PUBLISHED ON 2/19/26

US Department of Transportation
Federal Aviation Administration

NOTICE OF AVAILABILITY OF DRAFT ENVIRONMENTAL ASSESSMENT FOR AIR TRAFFIC CONTROL TOWER REPLACEMENT AT MANASSAS REGIONAL AIRPORT, MANASSAS, VIRGINIA

FAA ID NO.: EAXX-021-12-ARP-1758268508

The City of Manassas (City), in coordination with the Federal Aviation Administration (FAA), announces the availability of the Draft Environmental Assessment (EA) for Air Traffic Control Tower (ATCT) Replacement at Manassas Regional Airport (HEF), in Prince William County, Virginia. Pursuant to Title 49, United States Code, § 47106(c)(1)(A) and Section 102(2)(c) of the *National Environmental Policy Act (NEPA) of 1969*, the Draft EA is being circulated for review and comment from the public and federal, state, and local agencies.

Comments from the federal, state, and local agencies and the public will be considered part of the Final EA. The Final EA will be submitted to the FAA for the agency's environmental determination.

Proposed Action: The City proposes the construction and operation of a replacement ATCT to improve the functional and operational capabilities of the service provided by replacing the existing ATCT. The Proposed ATCT would be up to 120 feet tall and provide improved line of sight, extended cab space, upgraded HVAC systems, enhanced security, better facilities, and improved structural integrity; these would ensure the continued safe and efficient air traffic management at the Airport. After construction of the replacement ATCT is complete and the proper equipment is installed, tested, and operational, the existing ATCT would be demolished.

Summary of Impacts: A Draft EA has been prepared to disclose the potential economic, social, and environmental impacts of the Proposed Action. The EA discusses the Proposed Action, alternatives, and potential environmental effects in areas including Air Quality, Biological Resources, Climate, Coastal Resources, Section 4(f) of the Department of Transportation (DOT) Act and Section 6(f) of the Land and Water Conservation Fund Act, Farmlands, Hazardous Materials, Solid Waste, and Pollution Prevention, Natural Resources and Energy Supply, Noise and Noise-Compatible Land Use, Socioeconomics and Children's Health and Safety Risks, Visual Effects, and Water Resources. Although impacts were identified, the research and analysis provided in the EA resulted in no significant impacts. Potential impacts and mitigation measures are described in the Draft EA.

Pursuant to Section 7 of the Endangered Species Act (ESA), coordination was conducted with the U.S. Fish and Wildlife (USFWS) regarding the potential impacts on biological resources. The USFWS concluded the Proposed Action would have ***no effect*** or ***not likely to adversely affect*** any federally listed species or designated critical habitat protected by the ESA.

The FAA consulted with the Virginia Department of Historic Resources (DHR) in compliance with Section 106 of the National Historic Preservation Act. The Virginia DHR concurred with the FAA's ***no adverse effect*** determination on April 16, 2025, regarding the replacement ATCT site. The Virginia DHR concurred with the FAA's ***no historic properties affected*** determination on January 30, 2026, regarding the FAA Remote Transmitter/Receiver (RTR) site. This notice also fulfills the Section 106 consultation requirements.

PUBLISHED ON 2/19/26

A portion of the Proposed Action is within a 100-year floodplain. Pursuant to Executive Order 11988, Floodplain Management, notice is given that the Proposed Action constitutes an encroachment into the 100-year floodplain. The potential impacts and mitigation measures are described in the Draft EA.

Draft EA Availability: The Draft EA is available for public review on the Airport's website https://flyhef.com/about/plans-projects/plans-studies and at the following locations:

Prince William County Public Library- Central Library
8601 Mathis Ave,
Manassas, VA 20110

Manassas Regional Airport
10600 Harry J Parrish Blvd
Manassas, VA 20110

How to Comment: Comments on the Draft EA should focus on the Proposed Action's economic, social, and environmental effects. Electronic comments may be sent to David Alberts (David.Alberts@rsandh.com). Written comments can be mailed to either of the recipients below:

RS&H, Inc.
Attn: Mr. David Alberts
10748 Deerwood Park Boulevard South
Jacksonville, FL 32256

Manassas Regional Airport
Attn: Mr. Juan Rivera, Airport Director
10600 Harry J Parrish Blvd
Manassas, VA 20110

The public comment period is 30 days and will begin on **2/19/26** and will close on **3/21/26**. Electronic and hand-delivered comments must be received before 5:00 pm Eastern Standard Time on **3/21/26**. Mailed comments must be postmarked no later than **3/21/26**.

The City will host a Draft EA Public Meeting on **3/10/26** from 5 pm to 7 pm at Manassas Regional Airport. The Public Meeting will include exhibit boards, solicit comments regarding the Proposed Action, and discuss the potential environmental impacts with the City and its consultant (RS&H, Inc.). All Draft EA comments will be addressed in the Final EA.

Be advised that all comments can only be accepted with the full name and address of the individual commenting. All comments received, including personal identifying information, may be made publicly available at any time. While you can ask us in your comment to withhold your personal identifying information from public review, we cannot guarantee that we will be able to do so.

DRAFT
ENVIRONMENTAL ASSESSMENT

Air Traffic Control Tower Replacement

Manassas Regional Airport (HEF)

Prepared for:

City of Manassas

And

U.S. Department of Transportation

Federal Aviation Administration

As lead Federal Agency pursuant to the National Environmental Policy Act of 1969

Prepared by:

RS&H, Inc.

February 9, 2026

This Environmental Assessment becomes a Federal document when evaluated, signed, and dated by the Responsible Federal Official.

_____ _____

Responsible Federal Official Date

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1
PURPOSE AND NEED

The City of Manassas (City) has undertaken an Environmental Assessment (EA) for the construction and operation of a replacement Airport Traffic Control Tower (ATCT) (i.e., Proposed Action) at Manassas Regional Airport (HEF or Airport). The City proposes to improve the functional and operational capabilities of the service provided by replacing the existing ATCT.

The EA has been prepared pursuant to the National Environmental Policy Act of 1969 (NEPA) and in accordance with *Federal Aviation Administration (FAA) Order 1050.1F, Environmental Impacts: Policies and Procedures*, and *FAA Order 5050.4B, National Environmental Policy Act (NEPA) Implementing Instructions for Airport Actions*.[1] The City is seeking funding from the FAA (e.g., Infrastructure Investment and Jobs Act (IIJA)) and state agencies (e.g., Virginia Department of Aviation) as well as the City to construct the proposed replacement facility. In accordance with 49 U.S.C. § 47017 , project grant application approval is conditioned on assurances about airport operations. The 49 U.S.C. § 47107(a)(16) requires the Airport owner and operator to maintain a current Airport Layout Plan (ALP) meeting FAA requirements. This requirement is associated with the Airport's inclusion within the National Plan of Integrated Airport Systems (NPIAS), making it a federally obligated Airport.

The FAA has ALP approval authority over projects that: materially impact the safe and efficient operation of aircraft at, to, or from the airport; adversely affect the safety of people or property on the ground as a result of aircraft operations; or adversely affect the value of prior Federal investments to a significant extent. The proposed ATCT replacement qualifies as a federal action seeking federal funding and requiring an ALP change subject to NEPA requirements.

This EA follows the document format described in FAA Orders 1050.1F and 5050.4B.

1.1 AIRPORT OVERVIEW

The City owns and operates the Airport. The Airport encompasses about 743 acres within the City and about 136 acres in Prince William County. Major roadways near the Airport include Nokesville Road (Route 28) to the north and Prince William Parkway (Route 234) to the east. Bristow Road is west of the Airport, and Brentsville Road is south of the Airport. ***Figure 1-1*** shows the Airport location.

The FAA's NPIAS classifies the Airport as a national general aviation airport, meaning that the Airport "supports the national airport system by providing communities with access to national and global markets" (FAA National Plan of Integrated Airport Systems, 2024).

[1] FAA Order 1050.1G, FAA National Environmental Policy Act Implementing Procedures, was published on June 30th, 2025. Preparation for this Draft EA was completed pursuant to FAA Order 1050.1F, and there are no changes that affect the environmental analysis. Additionally, this EA was prepared pursuant to current Executive Orders and current case law.

FIGURE 1-1: AIRPORT LOCATION

In fiscal year (FY) 2023, the Airport had 102,793 total operations, no enplanements- the total number of passengers who board a commercial aircraft at an airport, and 383 based aircraft (Federal Aviation Administration, 2024).

The Airport is the busiest general aviation airport in the Commonwealth of Virginia. The Virginia Airport System Economic Impact Study determined that the Airport contributed more than 547 direct jobs and over $375 million to the local economy (Virginia Department of Aviation, 2018)The Airport has a terminal building, fixed base operator (FBO) hangars/buildings, and various corporate and general aviation hangars. The Airport has two runways: Runway 16L/34R is 6,200 feet long by 100 feet wide; Runway 16R/34L is 3,704 feet long by 75 feet wide.

Airport aircraft operations include corporate/business, general aviation, charter, and recreational flights. ***Table 1-1*** shows the FAA's Terminal Area Forecast (TAF) summarizing the Airport's forecast itinerant, local, and total operations from 2024 to 2030.

TABLE 1-1: AIRPORT OPERATIONS - FAA TERMINAL AREA FORECAST

Year	Itinerant Operations	Local Operations	Total Operations	Based Aircraft
2024	56,218	47,214	103,432	387
2025	56,540	47,537	104,077	392
2026	56,869	47,863	104,732	397
2027	57,203	48,192	105,395	402
2028	57,546	48,522	106,068	407
2029	57,899	48,855	106,754	412
2030	58,255	49,190	107,445	417

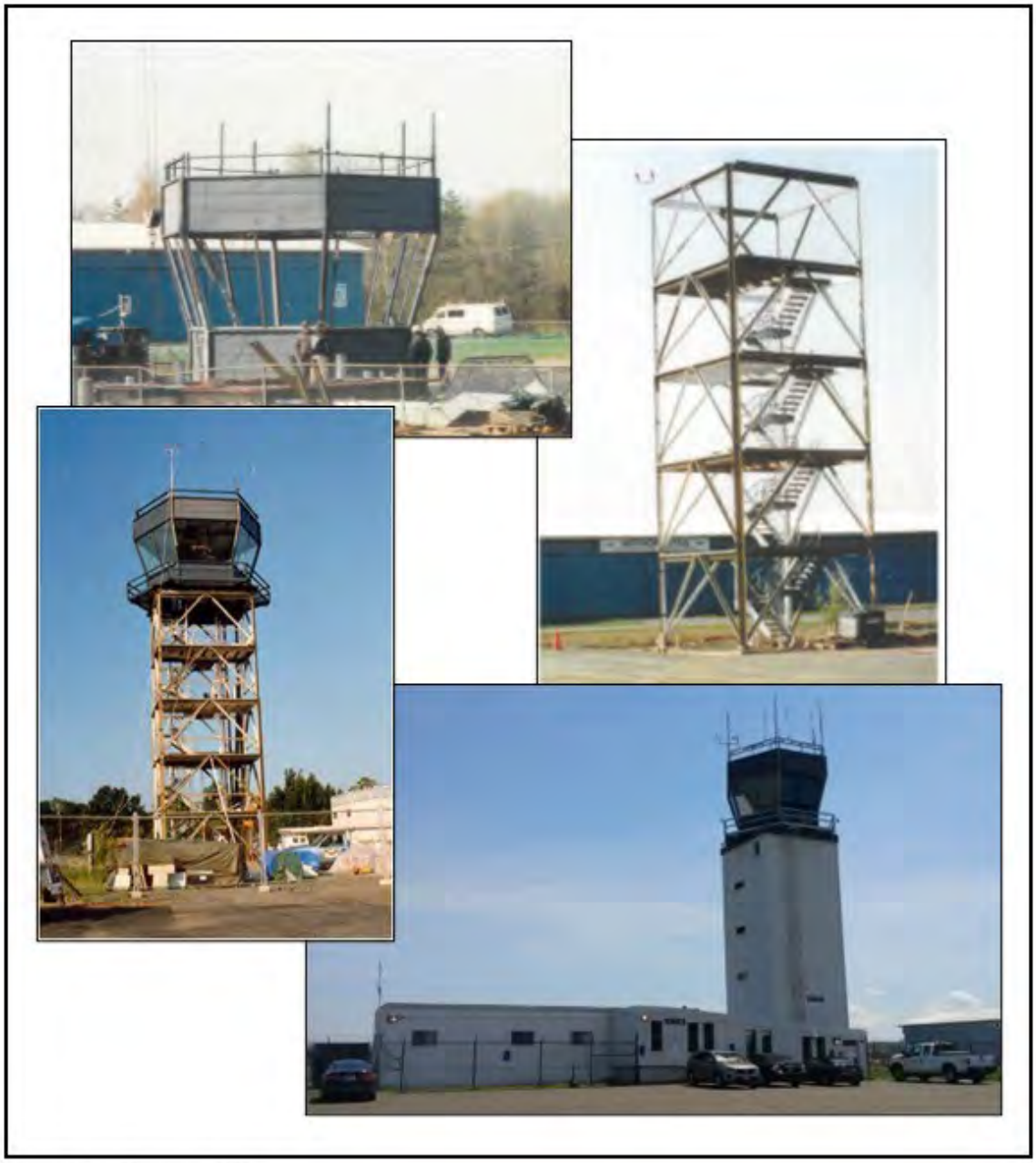
Source: FAA, 2024.

The existing ATCT is owned and maintained by the City. It holds a unique position among the Commonwealth's nine air traffic control towers, as it is the only Virginia general aviation (GA) airport with its own ATCT. The ATCT is staffed and operated by FAA personnel, ensuring safe and efficient air traffic management within the Airport's airspace. The ATCT was initially built in Centennial, Colorado, in the mid-1960s before being dismantled, transported to its current location at the Airport, and commissioned in 1991 (see ***Figure 1-2***). Despite its continued service, parts of the ATCT have aged considerably, with some components reaching 60 years old and beyond their expected useful life. This challenges the Airport's ongoing maintenance efforts to keep the ATCT operational and safe for air traffic control purposes.

1.2 PURPOSE AND NEED

The Purpose and Need establishes the justification for action by discussing the current issue and why it needs to be addressed. In addition, it establishes a basis upon which a reasonable range of alternatives can be determined.

FIGURE 1-2: ATCT RELOCATION CONSTRUCTION



Source: City of Manassas, 2023.

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The project's purpose is to improve the ATCT functional and operational capabilities provided to the Airport. The need to replace the ATCT is a combination of safety, operational, and infrastructure deficiencies. Below are the key reasons why the existing ATCT needs to be replaced. ***Figure 1-3*** shows recent pictures of the existing ATCT conditions.

- **Inadequate Height**: The ATCT's cab floor is 82 feet above ground level and is too low, which poses a safety concern. The current height affects the controllers' ability to maintain a proper line of sight with aircraft. As a result, aircraft may become difficult to spot in a timely manner, increasing the risk of incidents or incursions.[2]
- **Obstructed Line of Sight**: The current ATCT has challenges for controllers due to obstructed lines of sight. Over the years, tall trees west of the ATCT partially obstruct the view of incoming aircraft, making it challenging to detect and manage incoming traffic until they are very close to the Airport.
- **Limited Space in the ATCT Cab**: The existing ATCT cab (approximately 189 square feet) is too small to accommodate the necessary equipment and personnel comfortably. The lack of space can hinder the controllers' ability to manage air traffic efficiently and lead to decreased operational effectiveness.
- **Escalating Maintenance Costs**: The current ATCT has reached a point where its maintenance costs are increasing significantly. Aging infrastructure, equipment, and systems require frequent repairs and updates.
- **Inadequate HVAC Systems**: The air conditioning units in the ATCT are undersized for the equipment load they need to support. This results in constant operation, which consumes excessive energy and strains the equipment. This results in repeated maintenance and uncomfortable working conditions for the FAA controllers.
- **Security Concerns**: The parking area around the ATCT is not adequately secured. This poses a security risk, as unauthorized individuals could gain access to the ATCT and compromise the safety of the airspace and FAA personnel within the facility.
- **Inadequate Facilities**: The break room is too small and lacks sufficient space to meet the existing ATCT staff's operational needs. The existing ATCT also has small conference rooms and a cramped training room.
- **Structural Issues**: The ATCT cab has numerous leaks and cracks that allow water to enter. Additionally, it has issues with pests like bees and wasps infiltrating the workspace, which can pose safety and health risks to the ATCT controllers.

[2] Any occurrence at an airport involving the incorrect presence of an aircraft, vehicle, or person on the protected area of a surface designated for the landing and take off of aircraft.

FIGURE 1-3: ATCT INFRASTRUCTURE CONCERNS

Source: City of Manassas, 2023.

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The City proposes to construct a replacement ATCT at the Airport to improve the functional and operational capabilities of the service provided by the FAA ATCT personnel. The replacement ATCT would meet the design policy described in FAA Job Order (JO) 6480.7E, Airport Traffic Control Tower (ATCT), and Terminal Radar Approach Control (TRACON) Design Policy, improving the safety of the ATCT and Airport users. A replacement ATCT with an appropriate height (i.e., up to 120 feet), improved line of sight, expanded cab space, upgraded HVAC systems, enhanced security, better facilities, and improved structural integrity would ensure the continued safe and efficient air traffic management at the Airport. After construction of the replacement ATCT is complete and the proper equipment is installed, tested, and operational, the existing ATCT would be demolished.

1.3 DOCUMENT ORGANIZATION

This EA is structured to follow the document format described in FAA Orders 1050.1F and 5050.4B. ***Table 1-2*** lists the EA's chapters and describes the information contained within each.

