your records. This delineation of waters and/or wetlands can be relied upon for no more than five years from the date of this letter. New information may warrant revision.

If you have any questions, please contact me either via telephone at (757) 201-7792 or via email at the address above. Please include your NAO project number within the subject line.

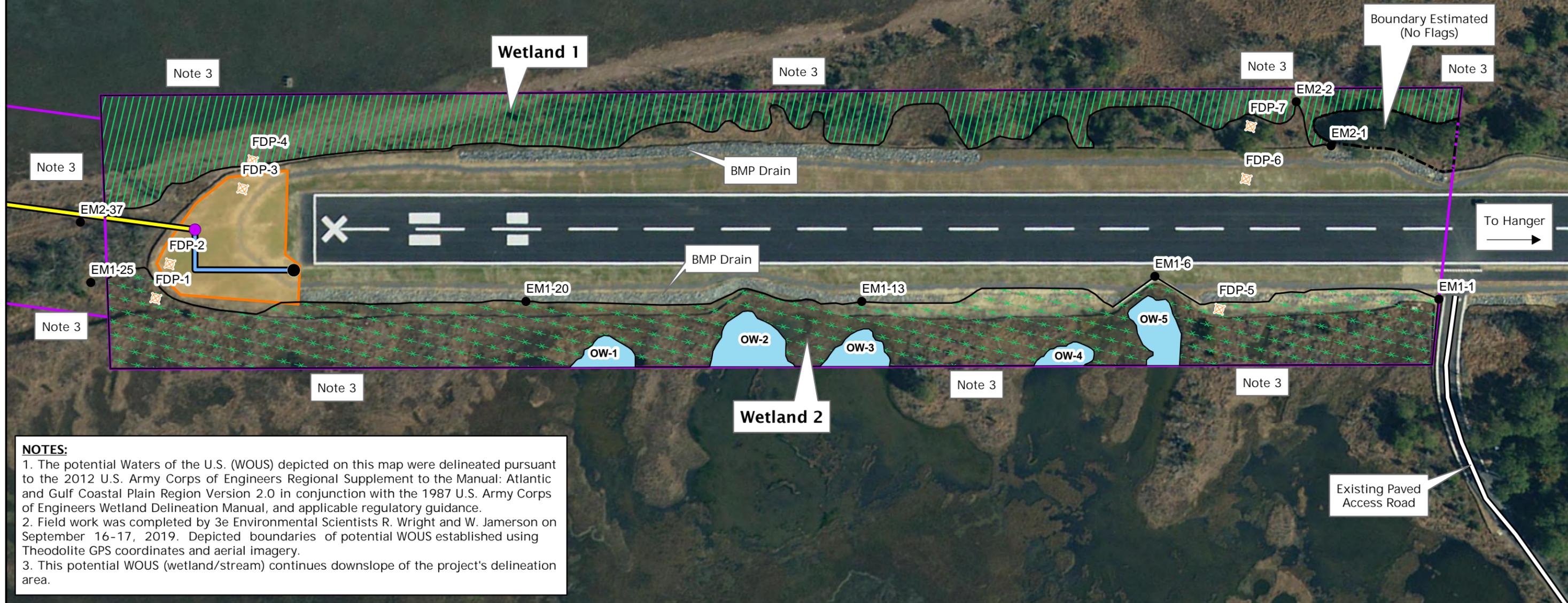
Sincerely,



Brian Denson
Project Manager Eastern Virginia
Regulatory Section

Enclosure(s): Referenced Delineation Maps, Preliminary JD Form

Waters ID	Latitude	Longitude	Quantity/Units		Type	Waters ID	Latitude	Longitude	Quantity/Units		Type*
			Acres/Linear Feet						Acres/Linear Feet		
Wetlands					Other Estuarine Waters						
Wetland 1	37.531415	-75.262930	1.50		E2EM1P	Open Water 1	37.531252	-75.262830	0.03		E1UBL
Wetland 2	37.537642	-75.262930	1.96		E2EM1N	Open Water 2	37.531171	-75.262552	0.08		E1UBL
WETLANDS TOTAL (Acres)			3.46			Open Water 3	37.531104	-75.262427	0.04		E1UBL
Coordinates in centroid location in decimal degrees; No boundaries have been verified by regulatory agencies.						Open Water 4	37.530980	-75.262250	0.02		E1UBL
Authority for WOUS is Section 404/401 and/or Section 10						Open Water 5	37.530952	-75.262096	0.06		E1UBL
See report for acronym codes for Cowardin classes.						OTHER ESTUARINE WATERS TOTAL (Acres)		0.23			E1UBL



NOTES:
1. The potential Waters of the U.S. (WOUS) depicted on this map were delineated pursuant to the 2012 U.S. Army Corps of Engineers Regional Supplement to the Manual: Atlantic and Gulf Coastal Plain Region Version 2.0 in conjunction with the 1987 U.S. Army Corps of Engineers Wetland Delineation Manual, and applicable regulatory guidance.
2. Field work was completed by 3e Environmental Scientists R. Wright and W. Jamerson on September 16-17, 2019. Depicted boundaries of potential WOUS established using Theodolite GPS coordinates and aerial imagery.
3. This potential WOUS (wetland/stream) continues downslope of the project's delineation area.



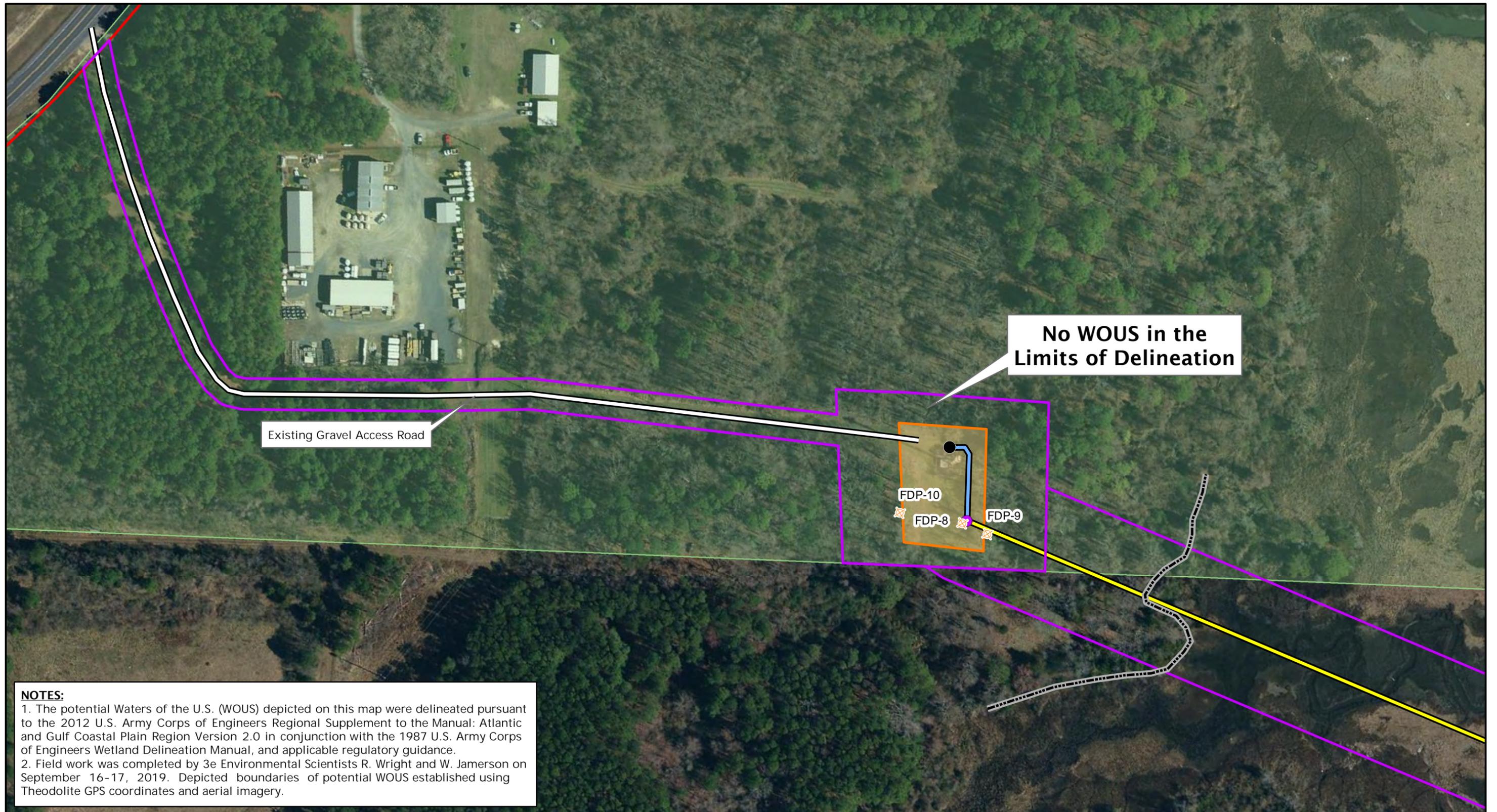
Legend

- New Handhole
- Existing Handhole
- ⊕ Field Data Points (FDP)
- Flag Points
- Proposed Marsh Fiber Path
- Open Trench
- Access Road
- Project Review Area/Delineation Area
- HDD Work Area
- Wallops Flight Facility Boundary
- Wetland 1 - EM2 (E2EM1P) High Marsh
- Wetland 2 - EM1 (E2EM1N) Low Marsh
- Boundary Estimated, No Flags
- Open Water/Unconsolidated Bottom (E1UBL)

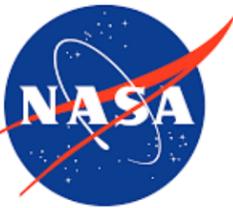
Sources: NASA, VGIN VBMP 2017 Orthoimagery / Prepared by: 3e 19-756 MM 10/03/2019 / Projection: NAD 1983 StatePlane Virginia South FIPS 4502 Feet

FIGURE 7
POTENTIAL WATERS OF THE U.S. DELINEATION MAP
UAS AIRSTRIP

NASA WFF Marsh Fiber



NOTES:
 1. The potential Waters of the U.S. (WOUS) depicted on this map were delineated pursuant to the 2012 U.S. Army Corps of Engineers Regional Supplement to the Manual: Atlantic and Gulf Coastal Plain Region Version 2.0 in conjunction with the 1987 U.S. Army Corps of Engineers Wetland Delineation Manual, and applicable regulatory guidance.
 2. Field work was completed by 3e Environmental Scientists R. Wright and W. Jamerson on September 16-17, 2019. Depicted boundaries of potential WOUS established using Theodolite GPS coordinates and aerial imagery.



Legend

- New Handhole
- Existing Handhole
- ⊕ Field Data Points (FDP)
- Proposed Marsh Fiber Path
- Open Trench
- Access Road
- Estimated (No Flags) Landward Boundary of Tidal Wetland
- Project Reivew Area/Delineation Limits
- HDD Work Area
- Wallops National Wildlife Refuge
- Wallops Flight Facility Boundary

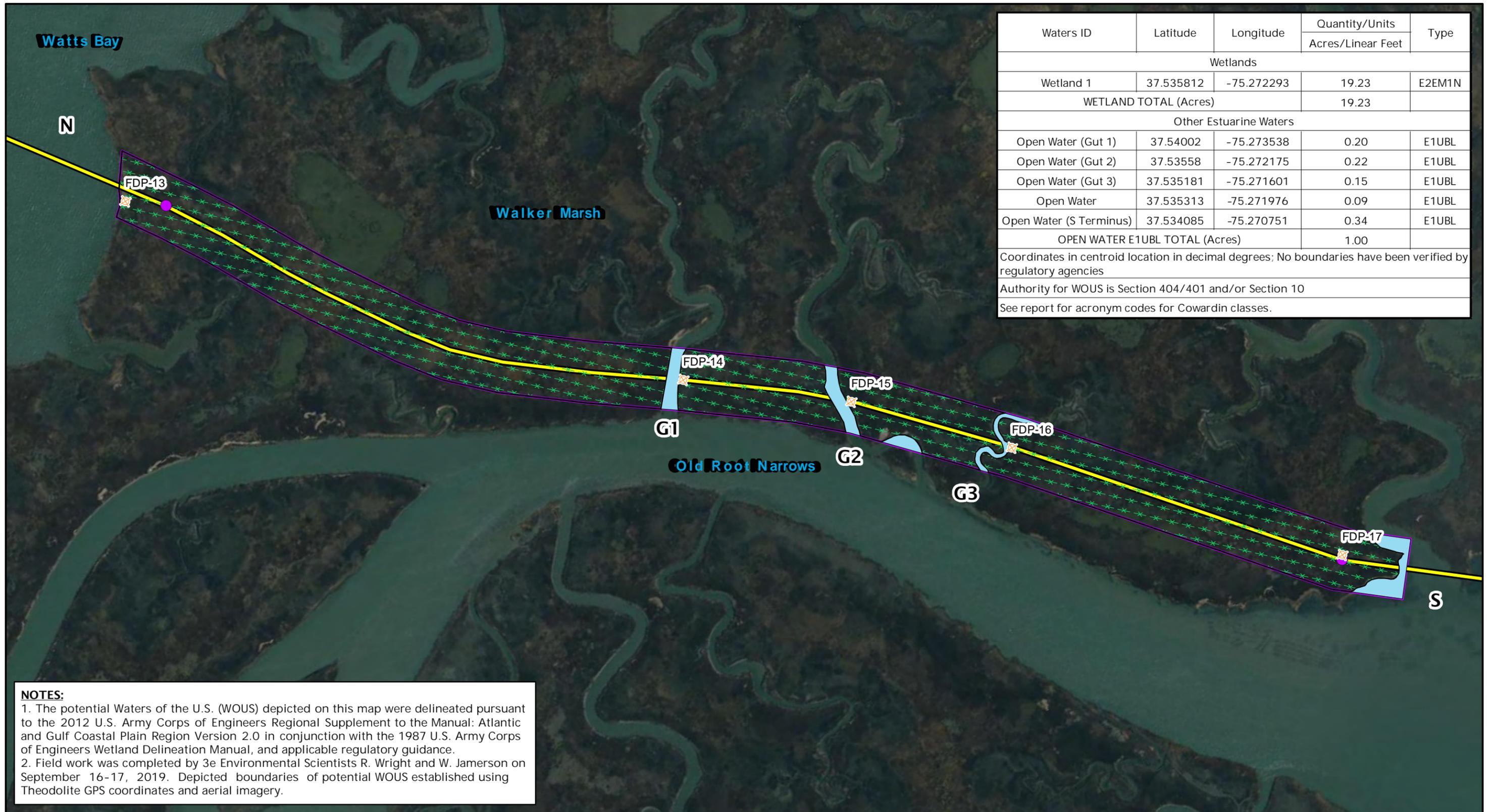


FIGURE 8
POTENTIAL WATERS OF THE U.S. DELINEATION MAP
BORESIGHT ANTENNA

0 150 300
 Feet

NASA WFF Marsh Fiber

Sources: NASA, USFWS, VGIN VBMP 2017 Orthoimagery / Prepared by: 3e 19-756 MM 10/03/2019
 Projection: NAD 1983 StatePlane Virginia South FIPS 4502 Feet



Waters ID	Latitude	Longitude	Quantity/Units	Type
			Acres/Linear Feet	
Wetlands				
Wetland 1	37.535812	-75.272293	19.23	E2EM1N
WETLAND TOTAL (Acres)			19.23	
Other Estuarine Waters				
Open Water (Gut 1)	37.54002	-75.273538	0.20	E1UBL
Open Water (Gut 2)	37.53558	-75.272175	0.22	E1UBL
Open Water (Gut 3)	37.535181	-75.271601	0.15	E1UBL
Open Water	37.535313	-75.271976	0.09	E1UBL
Open Water (S Terminus)	37.534085	-75.270751	0.34	E1UBL
OPEN WATER E1UBL TOTAL (Acres)			1.00	
Coordinates in centroid location in decimal degrees; No boundaries have been verified by regulatory agencies				
Authority for WOUS is Section 404/401 and/or Section 10				
See report for acronym codes for Cowardin classes.				