TABLE 1-2: DOCUMENT ORGANIZATION

Chapter	Description
Chapter 1: Purpose and Need	This chapter provides an overview of the Airport and discusses the purpose and need of the project.
Chapter 2: Proposed Action / Alternatives	This chapter describes the Proposed Action, No Action Alternative, and alternatives considered in this EA.
Chapter 3: Affected Environment / Environmental Consequences	This chapter presents an overview of the existing environment in the EA's study areas. It describes the potential effects of the Proposed Action and any alternatives carried forward on each environmental resource identified in FAA Order 1050.1F.
Chapter 4: Agency and Public Involvement	This chapter describes the coordination process with applicable local, state, and federal agencies, federally recognized Tribes, and the public's opportunity to comment on the EA.
Chapter 5: List of Preparers	This chapter lists the staff at the Authority and consulting associates who researched, wrote, reviewed, and documented the EA.
Chapter 6: References	This chapter identifies the reference materials used to prepare the EA.
Appendices	The appendices present relevant material, exhibits, and technical reports developed to prepare the EA.

Source: RS&H, 2023.

2
ALTERNATIVES

This chapter identifies, describes, compares, and evaluates the Proposed Action, reasonable alternatives, and the No Action.

The Manassas Regional Airport (HEF or Airport) Airport Traffic Control Tower (ATCT) is a City-owned facility. The existing HEF tower is a Hunt/AVCO tower facility with an existing cab size of approximately 189 square feet and a cab floor height of 82 feet above ground level (AGL). In the winter/spring of 2024, the FAA conducted a Siting Study for the ATCT. The 2024 FAA Siting Report describes the siting process, evaluation criteria for a replacement tower, an overview of all potential sites considered, a detailed evaluation of the primary site options, and conclusions and recommendations (see ***Appendix A*** for further details).

2.1 PROPOSED ACTION AND ALTERNATIVES CONSIDERED AND EVALUATED

The 2024 FAA Siting Report analyzed three alternative sites, including the Proposed Action site, for the replacement ATCT (see ***Figure 2-1***).[3] The locations were determined based on FAA Order 6480.4B guidance, *Airport Traffic Control Tower Siting Criteria*. According to the 2024 FAA Siting Report, visibility and impacts were assessed and documented to determine viable sites. The sites were identified based on FAA and Airport discussions and inputs on the advantages and disadvantages of each site.

The FAA and Airport management representatives met virtually via the Virtual Immersive Siting Tower Assessment (VISTA) process on February 20-21, 2024, and February 23, 2024, to participate in ATCT siting activities. The participants followed VISTA Memo Version 1.1, dated October 16, 2023, to determine viable/preferred ATCT sites for a potential new ATCT. Additional information regarding the 2024 FAA Siting Study is contained in ***Appendix A***.

This EA considers the Proposed Action and two alternative sites, Site #1 and Site #2 (see ***Figure 2-1***). Each site includes a replacement ATCT, support building, and employee parking area (see ***Section 2.2.2*** for additional descriptions of each site's project components).

The Proposed Action (i.e., 2024 FAA Siting Study Site #3) and two alternative sites meet the Purpose and Need described in ***Chapter 1*** to improve the functional and operational capabilities of the service provided by the FAA Air Traffic Control (ATC) Staff at the Airport. The ATCT controller's line of sight and ability to safely control movements on the airfield and in the traffic pattern were the controlling factors regarding site viability. Each site is further described in ***Section 2.2.2***.

[3] Note: Only the replacement ATCT sites were evaluated and not the connected actions (vehicle parking or support building). The blue shaded areas in Figure 2-1 represent the FAA requested 2-acre minimum for the layout of a new ATCT.

FIGURE 2-1: PROPOSED ACTION AND ALTERNATIVES

2.1.1 No Action Alternative

Under the No Action Alternative, the Proposed Action (i.e., a replacement ATCT) would not be constructed. The Airport would continue to manage aircraft operations with the existing ATCT. The No Action Alternative would not satisfy the Purpose and Need of the project by providing improved functional and operational ATCT capabilities associated with the currently deficient ATCT. Under the No Action Alternative, the existing ATCT would continue to have an inadequate height with obstructions within the controller's line of sight, limited cab space, increased maintenance costs with potential incremental improvements based on available funding, inadequate HVAC, and security and structural concerns. These functional and operational issues could lead to the decommissioning of the existing ATCT if they are not addressed.

2.1.2 Replacement ATCT

As previously described, three replacement ATCT sites were analyzed during the development of the 2024 FAA Siting Study (Site #1, Site #2, and Site #3). Based on the findings of the Siting Study, Site #3 is the Proposed Action for this EA.

The replacement ATCT components (i.e., replacement ATCT, base building, and ATC Staff parking lot) are the same for each site (see ***Figure 2-1***). Each replacement ATCT site includes the following:

- Clearing and grubbing of Airport property containing vegetation and trees for a replacement ATCT (including clearing and grubbing for line-of-sight purposes);
- Construction and operation of a minimum 2-acre site for replacement of 111- to 120-foot ATCT and support facilities (approximately 130 feet to the top of the antennas with 550 square feet of cab space).
- Construction of an FAA Remote Transmitter Receiver (FAA RTR) (i.e., up to three antenna towers, as necessary, and an equipment building)
- Construction of ATCT supporting facilities, including:
    - a 0.28-acre parking lot for the ATC Staff working at the replacement ATCT (estimated maximum 10 ATCT personnel (staff and trainees) on a weekday, daytime shift).
    - an approximate 25-foot-long sidewalk to the replacement ATCT.
    - a 100-square-foot utility pad (including a possible enclosure for an emergency generator).
    - Connection to utilities (e.g., water, sewer, power, and communications) to service the replacement ATCT and link the replacement ATCT to the airfield lighting.
    - Construction of a security fence (including a vehicle access gate) to secure and provide access to the replacement ATCT.

- Relocation of the rotating beacon to the top of the replacement ATCT.[4]
- Demolition of the existing ATCT.

The replacement ATCT would include a control cab on top of a functional shaft.[5] The control cab would be designed to have five authorized ATC Staff positions. Vehicular access to the replacement ATCT site would be via a connection to Observation Road. ATC Staff would park in a proposed new parking lot, and a new sidewalk would provide access from the parking lot to the replacement ATCT.

The replacement ATCT could include a base building. A base building can further support ATCT's functional space, typically used to house the equipment necessary to support the operational needs of the ATCT, including space for administrative and training functions. A base building can have the following attributes:

- Flexibility in space arrangement.
- Potential for future expansion.
- HVAC units are used to relieve potentially crowded conditions in interior mechanical spaces.
- More convenient, safe, and efficient circulation of people.

The existing ATCT would remain in operation during the construction of the replacement ATCT. Construction of the replacement ATCT would not create line-of-site obstructions to critical points of the airfield's movement area from the existing ATCT. Operations from the replacement ATCT would begin after construction is complete and the proper equipment is installed and tested. At that time, the existing ATCT would be demolished. Removing the existing ATCT would not create line-of-site obstructions to critical points of the airfield's movement area from the replacement ATCT.

The construction of the replacement ATCT would begin in 2026 and be operational in 2028. The contractor's staging, vehicle parking, and stockpile/material storage areas are all located within the ATCT project site.

2.1.2.1 Site 1 (Alternative 1)

Site 1 is about 1,100 feet west of the Runway 16R-34L centerline (38.72061, -77.52073). Site 1 would include an approximate 120-foot access road connecting the FAA ATC Staff parking lot to Observation Road (see ***Figure 2-1***).

Site 1 was reviewed and assessed in the FAA 2024 Siting Report. Site 1 is located behind the existing ATCT and is oriented to the Local Control (LC) position facing southeast. Site 1 has

[4] According to the FAA, ATCT Sites 1 and 3 (i.e., Proposed Action) penetrate the transitional surface as described in 14 CFR Part 77.19(e); therefore the ATCT would need to be lighted in accordance with FAA AC 70/7460-1M.

[5] An ATCT's functional shaft can include space for mechanical and electronic equipment, cable routing to the tower cab, offices, break room, meeting space, training room, etc.

improved visibility over the existing ATCT, has established access and utilities, and has nearby parking. However, Site 1 is not centrally located on Airport property. Based on ***Figure 2-1***, the Site 1 location involves less tree clearing than both Alternative 2 and the Proposed Action. Trees located just off the Airport property would obscure the controller's view of the Runway 34R runup area, Taxiway K extension, and portions of the west side of Runway 34R. Also, Site 1 is located in an area where other potential future Airport development and construction is shown on the ALP (see ***Figure 2-2***). In addition, the maximum distance to the farthest point on all runways and taxiways is 4,556 feet (to Runway 34R end), which is longer than Site 3. The structure at Site 1 must be lighted in accordance with FAA Advisory Circular 70/7460-1M, Obstruction Marking and Lighting. Therefore, Site 1 was not carried forward for further analysis in the EA.

2.1.2.2 Site 2 (Alternative 2)

Site 2 is about 1,250 feet west of the Runway 16R-34L centerline (38.71931, -77.52068). Site 2 includes an approximate 400-foot access road to connect the FAA ATC Staff parking lot to Observation Road (see ***Figure 2-1***).

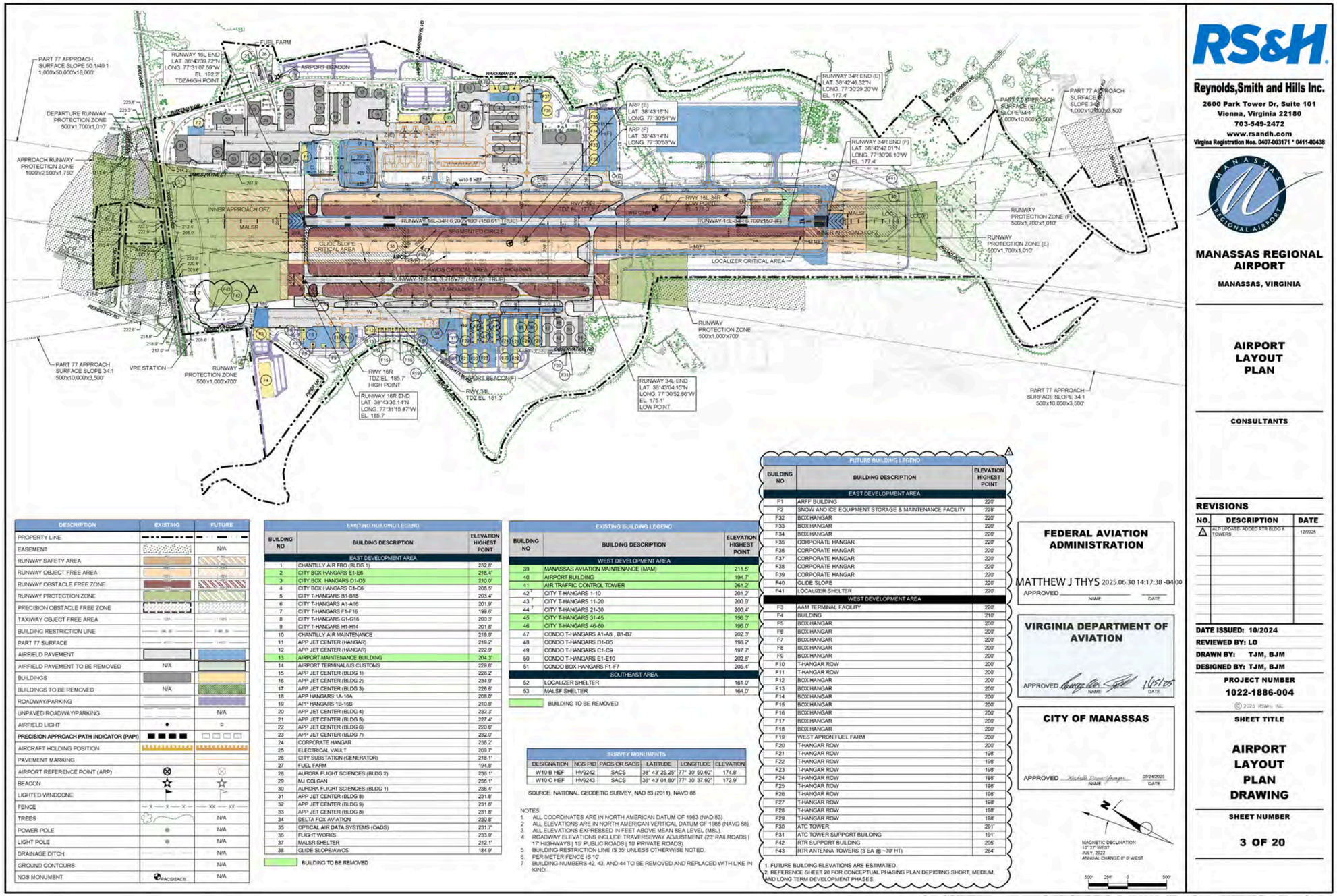
Site 2 was reviewed and assessed in the FAA 2024 Siting Report. During the Site 2's assessment, the FAA Air Traffic Management (FAA ATM) described that a portion of the Runway 34R runup area was blocked, a portion of Taxiway W and the west side of Taxiway K could not be seen, and there was a distance issue too (about 4,300 feet is the maximum distance to the farthest point on all runways and taxiways). A potential future runway extension, shown on the ALP, would be obstructed if the trees grow anymore, and the line of sight (LOS) would be unacceptable. The FAA ATM also described that the Runway 34L runup block is not visible. The FAA ATM concluded that Alternative 2 had too many LOS conflicts on the airfield and was deemed not viable (see ***Appendix A*** for further details). Therefore, Site 2 was not carried forward for further analysis in the EA.

2.1.2.3 Site 3 (Proposed Action)

The Proposed Action (2024 FAA Siting Study Site #3) is about 980 feet west of the Runway 16R-34L centerline (38.71741, -77.51845).

The Proposed Action is adjacent to the approach end of Runway 34L and is oriented to the LC position facing south. It is centrally located in the middle of the Airport and the middle of Runway 34R and Runway 16L. This site has an improved LOS to a potential future runway extension, as shown on the ALP, as well as Taxiway C and Taxiway Z on the north side, the terminal, and the ramp. Compared to Site 1, it is located further away from buildings and hangars, and its remote location adds extra security.

FIGURE 2-2: AIRPORT LAYOUT PLAN



DESCRIPTION	EXISTING	FUTURE
PROPERTY LINE		
EASEMENT		N/A
RUNWAY SAFETY AREA		
RUNWAY OBJECT FREE AREA		
RUNWAY OBSTACLE FREE ZONE		
RUNWAY PROTECTION ZONE		
PRECISION OBSTACLE FREE ZONE		
TAXIWAY OBJECT FREE AREA		
BUILDING RESTRICTION LINE		
PART 77 SURFACE		
AIRFIELD PAVEMENT		
AIRFIELD PAVEMENT TO BE REMOVED	N/A	
BUILDINGS		
BUILDINGS TO BE REMOVED	N/A	
ROADWAY/PARKING		
UNPAVED ROADWAY/PARKING		N/A
AIRFIELD LIGHT	•	○
PRECISION APPROACH PATH INDICATOR (PAPI)	■ ■ ■ ■	□ □ □ □
AIRCRAFT HOLDING POSITION		
PAVEMENT MARKING		
AIRPORT REFERENCE POINT (ARP)	⊗	⊗
BEACON	☆	☆
LIGHTED WINDCONE		
FENCE	— X — X —	— XX — XX —
TREES		N/A
POWER POLE		N/A
LIGHT POLE		N/A
DRAINAGE DITCH		N/A
GROUND CONTOURS		N/A
NGS MONUMENT	PACS/SACS	N/A

EXISTING BUILDING LEGEND

BUILDING NO	BUILDING DESCRIPTION	ELEVATION HIGHEST POINT
	EAST DEVELOPMENT AREA	
1	CHANTILLY AIR FBO (BLDG 1)	232.8'
2	CITY BOX HANGARS E1-E6	218.4'
3	CITY BOX HANGARS D1-D5	210.0'
4	CITY BOX HANGARS C1-C6	208.5'
5	CITY T-HANGARS B1-B18	203.4'
6	CITY T-HANGARS A1-A16	201.9'
7	CITY T-HANGARS F1-F16	199.6'
8	CITY T-HANGARS G1-G16	200.3'
9	CITY T-HANGARS H1-H14	201.8'
10	CHANTILLY AIR MAINTENANCE	219.8'
11	APP JET CENTER (HANGAR)	219.2'
12	APP JET CENTER (HANGAR)	222.9'
13	AIRPORT MAINTENANCE BUILDING	204.3'
14	AIRPORT TERMINAL/US CUSTOMS	229.8'
15	APP JET CENTER (BLDG 1)	226.2'
16	APP JET CENTER (BLDG 2)	234.9'
17	APP JET CENTER (BLDG 3)	228.6'
18	APP HANGARS 1A-16A	208.0'
19	APP HANGARS 1B-16B	210.8'
20	APP JET CENTER (BLDG 4)	232.3'
21	APP JET CENTER (BLDG 5)	227.4'
22	APP JET CENTER (BLDG 6)	220.6'
23	APP JET CENTER (BLDG 7)	232.0'
24	CORPORATE HANGAR	236.2'
25	ELECTRICAL VAULT	209.7'
26	CITY SUBSTATION (GENERATOR)	218.1'
27	FUEL FARM	194.8'
28	AURORA FLIGHT SCIENCES (BLDG 2)	236.1'
29	MJ COLGAN	236.1'
30	AURORA FLIGHT SCIENCES (BLDG 1)	236.4'
31	APP JET CENTER (BLDG 8)	231.8'
32	APP JET CENTER (BLDG 9)	231.6'
33	APP JET CENTER (BLDG 8)	231.8'
34	DELTA FOX AVIATION	230.8'
35	OPTICAL AIR DATA SYSTEMS (OADS)	231.7'
36	FLIGHT WORKS	233.9'
37	MALSR SHELTER	212.1'
38	GLIDE SLOPE/AWOS	184.9'