NOTES:
 1. The potential Waters of the U.S. (WOUS) depicted on this map were delineated pursuant to the 2012 U.S. Army Corps of Engineers Regional Supplement to the Manual: Atlantic and Gulf Coastal Plain Region Version 2.0 in conjunction with the 1987 U.S. Army Corps of Engineers Wetland Delineation Manual, and applicable regulatory guidance.
 2. Field work was completed by 3e Environmental Scientists R. Wright and W. Jamerson on September 16-17, 2019. Depicted boundaries of potential WOUS established using Theodolite GPS coordinates and aerial imagery.



Legend

- New Handhole
- ⊕ Field Data Points (FDP)
- Proposed Marsh Fiber Path

- Project Review Area/Delineation Limits
- Wetland 1 - EM1 (E2EM1N) Low Marsh
- Open Water/Unconsolidated Bottom (E1UBL)

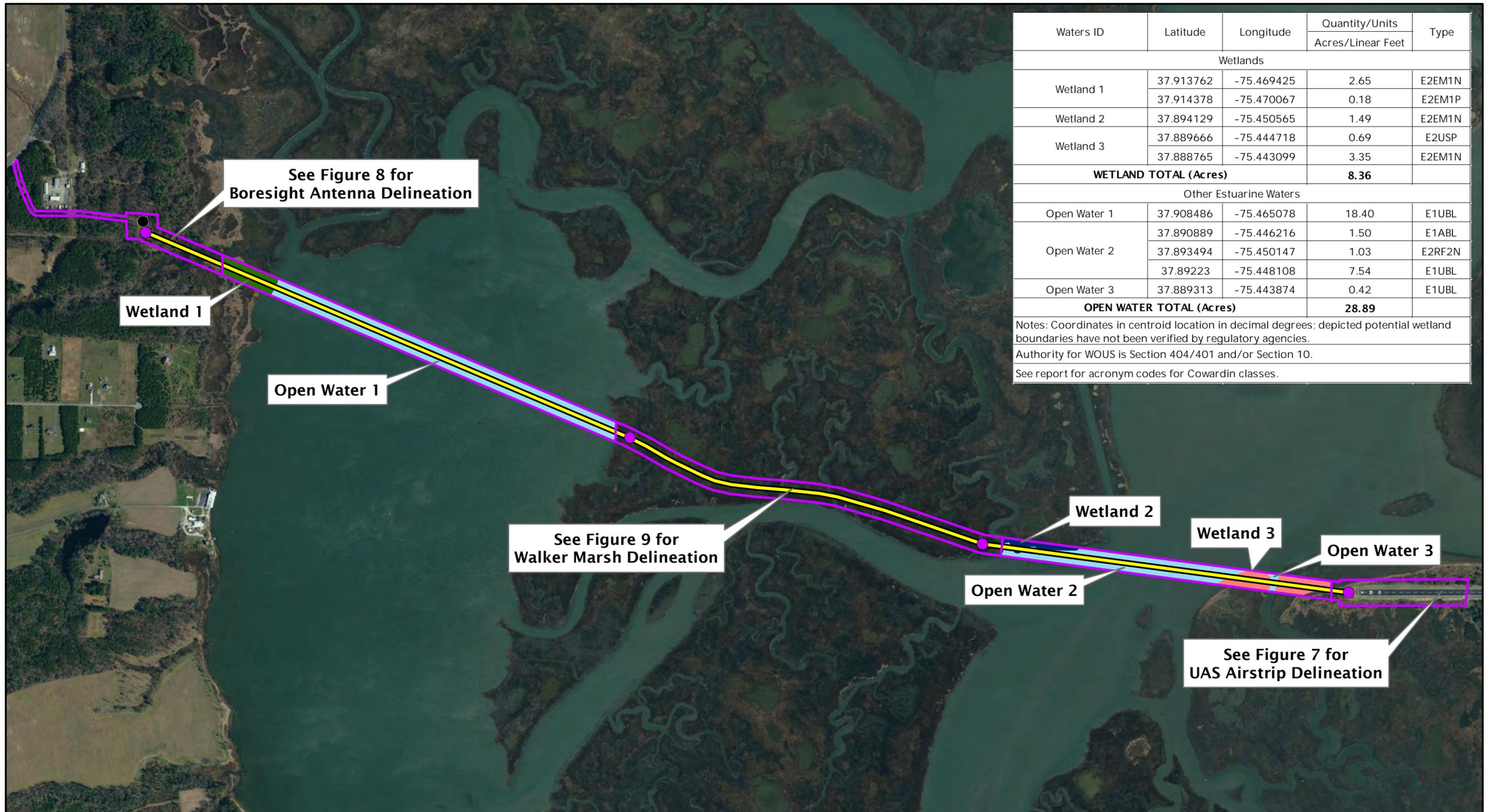


FIGURE 9
POTENTIAL WATERS OF THE U.S. DELINEATION MAP
WALKER MARSH

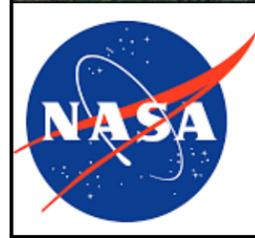
0 300 600
 Feet

NASA WFF Marsh Fiber

Sources: NASA, VGIN VBMP 2017 Ortholmagery / Prepared by: 3e 19-756 MM 10/03/2019
 Projection: NAD 1983 StatePlane Virginia South FIPS 4502 Feet



Waters ID	Latitude	Longitude	Quantity/Units	Type
			Acres/Linear Feet	
Wetlands				
Wetland 1	37.913762	-75.469425	2.65	E2EM1N
	37.914378	-75.470067	0.18	E2EM1P
Wetland 2	37.894129	-75.450565	1.49	E2EM1N
Wetland 3	37.889666	-75.444718	0.69	E2USP
	37.888765	-75.443099	3.35	E2EM1N
WETLAND TOTAL (Acres)			8.36	
Other Estuarine Waters				
Open Water 1	37.908486	-75.465078	18.40	E1UBL
Open Water 2	37.890889	-75.446216	1.50	E1ABL
	37.893494	-75.450147	1.03	E2RF2N
	37.89223	-75.448108	7.54	E1UBL
Open Water 3	37.889313	-75.443874	0.42	E1UBL
OPEN WATER TOTAL (Acres)			28.89	
Notes: Coordinates in centroid location in decimal degrees; depicted potential wetland boundaries have not been verified by regulatory agencies.				
Authority for WOUS is Section 404/401 and/or Section 10.				
See report for acronym codes for Cowardin classes.				



Legend

- New Handhole
- Existing Handhole
- Proposed Marsh Fiber Path
- Project Work Area/Delineation Limits (200-foot width)

Sources: NASA, USFWS NWI, VGIN VBMP 2017 Orthoimagery / Prepared by: 3e 19-756 MM 1/23/2020
 Projection: NAD 1983 StatePlane Virginia South FIPS 4502 Feet

National Wetlands Inventory (NWI)

- Wetland 1 - E2EM1N and E2EM1P
- Wetland 2 - E2EM1N
- Wetland 3 - E2USP and E2EM1N
- Open Water - E1UBL, E1ABL, and E2RF2N

FIGURE 10
MAPPED POTENTIAL WOUS IN WATTS BAY, OLD ROOT NARROWS, AND PROXIMAL AREAS

0 1,000 2,000
 Feet

NASA WFF Marsh Fiber

PRELIMINARY JURISDICTIONAL DETERMINATION FORM

BACKGROUND INFORMATION:

A. REPORT COMPLETION DATE FOR PRELIMINARY JURISDICTIONAL DETERMINATION (JD): Thursday, December 12, 2019

B. NAME AND ADDRESS OF PERSON REQUESTING PRELIMINARY JD:
Shari A. Miller
Center NEPA Manager &
Environmental Planning Lead
NASA GSFC Wallops Flight Facility
Wallops Island, VA 23337

C. DISTRICT OFFICE: Norfolk District (CENAO-REG)

FILE NAME: NASA WFF Marsh Fiber Project

FILE NUMBER: NAO-2019-2038

D. PROJECT LOCATION(S) AND BACKGROUND INFORMATION:
(USE THE ATTACHED TABLE TO DOCUMENT MULTIPLE WATERBODIES AT DIFFERENT SITES)

State: **VIRGINIA** County/parish/borough: City: Chincoteague

Center coordinates of site (lat/long in degree decimal format):

Latitude: 37.535580 ° N Longitude: -75.272175 ° W

Universal Transverse Mercator: WGS 84

Name of nearest waterbody: Watts Bay, Old Root Narrows, and The Narrows

Identify (estimate) amount of waters in the review area:

Non-wetland waters: linear feet; width (ft); and/or 29.51 acres.

Cowardin Class:

Stream Flow:

Wetlands: 34.0 acres

Cowardin Class:

Name of any water bodies on the site that have been identified as Section 10 waters:

Tidal: Watts Bay, Old Root Narrows, and The Narrows

Non-Tidal:

E. REVIEW PERFORMED FOR SITE EVALUATION (CHECK ALL THAT APPLY):

Office (Desk) Determination. Date: December 12, 2019

Field Determination. Date(s):

1. The Corps of Engineers believes that there may be jurisdictional waters of the United States on the subject site, and the permit applicant or other affected party who requested this preliminary JD is hereby advised of his or her option to request and obtain an approved jurisdictional determination (JD) for that site. Nevertheless, the permit applicant or other person who requested this preliminary JD has declined to exercise the option to obtain an approved JD in this instance and at this time.

2. In any circumstance where a permit applicant obtains an individual permit, or a Nationwide General Permit (NWP) or other general permit verification requiring “pre-construction notification” (PCN), or requests verification for a non-reporting NWP or other general permit, and the permit applicant has not requested an approved JD for the activity, the permit applicant is hereby made aware of the following: (1) the permit applicant has elected to seek a permit authorization based on a preliminary JD, which does not make an official determination of jurisdictional waters; (2) that the applicant has the option to request an approved JD before accepting the terms and conditions of the permit authorization, and that basing a permit authorization on an approved JD could possibly result in less compensatory mitigation being required or different special conditions; (3) that the applicant has the right to request an individual permit rather than accepting the terms and conditions of the NWP or other general permit authorization; (4) that the applicant can accept a permit authorization and thereby agree to comply with all the terms and conditions of that permit, including whatever mitigation requirements the Corps has determined to be necessary; (5) that undertaking any activity in reliance upon the subject permit authorization without requesting an approved JD constitutes the applicant’s acceptance of the use of the preliminary JD, but that either form of JD will be processed as soon as is practicable; (6) accepting a permit authorization (e.g., signing a proffered individual permit) or undertaking any activity in reliance on any form of Corps permit authorization based on a preliminary JD constitutes agreement that all wetlands and other water bodies on the site affected in any way by that activity are jurisdictional waters of the United States, and precludes any challenge to such jurisdiction in any administrative or judicial compliance or enforcement action, or in any administrative appeal or in any Federal court; and (7) whether the applicant elects to use either an approved JD or a preliminary JD, that JD will be processed as soon as is practicable. Further, an approved JD, a proffered individual permit (and all terms and conditions contained therein), or individual permit denial can be administratively appealed pursuant to 33 C.F.R. Part 331, and that in any administrative appeal, jurisdictional issues can be raised (see 33 C.F.R. 331.5(a)(2)). If, during that administrative appeal, it becomes necessary to make an official determination whether CWA jurisdiction exists over a site, or to provide an official delineation of jurisdictional waters on the site, the Corps will provide an approved JD to accomplish that result, as soon as is practicable.

3. This preliminary JD finds that there “*may be*” waters of the United States on the subject project site, and identifies all aquatic features on the site that could be affected by the proposed activity, based on the following information:

SUPPORTING DATA:

Data reviewed for preliminary JD (check all that apply) - checked items should be included in case file and, where checked and requested, appropriately reference sources below.

- Maps, plans, plots or plat submitted by or on behalf of the applicant/consultant:

- Data sheets prepared/submitted by or on behalf of the applicant/consultant.
 - Office concurs with data sheets/delineation report.
 - Office does not concur with data sheets/delineation report.
- Data sheets prepared by the Corps:
- Corps navigable waters' study:
- U.S. Geological Survey Hydrologic Atlas:
 - USGS NHD data.
 - USGS 8 and 12 digit HUC maps.
- U.S. Geological Survey map(s). Cite scale & quad name: Chincoteague West
- USDA Natural Resources Conservation Service Soil Survey.

Citation:
- National wetlands inventory map(s). Cite name:
- State/Local wetland inventory map(s):
- FEMA/FIRM maps:
- 100-year Floodplain Elevation: (National Geodetic Vertical Datum of 1929)
- Photographs: Aerial (Name & Date): Google Earth Pro, VGIN
 or Other (Name & Date):
- Previous determination(s):

File no. and date of response letter:
- Other information (please specify):

IMPORTANT NOTE: The information recorded on this form has not necessarily been verified by the Corps and should not be relied upon for later jurisdictional determinations.

BDenson
 Signature
 Regulatory Project Manager
 (REQUIRED)

2019-12-12

 Date

 Signature of person requesting
 Preliminary JD
 (REQUIRED, unless obtaining the signature is impracticable)

 Date

Wetland Delineation Report Site Information Summary
NASA Wallops Flight Facility (WFF) Marsh Fiber Project
Wallops Flight Facility, Wallops Island, VA 23337
(± 74.9 Acres)
Accomack County, Virginia

Date

October 4, 2019

Latitude/ Longitude in Decimal Degrees using coordinate plane (NAD 1983)

There are three delineation areas, listed below:

UAS Airstrip: 37.545939, -75.281851

Walker Marsh: 37.535580, -75.272175

Boresight Antenna: 37.531589, -75.263003

Has a previous delineation or JD been performed? If so, please provide USACE Project Number:

UAS Airstrip PJD NAO-2009-00939 (April 30, 2009)

Hydrologic Unit Code (HUC)

HUC 02040303

USGS Topographic Sheet

Chincoteague West, VA 7.5-minute quadrangle

Nearest Waterbody

Watts Bay, Old Root Narrows, and The Narrows are within the project review area. These features are estuarine waterbodies of Atlantic Ocean HUC.

Project Description

The WFF Marsh Fiber project would consist of installing a new fiber optic cable along a pathway between the Boresight Antenna area on the U.S. Fish and Wildlife's Wallops Island National Wildlife Refuge (Wallops NWR) and the Mid-Atlantic Regional Spaceport (MARS) Unmanned Aircraft Systems (UAS) Airstrip on Wallops Island (**Figures 1, 2 and 3, Appendix A**). NASA would install the new fiber optic cable via two primary methods: horizontal directional drilling (HDD) and vibratory trenching using low-pressure equipment. NASA would use the HDD method to install the cable beneath the bed of waterways (open water habitats and marsh) and portions of land east of the Boresight Antenna and west of the UAS Airstrip. NASA would use the vibratory

trenching method to install the cable through the saltmarsh (Walker Marsh) located between the shorelines on Wallops NWR and Wallops Island.