BUILDING TO BE REMOVED

EXISTING BUILDING LEGEND

BUILDING NO	BUILDING DESCRIPTION	ELEVATION HIGHEST POINT
	WEST DEVELOPMENT AREA	
39	MANASSAS AVIATION MAINTENANCE (MAM)	211.5'
40	AIRPORT BUILDING	194.7'
41	AIR TRAFFIC CONTROL TOWER	261.2'
42 [7]	CITY T-HANGARS 1-10	201.2'
43 [7]	CITY T-HANGARS 11-20	200.9'
44 [7]	CITY T-HANGARS 21-30	200.4'
45	CITY T-HANGARS 31-45	196.3'
46	CITY T-HANGARS 46-60	196.0'
47	CONDO T-HANGARS A1-A8 , B1-B7	202.3'
48	CONDO T-HANGARS D1-D5	198.2'
49	CONDO T-HANGARS C1-C9	197.7'
50	CONDO T-HANGARS E1-E10	202.9'
51	CONDO BOX HANGARS F1-F7	205.4'
	SOUTHEAST AREA	
52	LOCALIZER SHELTER	161.0'
53	MALSF SHELTER	164.0'

BUILDING TO BE REMOVED

SURVEY MONUMENTS

DESIGNATION	NGS PID	PACS OR SACS	LATITUDE	LONGITUDE	ELEVATION
W10 B HEF	HV9242	SACS	38° 43' 25.25"	77° 30' 50.60"	174.8'
W10 C HEF	HV9243	SACS	38° 43' 01.80"	77° 30' 37.92"	172.9'

SOURCE: NATIONAL GEODETIC SURVEY, NAD 83 (2011), NAVD 88

NOTES:
1. ALL COORDINATES ARE IN NORTH AMERICAN DATUM OF 1983 (NAD 83).
2. ALL ELEVATIONS ARE IN NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD 88).
3. ALL ELEVATIONS EXPRESSED IN FEET ABOVE MEAN SEA LEVEL (MSL).
4. ROADWAY ELEVATIONS INCLUDE TRAVERSEWAY ADJUSTMENT (23' RAILROADS | 17' HIGHWAYS | 15' PUBLIC ROADS | 10' PRIVATE ROADS).
5. BUILDING RESTRICTION LINE IS 35' UNLESS OTHERWISE NOTED.
6. PERIMETER FENCE IS 10'.
7. BUILDING NUMBERS 42, 43, AND 44 TO BE REMOVED AND REPLACED WITH LIKE IN KIND.

FUTURE BUILDING LEGEND

BUILDING NO	BUILDING DESCRIPTION	ELEVATION HIGHEST POINT
	EAST DEVELOPMENT AREA	
F1	ARFF BUILDING	220'
F2	SNOW AND ICE EQUIPMENT STORAGE & MAINTENANCE FACILITY	228'
F32	BOX HANGAR	220'
F33	BOX HANGAR	220'
F34	BOX HANGAR	220'
F35	CORPORATE HANGAR	220'
F36	CORPORATE HANGAR	220'
F37	CORPORATE HANGAR	220'
F38	CORPORATE HANGAR	220'
F39	CORPORATE HANGAR	220'
F40	GLIDE SLOPE	220'
F41	LOCALIZER SHELTER	220'
	WEST DEVELOPMENT AREA	
F3	AAM TERMINAL FACILITY	220'
F4	BUILDING	210'
F5	BOX HANGAR	200'
F6	BOX HANGAR	200'
F7	BOX HANGAR	200'
F8	BOX HANGAR	200'
F9	BOX HANGAR	200'
F10	T-HANGAR ROW	200'
F11	T-HANGAR ROW	200'
F12	BOX HANGAR	200'
F13	BOX HANGAR	200'
F14	BOX HANGAR	200'
F15	BOX HANGAR	200'
F16	BOX HANGAR	200'
F17	BOX HANGAR	200'
F18	BOX HANGAR	200'
F19	WEST APRON FUEL FARM	200'
F20	T-HANGAR ROW	200'
F21	T-HANGAR ROW	198'
F22	T-HANGAR ROW	198'
F23	T-HANGAR ROW	198'
F24	T-HANGAR ROW	198'
F25	T-HANGAR ROW	198'
F26	T-HANGAR ROW	198'
F27	T-HANGAR ROW	198'
F28	T-HANGAR ROW	198'
F29	T-HANGAR ROW	198'
F30	ATC TOWER	291'
F31	ATC TOWER SUPPORT BUILDING	191'
F42	RTR SUPPORT BUILDING	205'
F43	RTR ANTENNA TOWERS (3 EA @ ~70' HT)	264'

1. FUTURE BUILDING ELEVATIONS ARE ESTIMATED.
2. REFERENCE SHEET 20 FOR CONCEPTUAL PHASING PLAN DEPICTING SHORT, MEDIUM, AND LONG TERM DEVELOPMENT PHASES.

The Proposed Action is located at the threshold of Runway 34L at the north third of the Airport. ATC Staff would be able to see the lineup of aircraft clearly on the correct runway. The Proposed Action's location would require fewer trees to be removed compared with Site 2, but more than Site 1. In addition, no future development or construction is planned at this site. The 2024 FAA Siting Study does note that utilities would need to be brought in from about 200 yards to existing connections. In addition, the maximum distance to the farthest point on all runways and taxiways is 3,746 feet (to Runway 16L end), which is shorter than Site 1 and Site 2 (see ***Appendix A*** for further details). The structure at Site 3 must be lighted in accordance with FAA Advisory Circular 70/7460-1M, Obstruction Marking and Lighting. Site 3 was carried forward for detail analysis in the EA as the preferred alternative based on the analysis and recommendation in the Siting Study.

2.2 FAA RTR TOWER SITING ALTERNATIVES AND EVALUATION

Due to the height of the proposed replacement ATCT, the FAA RTR equipment[6] that is currently located on top of the existing ATCT, is unable to be located atop the proposed replacement ATCT because it would penetrate the Federal Aviation Regulation (FAR) Part 77 airspace[7] for the safe movement of aircraft operations. Therefore, FAA RTR tower siting alternatives and evaluation were conducted. FAA RTR site locations were identified based on two criteria:

- Geographic: The site must be limited to existing Airport property.
- Line of Sight: Each potential location must ensure an unobstructed line of sight to the proposed replacement ATCT site (Site 3, preferred alternative, evaluated in ***Section 2.1***).

Using this criterion, the Proposed Action FAA RTR site and five alternative FAA RTR sites were identified (see ***Figure 2-3***).

The following evaluation criteria were applied to each proposed FAA RTR tower site to identify which site would be the connected action to the Proposed Action:

- Safety: The site must be safely situated away from aircraft operations; specifically, it must be located beyond potential jet engine blast areas.
- Compliance with ALP and Future Growth: The site must align with the current ALP (i.e., not located in FAR Part 77 imaginary surfaces) and must not impede or restrict planned future airport development.
- Avoids 100-year Floodplain: The site must avoid development within the 100-year floodplain to comply with environmental regulations (i.e., Executive Order 11988, Floodplain Management).

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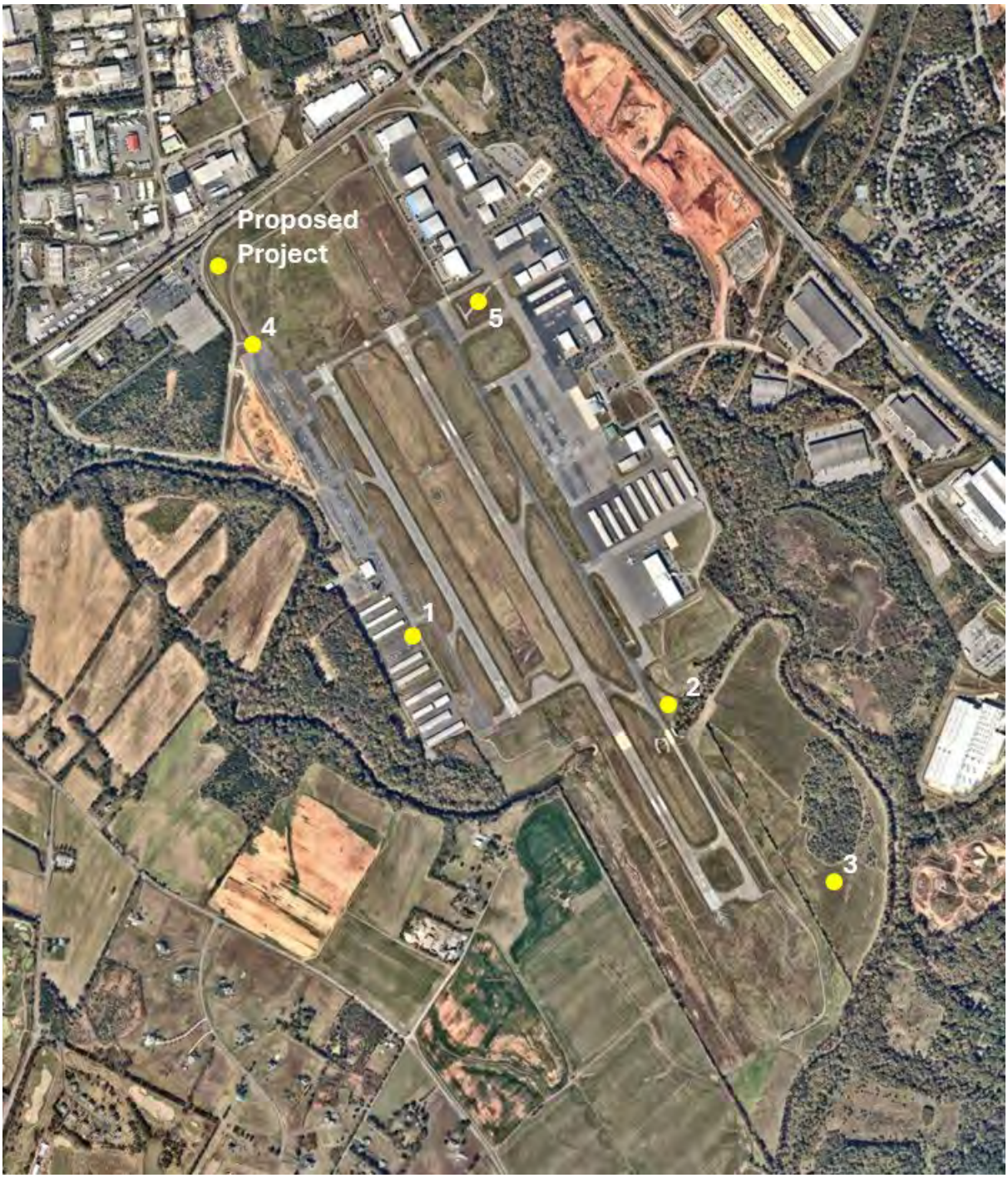
[6] FAA Remote Transmitter/Receivers (RTR) extend the communication range of air traffic control towers. FAA RTRs provide ground-to-ground communications for air traffic control specialists to issue departure authorizations and acknowledge instrument flight rules cancellations or departure/landing times to pilots.

[7] Federal Aviation Regulation (FAR) Part 77 establishes standards and notification requirements for objects affecting navigable airspace. FAR Part 77 allows the FAA to identify potential aeronautical hazards in advance, thereby preventing or minimizing adverse impacts on the safe and efficient use of navigable airspace.

FIGURE 2-3: RTR TOWER SITE ALTERNATIVES



Note: The yellow dots show the proposed location of the RTR site alternatives described in Section 2.2.

2.2.1 Proposed Action's FAA RTR Site

The Proposed Action's FAA RTR site location meets all site selection criteria, including being fully compatible with the FAA ALP and avoiding the 100-year floodplain. From a safety perspective, the site is appropriately situated away from the jet blast area

2.2.1.1 FAA RTR Alternative 1

FAA RTR Alternative 1 avoids the 100-year floodplain. However, it presents operational and long-term challenges: it is incompatible with the ALP because it restricts future development, and it poses safety risks from jet engine blast. Compared to the Proposed Action FAA RTR site, FAA RTR Alternative 1 was not considered further.

2.2.1.2 FAA RTR Alternative 2

FAA RTR Alternative 2 is compatible with future development, as shown on the ALP. Additionally, the location is not near a jet engine blast area. However, Site 2 does not avoid the 100-year floodplain. Compared to the Proposed Action FAA RTR site, FAA RTR Alternative 2 was not considered further.

2.2.1.3 FAA RTR Alternative 3

While FAA RTR Alternative 3 is favorable by providing ALP compliance and jet engine blast avoidance, it does not avoid the 100-year floodplain. Compared to the Proposed Action FAA RTR site, FAA RTR Alternative 3 was not considered further.

2.2.1.4 FAA RTR Alternative 4

FAA RTR Alternative 4 avoids affecting the 100-year floodplain; however, it is incompatible with future development on the ALP and is near a jet engine blast area. Compared to the Proposed Action FAA RTR site, FAA RTR Alternative 4 was not considered further.

2.2.1.5 FAA RTR Alternative 5

Although FAA RTR Alternative 5 avoids the 100-year floodplain, it presents safety and planning concerns. The location is not safely situated for aircraft operations due to jet engine blast generated by aircraft turning north and south from Taxilanes C and D. Furthermore, FAA RTR Alternative 5 is incompatible with the ALP because its placement could restrict future airport development. Compared to the Proposed Action FAA RTR site, Site 5 was not considered further.

2.3 ALTERNATIVES RETAINED FOR DETAILED ANALYSIS

Based on the description and location of the Proposed Action and reasonable alternatives to achieve the project's purpose and the 2024 FAA Siting Study analysis, the FAA ATM recommended that the Proposed Action (Site 3) be retained for further environmental analysis

in ***Chapter 3***. In addition, the Proposed Action's RTR site is a connected action and is also retained for further environmental analysis in ***Chapter 3***.

As previously described, the EA retains the No Action Alternative for environmental baseline comparative purposes to comply with FAA Order 1050.1F.

3
AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

This chapter describes the affected environment and evaluates the human and environmental consequences of the alternatives discussed in ***Chapter 2*** on 14 environmental impact categories defined by FAA (2015) Order 1050.1F. As described in ***Section 2.2.1***, the No Action Alternative is required to be analyzed in further detail, as it provides a baseline comparison for potential impacts from the Proposed Action.

Project Study Areas

Per guidance within the FAA *1050.1F Desk Reference,* Section I.1.1, Environmental Impact Categories,[8] a study area can vary based on the impact category being analyzed (Federal Aviation Administration, 2023). For this EA, the Direct Study Area encompasses two non-continuous areas with approximately 3.9 acres of Airport property associated with clearing/grubbing for the proposed replacement ATCT, and 0.3-acre for the location of the FAA RTR (see ***Figure 3-1***). The Direct Study Area (totaling 4.2 acres) includes environmental resources that could be directly affected by the construction of the Proposed Action. The Indirect Study Area (see ***Figure 3-1***) encompasses approximately 1,690 acres. It is based on 2020 LiDAR data overlaid on aerial imagery, where the proposed ATCT replacement would be visible from the ground. The Indirect Study Area addresses the resource categories that could be indirectly affected by the Proposed Action, such as impacts on air quality, biological resources, noise-sensitive land uses, socioeconomics, historic and cultural resources, and visual resources. Collectively, the Direct Study Area and Indirect Study Area are referred to as the "Project Study Areas."

Soil Boring Area

To assess subsurface conditions at the proposed ATCT location, a geotechnical survey with soil borings was conducted on 1 acre of the Direct Study Area (Replacement ATCT), referred to as the Soil Boring Area (see ***Figure 3-2***). To provide drill access, trees were cleared in the Soil Boring Area on March 24 and March 29, 2025; stumps were left in place, while branches and logs were mulched and spread across the ground. No grading or earth-moving activities were performed. The geotechnical survey determined that the Soil Boring Area is generally suitable for ATCT construction (Engineering & Materials Technologies, Inc., 2025).

Following the survey, existing conditions for the Direct Study Area (Replacement ATCT) equate to 1 acre of cleared trees, 2 acre of remaining forest, and 0.9-acre of paved and/or graded surfaces. Under the No Action Alternative, the trees would regrow within the Soil Boring Area. Under the Proposed Action, all tree stumps would be grubbed and debris removed within the Soil Boring Area.

[8] The Desk Reference provides explanatory guidance for environmental impact analysis to comply with the National Environmental Policy Act of 1969, U.S. DOT Order 5610.1C (Procedures for Considering Environmental Impacts), and FAA Order 1050.1F (Environmental Impacts: Policies and Procedures).

FIGURE 3-1: PROJECT STUDY AREAS

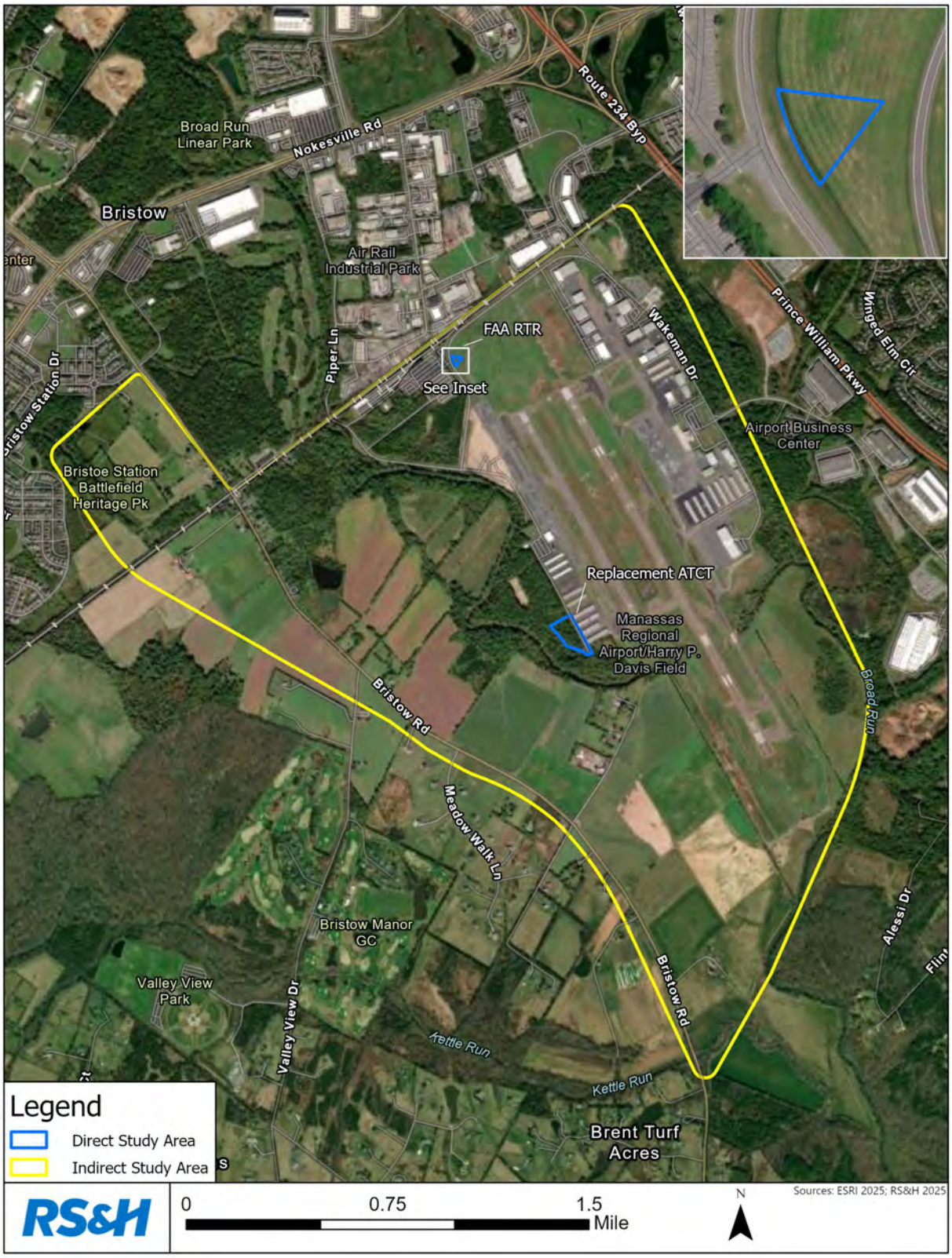


FIGURE 3-2: PROJECT STUDY AREAS AND SOIL BORING AREA

Environmental Impact Categories Potentially Affected

The following environmental impact categories identified in FAA Order 1050.1F have the potential to be affected by the Proposed Action, and are evaluated in detail in this chapter:

- Air Quality (***Section 3.2.1***)
- Biological Resources (***Section 3.2.2***)
- Climate (***Section 3.2.3***)
- Coastal Resources (***Section 3.2.4***)
- Department of Transportation Act, Section 4(f) (***Section 3.2.5***)
- Farmlands (***Section 3.2.6***)
- Hazardous Materials, Solid Waste, and Pollution Prevention (***Section 3.2.7***)
- Historical, Architectural, Archaeological, and Cultural Resources (***Section 3.2.8***)
- Natural Resources and Energy Supply (***Section 3.2.9***)
- Noise and Noise Compatible Land Use (***Section 3.2.10***)
- Socioeconomics and Children's Environmental Health and Safety (***Section 3.2.11***)
- Visual Effects (***Section 3.2.12***)
- Water Resources (***Section 3.2.13***)

As per FAA Order 1050.1F, and FAA Order 5050.4B, the analysis of each resource category includes the following:

- **Affected Environment**: describes the existing natural, ecological, cultural, social, and economic conditions that could be affected by the Proposed Action.
- **Environmental Consequences**: evaluates the human and environmental consequences of the No Action Alternative and the Proposed Action. This section also describes the potential impacts when considered with other reasonably foreseeable future actions.
- **Significance Threshold and Conclusion**: Significance thresholds for each resource category described in FAA Order 1050.1F, Exhibit 4-1, aid in the analysis of the impacts associated with the Proposed Action compared to the impact with the No Action Alternative. It is based on the information known at the time of this EA's preparation.
- **Mitigation Measures**: measures to avoid, minimize, or mitigate potential impacts.

Data used to determine the affected environment was collected by reviewing existing documentation provided by the Airport Sponsor, public databases, consulting with agencies with specific knowledge of a resource category, and conducting field investigations.

Environmental Impact Categories Not Affected

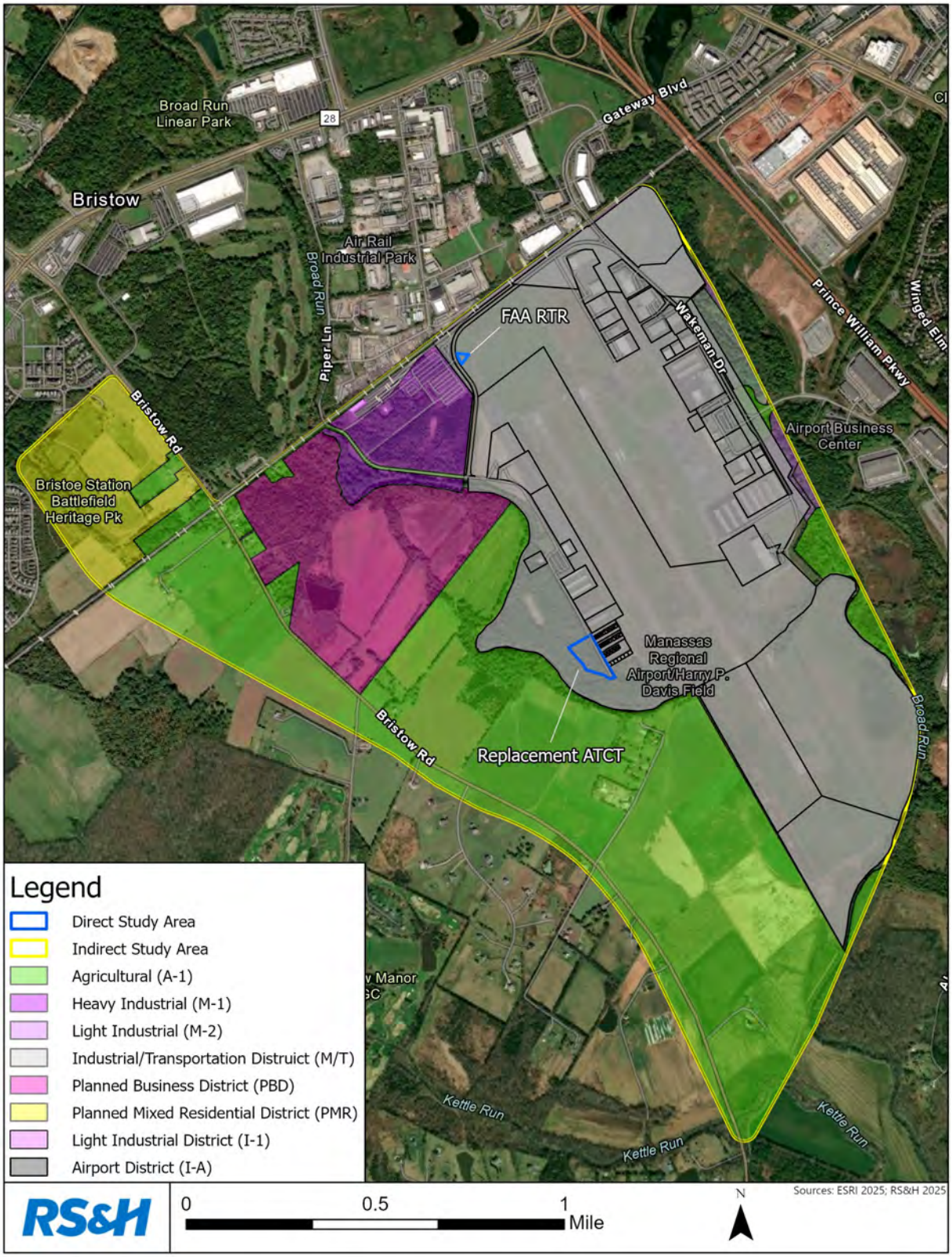
The following environmental impact categories identified in FAA Order 1050.1F would not be affected by the Proposed Action, as they are not present in the Direct Study Area and Indirect Study Area, or the Proposed Action does not have the potential to affect those resources:

- **Land Use**: As shown in ***Figure 3-3***, the City of Manassas Zoning Map (2024) identifies the Direct Study Area as being within the Airport District, permitting and using it for airport and related business activities (City of Manassas, 2023). The Proposed Action would not result in a change in land use and is consistent with the Airport District zoning designation. Land use would remain the same under the No Action Alternative. Therefore, the No Action Alternative and the Proposed Action would not affect land use.
- **Water Resources, Wild and Scenic Rivers**: According to the U.S. Department of the Interior National Park Service (2024), the nearest river listed in the Nationwide Rivers Inventory is the Bull Run tributary of the Occoquan River, located over 5 miles north of the Indirect Study Area. White Clay Creek is the nearest Wild and Scenic River segment, located 110 miles northeast of the Indirect Study Area (U.S. Department of Interior, 2024). Therefore, the No Action Alternative and Proposed Action would not affect Wild and Scenic Rivers.

3.1 NO ACTION ALTERNATIVE ENVIRONMENTAL ANALYSIS

Under the No Action Alternative, the construction and operation of the Proposed Action (i.e., replacement ATCT) would not occur. The No Action Alternative would not exclude other planned development at the Airport. The No Action Alternative would also assume incremental improvements to the existing ATCT based on available funding for it to remain operational while still operating under the remaining deficiencies, as deficient elements are being addressed. Alternatively, the No Action Alternative would eventually result in the potential loss of the ATCT facility if deficiencies cannot be corrected.

FIGURE 3-3: LAND USE



3.2 PROPOSED ACTION ENVIRONMENTAL ANALYSIS

This section describes the general characteristics of the environment within the Project Study Areas, the significance threshold for environmental effects, the Proposed Action's potential environmental effects compared to the No Action Alternative, and mitigation measures to resolve adverse effects, if needed, for the following 13 environmental resources.

The environmental analysis also includes the potential effects of the reasonably foreseeable future actions (2026-2031) that may occur on Airport property and within the Indirect Study Area (pending NEPA analysis and approval). The reasonably foreseeable future actions include the following:

- HEF Runway 16L-34R Rehabilitation,
- HEF Terminal Expansion – AVPORTS project for airside and landside improvements and associated commercial service,
- Prince William County and JR Real Estate, Bristow Crossing Intersection Project (JR Real Estate Group, 2024),
- Virginia Railway Express Broad Run Station and Maintenance and Storage Facility (MSF) Improvements (Virginia Railway Express, 2024).

3.2.1 Air Quality

The Clean Air Act (CAA) is the primary statute related to air quality (42 U.S.C. § 7401 et seq.) The CAA regulates air pollutant emissions from stationary and mobile sources and authorizes the U.S. Environmental Protection Agency (EPA) to establish National Ambient Air Quality Standards (NAAQS) for criteria pollutants. The CAA also gives the EPA authority to regulate Hazardous Air Pollutants.

The EPA has identified the following six criteria air pollutants for which NAAQS are applicable: Carbon Monoxide (CO), Lead (Pb), Nitrogen Dioxide (NO_2), Ozone (O_3), Particulate Matter (PM_{10} and $PM_{2.5}$), and Sulfur Dioxide (SO_2). These pollutants are termed "criteria" air pollutants because the EPA regulates them by developing human health-based and/or environmentally-based criteria for establishing permissible levels (U.S. Environmental Protection Agency, 2023). See ***Table 3-1*** for the 2024 NAAQS standards for criteria pollutants (EPA, 2024).

Areas that violate one or more NAAQS pollutants are classified as "nonattainment areas." States with nonattainment areas must develop a State Implementation Plan (SIP) demonstrating how the areas will be brought back into attainment of the NAAQS. Areas where concentrations of the criteria pollutants are below (i.e., within) these threshold levels are classified as "attainment areas." Areas with prior nonattainment status that have since transitioned to attainment are known as "maintenance areas." See ***Table 3-2*** for NAAQS de minimis threshold rates for nonattainment and maintenance areas.

Table 3-1: 2024 National Ambient Air Quality Standards

Pollutant		Primary/ Secondary	Averaging Time	Level	Form
Carbon Monoxide (CO)		Primary	8 hours 1 hour	9 ppm 35 ppm	Not to be exceeded more than once per year
Lead (Pb)		Primary and Secondary	Rolling 3-month average	0.15 µg/m^3 (1)	Not to be exceeded
Nitrogen Dioxide (NO_2)		Primary	1 hour	100 ppb	98th percentile of 1-hour daily maximum concentrations, averaged over 3 years
		Primary and Secondary	1 year	53 ppb (2)	Annual Mean
Ozone (O_3)		Primary and Secondary	8 hours	0.070 ppm (3)	Annual fourth-highest daily maximum 8-hour concentration, averaged over 3 years
Particle Pollution (PM)	$PM_{2.5}$	Primary	1 year	9.0 µg/m^3	Annual mean, averaged over 3 years
		Secondary	1 year	15.0 µg/m^3	Annual mean, averaged over 3 years
		Primary and Secondary	24 hours	35 µg/m^3	98th percentile, averaged over 3 years
	PM_{10}	Primary and Secondary	24 hours	150 µg/m^3	Not to be exceeded more than once per year on average over 3 years
Sulfur Dioxide (SO_2)		Primary	1 hour	75 ppb (4)	99th percentile of 1-hour daily maximum concentrations, averaged over 3 years
		Secondary	1 year	10 ppb	Annual mean, averaged over 3 years

Source: EPA 2024

(1) In areas designated nonattainment for the Pb standards prior to the promulgation of the current (2008) standards, and for which implementation plans to attain or maintain the current (2008) standards have not been submitted and approved, the previous standards (1.5 µg/m^3 as a calendar quarter average) also remain in effect.

(2) The level of the annual NO_2 standard is 0.053 ppm. It is shown here in terms of ppb for the purposes of clearer comparison to the 1-hour standard level.

(3) Final rule signed October 1, 2015, and effective December 28, 2015. The previous (2008) O_3 standards are not revoked and remain in effect for designated areas. Additionally, some areas may have certain continuing implementation obligations under the prior revoked 1-hour (1979) and 8-hour (1997) O_3 standards.

(4) The previous SO_2 standards (0.14 ppm 24-hour and 0.03 ppm annual) will additionally remain in effect in certain areas: (1) any area for which it is not yet 1 year since the effective date of designation under the current (2010) standards, and (2) any area for which an implementation plan providing for attainment of the current (2010) standard has not been submitted and approved and which is designated nonattainment under the previous SO_2 standards or is not meeting the requirements of a SIP call under the previous SO_2 standards (40 CFR 50.4(3)). A SIP call is an EPA action requiring a state to resubmit all or part of its State Implementation Plan to demonstrate attainment of the required NAAQS.

Table 3-2 **Threshold Rates for Nonattainment and Maintenance Areas**

Criteria Pollutants, Classifications and Precursors											
Nonattainment Areas			***de minimis* Threshold Rates (tons/year)**								
			CO	**NH_3**	**NO_2**	**NO_x**	**Pb**	**$PM_{2.5}$**	**PM_{10}**	**SO_2**	**VOC**
CO			100	-	-	-	-	-	-	-	-
NO_2			-	-	100	100	-	-	-	-	-
O_3	Marginal and Moderate	Outside OTR	-	-	-	100	-	-	-	-	100
		Inside OTR	-	-	-	100	-	-	-	-	50
	Serious		-	-	-	50	-	-	-	-	50
	Severe		-	-	-	25	-	-	-	-	25
	Extreme		-	-	-	10	-	-	-	-	10
Pb			-	-	-	-	25	-	-	-	-
$PM_{2.5}$	Moderate		-	100	-	100	-	100	-	100	100
	Serious		-	70	-	70	-	70	-	70	70
PM_{10}	Moderate		-	-	-	-	-	-	100	-	-
	Serious		-	-	-	-	-	-	70	-	-
SO_2			-	-	-	-	-	-	-	100	-
Maintenance Areas			***de minimis* Threshold Rates (tons/year)**								
			CO	**NH_3**	**NO_2**	**NO_x**	**Pb**	**$PM_{2.5}$**	**PM_{10}**	**SO_2**	**VOC**
CO			100	-	-	-	-	-	-	-	-
NO_2			-	-	100	100	-	-	-	-	-
O_3	Outside OTR		-	-	-	100	-	-	-	-	100
	Inside OTR		-	-	-	100	-	-	-	-	50
Pb			-	-	-	-	25	-	-	-	-
$PM_{2.5}$			-	100	-	100	-	100	-	100	100
PM_{10}			-	-	-	-	-	-	100	-	-
SO_2			-	-	-	-	-	-	-	100	-

Sources: 40 CFR 93.153(b)(1). 40 CFR 93.153(b)(2). Notes: OTR = Ozone Transport Region

3.2.1.1 Affected Environment

The Project Study Areas are located entirely within Prince William County, which is classified as "attainment" for all criteria pollutants excluding 8-Hour Ozone (2015) and (2008) (U.S. Environmental Protection Agency, 2024). Prince William County and the City of Manassas are in "Moderate - Nonattainment" for 8-Hour Ozone (2015) and in "Marginal - Maintenance" for 8-Hour Ozone (2008), which is comprised of Nitrogen Oxide (NO_x) and volatile organic compounds (VOCs). Prince William County and the City of Manassas reside in the Ozone Transportation Region (OTR) (U.S. Environmental Protection Agency, 2023). The Clean Air Act established a single transport region for Ozone (i.e., OTR), which covers portions of the northeast and mid-Atlantic states to address and reduce cross-state pollution of ozone (EPA, 2024). All construction activity would occur in the EA's Direct Study Area which is entirely

within the City and is also an "attainment" area for all NAAQS, excluding 8-Hour Ozone (2015) and (2008) standards.