The proposed Marsh Fiber project aims to provide a secure, redundant and updated communication pathway for WFF to ensure that NASA and its tenants have a reliable means of communication for a diverse range of systems including command, voice, video, and data services for government, academic, and commercial missions on Wallops Island.

Delineation Methods

The 2012 U.S. Army Corps of Engineers (USACE) *Regional Supplement to the Manual: Atlantic and Gulf Coastal Plain Region Version 2.0* in conjunction with the 1987 USACE *Wetland Delineation Manual*, and applicable regulatory guidance. The 2016 USACE Plant List was used to establish and calculate hydrophytic vegetation status. Munsell soil color charts were used to determine soil and redox feature color characteristics per Manuals.

On-Site Investigation Date

Wetland boundary delineation and site data collection were completed on September 16-17, 2019 by EEE Consulting, Inc. staff (Senior Environmental Scientist Robert Wright, PWS, PWD, CNRP and Wyatt Jamerson, Environmental Scientist).

Wetland Delineation Plan

The project review area consists of the potential areas of disturbance at the HDD entry points at the Boresight Antenna and the UAS Airstrip, a 200-foot wide corridor through Walker Marsh, and a 200-foot wide corridor along the HDD subsurface pathway. The project review area is shown on **Figure 3**.

Potential Waters of the U.S. (WOUS) in the Boresight Antenna, UAS Airstrip, and Walker Marsh project areas were field delineated in accordance with 2012 Regional Supplement Manual. The potential wetland and open water boundaries, data collection points, benchmarks and other features supporting the delineation were field determined, flagged using alpha numeric sequential vinyl surveyors flagging, and flag locations determined using an Apple iPad with the Theodolite GPS coordinate software. All boundaries, landscape features, and annotations supporting the delineation are depicted on the “Potential Waters of the US Delineation Map” **Figure 7** (UAS Airstrip), **Figure 8** (Boresight Antenna), and **Figure 9** (Walker Marsh) dated October 3, 2019. Project graphics are presented in **Appendix A**. The potential WOUS boundaries shown on the figures are based on field observation, multiple GPS points, and interpretation of aerial photographs.

The potential WOUS along the HDD pathway beneath Watts Bay, Old Root Narrows, and The Narrows were mapped based on the USFWS National Wetlands Inventory (NWI) mapper website data. **Figure 10** presents the NWI mapper data and classifications for the project review area.

Wetland Investigation Results

Stream Channels: There are no streams present in the delineation areas.

Wetlands: A total of 34.0 acres of tidal vegetated wetlands were identified within the WFF Marsh Fiber project review area. **Table 1, Table 2, and Table 3** summarize the delineated and mapped features at the UAS Airstrip, Walker Marsh, and HDD pathway, respectively. The Boresight Antenna delineation area supported no wetlands (3.96 acres of uplands, no table).

Of the total delineated and mapped potential project review area, approximately 29.61 acres are regularly inundated estuarine persistent intertidal emergent (E2EM1N, low salt marsh) tidal wetlands, approximately 3.65 acres are irregularly flooded, estuarine persistent intertidal emergent (E2EM1P, high salt marsh), approximately 0.69 acres of irregularly flooded, estuarine, intertidal unconsolidated shore (E2USP) wetlands, and approximately 0.05 acres of irregularly flooded, estuarine, intertidal, needle-leaved evergreen, scrub shrub (E2SS4P) wetlands. Data sampling points 1, 4, 5, 7, and 13-17 provided in **Appendix B**, characterize the vegetated tidal wetlands delineated within the project review area.

Additionally, approximately 27.01 acres of open water habitat (E1UBL), approximately 1.48 acres of subtidal estuarine aquatic bed habitat (E1ABL), approximately 1.02 acres of regularly flooded, estuarine, intertidal, mollusk reef (E2RF2N, oyster rock), were mapped within the project review area as summarized on **Table 1, Table 2, and Table 3** and as shown on **Figure 7, Figure 9, and Figure 10**.

Other Waters: None

Water bodies onsite identified as Section 10: Open water habitats (labelled/mapped as the E1UBL cover type) as shown on **Figure 7, Figure 8, Figure 9, and Figure 10** are considered Section 10 waters.

Uplands: Approximately 5.13 acres of the delineation area were classified as uplands at the UAS Airstrip. Approximately 3.96 acres of the Boresight Antenna site and access road were classified as uplands. These uplands are described by Data Sampling Points 2, 3, 6, 8, 9, and 10 provided in **Appendix B**. A small portion of a wetland/upland boundary (**Figure 7**) located in the extreme eastern end of the UAS Airstrip site could not be flagged due to multiple underground bee nests and thick upland scrub cover. The boundary is estimated by visual estimation methods. Walker Marsh supports no upland areas.

Representative site photos of the field delineation areas plus estuarine waters, and other features are provided in **Appendix C**.

100-Year Floodplains

As depicted on the Federal Emergency Management Agency's Flood Insurance Rate Map Number 51001C0275G, effective date 5/18/2015, most of the project review area is within the 100-year floodplain (Zone VE, Areas subject to inundation by the 1-percent-annual-chance flood event with

additional hazards due to storm-induced velocity wave action, Base Flood Elevation 9 Feet) (**Figure 4, Appendix A**). The area east of the Boresight Antenna is within the 100-year (Zone AE) and 500-year floodplain (Zone X) flood zones, and the project area at the Boresight Antenna is in the unshaded Zone X (Area of minimal flood hazard).

National Wetlands Inventory/National Hydrographic Dataset Mapping

The National Hydrography Dataset and NWI Map (**Figure 5, Appendix A**) combines tidal wetland cover types and depicts them as combined estuarine and marine wetlands. As shown on **Figure 10**, the National Wetland Mapper website identifies estuarine and marine wetlands including: E2EM1N (low marsh) and E2EM1P (high marsh), E2USP (oyster rock), E2USP unconsolidated shoreline wetlands, and scrub-shrub wetlands. Wetland 1 (**Figure 7**) is delineated as an E2EM1N tidal wetland. Wetland 2 (**Figure 7**) is delineated as E2EM1P tidal wetlands. All wetlands at Walker Marsh were identified as E2EM1N tidal wetlands (**Figure 9**). A total of approximately 28.0 acres of open water habitat (E1UBL), approximately 1.48 acres of subtidal estuarine aquatic bed habitat (E1ABL), approximately 1.02 acres of regularly flooded, estuarine, intertidal, mollusk reef (E2RF2N, oyster rock), were mapped within the project review area as summarized on **Table 1, Table 2, and Table 3** and as shown on **Figure 7, Figure 9, and Figure 10**.

USDA Soil Survey

The on-line USDA Natural Resource Conservation Service Soil Survey (**Figure 6, Appendix A**) identifies the following hydric soils within the project boundary: Camocca fine sand, 0 to 2 percent slopes, frequently flood (CaA), Chincoteague silt loam, 0 to 1 percent slopes, very frequently flooded (ChA), Fisherman-Assateague complex, 0 to 35 percent slopes, rarely flooded (FmD).

The on-line USDA Natural Resource Conservation Service Soil Survey identifies the following non-hydric soils within the project boundary: Molena loamy sand, 0 to 6 percent slopes (MoB), Molena loamy sand, 6 to 35 percent slopes (MoD), and Bojac fine sandy loam, 0 to 2 percent slopes (BoA).

Waters and Wetlands Tables:

Table 1: Summary of Delineated Features at UAS Airstrip (Figure 7)

Waters ID	Latitude	Longitude	Quantity/Units	Type	Authority
			Acres/Linear Feet		
Wetlands					
Wetland 1	37.531415	-75.262930	1.50	E2EM1P High Marsh	Section 404/401
Wetland 2	37.537642	-75.262930	1.96	E2EM1N Low Marsh	Section 404/401
WETLAND TOTAL (Acres)			3.46		
No Streams					
Other Estuarine Waters					
Open Water 1	37.531252	-75.262830	0.03	E1UBL Unconsolidated Bottom Subtidal	Section 404/401 Section 10
Open Water 2	37.531171	-75.262552	0.08	E1UBL Unconsolidated Bottom Subtidal	Section 404/401 Section 10
Open Water 3	37.531104	-75.262427	0.04	E1UBL Unconsolidated Bottom Subtidal	Section 404/401
Open Water 4	37.530980	-75.262250	0.02	E1UBL Unconsolidated Bottom Subtidal	Section 404/401
Open Water 5	37.530952	-75.262096	0.06	E1UBL Unconsolidated Bottom Subtidal	Section 404/401
OTHER ESTUARINE WATERS TOTAL (Acres)			0.23	E1UBL Unconsolidated Bottom Subtidal	Section 404/401
Notes: Coordinates in centroid location in decimal degrees; depicted potential wetland boundaries have not been verified by regulatory agencies.					

Table 2: Summary of Delineated Features at Walker Marsh (Figure 9)

Waters ID	Latitude	Longitude	Quantity/Units	Type	Authority
			Acres/Linear Feet		
Wetlands					
Wetland 1	37.535812	-75.272293	19.23	E2EM1N Low Marsh	Section 404/401
WETLAND TOTAL (Acres)			19.23		
No Streams					
Other Estuarine Waters					
Open Water (Gut 1)	37.540020	-75.273538	0.20	E1UBL Unconsolidated Bottom Subtidal	Section 404/401 Section 10
Open Water (Gut 2)	37.535580	-75.272175	0.22	E1UBL Unconsolidated Bottom Subtidal	Section 404/401 Section 10
Open Water (Gut 3)	37.535181	-75.271601	0.15	E1UBL Unconsolidated Bottom Subtidal	Section 401/401 Section 10
Open Water	37.535313	-75.271976	0.09	E1UBL Unconsolidated Bottom Subtidal	Section 404/401 Section 10
Open Water (S Terminus)	37.534085	-75.270751	0.34	E1UBL Unconsolidated Bottom Subtidal	Section 404/401 Section 10
OPEN WATER E1UBL (Acres)			1.00		
Notes: Coordinates in centroid location in decimal degrees; depicted potential wetland boundaries have not been verified by regulatory agencies					

Table 3: Summary of Mapped Potential Wetland Features Within the Project Review Area
 (Figure 10)

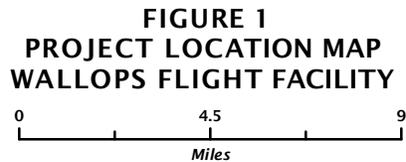
Waters ID	Latitude	Longitude	Quantity/Units	Type	Authority
			Acres/Linear Feet		
Wetlands					
Wetland 1	37.915940	-75.470919	0.05	E2SS4P	Section 404/401
Wetland 2	37.896695	-75.451978	8.42	E2EM1N	Section 404/401
Wetland 3	37.915135	-75.470677	2.15	E2EM1P	Section 404/401
Wetland 4	37.889667	-75.444718	0.69	E2USP	Section 404/401
WETLAND TOTAL (Acres)			11.31		
Other Estuarine Waters					
Open Water	37.90364	-75.459995	26.77	E1UBL	Section 404/401 Section 10
Open Water	37.890889	-75.446217	1.48	E1ABL	Section 404/401 Section 10
Open Water	37.893495	-75.450145	1.02	E2RF2N	Section 404/401
TOTAL Open Water (Acres)			29.27		
Notes: Coordinates in centroid location in decimal degrees; depicted potential wetland boundaries have not been verified by regulatory agencies					

APPENDIX A

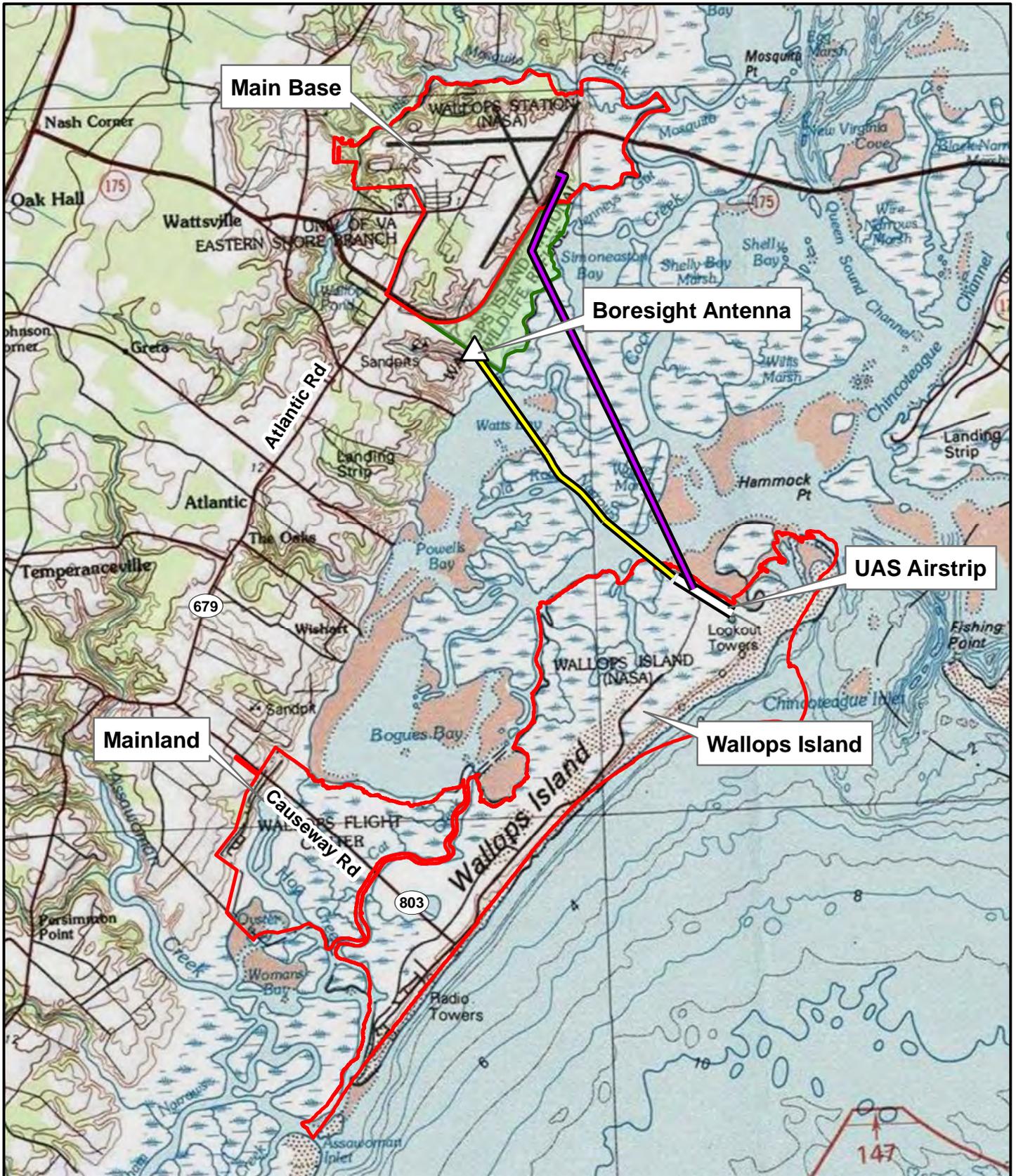
Figures



- Legend**
- Wallops Flight Facility Boundary
 - Virginia County Boundaries



Sources: NASA, Esri World Street Basemap / Prepared by: 3e 19-756 MM
Projection: NAD 1983 StatePlane Virginia South FIPS 4502 Feet



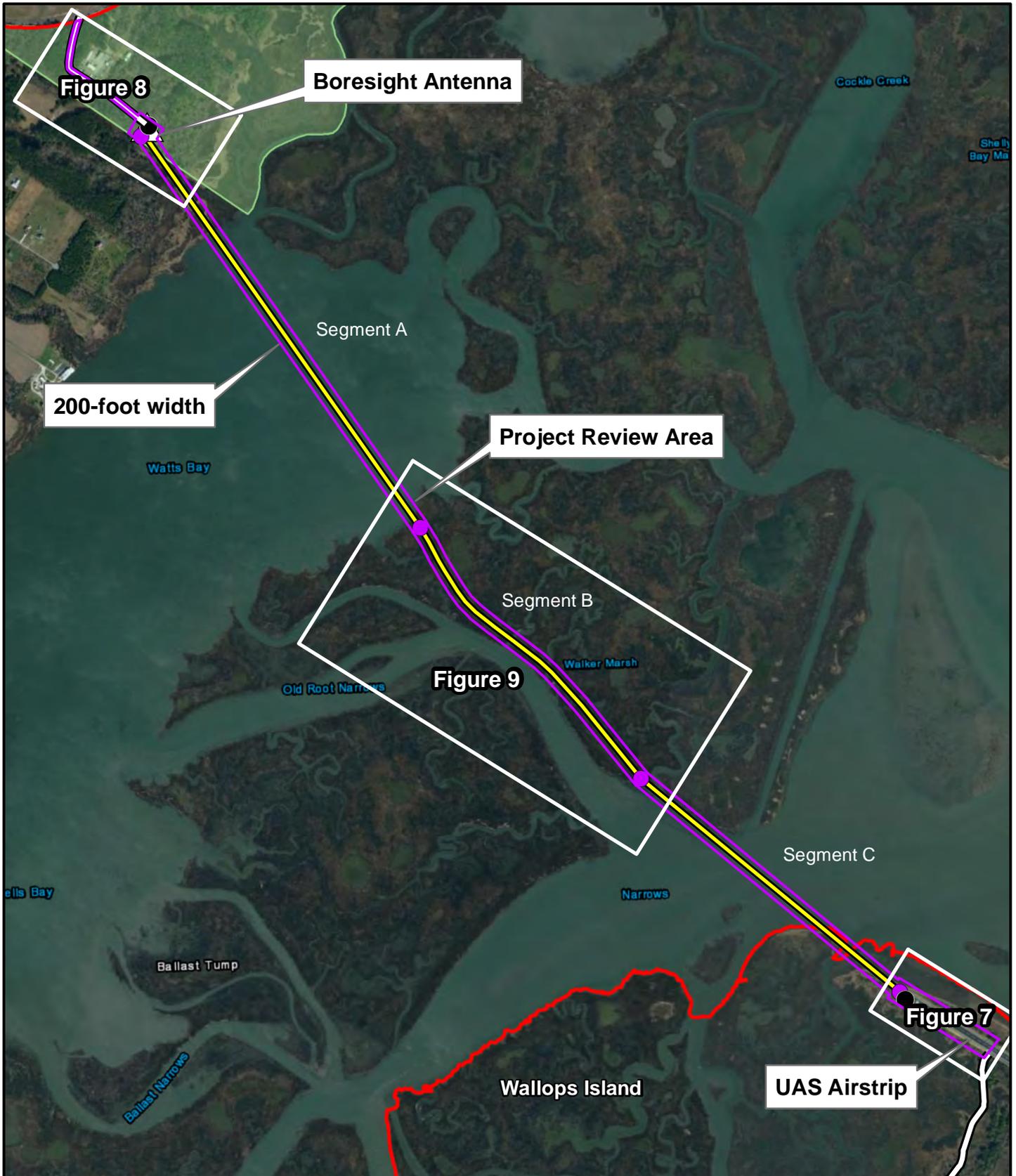
- Legend**
-  Old Marsh Fiber Path
 -  Proposed Marsh Fiber Path
 -  Wallops Flight Facility Boundary
 -  Wallops Island National Wildlife Refuge

Sources: NASA, USFWS, Esri USA Topo Basemap / Prepared by: 3e 19-756 MM 02/21/2020
 Projection: NAD 1983 StatePlane Virginia South FIPS 4502 Feet

FIGURE 2
USGS TOPOGRAPHY
WALLOPS FLIGHT FACILITY

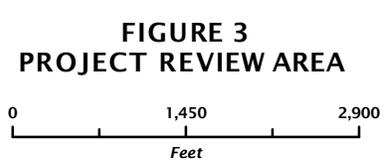
0 1.15 2.3
 Miles

NASA WFF Marsh Fiber JPA

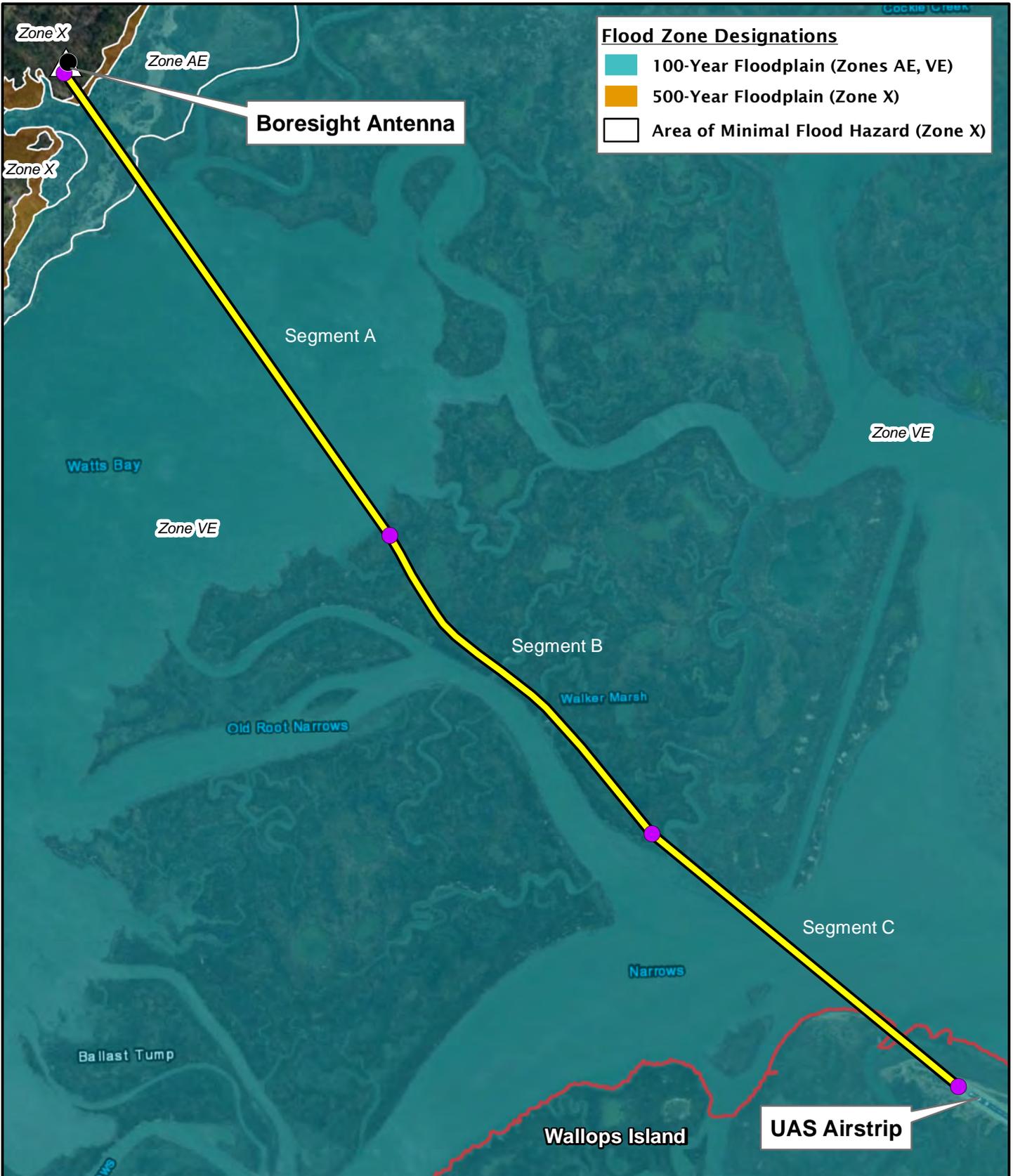


- Legend**
- Marsh Fiber Path
 - Project Review Area
 - Wallops Flight Facility Boundary
 - Wallops Island National Wildlife Refuge
 - Existing Handhole
 - New Handhole

Sources: NASA, USFWS, VGIN VBMP 2017 Orthoimagery / Prepared by: 3e 19-756 MM
 Projection: NAD 1983 StatePlane Virginia South FIPS 4502 Feet



NASA WFF Marsh Fiber



Flood Zone Designations

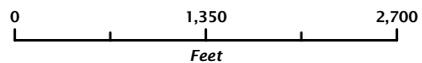
- 100-Year Floodplain (Zones AE, VE)
- 500-Year Floodplain (Zone X)
- Area of Minimal Flood Hazard (Zone X)



- Legend**
- Existing Handhole
 - New Handhole
 - Proposed Marsh Fiber Path
 - Wallops Flight Facility Boundary

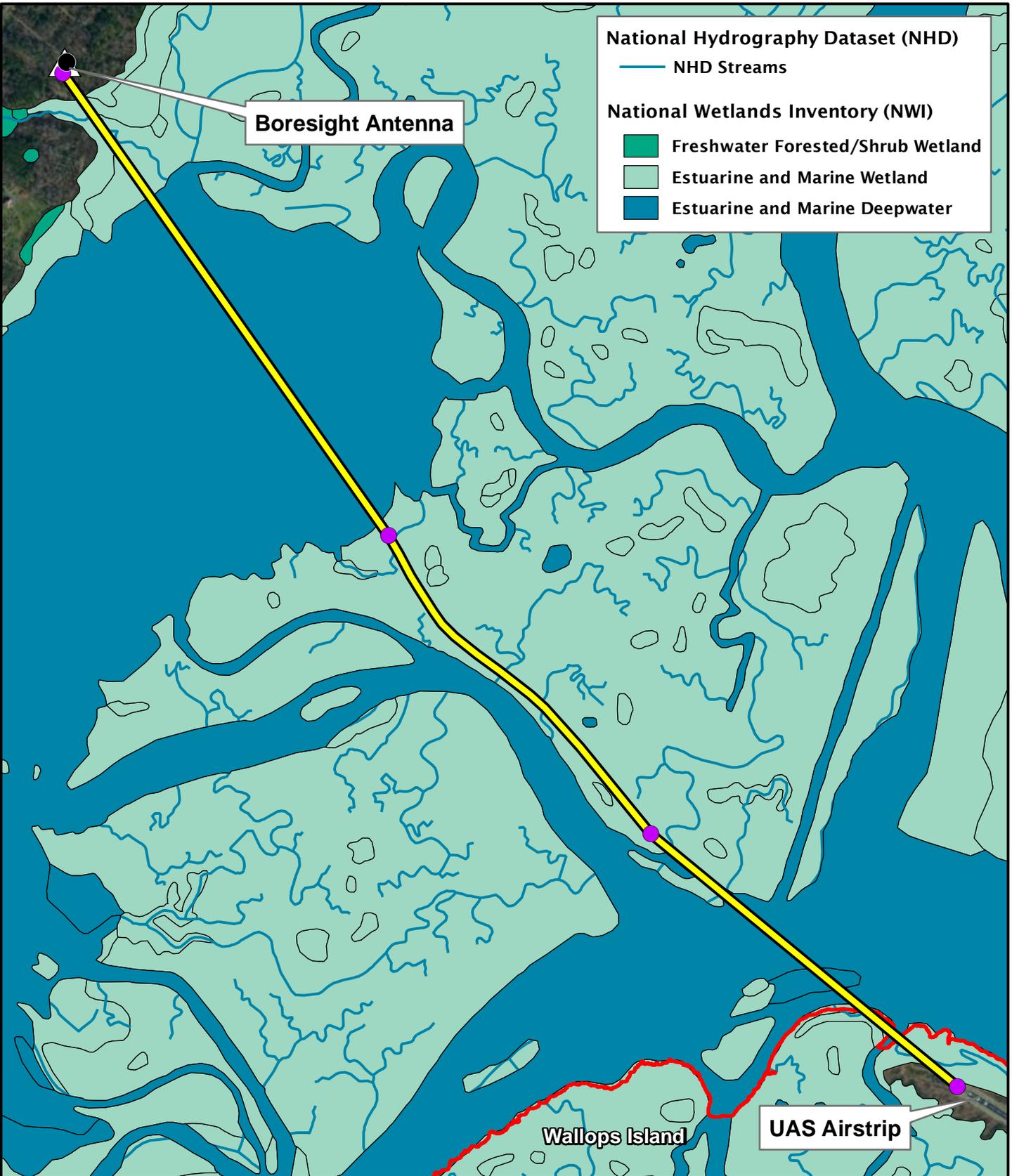
Sources: NASA, VGIN VBMP 2017 Orthoimagery, FEMA FIRM PANEL 51001C0265G
 Prepared by: 3e 19-756 MM / Projection: NAD 1983 StatePlane Virginia South FIPS 4502 Feet

**FIGURE 4
 FEMA FLOOD MAP**



NASA WFF Marsh Fiber






Legend

- Existing Handhole ● New Handhole
- Proposed Marsh Fiber Path
- Wallops Flight Facility Boundary

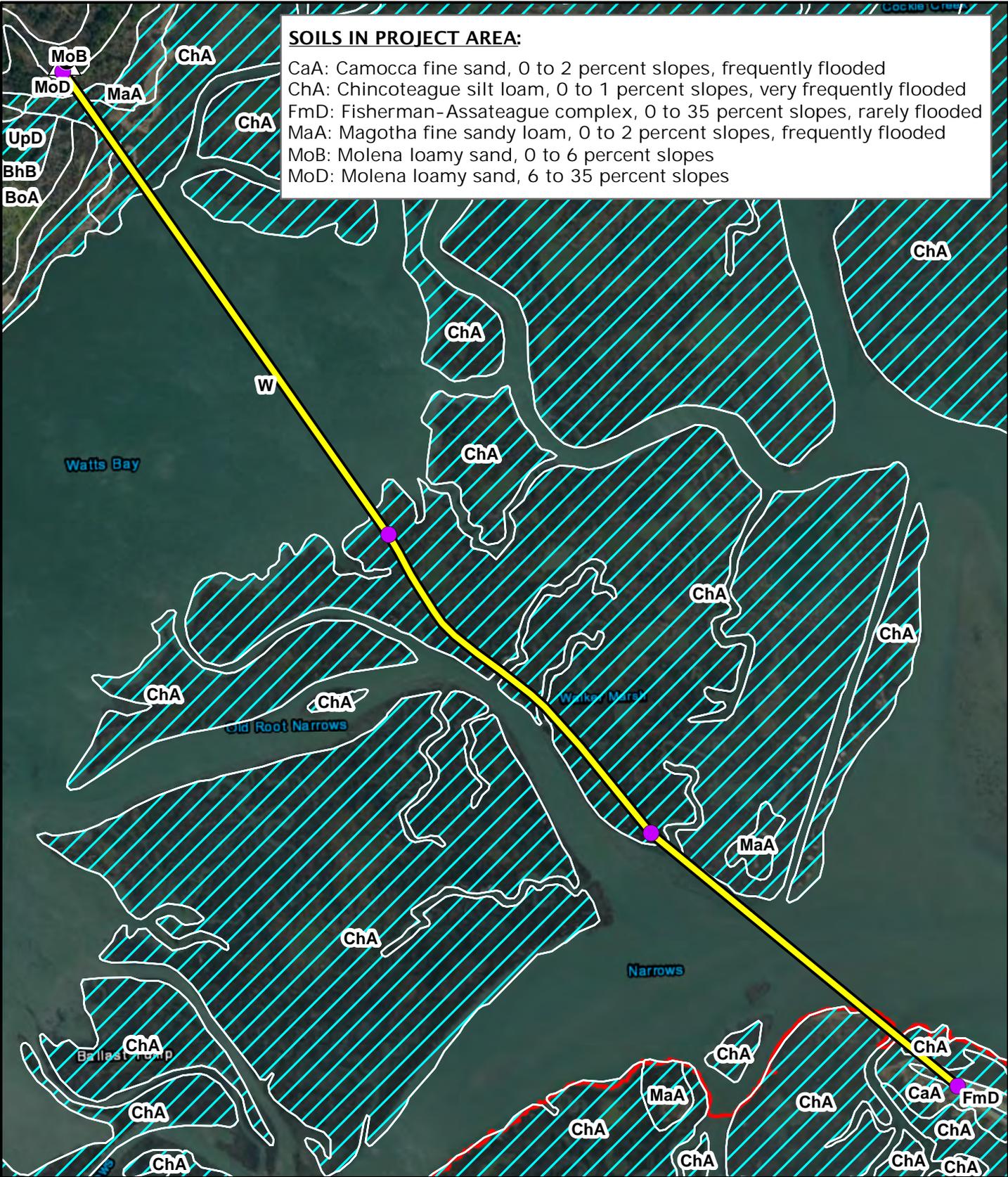
Sources: NASA, USFWS NWI, USGS NHD, VGIN VBMP 2017 Orthoimagery
Prepared by: 3e 19-756 MM / Projection: NAD 1983 StatePlane Virginia South FIPS 4502 Feet