3.2.1.2 Environmental Consequences

Significance Threshold - FAA Order 1050.1F, Exhibit 4-1, provides the FAA's significance threshold for air quality, which states, "The action would cause pollutant concentrations to exceed one or more of the NAAQS, as established by the EPA under the Clean Air Act (CAA), for any of the time periods analyzed, or to increase the frequency or severity of any such existing violations."

Potential Impacts - Construction of the Proposed Action would cause a minor increase in surface vehicles using area roadways to access the construction sites (i.e., approximately 8 construction-related vehicles and 45 construction employee-related vehicles). However, this would be temporary, lasting the duration of construction from 2026 to 2027. A Construction Emissions Inventory (CEI) of the Proposed Action was conducted through the EPA's Motor Vehicle Emission Simulator (MOVES) program (see ***Appendix B***). The CEI was evaluated using the estimated duration of construction, the Proposed Action dimensions, and the model's assumption of construction vehicles and equipment across that time frame. For informational purposes, greenhouse gas (GHG) emissions were also analyzed and are further discussed in ***Section 3.2.3, Climate***. The primary GHGs are Carbon Dioxide (CO_2), Methane (CH_4), and Nitrous Oxide (N_2O).

Table 3-3 and ***Table 3-4*** show the construction emissions inventory results and GHG emissions. As mentioned previously, the Indirect Study Area is "Marginal - Maintenance" for 8-Hour Ozone (2008), "Moderate - Nonattainment" for 8-Hour Ozone (2015), and "attainment" for all other NAAQS criteria pollutants. The CEI results concluded that no NAAQS emissions category would approach or surpass any *de minimis* threshold. See ***Appendix B*** for detailed CEI results. The Proposed Action would have no significant effect on air quality.

The Proposed Action would not increase aircraft operations at the Airport. Compared to a No Action Alternative, the Proposed Action would not result in any change to aircraft operational emissions or affect the region's NAAQS status.

Implementing the Proposed Action would cause a less than significant environmental effect on Air Quality. When considering projects planned to occur in the reasonably foreseeable future, the Proposed Action would not cause significant environmental effects. Therefore, the Proposed Action's construction and operation, combined with the reasonably foreseeable future projects, would not have a significant environmental impact.

TABLE 3-3: PROPOSED ACTION MOVES3 RESULTS FOR 2026 (TONS PER YEAR)

							GHGs		
2026	CO	VOC	NOx	PM_{10}	$PM_{2.5}$	SOx	CO_2	CH_4	N_2O
NONROAD	0.36	0.08	0.87	0.06	0.06	0.00	1,340.84	N/A	N/A
ONROAD	1.13	0.02	0.16	0.01	0.01	0.00	150.41	0.00	0.00
FUGITIVE	0.00	0.37	0.00	0.13	N/A	0.00	N/A	N/A	N/A
TOTAL	1.49	0.47	1.02	0.20	0.07	0.00	1,491.24	0.00	0.00
De Minimis Levels[1]	*100*	*50*	*100*	*100*	*100*	*100*	*N/A*	*N/A*	*N/A*

Note – N/A = not applicable. Totals may not sum due to rounding.

[1]: *De Minimis Levels* shown represent an area that would be in non-attainment for NAAQS pollutants; see 40 CFR 93.153 https://www.ecfr.gov/current/title-40/section-93.153. However, Prince William County and the City of Manassas are in "attainment" for all NAAQS. Excluding for 8 – Hour Ozone. Prince William County is located in the Ozone Transportation Region. Source: MOVES3.1, RS&H 2024.

TABLE 3-4: PROPOSED ACTION MOVES3 RESULTS FOR 2027 (TONS PER YEAR)

							GHGs		
2027	CO	VOC	NOx	PM_{10}	$PM_{2.5}$	SOx	CO_2	CH_4	N_2O
NONROAD	0.05	0.01	0.29	0.01	0.01	0.00	174.01	N/A	N/A
ONROAD	0.44	0.00	0.02	0.00	0.00	0.00	47.14	0.00	0.00
FUGITIVE	0.00	0.00	0.00	0.05	N/A	0.00	N/A	N/A	N/A
TOTAL	0.49	0.01	0.31	0.05	0.01	0.00	221.15	0.00	0.00
De Minimis Levels[1]	*100*	*50*	*100*	*100*	*100*	*100*	*N/A*	*N/A*	*N/A*

Note – N/A = not applicable. Totals may not sum due to rounding.

[1]: *De Minimis Levels* shown represent an area that would be in non-attainment for NAAQS pollutants; see 40 CFR 93.153 https://www.ecfr.gov/current/title-40/section-93.153. However, Prince William County and the City of Manassas are in "attainment" for all NAAQS. Excluding for 8 – Hour Ozone. Prince William County is located in the Ozone Transportation Region. Source: MOVES, RS&H 2024.

Mitigation Measures - The Proposed Action would not result in significant air quality effects. Therefore, the City does not propose mitigation measures.

Although construction of the Proposed Action would not cause a significant effect on air quality, the construction contractor would conduct construction activities in accordance with FAA AC 150/5370-10, Standards for Specifying Construction of Airports. During construction, fugitive dust would be minimized by using control measures, including, but not limited to:

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

The selected construction contractor could also implement EPA recommendations and/or construction best management practices (BMPs), including, but not limited to:

- Reducing equipment idling time through operator training and contracting policies,

- Using cleaner-burning or low-emission fuel in equipment,
- Encouraging employee carpooling,
- Limiting construction activities during high wind events to prevent dust,
- Reducing vehicle speeds on unpaved roads, or
- Implementing measures to reduce diesel emissions, such as switching to cleaner fuels, retrofitting current equipment with emission reduction technologies, repowering older engines with cleaner engines, replacing older vehicles, and inspecting and maintaining fuel tanks in accordance with regulations.

3.2.2 Biological Resources

Per guidance within the FAA *1050.1F Desk Reference*, "Biological resources are valued for their intrinsic, aesthetic, economic, and recreational qualities and include fish, wildlife, plants, and their respective habitats. Typical categories of biological resources include terrestrial and aquatic plant and animal species; game and non-game species; special status species (state or federally listed threatened or endangered species, marine mammals, or species of concern, such as species proposed for listing or migratory birds); and environmentally-sensitive or critical habitats."

The federal Endangered Species Act (ESA) (16 U.S.C. § 1531 et seq.) protects plants and wildlife that are listed by the U.S. Fish and Wildlife Service (USFWS) and National Marine Fisheries Service (NMFS) as endangered or threatened. Section 9 of the ESA prohibits the "take" of federally-listed species, where take is defined as to "harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, collect, or attempt to engage in such conduct" (U.S. Fish and Wildlife Service, 2024). For plants, this statute governs removing, possessing, maliciously damaging, or destroying any endangered plant on federal land and removing, cutting, digging up, damaging, or destroying any endangered plant on non-federal land in a violation of state law. Section 7 of the ESA requires agencies to consult with the USFWS or NMFS to ensure that actions they fund, authorize, permit, or otherwise carry out will not jeopardize the continued existence of any listed species or adversely modify designated critical habitats (U.S. Fish and Wildlife Service, 2024).

The Migratory Bird Treaty Act (MBTA) (16 U.S.C. § 703 et seq.) prohibits the take (including killing, capturing, selling, trading, and transport) of protected migratory bird species without prior authorization by the Department of Interior, through the U.S. Fish and Wildlife Service.

The Bald Eagle and Golden Eagle Protection Act (BGEPA) (16 U.S.C. § 668-668d) prohibits anyone without a permit issued by the Secretary of the U.S. Department of Interior from "taking" bald or golden eagles, including their parts (including feathers), nests, or eggs.

3.2.2.1 Affected Environment

Environmental Setting - The Project Study Areas are located within the Potomac River Basin, which is part of the larger Chesapeake Bay watershed. Land uses around the Airport are a mix of urban and rural; land uses to the north and east are urbanized areas of the City of Manassas and Prince William County, and land uses to the south and west are primarily undeveloped agricultural, forested, and low-density development. Broad Run, a perennial stream surrounded by dense forest habitat, runs through the Indirect Study Area and is approximately 270 feet southwest of the Direct Study Area at its nearest point. Approximately half of the airport property lies within the 100-year floodplain for Broad Run. Refer to ***Section 3.2.12*** for more details on water resources.

The Direct Study Area (Replacement ATCT and FAA RTR) contains approximately 1 acre of cleared forest with remaining stumps and mulched branches/logs; 2 acre of forest habitat; 0.3-acre of mowed and maintained grass; and 0.9-acre of paved and/or graded surfaces associated with Observation Road, an existing parking lot, a dirt road, and a clearing to store equipment and materials. The Direct Study Area (Replacement ATCT) is immediately adjacent to aircraft hangars, taxilanes, and parking lots along Runway 16R-34L. The Direct Study Area (Replacement ATCT and FAA RTR) provides low habitat value to wildlife species sensitive to high levels of human activity. The Direct Study Area (Replacement ATCT) is surrounded by forest habitat to the north, west, and south, while the Direct Study Area (FAA RTR) includes and is surrounded by mowed and maintained grass.

A wetland delineation and biological site survey conducted in April 2024 (see ***Appendix C***) identified the predominant tree species as American elm (*Ulmus Americana*), red maple (*Acer rubrum*), pignut hickory (*Carya glabra*), and white oak (*Quercus alba*) for the Direct Study Area (Replacement ATCT). Typical shrub species are blackhaw (*Viburnum prunifolium*) and common pawpaw (*Asimina triloba*). Groundcover vegetation was varied and included Japanese honeysuckle (*Lonicera japonica*), mayapple (*Podophyllum peltatum*), star chickweed (*Stellaria pubera*), common wood sedge (*Carex blanda*), wild geranium (*Geranium maculatum*), and Virginia springbeauty (*Claytonia virginica*). The survey documented sightings or signs of various wildlife species, including the pileated woodpecker (*Dryocopus pileatus*), blue jay (*Cryanocitta cristata*), gray squirrel (*Scurius carolinensis*), cardinal (*Cardinalis cardinalis*), white tailed deer *(Odocoileus virginianus*), racoon (*Procyon lotor*), and zebra swallowtail butterfly (*Eurytides marcellus*).

Federal and State Listed Species - The USFWS Information for Planning and Consultation (IPaC) tool provides information about potential impacts on federally listed species and critical habitats, identified three (3) federally endangered, proposed endangered, or proposed threatened species for the Direct Study Area. The Virginia Fish and Wildlife Information Service (VaFWIS) provides data on wildlife species, habitats, and natural resources within 2-miles of the Project Study Areas. See ***Table 3-5*** and ***Table 3-6*** below for protected species identified by

USFWS and VaFWIS and ***Appendix C*** for more detailed information and regulatory correspondence.

TABLE 3-5: FEDERAL LISTED SPECIES POTENTIALLY WITHIN THE PROJECT STUDY AREA

Common Name	Scientific Name	Taxa	Federal Listing
Tricolored bat	*Perimyotis subflavus*	Mammal	Proposed Endangered
Dwarf wedgemussel	*Alasmidonta heterodon*	Clam	Endangered
Monarch butterfly	*Danaus plexippus*	Insect	Proposed Threatened

Source: USFWS, 2024

TABLE 3-6: STATE LISTED SPECIES POTENTIALLY WITHIN 2 MILES OF THE DIRECT STUDY AREA

Common Name	Scientific Name	Taxa	State Listing
Northern long-eared bat	*Myotis septentrionalis*	Mammal	Threatened
Tricolored bat	*Perimyotis subflavus*	Mammal	Endangered
Little brown bat	*Myotis lucifugus*	Mammal	Endangered
Dwarf wedgemussel	*Alasmidonta heterodon*	Clam	Endangered
Yellow lance	*Elliptio lanceolata*	Clam	Threatened
Brook floater	*Alasmidonta varicose*	Clam	Threatened
Atlantic sturgeon	*Acipenser oxyrinchus*	Fish	Endangered
Peregrine falcon	*Falco peregrinus*	Bird	Threatened
Henslow's sparrow	*Centronyx henslowii*	Bird	Threatened
Loggerhead shrike	*Lanius ludovicianus*	Bird	Threatened
Monarch butterfly	*Danaus plexippus*	Insect	Federally Proposed Threatened

Source: VaFWIS, 2024

Per the USFWS (2024) IPaC species list, the Direct Study Area does not contain any federally-designated critical habitats. The VaFWIS (2024) report does not identify bald eagle concentration areas, roosts, or nests.

Species of Greatest Conservation Need and Migratory Birds - The Virginia Department of Wildlife Resources (2015) Wildlife Action Plan lists 39 priority Species of Greatest Conservation Need (SGCN) for the Northern Virginia Planning Region. Based on the habitat descriptions provided in the 2015 Wildlife Action Plan and the habitat present within the Direct Study Area, 13 priority SGCN species have the potential to occur in the Direct Study Area, all of which are also migratory bird species. The USFWS (2024) IPaC species list identified eight (8) migratory birds for the Direct Study Area. These migratory bird species are listed in ***Table 3-7***, including each bird's BGEPA, Birds of Conservation Concern (BCC), and/or SGCN status (U.S. Fish and Wildlife Service, 2024).

TABLE 3-7: SGCN AND MIGRATORY BIRD SPECIES

Common Name	Scientific Name	USFWS Status[/1/]	SGCN Status [/2/]
Bald eagle	*Haliaeetus leucocephalus*	BGEPA	--
Belted kingfisher	*Megaceryle alcyon*	BCC	Tier III
Black-billed cuckoo	*Coccyzus erythropthalmus*	BCC	Tier II
Brown thrasher	*Toxostoma rufum*	--	Tier IV
Chimney swift	*Chaetura pelagica*	BCC	Tier IV
Eastern towhee	*Pipilo erythrophthalmus*	--	Tier IV
Eastern whip-poor-will	*Antrostomus vociferus*	BCC	Tier III
Eastern wood-pewee	*Contopus virens*	--	Tier III
Grasshopper sparrow	*Ammodramus savannarum perpallidus*	BCC	Tier IV
Kentucky warbler	*Geothlypis Formosa*	BCC	Tier III
Northern Flicker	*Colaptes auratus*	--	Tier IV
Prairie warbler	*Setophaga discolor*	BCC	--
Prothonotary Warbler	*Protonotaria citrea*	BCC	--
Red-headed woodpecker	*Melanerpes erythrocephalus*	BCC	--
Rusty blackbird	*Euphagus carolinus*	BCC	Tier IV
Wood thrush	*Hylocichla mustelina*	BCC	Tier IV
Yellow-billed cuckoo	*Coccyzus americanus*	BCC	Tier III

Source: USFWS, 2024; Virginia Department of Wildlife Services, 2023. [/1/] BGEPA = Bald Eagle and Golden Eagle Protection Act; BCC = Bird of Conservation Concern. [/2/] SGCN Tier II = very high conservation need; SGCN Tier III = high conservation need; SGCN Tier IV = moderate conservation need.

Non-listed migratory bird species may also occur in the Project Study Areas. The MBTA protects both listed and non-listed migratory birds.

3.2.2.2 Environmental Consequences

Significance Threshold - FAA Order 1050.1F, Exhibit 4-1, provides the FAA's significance threshold for biological resources, which states, "The USFWS or the National Marine Fisheries Service determines that the action would be likely to jeopardize the continued existence of a federally listed threatened or endangered species, or would result in the destruction or adverse modification of federally designated critical habitat." Non-listed species have no significance threshold, but factors for consideration are as follows:

- "A long-term or permanent loss of unlisted plant or wildlife species, i.e., extirpation of the species from a large project area (e.g., a new commercial service airport); or
- Adverse impacts to special status species (e.g., state species of concern, species

proposed for listing, migratory birds, bald and golden eagles) or their habitats; or

- Substantial loss, reduction, degradation, disturbance, or fragmentation of native species' habitats or their populations; or
- Adverse impacts on a species' reproductive success rates, natural mortality rates, non-natural mortality (e.g., road kills and hunting), or ability to sustain the minimum population levels required for population maintenance."

Potential Impacts – The forest habitat in the Direct Study Area (Replacement ATCT) may be used by the tricolored bat during the non-hibernation season (Virginia Department of Wildlife Resources, 2024) and migratory bird species identified in ***Section 3.2.2.1***; therefore, the Proposed Action was evaluated for impacts to those species. The Direct Study Area (FAA RTR) does not include any critical habitat or habitat that would support the identified threatened and endangered species. This area's habitat is limited to mowed and maintained grass.