**FIGURE 5
NATIONAL HYDROGRAPHY DATASET
AND NATIONAL WETLANDS INVENTORY**

0 1,350 2,700
Feet

NASA WFF Marsh Fiber





SOILS IN PROJECT AREA:

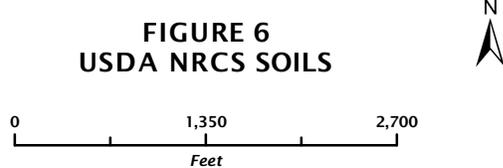
CaA: Camocca fine sand, 0 to 2 percent slopes, frequently flooded
 ChA: Chincoteague silt loam, 0 to 1 percent slopes, very frequently flooded
 FmD: Fisherman-Assateague complex, 0 to 35 percent slopes, rarely flooded
 MaA: Magotha fine sandy loam, 0 to 2 percent slopes, frequently flooded
 MoB: Molena loamy sand, 0 to 6 percent slopes
 MoD: Molena loamy sand, 6 to 35 percent slopes



- Legend**
- Existing Handhole
 - New Handhole
 - Proposed Marsh Fiber Path
 - ▨ Hydric Soils
 - ▭ Wallops Flight Facility Boundary

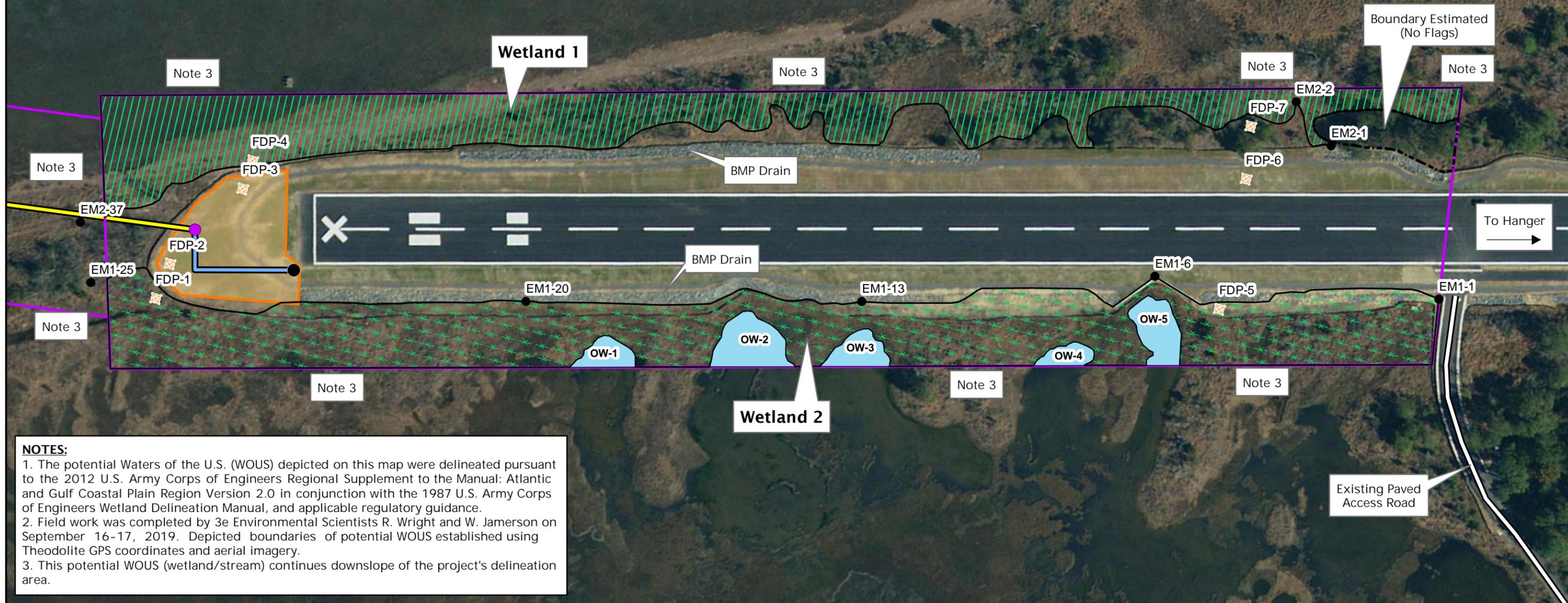
Sources: NASA, USDA NRCS Soil Survey Geographic (SSURGO) Database, VGIN VBMP 2017 Orthoimagery / Prepared by: 3e 19-756 MM
 Projection: NAD 1983 StatePlane Virginia South FIPS 4502 Feet

**FIGURE 6
 USDA NRCS SOILS**



NASA WFF Marsh Fiber

Waters ID	Latitude	Longitude	Quantity/Units		Type	Waters ID	Latitude	Longitude	Quantity/Units		Type*
			Acres/Linear Feet						Acres/Linear Feet		
Wetlands					Other Estuarine Waters						
Wetland 1	37.531415	-75.262930	1.50		E2EM1P	Open Water 1	37.531252	-75.262830	0.03		E1UBL
Wetland 2	37.537642	-75.262930	1.96		E2EM1N	Open Water 2	37.531171	-75.262552	0.08		E1UBL
WETLANDS TOTAL (Acres)			3.46			Open Water 3	37.531104	-75.262427	0.04		E1UBL
Coordinates in centroid location in decimal degrees; No boundaries have been verified by regulatory agencies.						Open Water 4	37.530980	-75.262250	0.02		E1UBL
Authority for WOUS is Section 404/401 and/or Section 10						Open Water 5	37.530952	-75.262096	0.06		E1UBL
See report for acronym codes for Cowardin classes.						OTHER ESTUARINE WATERS TOTAL (Acres)		0.23			E1UBL



NOTES:
 1. The potential Waters of the U.S. (WOUS) depicted on this map were delineated pursuant to the 2012 U.S. Army Corps of Engineers Regional Supplement to the Manual: Atlantic and Gulf Coastal Plain Region Version 2.0 in conjunction with the 1987 U.S. Army Corps of Engineers Wetland Delineation Manual, and applicable regulatory guidance.
 2. Field work was completed by 3e Environmental Scientists R. Wright and W. Jamerson on September 16-17, 2019. Depicted boundaries of potential WOUS established using Theodolite GPS coordinates and aerial imagery.
 3. This potential WOUS (wetland/stream) continues downslope of the project's delineation area.



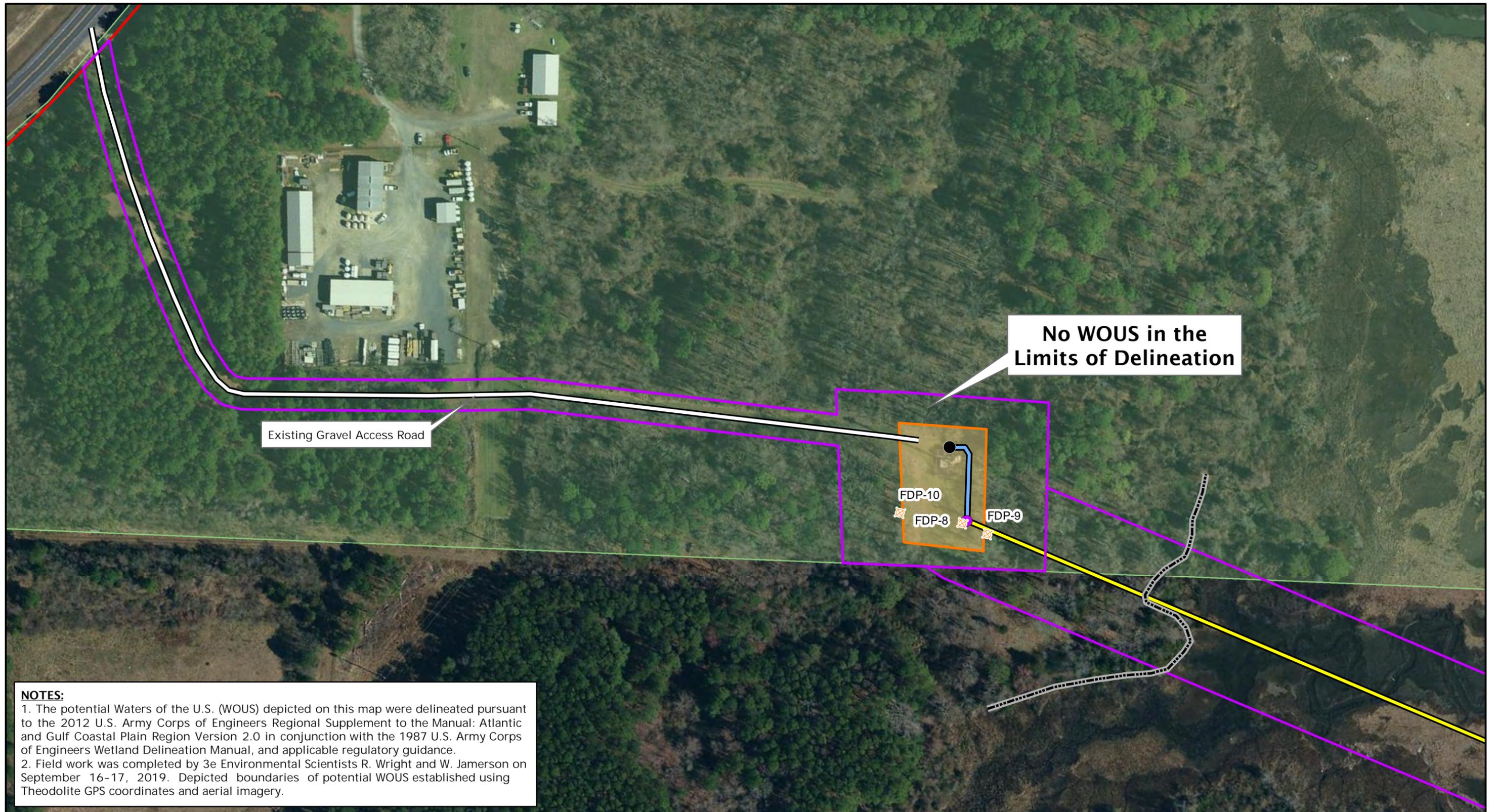
Legend

- New Handhole
- Existing Handhole
- ⊕ Field Data Points (FDP)
- Flag Points
- Proposed Marsh Fiber Path
- Open Trench
- Access Road
- Project Review Area/Delineation Area
- HDD Work Area
- Wallops Flight Facility Boundary
- Wetland 1 - EM2 (E2EM1P) High Marsh
- Wetland 2 - EM1 (E2EM1N) Low Marsh
- Boundary Estimated, No Flags
- Open Water/Unconsolidated Bottom (E1UBL)

Sources: NASA, VGIN VBMP 2017 Orthoimagery / Prepared by: 3e 19-756 MM 10/03/2019 / Projection: NAD 1983 StatePlane Virginia South FIPS 4502 Feet

FIGURE 7
POTENTIAL WATERS OF THE U.S. DELINEATION MAP
UAS AIRSTRIP

NASA WFF Marsh Fiber



NOTES:
 1. The potential Waters of the U.S. (WOUS) depicted on this map were delineated pursuant to the 2012 U.S. Army Corps of Engineers Regional Supplement to the Manual: Atlantic and Gulf Coastal Plain Region Version 2.0 in conjunction with the 1987 U.S. Army Corps of Engineers Wetland Delineation Manual, and applicable regulatory guidance.
 2. Field work was completed by 3e Environmental Scientists R. Wright and W. Jamerson on September 16-17, 2019. Depicted boundaries of potential WOUS established using Theodolite GPS coordinates and aerial imagery.



Legend

- New Handhole
- Existing Handhole
- ⊕ Field Data Points (FDP)
- Proposed Marsh Fiber Path
- Open Trench
- Access Road
- Estimated (No Flags) Landward Boundary of Tidal Wetland
- Project Reivew Area/Delineation Limits
- HDD Work Area
- Wallops National Wildlife Refuge
- Wallops Flight Facility Boundary