The biological site survey conducted in April 2024 confirmed that the Direct Study Area (Replacement ATCT) does not contain suitable habitat for the dwarf wedgemussel, monarch butterfly, or bald eagle. Specifically, dwarf wedgemussel habitat consists of the bottom substrates of rivers and creeks (U.S. Fish and Wildlife Service, 2024). Monarch butterfly habitat includes prairies, grasslands, and wetlands with high-density milkweed stands (U.S. Fish and Wildlife Service, 2024). Bald eagles select habitats near large bodies of open water with large trees available for nesting and perching (U.S. Fish and Wildlife Service, 2024). As these habitats are absent in the Direct Study Area (Replacement ATCT and FAA RTR), the Proposed Action would not affect the dwarf wedgemussel, monarch butterfly, and bald eagle. See ***Table 3-8*** for the Proposed Action's ESA Section 7 Determination.

TABLE 3-8: ESA SECTION 7 DETERMINATION

Species	Habitat/Species Presence in Project Study Area	ESA Section 7 Determination	Project Elements that Support Determination
Tricolored Bat (*Perimyotis subflabus*)	Suitable habitat present	Not Likely to Adversely Affect	Two acres of the Direct Study Area (Replacement ATCT) is forested and immediately adjacent to aircraft hangars, taxi lanes, and parking lots. There are few large trees and no caves for hibernation. Tricolored bats that may be present during construction are highly mobile and would relocate to adjacent suitable habitat in the vicinity. The amount of forested habitat (approx. 2 acres) is negligible compared to the suitable habitat in the vicinity.

Dwarf Wedgemussel *(Alasmidonta heterodon)*	No suitable habitat is present	No effect
Monarch Butterfly *(Danaus Plexippus)*	No suitable habitat is present	No effect

Source: USFWS, Self-Certification Letter, Consultation Code: 2024-0088272. 2024. See Appendix C for further details.

Construction – The Proposed Action requires clearing and grubbing approximately 1 acre of trees and shrubs within the Direct Study Area (Replacement ATCT) and grubbing of approximately 1 acre of stumps and mulched branches/logs from trees already cleared in the Direct Study Area (Replacement ATCT). The clearing and grubbing would occur along Observation Road, immediately across from aircraft hangars and aprons. As such, the 2 acres where clearing and/or grubbing would occur provide low habitat value to most wildlife species due to proximity to the high levels of human activity. Tricolored bats or migratory birds that may be present during construction are highly mobile and would relocate to adjacent suitable habitats and remain unharmed. Further, the amount of forest habitat impacted (approximately 1 acre) is negligible compared to the abundant, suitable habitat in the vicinity. Construction of the FAA RTR would be on mowed and maintained grass on Airport property and would have no effect on these species.

Operational – The operation of the Proposed Action would not increase aircraft operations, change the aircraft fleet mix, or affect landside or airside operations. The Proposed Action's ATCT must be lighted in accordance with FAA Advisory Circular 70/7460-1M, Obstruction Marking and Lighting (e.g., small red light atop the structure or its antennas). The change in lighting is not anticipated to increase the overall effect of lighting on wildlife at the Airport. Therefore, compared to the No Action Alternative, the operation of the Proposed Action would not affect federally-listed, state-listed, SGCN, and migratory bird species. Per FAA Order 1050.1F significance thresholds, the Proposed Action would not significantly affect biological resources.

Implementing the Proposed Action would cause a less than significant environmental effect on Biological Resources. When considering projects planned to occur in the reasonably foreseeable future, the Proposed Action would not cause significant environmental effects. Therefore, the Proposed Action's construction and operation, combined with the reasonably foreseeable future projects, would not have a significant environmental impact.

Mitigation Measures – All work will be conducted in compliance with applicable regulations. To ensure no take of migratory birds, tree removal under the Proposed Action would occur between September 11 and March 30, which is outside of the breeding and nesting season for

identified migratory bird species (April 1 to September 10) (U.S. Fish and Wildlife Service, 2024). In addition, tree removal from September 11 to March 30 also avoids the tri-colored bat pup season (May 1 through July 15), when pups are non-volant and cannot escape the disturbance (McCoshum, 2023).

The USFWS recommends that tree removal not occur when daily high temperatures are below 45 degrees Fahrenheit (F) and when bats in torpor are less likely to be able to safely flush from the disturbance.

As described at the beginning of this chapter, tree clearing as a part of the geotechnical survey occurred on March 24 and March 29, 2025, which is outside of the migratory bird breeding and nesting season, and the tri-colored bat pup season. According to the National Oceanic and Atmospheric Administration, the average daily temperature in the area was 54.5 degrees F and 73 degrees F on March 24 and March 29, 2025, respectively, which is well above the 45 degrees F threshold recommended by the USFWS (National Oceanic and Atmospheric Administration, 2025).

With the implementation of these commitments, the construction of the Proposed Action would not affect migratory birds or bats. Additional mitigation measures are not required or proposed.

3.2.3 Climate

Scientific measurements show that the Earth's climate is warming, and research has shown a direct correlation between fuel combustion and emissions of greenhouse gases (GHGs), which are known to trap heat in the atmosphere. The principal GHGs that enter the atmosphere because of human activities include carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), and fluorinated gases such as hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF_6) (U.S. Environmental Protection Agency, 2018).

3.2.3.1 Affected Environment

As described in ***Section 3.2.1***, the Project Study Areas are located within Prince William County, which is classified as in "attainment" for all criteria pollutants excluding 8-Hour Ozone (2015) and (2008) (U.S. Environmental Protection Agency, 2024). Prince William County and the City of Manassas are in moderate nonattainment for 8-Hour Ozone (2015) and marginal maintenance for 8-Hour Ozone (2008), comprised of NOx and VOCs. Prince William County resides in the Ozone Transportation Region (OTR) (U.S. Environmental Protection Agency, 2023).
All construction activity would occur in the EA's Direct Study Area which is entirely within the City of Manassas, which is also an "attainment" area for all NAAQS excluding 8-Hour Ozone (2015) and (2008) standards. In 2021, the GHG emissions for the U.S. were 6,025 million metric

tons of carbon dioxide equivalent[9] (MMT CO_{2e}), and the State of Virginia was 120 MMT CO_{2e} (U.S. Environmental Protection Agency, 2024).

3.2.3.2 Environmental Consequences

Significance Threshold - FAA Order 1050.1F does not provide a significance threshold for aviation related GHG emissions. The FAA *1050.1F Desk Reference* (Federal Aviation Administration, 2023) states, "It is not currently useful for the NEPA analysis to attempt to link specific climate impacts to the proposed action or alternative(s) given the small percentage of emissions aviation and commercial space launch projects contribute."

Potential Impacts

Construction GHG Emissions – The Proposed Action would generate GHG emissions during construction (approximately 0.0015 MMT CO_{2e} for 2026 and 0.00022 MMT CO_{2e} for 2027). (see ***Appendix B*** for additional information). Using fossil fuel-powered machinery during the construction of the Proposed Action would emit GHGs such as CO_2. Increasing the number of construction-related personal vehicles traveling to and from the Airport would increase vehicle-related GHG emissions. For this EA, it is assumed that most construction-related workers already live and work in the region; therefore, the region's vehicle-related GHG emissions would not significantly change. The GHG emissions for the U.S. in 2022 was 6,378 million metric tons of Carbon Dioxide equivalent (MMT CO_{2e}), and 117 MMT CO_{2e} was produced from the State of Virginia in 2022 (EPA, 2024). In the context of global and U.S. Greenhouse Gas emissions, the construction of the Proposed Action's emissions of 0.0015 MMT CO_{2e} for 2026 and 0.00022 MMT CO_{2e} for 2027 would not be significant. Therefore, compared to the No Action Alternative, the construction of the Proposed Action would have no significant effect on GHG emissions for the State of Virginia, the U.S., or the global climate.

Operational GHG Emissions – The Proposed Action would not increase the number of aircraft operating at the Airport. Therefore, compared to the No Action Alternative, the operation of the Proposed Action would have no significant effect on GHG emissions for the State of Virginia, the U.S., or the global climate.

Implementing the Proposed Action would cause a less than significant environmental effect on Climate. When considering projects planned to occur in the reasonably foreseeable future, the Proposed Action would not cause significant environmental effects. Therefore, the Proposed Action's construction and operation, combined with the reasonably foreseeable future projects, would not have a significant environmental impact.

[9] Carbon dioxide equivalent means the number of metric tons of CO_2 emissions with the same global warming potential as one metric ton of another greenhouse gas.

Mitigation Measures – All work will be conducted in compliance with applicable regulations. No additional mitigation measures are required or proposed. Although the Proposed Action would not significantly affect global GHG emissions, the Proposed Action could include BMPs to reduce construction-related GHG emissions to the highest level practicable. See ***Section 3.2.1.2*** for measures to reduce emissions.

3.2.4 Coastal Resources

Per guidance within the FAA *1050.1F Desk Reference*, "Coastal resources include all natural resources occurring within coastal waters and their adjacent shorelands. Coastal resources include islands, transitional and intertidal areas, salt marshes, wetlands, floodplains, estuaries, beaches, dunes, barrier islands, and coral reefs, as well as fish and wildlife and their respective habitats within these areas. Coastal resources include the coastlines of the Atlantic and Pacific oceans, the Great Lakes, and the Gulf of Mexico." Coastal resources protected under the Coastal Zone Management Act (16 U.S.C. § 1451-1466); Coastal Barrier Resources Act (16 U.S.C. Section 3501 et seq.); National Marine Sanctuaries Act (16 U.S.C. § 1431 et seq.); Executive Order (EO) 13089 (1998), *Coral Reef Protection*; and EO 13547 (2010), *Stewardship of the Ocean, Our Coasts, and the Great Lakes*.

The Virginia Coastal Zone Management (CZM) Program was established in 1986 under Executive Order to comply with federal regulations and protect the State's coastal resources. The program is managed by the Virginia Department of Environmental Quality (VDEQ) but relies on a network of state agencies and local governments to administer Virginia CZM Program Enforceable Policies (Virginia Department of Environmental Quality, 2021).

The Chesapeake Bay Preservation Act is an enforceable program of the Virginia CZM Program that establishes resource protection areas (RPAs) and resource management areas (RMAs). RPAs consist of perennial streams, tidal shores, tidal wetlands, certain non-tidal wetlands, and the required 100-foot buffer. In general, no development, land disturbance, or vegetation removal is allowed in an RPA; however, some development activities are allowed, subject to Prince William County review and approval (Prince William County, 2024). RMAs are contiguous to and extend 500 feet landward of the RPA and include floodplains, highly erodible soils, steep slopes, and highly permeable soils. Development in the RMA is less restricted; however, water quality measures may be necessary. All of Prince William County is within an RMA; therefore, developers are required to implement BMPs to minimize erosion, control runoff, and prevent pollution (Prince William County, 2024). A Flood Hazard Use Permit is also required for all work within the floodplain and/or floodway (Prince William County, 2024).

3.2.4.1 Affected Environment

According to VDEQ, both the Project Study Areas are located within the Virginia Coastal Zone (Virginia Department of Environmental Quality, 2024). However, the City of Manassas is not subject to the Chesapeake Bay Preservation Act regulations because the City of Manassas is not affected by tidal wetlands. According to the Prince William County (2024) GIS Data Portal, the Direct Study Area (Replacement ATCT) is also within the mapped RPA wetland buffer of Broad Run, the nearest perennial stream (see ***Figure 3-4***). The Direct Study Area (FAA RTR) is not within the mapped RPA wetland buffer of Broad Run.

However, the Direct Study Area (Replacement ATCT) is approximately 270 feet northeast of Broad Run at its nearest point, and a wetland survey performed in April 2024 did not identify wetlands within the footprint of the Proposed Action (see ***Appendix C***). On October 29, 2024, the wetland survey information was transmitted to the USACE for review and comment. Multiple inquiries were made to acquire the USACE's input regarding the lack of wetlands in the Direct Study Area. As of December 2025, the USACE has not replied to the information submitted. The Direct Study Area is within the 100-year floodplain of Broad Run, further described in ***Section 3.2.12.1***.

The Project Study Areas are not located within a designated Coastal Barrier Resource System (CBRS) as delineated by the USFWS Official CBRS Maps. The nearest CBRS Resource is MD-56 (St. Catherine Island), 52 miles southeast of the Indirect Study Area (U.S. Fish and Wildlife Service, 2024).

3.2.4.2 Environmental Consequences

Significance Threshold - FAA Order 1050.1F does not define a significance threshold for coastal resources; however, it does provide factors to consider in evaluating the context and intensity of potential environmental impacts on coastal resources. These include when the action would have the potential to:

- Be inconsistent with the relevant state coastal zone management plan(s);
- Impact a coastal barrier resource system unit (and the degree to which the resource would be impacted);
- Pose an impact to coral reef ecosystems (and the degree to which the ecosystem would be affected);
- Cause an unacceptable risk to human safety or property or
- Cause adverse impacts to the coastal environment that cannot be satisfactorily mitigated.

FIGURE 3-4: PRINCE WILLIAM COUNTY RESOURCE PROTECTION AREAS

Potential Impacts

Construction – The construction and operation of the Proposed Action would not occur within the Virginia Coastal Zone boundary. Previous VDEQ coordination described that the City of Manassas is not subject to the Chesapeake Bay Preservation Act (see ***Appendix G)***. Additionally, the Code of Virginia describes that the only areas required to adopt the Chesapeake Bay Regulations are those with tidal wetlands. The City of Manassas and Manassas Park do not have tidal wetlands and are, therefore, not subject to the Chesapeake Bay Regulations (Virginia Department of Environmental Quality, 2024). The Direct Study Area is within the County's mapped RPA of Broad Run. A wetland delineation performed in April 2024 did not identify any wetlands within the Direct Study Area (Replacement ATCT). Further, the Direct Study Area (Replacement ATCT) is approximately 270 feet from Broad Run at its nearest point (i.e., more than 170 feet from Broad Run RPA). Therefore, compared to the No Action Alternative, construction of the Proposed Action would have no effect on coastal resources.

Operational - Following construction, the Proposed Action would include on-site stormwater management facilities for detention (refer to ***Section 3.2.12.2***) to ensure no operational impacts to the Virginia Coastal Zone or Broad Run RPA, resulting in no effect on coastal resources when compared to the No Action Alternative.

Implementing the Proposed Action would cause a less than significant environmental effect on Coastal Resources. When considering projects planned to occur in the reasonably foreseeable future, the Proposed Action would not cause significant environmental effects. Therefore, the Proposed Action's construction and operation, combined with the reasonably foreseeable future projects, would not have a significant environmental impact.

Mitigation Measures – The City of Manassas is not subject to the Chesapeake Bay Preservation Act regulations because the City of Manassas is not affected by tidal wetlands; however, all work would be conducted in compliance with federal, state, and local laws and regulations and would implement BMPs to minimize erosion, control runoff, and prevent pollution during construction to avoid impacts to waters outside of the project area (refer to ***Section 3.2.13.2***). Mitigation measures are not required or proposed.

3.2.5 Department of Transportation Act, Section 4(f) and 6(f)

Section 4(f) of the USDOT Act of 1966 (49 USC § 303) provides protection for publicly owned parks, recreational areas, wildlife and waterfowl refuges, and public and private historic sites eligible for listing in the National Register of Historic Places (NRHP) unless it is determined there is no feasible and prudent alternative and a proposed action includes all possible planning to minimize harm. Section 4(f) provides that the Secretary of Transportation may approve a transportation program or project requiring the use of a Section 4(f) resource only if there is no feasible and prudent alternative to the using that land and the program or project includes all possible planning to minimize harm resulting from the use.

A proposed action can "use" a Section 4(f) property physically or constructively. A physical use occurs when there is a taking of a Section 4(f) property through the purchase of land, certain easements, physical occupation of a portion or all of the property, or alteration of structures or facilities on the property. Constructive use occurs when the impacts of a project on a Section 4(f) property are so severe that the activities, features, or attributes that qualify the property for protection under Section 4(f) are substantially impaired.

Section 6(f) of the Land and Water Conservation Fund Act of 1965 (LWCF Act) (16 U.S.C. §§ 4601-4 et seq) provides funds for buying or developing public-use recreational lands through grants to local and state governments. Section 6(f) prevents the conversion of lands purchased or developed with LWCF Act funds to non-recreation uses, like airport projects, unless the Secretary of the U.S. Department of the Interior, through the National Park Service, approves the conversion of the land use.

3.2.5.1 Affected Environment

There are no USDOT Section 4(f) resources within the Direct Study Area. However, the Indirect Study Area contains Bristoe Station Battlefield Heritage Park, commemorating the Battle of Kettle Run, which is a 140-acre county-owned park preserving a portion of the Bristoe Station Battlefield, located about 1 mile west of the Direct Study Area (Replacement ATCT) (Prince William County Parks & Recreation, 2024). Additionally, the Direct Study Area (FAA RTR) is within the Virginia Department of Historic Resources (DHR) identified boundary for the Bristoe Station Battlefield (DHR ID 076-0024 and 076-5036). Valley View Park is about 1 mile southwest of the Indirect Study Area (Prince William County Parks & Recreation, 2024). The nearest wildlife and waterfowl refuge is the Occoquan Bay National Wildlife Refuge, located over 15 miles southeast of the Indirect Study Area (U.S. Fish and Wildlife Service, 2024).

No Section 6(f) resources exist within the Project Study Areas. The nearest park land purchased with LWCF Act funds is Marstellar Park, located about 2.5 miles northeast of the Indirect Study Area (Trust for Public Land, 2024).

Refer to ***Figure 3-5*** for locations of Section 4(f) and Section 6(f) resources in the vicinity of the Direct Study Area and Indirect Study Area.