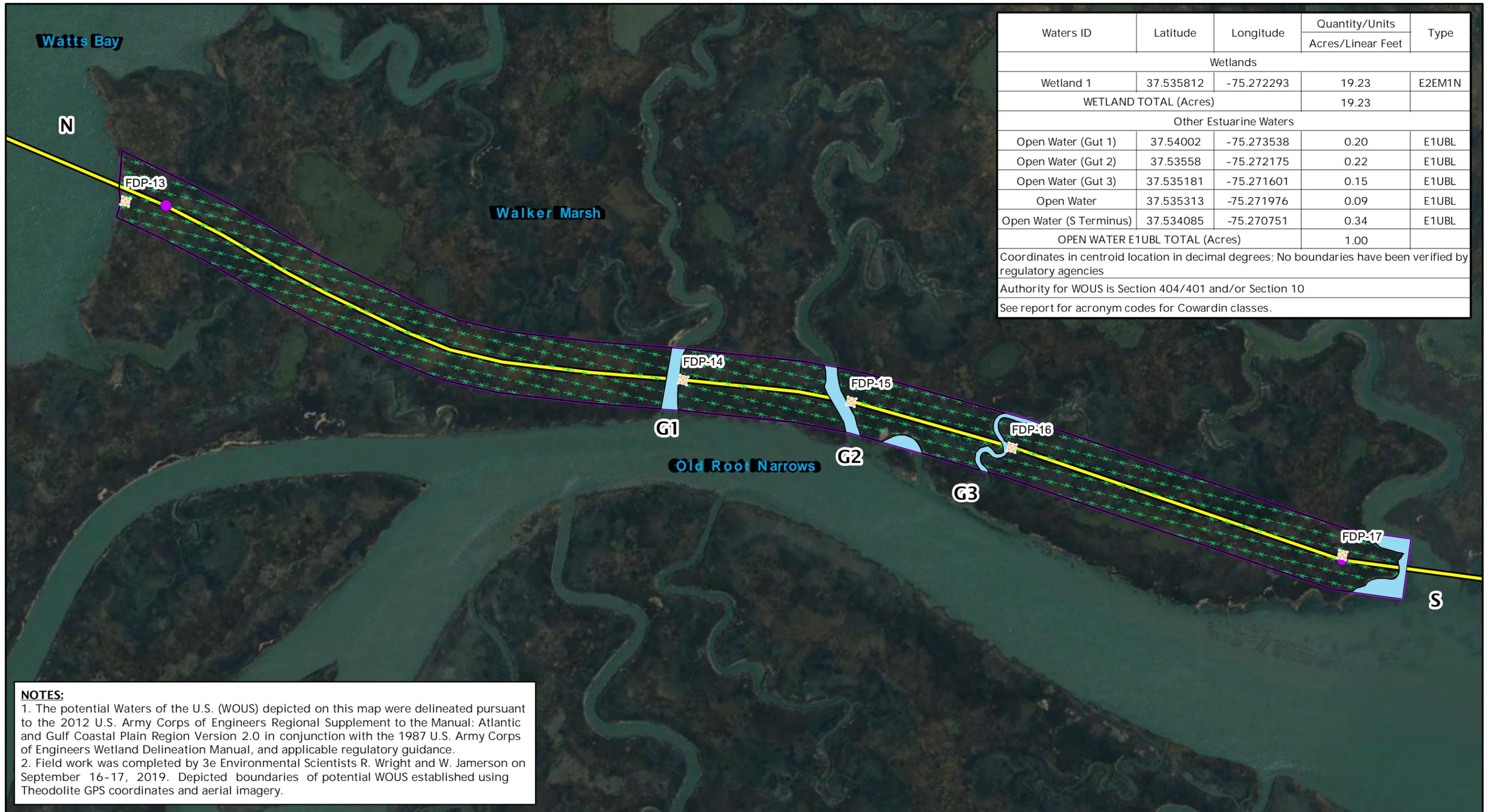


FIGURE 8
POTENTIAL WATERS OF THE U.S. DELINEATION MAP
BORESIGHT ANTENNA

0 150 300
 Feet

NASA WFF Marsh Fiber

Sources: NASA, USFWS, VGIN VBMP 2017 Orthoimagery / Prepared by: 3e 19-756 MM 10/03/2019
 Projection: NAD 1983 StatePlane Virginia South FIPS 4502 Feet



Waters ID	Latitude	Longitude	Quantity/Units	Type
			Acres/Linear Feet	
Wetlands				
Wetland 1	37.535812	-75.272293	19.23	E2EM1N
WETLAND TOTAL (Acres)			19.23	
Other Estuarine Waters				
Open Water (Gut 1)	37.54002	-75.273538	0.20	E1UBL
Open Water (Gut 2)	37.53558	-75.272175	0.22	E1UBL
Open Water (Gut 3)	37.535181	-75.271601	0.15	E1UBL
Open Water	37.535313	-75.271976	0.09	E1UBL
Open Water (S Terminus)	37.534085	-75.270751	0.34	E1UBL
OPEN WATER E1UBL TOTAL (Acres)			1.00	
Coordinates in centroid location in decimal degrees; No boundaries have been verified by regulatory agencies				
Authority for WOUS is Section 404/401 and/or Section 10				
See report for acronym codes for Cowardin classes.				

NOTES:
 1. The potential Waters of the U.S. (WOUS) depicted on this map were delineated pursuant to the 2012 U.S. Army Corps of Engineers Regional Supplement to the Manual: Atlantic and Gulf Coastal Plain Region Version 2.0 in conjunction with the 1987 U.S. Army Corps of Engineers Wetland Delineation Manual, and applicable regulatory guidance.
 2. Field work was completed by 3e Environmental Scientists R. Wright and W. Jamerson on September 16-17, 2019. Depicted boundaries of potential WOUS established using Theodolite GPS coordinates and aerial imagery.



Legend

- New Handhole
- ⊕ Field Data Points (FDP)
- Proposed Marsh Fiber Path

- Project Review Area/Delineation Limits
- Wetland 1 - EM1 (E2EM1N) Low Marsh
- Open Water/Unconsolidated Bottom (E1UBL)

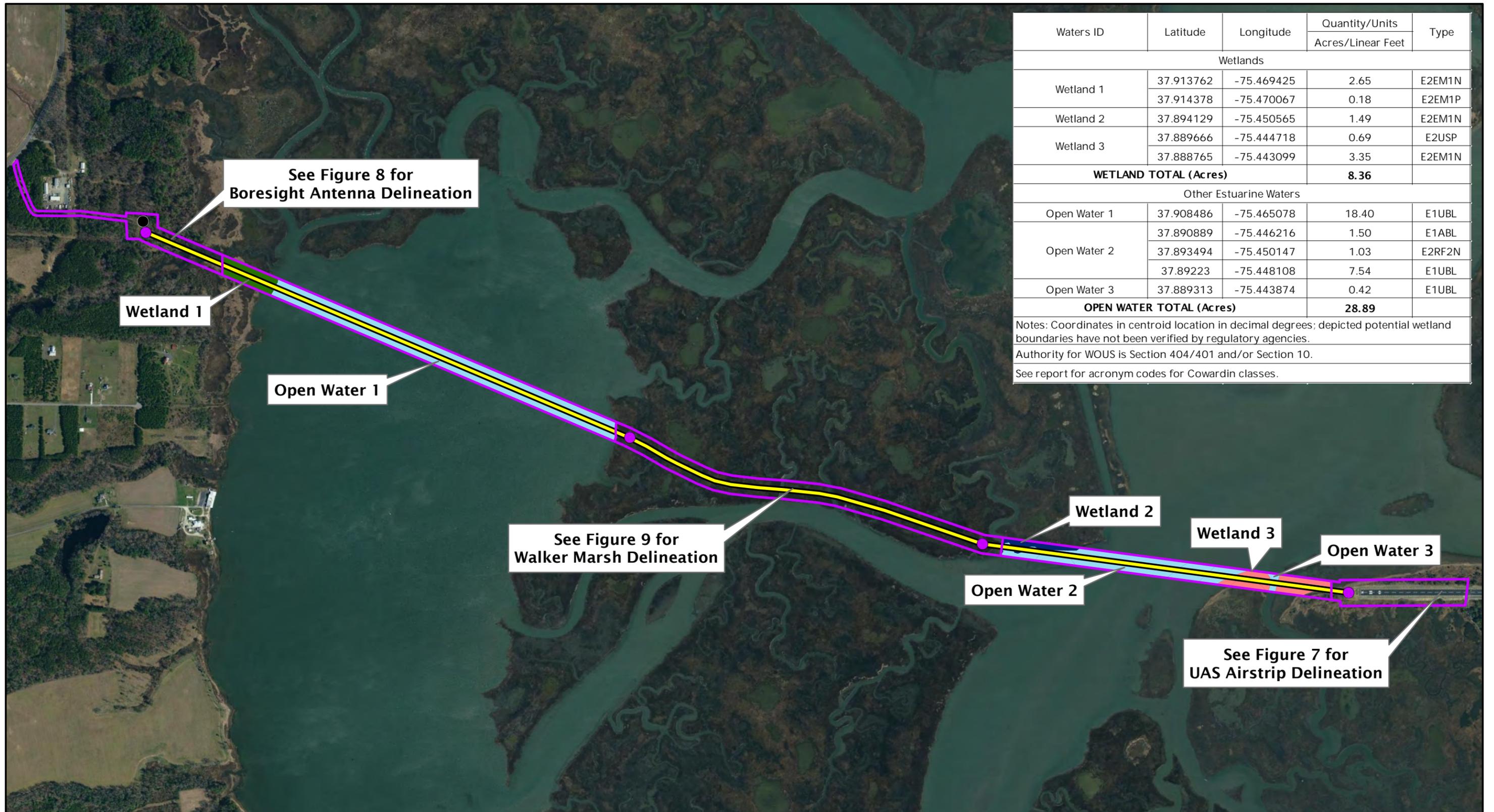


FIGURE 9
POTENTIAL WATERS OF THE U.S. DELINEATION MAP
WALKER MARSH

0 300 600
 Feet

NASA WFF Marsh Fiber

Sources: NASA, VGIN VBMP 2017 Orthomagery / Prepared by: 3e 19-756 MM 10/03/2019
 Projection: NAD 1983 StatePlane Virginia South FIPS 4502 Feet



Waters ID	Latitude	Longitude	Quantity/Units	
			Acres/Linear Feet	Type
Wetlands				
Wetland 1	37.913762	-75.469425	2.65	E2EM1N
	37.914378	-75.470067	0.18	E2EM1P
Wetland 2	37.894129	-75.450565	1.49	E2EM1N
Wetland 3	37.889666	-75.444718	0.69	E2USP
	37.888765	-75.443099	3.35	E2EM1N
WETLAND TOTAL (Acres)			8.36	
Other Estuarine Waters				
Open Water 1	37.908486	-75.465078	18.40	E1UBL
Open Water 2	37.890889	-75.446216	1.50	E1ABL
	37.893494	-75.450147	1.03	E2RF2N
	37.89223	-75.448108	7.54	E1UBL
Open Water 3	37.889313	-75.443874	0.42	E1UBL
OPEN WATER TOTAL (Acres)			28.89	
Notes: Coordinates in centroid location in decimal degrees; depicted potential wetland boundaries have not been verified by regulatory agencies.				
Authority for WOUS is Section 404/401 and/or Section 10.				
See report for acronym codes for Cowardin classes.				



- Legend**
- New Handhole
 - Existing Handhole
 - Proposed Marsh Fiber Path
 - Project Work Area/Delineation Limits (200-foot width)

- National Wetlands Inventory (NWI)**
- Wetland 1 - E2EM1N and E2EM1P
 - Wetland 2 - E2EM1N
 - Wetland 3 - E2USP and E2EM1N
 - Open Water - E1UBL, E1ABL, and E2RF2N



FIGURE 10
MAPPED POTENTIAL WOUS IN WATTS BAY, OLD ROOT NARROWS, AND PROXIMAL AREAS

0 1,000 2,000
 Feet

NASA WFF Marsh Fiber

Sources: NASA, USFWS NWI, VGIN VBMP 2017 Orthoimagery / Prepared by: 3e 19-756 MM 1/23/2020
 Projection: NAD 1983 StatePlane Virginia South FIPS 4502 Feet

APPENDIX B

Wetland Data Sheets

NOTE: For the JPA package, wetland data sheets are not provided within this appendix – data sheets are available from NASA WFF Code 250 by request

APPENDIX C

Photographs



Photograph 1: UAS Airstrip Wetland Data Point – FDP-1. E2EM1N tidal low marsh Wetland #1.



Photograph 2: UAS Airstrip Upland Data Point– FDP-2. Corresponding upland for E2EM1N tidal low marsh Wetland #1.



Photograph 3: UAS Airstrip Upland Data Point— FDP-3. Corresponding upland for E2EM1P tidal high marsh Wetland #2.



Photograph 4: UAS Airstrip Wetland Data Point – FDP-4. E2EM1N tidal high marsh Wetland #2.



Photograph 5: UAS Airstrip Wetland Data Point – FDP-5. E2EM1N tidal low marsh Wetland #1.



Photograph 6: UAS Airstrip Upland Data Point– FDP-6. Corresponding upland for E2EM1P tidal high marsh Wetland #2.



Photograph 7: UAS Airstrip Wetland Data Point – FDP-7. E2EM1P tidal high marsh Wetland #2.



Photograph 8: Western edge of UAS Airstrip at flag EM1-20 north of Wetland #1 facing southeast.



Photograph 9: North of UAS Airstrip, existing upland dune remnant south of Wetland #2.



Photograph 10: Boresight Antenna Upland Data Point – FDP-8 at bore location. Well drained upland field habitat.



Photograph 11: Boresight Antenna Upland Data Point – FDP-9. Well drained upland forest habitat.



Photograph 12: Boresight Antenna Upland Data Point – FDP-10. Well drained upland forest habitat.



Photograph 13: Existing access road leading to proposed boresight antennae location off Chincoteague Road. The 3e delineation found no WOUS along the access road delineation area, well drained arid-dry upland forest on edges.



Photograph 14: Access road east of a powerline crossing and area leading to proposed boresight antennae location. The 3e delineation found no WOUS along the access road delineation area, moist, moderately well drained and well drained upland forest on edges.



Photograph 15: Powerline crossing of access road leading to proposed boresight antennae location. Grassy-weedy well drained field habitat.



Photograph 16: Northern Terminus work area at Walker Marsh, Wetland Data Point – FDP 13. Area is all low salt marsh habitat.

Date & Time: Tue, Sep 17, 2019, 10:40:02 EDT
Position: +037.900085° / -075.457021°
Altitude: -12ft
Datum: WGS-84
Azimuth/Bearing: 200° S20W 3556mils (True)
Elevation Angle: -06.5°
Horizon Angle: +00.7°
Zoom: 1X
G1 looking south



Photograph 17: View of Gut 1 (G1) near mouth to Old Root Narrows on Walker Marsh Wetland Data Point – FDP 14. G1 is shallow open water estuarine habitat; Walker Marsh is all low salt marsh habitat.

Date & Time: Tue, Sep 17, 2019, 10:51:22 EDT
Position: +037.898892° / -075.455954°
Altitude: -3ft
Datum: WGS-84
Azimuth/Bearing: 144° S36E 2560mils (True)
Elevation Angle: -04.6°
Horizon Angle: +01.9°
Zoom: 1X
G2 looking southeast at airstrip



Photograph 18: View of Gut 2 (G2) near mouth to Old Root Narrows on Walker Marsh Wetland Data Point – FDP 15. G2 is shallow open water estuarine habitat; Walker Marsh is all low salt marsh habitat. .

Date & Time: Tue, Sep 17, 2019, 11:05:34 EDT
Position: +037.897613° / -075.454429°
Altitude: 9ft
Datum: WGS-84
Azimuth/Bearing: 070° N70E 1244mils (True)
Elevation Angle: -07.7°
Horizon Angle: -00.6°
Zoom: 1X
G3 looking north



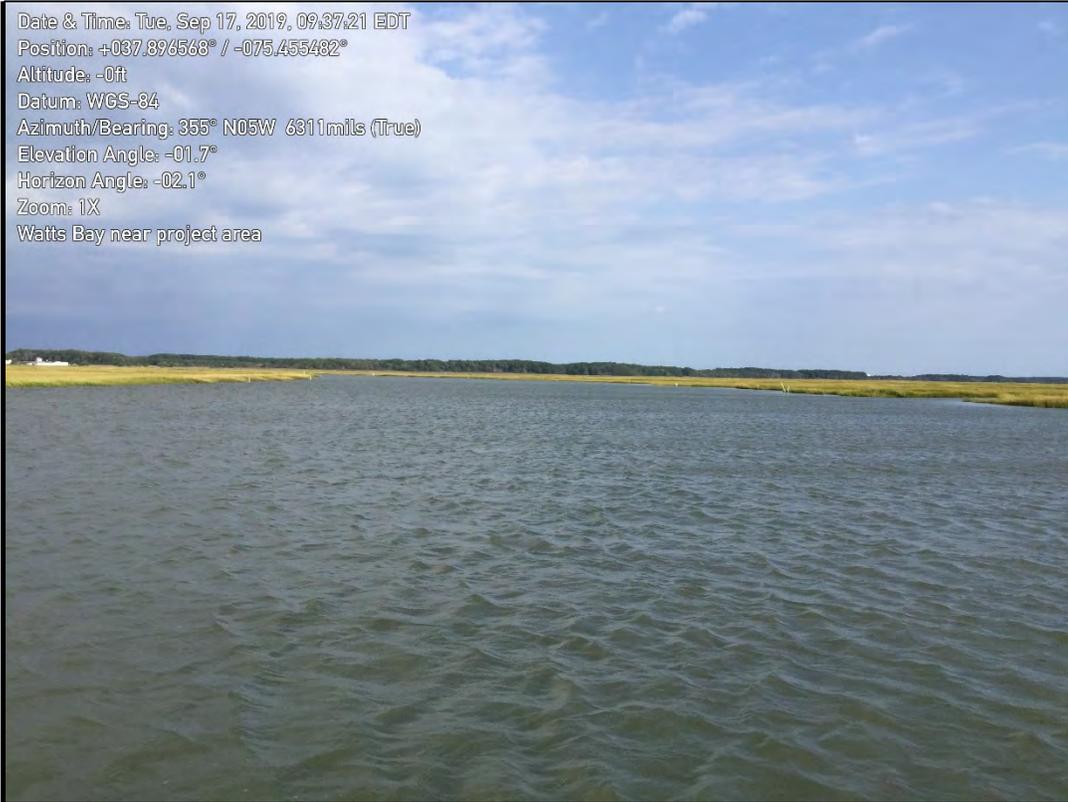
Photograph 19: View of Gut 3 (G3) near mouth to Old Root Narrows on Walker Marsh Wetland Data Point – FDP 16. G3 is shallow open water estuarine habitat; Walker Marsh is all low salt marsh habitat.