3.2.5.2 Environmental Consequences

Significance Threshold – FAA Order 1050.1F provides the FAA's significance threshold for Section 4(f), which states, "The action involves more than a minimal physical use of a Section 4(f) resource or constitutes a 'constructive use' based on an FAA determination that the aviation project would substantially impair the Section 4(f) resource."

Potential Impacts

Construction – There are no Section 4(f) or Section 6(f) resources within the Direct Study Area (Replacement ATCT), therefore, construction of the Replacement ATCT would not physically use (directly impact) any Section 4(f) or Section 6(f) resources.

Throughout the Airport's development and in prior Airport construction projects in the Direct Study Area (FAA RTR), the soil has been considerably disturbed. Fill material was used in the Direct Study Area (FAA RTR) when the Airport was initially constructed in the mid-1960s. This area was then graded during the construction of Observation Road in the mid-1980s and the interior service road in 2008-2009, which included stormwater ditches and fencing. Therefore, the proposed FAA RTR towers and electrical building would be constructed in fill material used for past Airport projects.

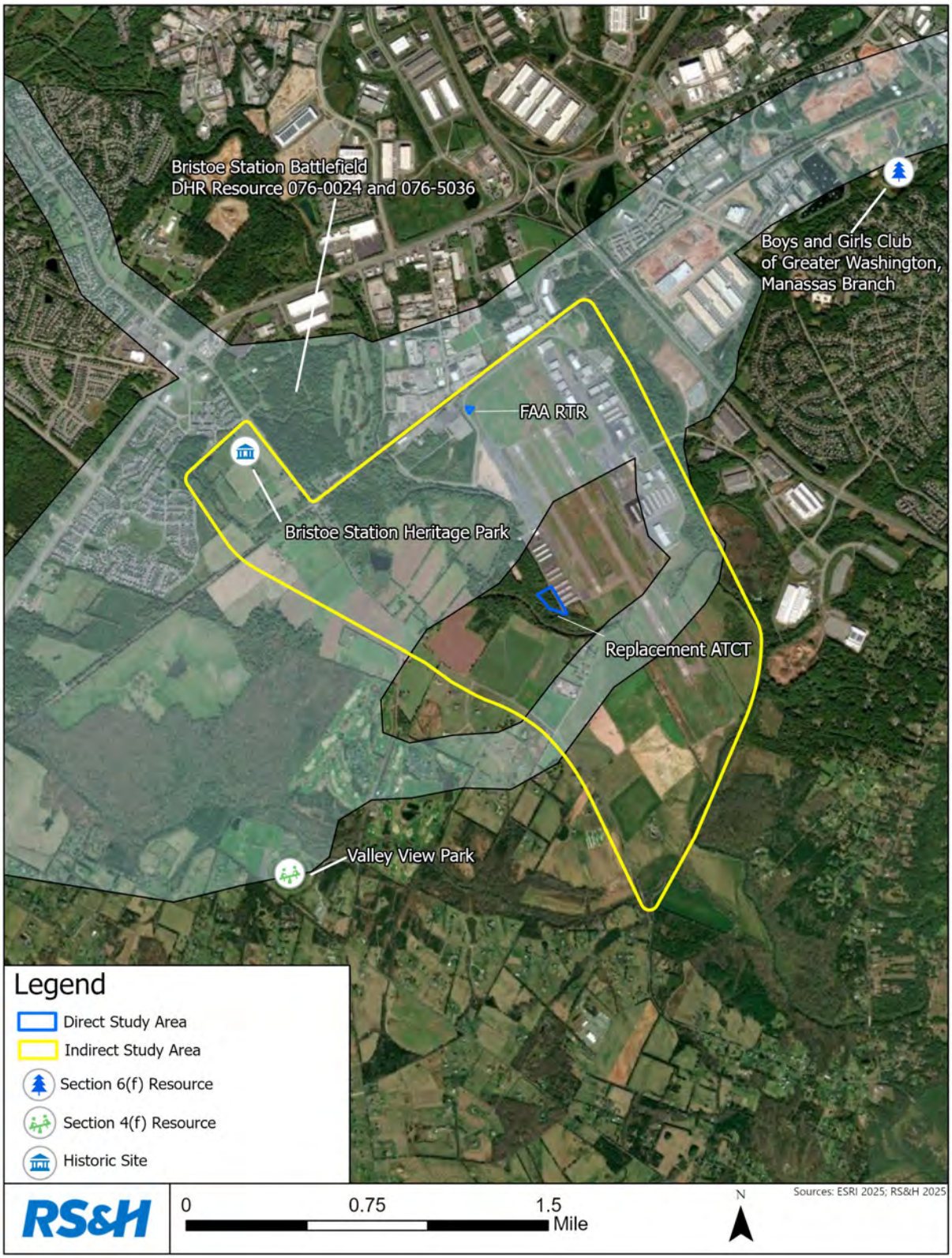
In addition, construction of the Proposed Action would not affect environmental resources (e.g., air quality, noise, etc.) in a manner that would constructively use (indirectly impact) any Section 4(f) or 6(f) resource.

Based on the Phase I archaeological survey of the Direct Study Area (Replacement ATCT), the construction of the Proposed Action would not have any impact on historic, architectural, archaeological, or cultural resources listed in or eligible for the National Register of Historic Places (see Section 3.2.8 for further details). As described in Section 3.2.8 of this EA, on April 16, 2025, the DHR concurred that the Proposed Action (Replacement ATCT) resulted in a *No Adverse Effect* determination on historic resources.

In addition, on January 8, 2026, the FAA submitted a Section 106 coordination letter and accompanying Project Review Application Form to the DHR. The letter and supporting materials described the addition to the APE, the potential direct effects, alternative FAA RTR locations and evaluation, and potential indirect effects (visual, atmospheric, and auditory). The FAA determined that the revised Proposed Action, with the FAA RTR towers and electrical support building, would not affect historic resources. In a January 30, 2026 DHR email to the FAA, the DHR wrote, "Implementation of the undertaking [Proposed Action] 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." See Section 3.2.8 and ***Appendix D*** for further details.

Therefore, compared to the No Action Alternative, the construction of the Proposed Action would not affect Section 4(f) or 6(f) resources.

FIGURE 3-5: SECTION 4(F) AND 6(F) RESOURCES



Operational – The operation of the Proposed Action would not physically use (directly impact) any Section 4(f) or Section 6(f) resources. Following construction, the proposed ATCT would be 120 tall and produce light emissions, all of which could affect the area's visual resources and/or visual character. To assess the visual effects of the Proposed Action, a Visual Effects Study was conducted, which included daytime and nighttime photo simulations of the proposed ATCT from various viewpoints (see ***Appendix E***).

The Visual Effects Study found that the Proposed Action would not be visible from Bristoe Station Battlefield Heritage Park. Additionally, the operation of the Proposed Action would not affect environmental resources (e.g., air quality, noise, etc.) in a manner that would indirectly affect (constructively use) Section 4(f) and 6(f) resources. As described in Section 3.2.8 of this EA, the DHR concurred that the Proposed Action (Replacement ATCT) resulted in a *No Adverse Effect* determination on historic resources. As described previously, the FAA determined that the revised Proposed Action, with the RTR towers and electrical support building, would not affect historic resources. In a January 30, 2026 DHR email to the FAA, the DHR wrote, "Implementation of the undertaking [Proposed Action] 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." See Section 3.2.8 and ***Appendix D*** for further details. Therefore, compared to the No Action Alternative, the operation of the Proposed Action (replacement ATCT and FAA RTR) would not affect Section 4(f) or 6(f) resources.

Implementing the Proposed Action would cause a less than significant environmental effect on USDOT Section 4(f) or Section 6(f) resources. When considering projects planned to occur in the reasonably foreseeable future, the Proposed Action would not cause significant environmental effects. Therefore, the Proposed Action's construction and operation, combined with the reasonably foreseeable future projects, would not have a significant environmental impact.

Mitigation Measures – No mitigation is required since the Proposed Action would not physically or constructively use USDOT Section 4(f) or LWCFA Section 6(f) properties.

3.2.6 Farmlands

3.2.6.1 Affected Environment

The Direct Study Area (Replacement ATCT and FAA RTR) consists of four (4) different soil types: Elsinboro sandy loam, 2 to 7 percent slopes, Alden silt loam, 0 to 2 percent slopes, Panorama silt loam, 2 to 7 percent slopes, and Rowland silt loam, 0 to 2 percent slopes (see ***Figure 3-6***). The Elsinboro soil series is a well-draining, non-hydric soil classified as prime farmland that rarely floods. Aldin silt loam soils are poorly draining, hydric, non-prime farmland that occasionally floods. Panorama silt loam is a well-drained soil type that is listed as prime farmland soil.

FIGURE 3-6: SOILS MAP

Rowland silt loam, also classified as non-prime farmland, is a moderately well-drained on-hydric soil that frequently floods. ***Table 3-9*** provides a summary of soil information within the Direct Study Area based on information collected from the USDA NRCS Web Soil Survey database. However, throughout the Airport's development and in prior Airport construction projects in the Direct Study Area (FAA RTR), the soil has been considerably disturbed and currently contains fill material.

In addition, as shown in ***Figure 3-7***, the Direct Study Area is identified as an "urbanized area" on the U.S. Census Bureau (2020) map of Urban Areas.

TABLE 3-9: FARMLAND SOIL TYPES WITHIN THE DIRECT STUDY AREA

Soil Unit Name	Acres in Direct Study Area	Farmland Classification
Elsinboro sandy loam, 2 to 7 percent slopes	2.0	Prime Farmland
Alden silt loam, 0 to 2 percent slopes	1.7	Not Prime Farmland
Panorama silt loam, 2 to 7 percent slopes	0.3	Prime Farmland
Rowland silt loam, 0 to 2 percent slopes	0.2	Not Prime Farmland

Source: (USDA NRCS, 2024).

3.2.6.2 Environmental Consequences

Significance Threshold – Exhibit 4-1 of FAA Order 1050.1F provides the FAA's significance threshold for farmlands. A significant impact would occur when the total combined score on Form AD-1006, "Farmland Conversion Impact Rating," ranges between 200 and 260 points. Factors to consider that may be applicable to farmlands include, but are not limited to, situations in which the proposed action or alternative(s) would have the potential to:

Convert important farmlands to non-agricultural uses. Important farmlands include pastureland, cropland, and forest, which are considered to be prime, unique, or of state or local importance.[10]

Potential Impacts

Construction - Construction of the Proposed Action would occur entirely on Airport property and would not require the acquisition or conversion of farmlands. Under the Farmland Protection Policy Act (FPPA) (7 U.S.C. §§ 4201-4209), land committed to urban development is not subject to provisions of the FPPA (7 CFR Part 658). Since the Direct Study Area does not contain land subject to the FPPA, completion of Form AD-1006 is not required, and farmland soil impacts would not occur.

[10] Prime farmland is land that has the best combination of physical and chemical characteristics for producing food, feed, forage, fiber, and oilseed crops, and is also available for these uses (the land could be cropland, pastureland, rangeland, forest land, or other land, but not urban built-up land or water) (7 CFR 657.5(a)).

FIGURE 3-7: U.S. CENSUS BUREAU URBANIZED AREA AND THE DETAILED STUDY AREA

Operational – The Proposed Action's operation would not affect farmland soil types.

Implementing the Proposed Action would not cause an environmental effect on farmlands. When considering projects planned to occur in the reasonably foreseeable future, the Proposed Action would not cause significant environmental effects. Therefore, the Proposed Action's construction and operation, combined with the reasonably foreseeable future projects, would not have a significant impact.

Mitigation Measures - No mitigation is required since the Proposed Action is exempt from the FPPA.

3.2.7 Hazardous Materials, Solid Waste, and Pollution Prevention

The Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) (42 U.S.C. § 9601 et seq.) and Resource Conservation and Recovery Act (RCRA) (42 U.S.C. §§ 6901-6992k) broadly define "hazardous materials." According to the FAA (2023) *1050.1F Desk Reference*, a hazardous material is any substance or material that has been determined to be capable of posing an unreasonable risk to health, safety, and property when transported in commerce and includes hazardous wastes and hazardous substances as well as petroleum and natural gas substances and materials. According to the RCRA, solid waste means any garbage, refuse, sludge from a waste treatment plant, water supply treatment plant, or air pollution control facility and other discarded material, including solid, liquid, semisolid, or contained gaseous material resulting from industrial, commercial, mining, and agricultural operations, and from community activities (42 U.S.C. §§ 6901-6992k). Pollution prevention includes methods to avoid, prevent, or reduce pollutant discharges or emissions because of a project.

3.2.7.1 Affected Environment

Hazardous Materials - According to the EPA NEPAssist tool, no hazardous waste facilities are within the Direct Study Area (U.S. Environmental Protection Agency, 2024). There are no superfund sites on the National Priorities List (NPL) within the Direct Study Area; the closest superfund site is Fairfax Mercury (Site ID: 0305614), located approximately 17 miles northeast of the Direct Study Area (U.S. Environmental Protection Agency, 2024) (see ***Appendix G***).

The City has developed a combined Stormwater Pollution and Prevention Plan (SWPPP) and Spill Prevention, Control, and Countermeasure (SPCC) Plan for the Airport, which complies with the Virginia Pollutant Discharge Elimination System Permit (VPDES) General Permit (VAR050985) issued to the City. The SPCC Plan establishes policies and procedures for handling, storing, disposing of, and cleaning up hazardous materials, including jet fuel, and identifies roles and responsibilities for spill response on Airport property.

Solid Waste and Pollution Prevention – American Disposal Services, Inc. manages the solid waste at the Airport. The closest landfill to the Airport is the Prince William County Landfill, located about 7.5 miles southeast of the Airport (Prince William County, 2024). The Prince

William County Landfill is expected to reach capacity around 2065 (Prince William County Department of Public Works, 2022). The Airport's SWPPP contains measures to prevent contamination of surface waters as a result of stormwater runoff that may contain water polluting materials.

3.2.7.2 Environmental Consequences

Significance Threshold - FAA Order 1050.1F does not define a significance threshold for hazardous materials, solid waste, and pollution prevention; however, it does provide several factors to consider in evaluating the context and intensity of potential environmental impacts. FAA Order 1050.1F, Exhibit 4-1 states that these include when the action would have the potential to:

- Violate applicable federal, state, tribal, or local laws or regulations regarding hazardous materials and/or solid waste management;
- Involve a contaminated site, including but not limited to a site listed on the National Priorities List. Involve a contaminated site (including but not limited to a site listed on the National Priorities List). Contaminated sites may encompass relatively large areas. However, not all of the grounds within the boundaries of a contaminated site are contaminated, which leaves space for siting a facility on non-contaminated land within the boundaries of a contaminated site. An EIS is not necessarily required. Paragraph 6-2.3.a of [FAA Order 1050.1F] allows for mitigating impacts below significant levels (e.g., modifying an action to site it on non-contaminated grounds within a contaminated site). Therefore, if appropriately mitigated, actions within the boundaries of a contaminated site would not have significant impacts;
- Produce an appreciably different quantity or type of hazardous waste;
- Generate an appreciably different quantity or type of solid waste or use a different method of collection or disposal and/or would exceed local capacity; or
- Adversely affects human health and the environment.

Potential Impacts

Hazardous Materials

Construction – When compared with the No Action Alternative, construction of the Proposed Action would increase temporary on-Airport hazardous materials. This would predominantly be diesel fuel, which is necessary to operate construction equipment. The selected contractor would use and manage construction-related hazardous materials in accordance with the Airport's SPCC and the amended SWPPP (including the Proposed Action) and store hazardous materials at the construction staging areas. The selected contractor would be responsible for disposing of hazardous waste in accordance with all federal, state, and local rules and regulations. Hazardous waste is accepted for disposal at the following facilities in Prince William

County and Spotsylvania County: Safety-Kleen Systems and Veolia Environmental Services (Prince William County, 2024). When the ATCT was relocated from its original location in Colorado to the Airport in 1991, the presence of any hazardous materials would have been remediated prior to transport. Electronic components would be removed and disposed of in accordance with federal, state, and local regulations prior to demolition. Therefore, the demolition of the current ATCT would not contain asbestos-containing material, lead-based paint, or other hazardous materials.

Operational – The operation of the Proposed Action would not change the type or quantity of hazardous materials used or stored at the Airport. All existing hazardous materials would continue to be used and stored per federal, state, and local rules and regulations. Compared to the No Action Alternative, the construction and operation of the Proposed Action would have no significant effect on hazardous materials.

Solid Waste and Pollution Prevention

Construction – Construction of the Proposed Action would cause a short-term, temporary increase in the quantity of solid waste generated at the Airport throughout construction from 2026 to 2027. Demolition of the existing ATCT would occur after the Proposed Action is fully operational. The Prince William County Landfill accepts limited construction and demolition debris (Prince William County, 2024). In addition, the following facilities accept concrete, cleared vegetation (e.g., brush and woody debris), and/or general construction debris in Prince William County: Rainwater Topsoil & Recycles Concrete; Commonwealth Recycled Aggregate and Materials, Inc.; Waste Management Manassas Transfer Station; C&D Recovery LLC (Prince William County, 2024). Combined, these facilities have the capacity to accept solid waste from the demolition of the existing ATCT and the construction of the Proposed Action. The selected contractor would be responsible for disposing of solid waste in accordance with all federal, state, and local rules and regulations. The use of oil for the lubrication of construction equipment would be disposed of or recycled in accordance with federal, state, and local laws.

Tree clearing conducted on March 24 and March 29, 2025, left tree stumps and mulched branches and logs in place; no vegetation debris or solid waste was disposed of off-site.