Date & Time: Tue, Sep 17, 2019, 11:19:35 EDT
Position: +037.894846° / -075.451681°
Altitude: 4ft
Datum: WGS-84
Azimuth/Bearing: 251° S71W 4462mils (True)
Elevation Angle: -05.3°
Horizon Angle: -02.0°
Zoom: 1X
southeastern edge of project area looking south



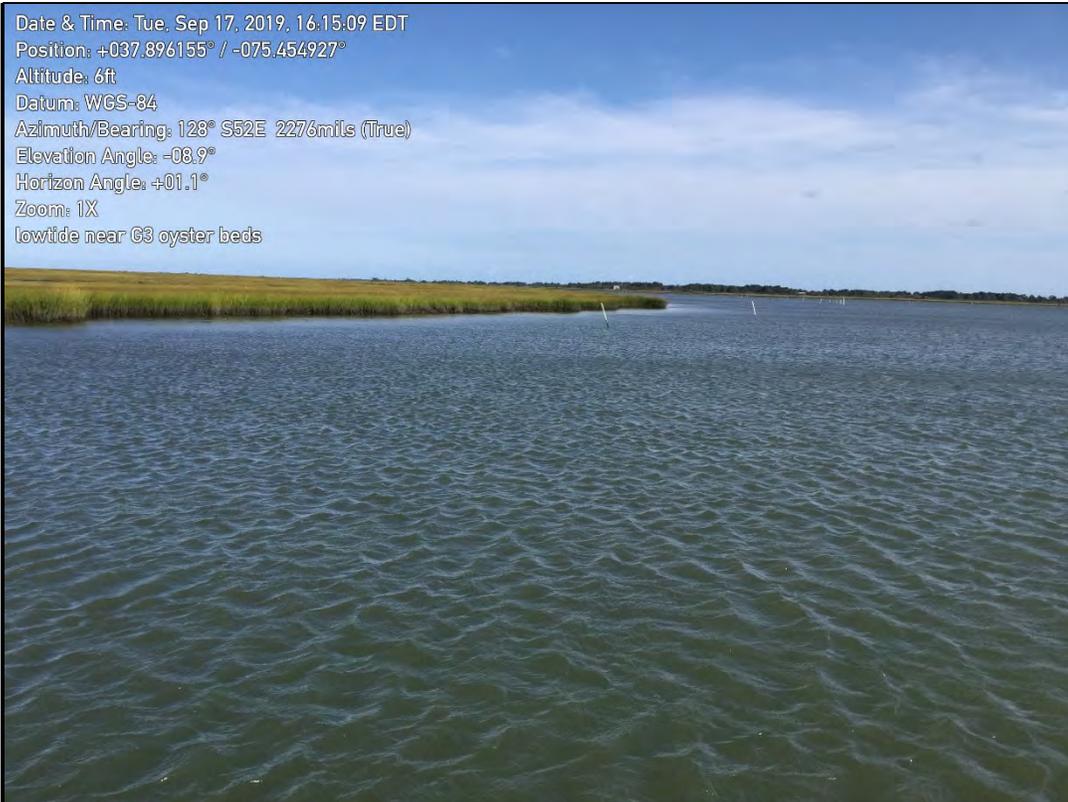
Photograph 20: Southern Terminus work area at Walker Marsh, Wetland Data Point – FDP 17. Area is all low salt marsh habitat.

Date & Time: Tue, Sep 17, 2019, 09:37:21 EDT
Position: +037.896568° / -075.455482°
Altitude: -0ft
Datum: WGS-84
Azimuth/Bearing: 355° N05W 6311mils (True)
Elevation Angle: -01.7°
Horizon Angle: -02.1°
Zoom: 1X
Watts Bay near project area

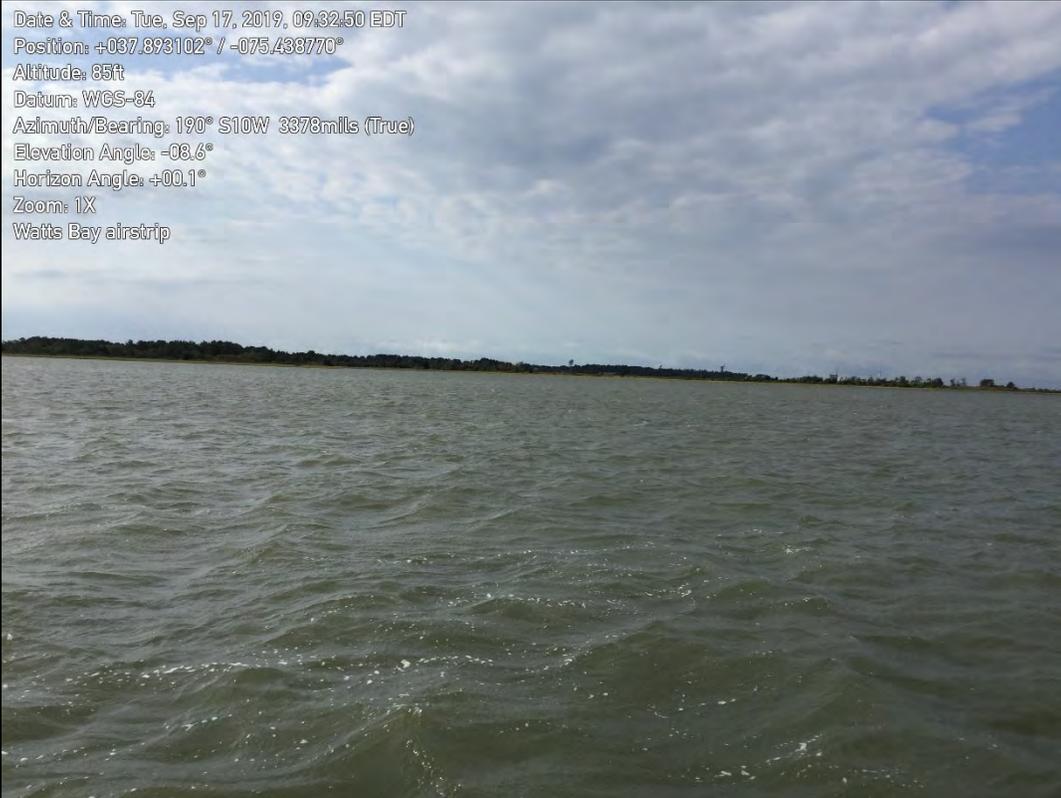


Photograph 21: High tide view of Old Root Narrows Channel, view northwest from mouth of Gut 2.

Date & Time: Tue, Sep 17, 2019, 16:15:09 EDT
Position: +037.896155° / -075.454927°
Altitude: 6ft
Datum: WGS-84
Azimuth/Bearing: 128° S52E 2276mils (True)
Elevation Angle: -08.9°
Horizon Angle: +01.1°
Zoom: 1X
lowtide near G3 oyster beds



Photograph 22: High tide view of Old Root Narrows Channel, view southeast from mouth of Gut 3, viewing oyster rock/bed markers at edge of Walker Marsh.



Photograph 23: Typical view of open waters of Watts Bay, viewing southeast towards the UAS Airstrip (in background), taken southeast of the southern terminus project area.

Appendix E: Threatened and Endangered Species Coordination Documentation

Suzie Richert

From: Case, Rachel <rachel_case@fws.gov>
Sent: Friday, September 27, 2019 11:35 AM
To: Miller, Shari A. (WFF-2500)
Subject: Re: [EXTERNAL] NASA_USFWS Section 7 Consultation Letter

Good morning,

Thank you, Shari. We have no further comments or concerns regarding this project.

Have a great weekend.

On Fri, Sep 27, 2019 at 11:07 AM Miller, Shari A. (WFF-2500) <shari.a.miller@nasa.gov> wrote:

Good morning, Rachel.

Please find attached the revised Species Conclusion Table for NASA's proposed Marsh Fiber project. Please call me at 757.824.2327 if you have any question or would like to discuss this further.

Shari A. Miller

Center NEPA Manager &

Environmental Planning Lead
NASA GSFC Wallops Flight Facility
Wallops Island, VA 23337
(757) 824-2327
Shari.A.Miller@nasa.gov

<https://code200-external.gsfc.nasa.gov/250-wff/>

"There is nothing better than a friend. Unless it is a friend with chocolate." — Linda Grayson

From: rachel_case@fws.gov <rachel_case@fws.gov> **On Behalf Of** Virginia Field Office, FW5
Sent: Thursday, September 26, 2019 11:09 AM
To: Bruner, Douglas W. (WFF-2500) <douglas.w.bruner@nasa.gov>
Subject: Re: [EXTERNAL] NASA_USFWS Section 7 Consultation Letter

Suzie Richert

From: Brian D Hopper - NOAA Federal <brian.d.hopper@noaa.gov>
Sent: Thursday, September 26, 2019 9:45 AM
To: Bruner, Douglas W. (WFF-2500)
Cc: nmfs.gar.esa.section7@noaa.gov; kimberly.damon-randall@noaa.gov; David.L.Obrien@noaa.gov; Miller, Shari A. (WFF-2500); Simko, Marianne F. (WFF-200.C)[LJT AND ASSOCIATES, INC.]; Suzie Richert; Doug Fraser; Carver, Craig
Subject: Re: NASA_Marsh Fiber_NOAA Section 7 Consultation letter

Hi Doug,

Your email and attached letter dated September 17, 2019, regarding NASA's proposal to install a fiber optic cable from the U.S. Fish and Wildlife Service (USFWS) Wallops National Wildlife Refuge (Wallops NWR) to Wallops Island requested concurrence with a determination regarding potential effects on federally listed threatened and endangered species under our jurisdiction.

Although four species of sea turtles and Atlantic sturgeon originating from five listed Distinct Population Segments (DPS) are known to occur along the coastal waters of Virginia, based on the activities associated with the project, the location of the project, and information you provided in your email and letter, we believe that these species will not be exposed to any direct or indirect effects of the action. Therefore, we do not believe a consultation in accordance with section 7 of the Endangered Species Act (ESA) is necessary. As such, no further coordination on this activity with the NMFS Protected Resources Division is necessary at this time. Should there be additional changes to the project plans or new information become available that changes the basis for this determination, further coordination should be pursued. Please contact me (brian.d.hopper@noaa.gov), should you have any questions regarding these comments.

Regards,
-Brian

On Tue, Sep 17, 2019 at 9:14 AM Bruner, Douglas W. (WFF-2500) <douglas.w.bruner@nasa.gov> wrote:

Dear Ms. Damon-Randall,

The National Aeronautics and Space Administration (NASA) Wallops Flight Facility (WFF) proposes to install a fiber optic cable, referred to as the "Marsh Fiber," from the U.S. Fish and Wildlife Service (USFWS) Wallops National Wildlife Refuge (Wallops NWR) to Wallops Island. NASA is preparing an Environmental Assessment (EA) in compliance with NEPA to analyze the potential effects of the proposed action on the environment.

Attached to this correspondence is a letter that provides information about the proposed project and to request your concurrence with our determination regarding potential effects on federally listed threatened and endangered species under NOAA jurisdiction in the proposed project area.

Please feel free to contact Shari Miller or me if you have questions regarding the project or effects determination.

Very respectfully,

Doug Bruner

Environmental Engineer

Code 250, Medical and Environmental Management Division

NASA Wallops Flight Facility

Building F-160, Rm C-166

Wallops Island, Virginia 23337

douglas.w.bruner@nasa.gov

Office (757) 824-2441

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Brian D. Hopper

Protected Resources Division

NOAA Fisheries

Greater Atlantic Regional Fisheries Office

200 Harry S Truman Parkway

Suite 460

Annapolis, MD 21401

410 267 5649

Brian.D.Hopper@noaa.gov

<http://www.greateratlantic.fisheries.noaa.gov/>



Douglas,

I attempted to send an e-mail to you on the September 23rd regarding your project submission. It appears that there has been some difficulties with delivery. The previous e-mail stated:

Thank you for your project submission. After reviewing your documents, I did have a question about the Species Conclusion Table (SCT). You have made a may affect determination for the piping plover and red knot; however, it appears from the notes/documentation column of the SCT that you believe this project is not likely to adversely affect these species. I wanted to clarify these determinations.

Please disregard this e-mail if this information has reached you.

Regards,

Rachel

On Tue, Sep 17, 2019 at 9:16 AM Bruner, Douglas W. (WFF-2500) <douglas.w.bruner@nasa.gov> wrote:

Dear Virginia Field Office Staff,

The National Aeronautics and Space Administration (NASA) Wallops Flight Facility (WFF) proposes to install a fiber optic cable, referred to as the "Marsh Fiber," from the U.S. Fish and Wildlife Service (USFWS) Wallops National Wildlife Refuge (Wallops NWR) to Wallops Island. NASA is preparing an Environmental Assessment (EA) in compliance with NEPA to analyze the potential effects of the proposed action on the environment.

Attached to this correspondence is a letter that provides information about the proposed project and the species and critical habitat considered in our review and our determination of effects on federally listed threatened and endangered species in the proposed project area. The purpose of this letter is to inform your office of the project and to request your concurrence with our determination.

Please feel free to contact Shari Miller or me if you have questions regarding the project or effects determinations.

Very respectfully,

Doug Bruner

Environmental Engineer

Code 250, Medical and Environmental Management Division

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Rachel Case

Biological Science Technician

Virginia Field Office

U.S. Fish and Wildlife Service

6669 Short Lane

Gloucester, Virginia 23061

804-824-2416

Species Conclusions Table

Project Name: NASA Wallops Flight Facility Fiber Optic Cable Installation ("Marsh Fiber")

Date: 09/26/2019

Species / Resource Name	Conclusion	ESA Section 7	Notes / Documentation
Northern long-eared bat (<i>Myotis septentrionalis</i>)	Suitable habitat potentially present	No effect	<p>Relying upon the findings of the 1/5/2018 Programmatic Biological Opinion for the Final 4(d) Rule on the Northern long-eared bat and Activities Exempted from Take Prohibitions to fulfill project-specific Section 7 responsibilities.</p> <p>No trees would be removed as part of the Proposed Action. Noise levels from Horizontal Directional Drilling (HDD) operations and equipment would increase during project activities with disturbances to mature trees adjacent to the boresight antenna. No <i>Myotis</i> guild detected during 2017-2018 bat acoustic and netting surveys (Barr, 2018.)</p> <p>Due to a time of year restriction (TOYR) that NASA will implement on the project for other species, no work would be done between April 1 and August 31, which includes the Northern long-eared bat pup season (June 1 to July 31).</p>
Eastern black rail (<i>Laterallus jamaicensis jamaicensis</i>)	Species not present Suitable habitat present	Not likely to adversely affect	<p>Species has recently been documented at WFF and suitable habitat is present at and near the facility (Walker Marsh) (NASA 2019). As the species is proposed by USFWS for listing as threatened, NASA has included the Eastern black rail in the Species Conclusions Table for the proposed project.</p> <p>Through informal conference with USFWS conducted on 8/16/2019, NASA will incorporate a TOYR between April 1 and August 31 into the proposed project to avoid potentially adverse effects on the species. Therefore, NASA anticipates that the species would not be present during project activities.</p>

Species / Resource Name	Conclusion	ESA Section 7	Notes / Documentation
Bald eagle (<i>Haliaeetus leucocephalus</i>)	No bald eagle nests within 660 feet of project area (CCB 2019) No bald eagle roosts within 3 miles of the project area (CCB 2019)	No effect	Two active bald eagle nests exist on Wallops Island (NASA 2018). Multiple other documented bald eagle nests are in the vicinity of WFF and the project area (CCB 2019). The closest bald eagle nest to the project area is on Wallops Island more than 0.5 mile southeast of the proposed project's eastern terminus. The next closest bald eagle nest is in Wallops Island NWR more than 0.5 mile northeast of the proposed project's western terminus. Other bald eagle nests at or in the vicinity of WFF are more than 1 mile from the project area. NASA holds permit number MB50674C-0 (12/01/2017 - 11/30/2019) for eagle nest take on the east end of the Wallops Island unmanned aerial system (UAS) airstrip.
Piping plover (<i>Charadrius melodus</i>)	Species not present Suitable habitat potentially present	Not likely to adversely affect	Regularly nests and forages on Wallops, Assateague, and Assawoman Island beaches (NASA 2018; USFWS 2016, USFWS 2019). No beaches would be directly disturbed by the proposed action; NASA proposes to use HDD under the shoreline of the Wallops National Wildlife Refuge and the west side of Wallops Island (HDD is not likely to affect species). Therefore, proposed activities would not occur near documented piping plover nests on Wallops Island. Due to TOYR that NASA will implement on the project for the Eastern black rail, no work would be done between April 1 and August 31. Therefore, NASA anticipates that the species would not be present during project activities.
Red knot (<i>Calidris canutus rufa</i>)	Species not present Suitable habitat present	Not likely to adversely affect	Regularly forages on Wallops, Assateague, and Assawoman Island beaches during northerly spring migration (NASA 2018, USFWS 2019). Activities in the proposed action would not occur on beaches at or near red knot habitat. No beaches would be directly disturbed by the proposed action; NASA proposes to use HDD under the shoreline of the Wallops National Wildlife Refuge and the west side of Wallops Island (HDD is not likely to affect species). Therefore, proposed activities would not occur near documented red knot foraging areas on Wallops Island. Due to TOYR that NASA will implement on the project for the Eastern black rail, no work would be done between April 1 and August 31. Therefore, NASA anticipates that the species would not be present during project activities.

Species / Resource Name	Conclusion	ESA Section 7	Notes / Documentation
Roseate tern (<i>Sterna dougallii dougallii</i>)	Species not present Suitable habitat present	No effect	Rarely observed along the U.S. coast south of New Jersey; may transit through oceanic areas east of the action area during seasonal migration (Nisbet 1984).
Green sea turtle (<i>Chelonia mydas</i>)	No suitable habitat present	No effect	HDD unlikely to affect species; bore pits and equipment access to handholes not located in nesting habitat. NMFS Protected Species Division responded via email on 9/26/19 to NASA's request for Section 7 consultation for the Marsh Fiber Project with the following: <i>"Although four species of sea turtles and Atlantic sturgeon originating from five listed Distinct Population Segments (DPS) are known to occur along the coastal waters of Virginia, based on the activities associated with the project, the location of the project, and information you provided in your email and letter, we believe that these species will not be exposed to any direct or indirect effects of the action. Therefore, we do not believe a consultation in accordance with section 7 of the Endangered Species Act (ESA) is necessary."</i>
Hawksbill sea turtle (<i>Eretmochelys imbricata</i>)	No suitable habitat present	No effect	Most unlikely sea turtle species in ROI; only two observations in Virginia since 1979 (Mansfield 2006). HDD unlikely to affect species; bore pits and equipment access to handholes not located in nesting habitat. NMFS Protected Species Division responded via email on 9/26/19 to NASA's request for Section 7 consultation for the Marsh Fiber Project with the following: <i>"Although four species of sea turtles and Atlantic sturgeon originating from five listed Distinct Population Segments (DPS) are known to occur along the coastal waters of Virginia, based on the activities associated with the project, the location of the project, and information you provided in your email and letter, we believe that these species will not be exposed to any direct or indirect effects of the action. Therefore, we do not believe a consultation in accordance with section 7 of the Endangered Species Act (ESA) is necessary."</i>

Species / Resource Name	Conclusion	ESA Section 7	Notes / Documentation
Kemp's Ridley sea turtle (<i>Lepidochelys kempi</i>)	No suitable habitat present	No effect	<p>Second most prevalent sea turtle species in ROI. Traditionally nests in Mexico; however, first Virginia nest discovered in 2012 at Virginia Beach (USFWS 2012); with a second nest at False Cape in summer 2014 (Virginia Department of Game & Inland Fisheries, unpublished data). Generally found in more sheltered, shallower water habitats than other sea turtle species (Ogren 1989). HDD unlikely to affect species; bore pits and equipment access to handholes not located in nesting habitat.</p> <p>NMFS Protected Species Division responded via email on 9/26/19 to NASA's request for Section 7 consultation for the Marsh Fiber Project with the following: <i>"Although four species of sea turtles and Atlantic sturgeon originating from five listed Distinct Population Segments (DPS) are known to occur along the coastal waters of Virginia, based on the activities associated with the project, the location of the project, and information you provided in your email and letter, we believe that these species will not be exposed to any direct or indirect effects of the action. Therefore, we do not believe a consultation in accordance with section 7 of the Endangered Species Act (ESA) is necessary."</i></p>
Leatherback sea turtle (<i>Dermachelys coriacea</i>)	No suitable habitat present	No effect	<p>Nesting unlikely; only one individual demonstrating nesting behavior documented on Assateague Island in 1996 (Rabon et al. 2003); generally considered oceanic, however will forage in coastal areas if prey species are available in high densities (Eckert et al. 2006). HDD unlikely to affect species; bore pits and access routes to bore pits not in nesting habitat.</p> <p>NMFS Protected Species Division responded via email on 9/26/19 to NASA's request for Section 7 consultation for the Marsh Fiber Project with the following: <i>"Although four species of sea turtles and Atlantic sturgeon originating from five listed Distinct Population Segments (DPS) are known to occur along the coastal waters of Virginia, based on the activities associated with the project, the location of the project, and information you provided in your email and letter, we believe that these species will not be exposed to any direct or indirect effects of the action. Therefore, we do not believe a consultation in accordance with section 7 of the Endangered Species Act (ESA) is necessary."</i></p>

Species / Resource Name	Conclusion	ESA Section 7	Notes / Documentation
Loggerhead sea turtle (<i>Caretta caretta</i>)	No Suitable habitat present	No effect	<p>Most prevalent sea turtle species in ROI; periodically nests on Wallops and Assateague Island beaches (NASA 2018; USFWS 2016). Loggerhead nests have been observed on Wallops Island beaches as recently as 2016 (NASA 2019). Greatest in-water concentrations over continental shelf (Shoop and Kenney 1992); however, species is also found in deeper waters (Mansfield et al. 2009). HDD unlikely to affect species; bore pits and equipment access to handholes not located in nesting habitat.</p> <p>NMFS Protected Species Division responded via email on 9/26/19 to NASA's request for Section 7 consultation for the Marsh Fiber Project with the following: <i>"Although four species of sea turtles and Atlantic sturgeon originating from five listed Distinct Population Segments (DPS) are known to occur along the coastal waters of Virginia, based on the activities associated with the project, the location of the project, and information you provided in your email and letter, we believe that these species will not be exposed to any direct or indirect effects of the action. Therefore, we do not believe a consultation in accordance with section 7 of the Endangered Species Act (ESA) is necessary."</i></p>
Seabeach amaranth (<i>Amaranthus pumilus</i>)	Species not documented at NASA WFF No suitable habitat present	No effect	No documented occurrences on Wallops Island (NASA 2017); closest documented occurrence has been at Assateague Island (USWFS 2012) north of the action area.
Critical Habitat	No critical habitat	No effect	

References:

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- NASA. 2018. Wallops Island protected species monitoring report. WFF Environmental Office, Wallops Island, VA.
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- Mansfield, K. L., V.S. Saba, J.A. Keinath, & J.A. Musick. 2009. Satellite tracking reveals a dichotomy in migration strategies among juvenile loggerhead turtles in the Northwest Atlantic. *Marine Biology*, 156(12), 2555-2570.
- National Aeronautics and Space Administration (NASA). 2018. Wallops Island Protected Species Monitoring Report. WFF Environmental Office, Wallops Island, VA.
- National Aeronautics and Space Administration (NASA), 2019. Wallops Flight Facility Site-wide Programmatic Environmental Impact Statement, Final. May. https://code200-external.gsfc.nasa.gov/250-wff/site-wide_eis.
- National Marine Fisheries Service. 2019. Email from Mr. Brian Hopper, NMFS Protected Resources Division to Mr. Doug Bruner, NASA WFF on September 26. Email provided in response to NASA's request for NMFS review of protected species under Section 7 of the Endangered Species Act.
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- U.S. Fish and Wildlife Service (USFWS). 2012. Back Bay National Wildlife Refuge Annual Sea Turtle Program Report.
- USFWS. 2016. Revised Biological Opinion Wallops Flight Facility Proposed and Ongoing Operations and Shoreline Restoration. June.



UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
GREATER ATLANTIC REGIONAL FISHERIES OFFICE
55 Great Republic Drive
Gloucester, MA 01930-2276

October 10, 2019

Mr. Douglas Bruner
Environmental Engineer
National Aeronautics and Space Administration
Goddard Space Flight Center
Wallops Island Facility
Attn; 250.W
Wallops Island, Virginia 23337

Re. Wallops Island Underground Fiber Optic Cable, Marsh Cable, EFH Assessment

Dear Mr. Bruner:

We have reviewed your essential fish habitat assessment (EFH) for the installation of an underground fiber optic cable from the Wallops Flight Facility (WFF) across Ware Bay and its associated marsh islands to Wallops Island, located in Accomack County, Virginia.

Magnuson Stevens Fishery Conservation and Management Act (MSA)

The Magnuson-Stevens Fishery Conservation and Management Act (MSA) requires federal agencies such as NASA to consult with us on any action or proposed action authorized, funded, or undertaken by the agency that may adversely affect EFH identified under the MSA. The EFH regulations, 50 CFR Section 600.920, outline that consultation procedure.

EFH is defined by the MSA as “those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity”. The designation and conservation of EFH seeks to minimize adverse effects on habitat caused by fishing and non-fishing activities. The WFF and Wallops Island project area is designated as EFH for various life stages of eleven (11) federally managed species including: Atlantic butterfly (*Peprilus triacanthus*), Atlantic sea herring (*Clupea harengus*), black sea bass (*Centopristis striata*) bluefish, (*Pomatomus saltatrix*), clearnose skate (*Raja eglanteria*), winter skate (*Leucoraja ocellata*), summer flounder (*Paralichthys dentatus*), windowpane flounder (*Scopthalmus aquosus*), sandbar shark (*Carcharhinus plumbeus*), Atlantic smoothhound shark complex (*Mustelus spp.*) and sand tiger shark (*Carcharias taurus*).

Although the HDD portions of the project are not likely to directly affect EFH, there are other project elements that may. The excavation of open trenches for the installation of 3 ft. long by 3 ft. wide by 3 ft. deep concrete-polymer hand hole enclosures, used to connect the HDD portions of the cable to the vibratory trenched portion of cable, excavating to -7 ft. below the marsh surface, to connect the cable installed via vibratory trenching with the cable to be jetted below the three tidal guts, and the temporary placement of excavated sediment on marsh substrate all



have the potential to impact the marsh and water quality including increased turbidity and reduced dissolved oxygen levels.

Proposed Best Management Practices

NASA has proposed to incorporate several best management practices (BMPs) into the project to minimize direct and secondary impacts to aquatic resources. We support the proposed BMPs and request that the following are incorporated into the project design and implementation:

1. Contain sediment and drilling mud with turbidity curtains and other erosion and sediment control measures in areas the HDD drill surfaces.
2. Develop a frac-out contingency plan outlining emergency procedures to follow should drilling muds escape the bore hole.
3. Restore pre-construction contours and re-establish appropriate native vegetation at the two hand hole and three tidal gut excavation areas and temporary storage areas on Walker marsh following NASA WFF vegetation management policies, including the monitoring and adaptive management of re-established vegetation areas.
4. Use upstream and downstream turbidity curtains during hand jetting of the cable across the three tidal guts to contain resuspended sediment in the immediate work area.

Provided these BMPs are incorporated into the project design and implementation we have no objections to the proposed installation of the fiber optic cable and have no conservation recommendations to provide.

Please note that a distinct and further EFH consultation must be initiated pursuant to 50 CFR 600.920(j) if new information becomes available or if the project is revised in such a manner that affects the basis of our determination above.

This EFH determination does not address threatened and endangered species under the purview of NOAA Fisheries Service. We understand you received an email response from Mr. Brian Hopper, NOAA Protected Resources Division (brian.d.hopper@noaa.gov, 410-573-4592) that due to the proposed construction activities and location of the project, consultation with us under Section 7 of the endangered species act is not necessary.

Thank you for the opportunity to review the EFH assessment for the Wallops Island Underground Fiber Optic Cable project. If you have any questions please do not hesitate to contact David O'Brien in our Gloucester Point, VA field office at 804-684-7828 (david.l.o'brien@noaa.gov).

Sincerely,



Karen M. Greene
Mid-Atlantic Field Offices Supervisor

Cc: B. Denson, NAO Corps
H. Badger, VMRC
L. Varnell, VIMS
J. Gironda- NESDIS

Appendix F: NHPA Section 106 Documentation

Suzie Richert

From: Laura Lavernia <Laura.Lavernia@dhr.virginia.gov>
Sent: Wednesday, October 16, 2019 12:41 PM
To: Miller, Shari A. (WFF-2500)
Subject: [EXTERNAL] Geotechnical Borings for Marsh Fiber (DHR File No. 2019-3371) | e-Mail #03586

Dear Shari Miller,

Thank you for requesting comments from the Department of Historic Resources on the referenced project. Based upon the documentation provided, it is our opinion that no historic properties will be affected by the proposed undertaking.

Implementation of the undertaking in accordance with the finding of No Historic Properties Affected as documented fulfills the Federal agency's responsibilities under Section 106 of the National Historic Preservation Act. If for any reason the undertaking is not or cannot be conducted as proposed in the finding, consultation under Section 106 must be reopened.

If you have any questions or if we may provide any further assistance at this time, please do not hesitate to contact me.

Sincerely,

Laura Lavernia, Architectural Historian
Office of Review and Compliance
Division of Resource Services and Review
Phone: (804) 482-8097
Laura.Lavernia@dhr.virginia.gov