Operational – Following construction, the replacement ATCT would not result in a greater increase in solid waste compared to the No Action Alternative because the replacement ATCT would operate similarly to the existing ATCT. Solid waste would continue to be handled and disposed of in accordance with federal, state, and local rules and regulations. Operation of the Proposed Action would not significantly affect local landfills. Therefore, the Proposed Action would have no significant effect on solid waste.

Implementing the Proposed Action would cause a less than significant environmental effect on Hazardous Materials, Solid Waste, and Pollution Prevention. When considering projects planned to occur in the reasonably foreseeable future, the Proposed Action would not cause

significant environmental effects. Therefore, the Proposed Action's construction and operation, combined with the reasonably foreseeable future projects, would not have a significant environmental impact.

Mitigation Measures – The City would notify VDEQ of the Proposed Action before construction. The selected contractor would conduct all work in compliance with the City's VPDES General Permit (VAR050985) and amend the SWPPP to include the Proposed Action and SPCC Plan. As described previously, electronic components would be removed and disposed of in accordance with federal, state, and local regulations prior to demolition. If unanticipated hazardous materials are encountered during the construction of the replacement ATCT or demolition of the existing ATCT, the following measures could be implemented:

- Stop work and evacuate all personnel to a safe distance;
- Identify and assess materials discovered;
- Inform the City (i.e., Airport staff), emergency services or EPA; and
- Remediate and dispose per federal, state, and/or local regulations.

Additional mitigation measures are not required or proposed.

3.2.8 Historical, Architectural, Archeological, and Cultural Resources

The principal federal law addressing historic properties is the National Historic Preservation Act (NHPA), as amended (54 U.SC. § 300101 et seq.). Section 106 of the NHPA (36 CFR Part 800 et seq.) requires a federal agency with jurisdiction over a proposed federal action to take into account the effects of the undertaking on historic properties and to consult with the State Historic Preservation Officer (SHPO), Tribal Historic Preservation Officers (THPO), and other parties to develop and evaluate alternatives or modifications to avoid, minimize, or mitigate adverse effects on historic properties.

For the purposes of Section 106, historic properties are defined as prehistoric and historic sites, buildings, structures, districts, landscapes, and objects that are either eligible for or listed in the NRHP, as well as artifacts, records, and remains related to such properties. Historic properties can also include those cultural resources that are associated with the cultural practices or beliefs of a living community (Advisory Council on Historic Preservation, 2021). Historic properties must demonstrate importance in history, architecture, archaeology, engineering, or culture by meeting one or more of the significance criteria identified under Section 106 (36 CFR Part 800 et seq.).[11] In addition to demonstrating significance, a historic property must demonstrate integrity.

[11] The seven aspects of integrity include location, setting, design, materials, workmanship, feeling, and association.

3.2.8.1 Affected Environment

An Area of Potential Effects (APE) was established for this EA to represent the geographic area in which the Proposed Action may directly or indirectly cause alterations in the character or use of historic properties, if present. This EA's Direct APE is the 4.2-acre Direct Study Area.

A portion of the Direct APE (Replacement ATCT) (1.6 acres) overlaps with a Phase I archaeological resources survey previously completed in 2017. The 2017 Phase I archaeological resources survey did not identify any cultural resources within the portion of this EA's Direct APE (Elizabeth Anderson Comer Archaeology, 2017).

A Phase I archaeological survey was conducted on the remaining 2.4 acres of the Direct APE (Replacement ATCT). Background research efforts included a literature review of cultural resources data in the Virginia Cultural Resources Information System (VCRIS) database, an examination of historic cartographic resources, and secondary-source research on the general environmental, pre-contact, and post-contact cultural/historical contexts that have shaped the development of the Manassas Regional Airport (see ***Appendix D***).

This EA's Phase I archaeological survey consisted of shovel testing at 15-m (49.2-ft) intervals on a grid pattern within the previously unsurveyed Direct APE (Replacement ATCT) and visual inspection of the entire Direct APE. No surface artifact deposits were encountered, and none of the 23 excavated shovel test pits yielded any cultural material or evidence for subsurface cultural features. Therefore, no archaeological resources were identified within the Direct APE (see ***Appendix D***).

As previously described, prior Airport construction projects in the Direct Study Area (FAA RTR), have considerably disturbed the ground and soils. Fill material was used in the Direct Study Area (FAA RTR) when the Airport was initially constructed, then graded during the construction of Observation Road and the interior service road, which included stormwater ditches and fencing.

This EA's Indirect APE is the approximate 1,690-acre Indirect Study Area (see ***Figure 3-1***). The Indirect APE is based on 2020 LiDAR data overlaid on aerial imagery where the expected visibility of the proposed ATCT replacement could occur from the ground. The Indirect APE addresses the historic architectural resources that could be indirectly affected by the Proposed Action (e.g., visual effects). Bristoe Station Battlefield (DHR Resource 076-0024 and 076-5036) is located within the project's Direct and Indirect APE. The DHR has identified the resource as potentially eligible for listing in the NRHP.

3.2.8.2 Environmental Consequences

Significance Threshold - FAA Order 1050.1F does not provide a significance threshold for historical, architectural, archeological, and cultural resources; however, it does provide a factor to consider in evaluating the context and intensity of potential environmental impacts. This

would occur when the action would result in a finding of adverse effect through the Section 106 process.

Potential Impacts

Construction – Based on the Phase I archaeological survey, the construction of the Replacement ATCT, including tree clearing activities already performed, would not have any impact on historic, architectural, archaeological, or cultural resources listed in or eligible for the National Register of Historic Places. No further investigations are recommended. The FAA coordinated the submittal of a DHR *Project Review Application Form* for the Proposed Action. On April 16, 2025, the DHR Review and Compliance Division replied to the FAA's submittal, stating, "Implementation of the undertaking [Proposed Action] in accordance with the finding of *No Adverse Effect* as documented fulfills the Federal agency's responsibilities under Section 106 of the National Historic Preservation Act."

In the fall 2025, the Proposed Action was revised to include the FAA RTR towers and electrical support building located on Airport property, resulting in additional FAA to DHR coordination. On January 8, 2026, the FAA submitted a Section 106 coordination letter and accompanying Project Review Application Form to the DHR. The letter and supporting materials described the addition to the APE, the potential direct effects, alternative RTR locations and evaluation, and potential indirect effects (visual, atmospheric, and auditory). The FAA determined that the revised Proposed Action, with the RTR towers and electrical support building, would not affect historic resources. In a January 30, 2026 DHR email to the FAA, the DHR wrote, "Implementation of the undertaking [Proposed Action] 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." .

Operational - The operation of the Proposed Action would not increase aircraft operations, change the aircraft fleet mix, or affect landside or airside operations. The Proposed Action would not be seen from the Bristoe Station Battlefield Heritage Park (see ***Section 3.2.12*** and ***Appendix E*** for further details). Therefore, the operation of the Proposed Action would not affect historic resources. As described above, the DHR concurred that the Proposed Action resulted in a *No Adverse Effect* determination on April 16, 2025 for the replacement ATCT site and a *No Historic Properties Affected* determination on January 30, 2026 for the FAA RTR towers and electrical support building.

Per FAA Order 1050.1F significance thresholds, the Proposed Action, when compared to the No Action Alternative, would not significantly affect historical, architectural, archeological, and cultural resources.

Implementing the Proposed Action would cause a less than significant environmental effect on Historical, Architectural, Archeological, and Cultural Resources. When considering projects planned to occur in the reasonably foreseeable future, the Proposed Action would not cause

significant environmental effects. Therefore, the Proposed Action's construction and operation, combined with the reasonably foreseeable future projects, would not have a significant environmental impact.

Mitigation Measures - Construction and implementation of the Proposed Action would not significantly impact historical, architectural, archeological, and cultural resources. Therefore, no mitigation is required or proposed.

3.2.9 Natural Resources and Energy Supply

The FAA Desk Reference states that this impact category provides an evaluation of a project's consumption of natural resources (such as water, asphalt, aggregate, wood, etc.) and use of energy supplies (such as coal for electricity; natural gas for heating; and fuel for aircraft, commercial space launch vehicles, or other ground vehicles). Consumption of natural resources and use of energy supplies may result from construction, operation, and/or maintenance. FAA Order 1053.1, Energy and Water Management Program for FAA Buildings and Facilities, consistent with the National Environmental Policy Act (NEPA) encourage the development of FAA facilities that exemplify the highest standards of design, including sustainability principles. All elements of the transportation system should be designed with a view to the conservation of energy and other resources, pollution prevention, harmonization with the community environment, and sensitivity to the concerns of the traveling public.

3.2.9.1 Affected Environment

Consumable materials are regularly used to maintain the Airport's various airside and landside facilities and services. These materials include asphalt, concrete, aggregate for sub-base materials, various metals associated with Airport maintenance, and fuels associated with the operation of aircraft and vehicles.

Electrical power is provided by Northern Virginia Electric Cooperative (NOVEC) to the Airport (Northern Virginia Electric Cooperative, 2024). Water and sewer services are provided by the Prince William County Service Authority (Prince William County Service Authority , 2024). Water is drawn from the Potomac River and Lake Manassas and is treated at either Fairfax Water's James J. Corbalis, Jr. Water Treatment Plant or the City of Manassas' water treatment plant (Prince William County Service Authority, 2024). Lake Manassas is located approximately seven miles northwest of the Direct Study Area, and the Potomac River is about 18 miles southeast of the Direct Study Area.

3.2.9.2 Environmental Consequences

Significance Threshold – FAA Order 1050.1F does not define a significance threshold for natural resources and energy supply; however, it does provide a factor to consider in evaluating the context and intensity of potential environmental impacts. Potentially significant effects could occur if the action would have the potential to cause demand to exceed available or future

supplies of these resources, which include aviation and surface vehicle fuel, construction material, and electrical power.

Potential Impacts

Construction – When compared to the No Action Alternative, the construction of the Proposed Action would result in a temporary increase in the usage of natural resources. Construction activities associated with the construction of the Proposed Action include using aggregate, sub-base materials, paving materials, building materials, ATCT materials, and utility connection materials. The replacement ATCT tower would be built to the FAA's new Sustainable Tower Design Initiative. This initiative solicited a sustainable and adaptable design for air traffic control towers to be used at municipal and smaller airports across the country in order to meet key sustainability requirements. The ATCT's sustainability measures include materials and products free from chemicals known to pose health risks and high-recycled steel and metal products (FAA, 2024). Construction of the Proposed Action would not require large volumes of natural resources that are rare or in short supply in the Manassas region. Resources required for the construction of the Proposed Action are not rare or in short supply, and the quantity required for development of this size would not place an undue strain on supplies within the Manassas region. Construction of the Proposed Action would temporarily increase the usage of energy supplies; however, when compared to the No Action Alternative, the increase would be temporary and minor and be within the capacities of NOVEC. Trucks and construction equipment would consume fuel as needed during construction. Demolition of the existing ATCT would require the consumption of some natural resources to fuel and power the machinery. These energy supplies are not rare or in short supply in the Manassas region.

Operational Impacts – The operation of the Proposed Action could increase electricity and water use at the Airport. The replacement ATCT tower would be built according to the FAA's new Sustainable Tower Design Initiative, leading to the replacement ATCT being more energy efficient than the existing ATCT. To improve operational efficiency, the adaptable design includes all-electric building systems and a thermally efficient façade, as well as features such as renewable mass timber when usable. The adaptable design has standardized elements to reduce construction and operational costs while allowing for the replacement ATCT to be tailored to the local climate and location issues such as high winds, wet and dry environments, and very high and low temperatures, and increases efficiency (FAA, 2024). Compared to a No Action Alternative, the Proposed Action would have similar staffing (approximately 3-4 persons per shift – daytime and nighttime). Fluctuations in ATCT staff would occur each year due to trainees. Qualitatively, the Proposed Action has the potential for a few additional staff/trainees (an additional 3-4 staff personnel/trainees). Therefore, the operation of the Proposed Action would increase fuel use at the Airport compared to the No Action Alternative. However, the Proposed Action would not increase the aviation fuel use at the Airport.

Per FAA Order 1050.1F significance thresholds, the Proposed Action, when compared to the No Action Alternative, would not significantly affect natural resources and energy supply.

Implementing the Proposed Action would cause a less than significant environmental effect on Natural Resources and Energy Supply. When considering projects planned to occur in the reasonably foreseeable future, the Proposed Action would not cause significant environmental effects. Therefore, the Proposed Action's construction and operation, combined with the reasonably foreseeable future projects, would not have a significant environmental impact.

Mitigation Measures – The Sustainable Tower Initiative proposes a sustainable and adaptable design for air traffic control towers that would increase efficiency and thereby reduce the need for natural resources and energy. Therefore, construction and implementation of the Proposed Action would not significantly impact natural resources and energy supply, and mitigation is not required or proposed.

3.2.10 Noise and Noise Compatible Land Use

Per guidance within the FAA 1050.1F Desk Reference, noise is considered an unwanted sound that can disturb routine activities (e.g., sleep, conversation, student learning) and can cause annoyance. Aviation noise primarily results from the operation of fixed and rotary wing aircraft, such as departures, arrivals, overflights, taxiing, and engine run-ups. Noise is often the predominant aviation environmental concern of the public. Aircraft noise in communities around airports historically generated most of the noise issues. Since the issuance of the Aviation Noise Abatement Policy, the FAA has used the DNL 65 dB threshold for reducing noise impacts, and the EPA identifies day/night average sound level (DNL) as the principal metric for airport noise analysis. Federal regulations on airport noise compatibility planning (14 CFR Part 150) sets forth standards for airport operators to use when documenting noise exposure around airports and for establishing programs, subject to FAA approval, to reduce noise-related noncompatible land use. A “noncompatible land use” is a land use (such as residential, schools, and churches) exposed to aircraft noise above established thresholds. The FAA requires DNL as the noise descriptor in aircraft noise exposure analysis and noise compatibility planning. DNL levels are commonly shown as lines of equal noise exposure, similar to terrain contour maps, referred to as noise contours.

3.2.10.1 Affected Environment

Rural and residential land uses near the Airport and within the Indirect Study Area[12] are sensitive to aircraft noise associated with the Airport. However, most of the development around the Airport is industrial and commercial. The designated noise-sensitive area east and south of the Airport is not within the existing DNL 65 dBA noise contour (City of Manassas,

[12] The Indirect Study Area (see Figure 3-1) is based on 2020 LiDAR data overlaid on aerial imagery where the expected visibility of the proposed ATCT replacement could occur from the ground. The Indirect Study Area addresses the resource categories that could be indirectly affected by the Proposed Action, such as noise-sensitive land uses.

2024). The Airport promotes following a Voluntary Good Neighbor Noise Abatement Program. The Voluntary Good Neighbor Noise Abatement Program is comprised of suggestions for pilots, fixed-base operators, and maintenance facilities. It is recognized that the FAA ATCT and pilots are the ultimate decision-makers in conducting safe flight operations. When permitted, the Airport's users and tenants are encouraged to follow the guidelines of this program. In part, the Airport advises all flight operations that the preferred way to avoid the noise-sensitive area is to follow major roads and railroad tracks near the Airport (City of Manassas, 2024). Other program recommendations include, but are not limited to:

- Flight instructors should teach their students about these noise abatement procedures.
- Pilots should follow preferred departure and arrival routes for aircraft
- Helicopter traffic should climb to a pattern altitude of 1,000 FT MSL prior to crossing the Airport boundary.
- Routes are to be used to avoid noise-sensitive areas surrounding the Airport.
- Maintenance engine run-ups in designated areas are restricted to the hours of 7:00 AM to 10:00 PM, Monday through Sunday.
- When a noise complaint is received, the Airport will document it in a noise complaint log and respond to the person who filed the complaint.

3.2.10.2 Environmental Consequences

Significance Threshold – FAA Order 1050.1F identifies the "significant impact" threshold based on the yearly DNL and compatible land-use standards found at 14 CFR Part 150, *Airport Noise Compatibility Planning*, specifically Table 1 in Appendix A of that regulation (see ***Table 3-10***). FAA Order 1050.1F states that there is a significant noise impact with respect to aircraft noise if an increase in noise of DNL 1.5 dB or more for a noise-sensitive area (one exposed to noise at or above the DNL 65 dB noise exposure level) or that would be exposed at or above the DNL 65 dB level due to a DNL 1.5 dB or greater increase when compared to the No Action Alternative for the same timeframe.

For example, an increase from DNL 65.5 dB to 67 dB is considered a significant impact, as is an increase from DNL 63.5 dB to 65 dB. The determination of significance must be obtained using noise contours and/or grid point analysis along with local land use information and general guidance contained in Appendix A of 14 CFR Part 150.

TABLE 3-10: FAA LAND USE COMPATIBILITY GUIDELINES – 14 CFR PART 150

Land Use	DNL Expressed in dB(A)					
	Below 65	65-70	70-75	75-80	70-85	Over 85
Residential						
Residential, other than mobile homes and transient lodgings	Y	N(1)	N(1)	N	N	N
Mobile home parks	Y	N	N	N	N	N
Transient lodgings	Y	N(1)	N(1)	N(1)	N	N
Public Use						
Schools	Y	N(1)	N(1)	N	N	N
Hospitals and nursing homes	Y	25	30	N	N	N
Churches, auditoriums, and concert halls	Y	25	30	N	N	N
Governmental services	Y	Y	25	30	N	N
Transportation	Y	Y	Y(2)	Y(3)	Y(4)	Y(4)
Parking	Y	Y	Y(2)	Y(3)	Y(4)	N
Commercial Use						
Offices, business and professional	Y	Y	25	30	N	N
Wholesale and retail—building materials, hardware, and farm equipment	Y	Y	Y(2)	Y(3)	Y(4)	N
Retail trade—general	Y	Y	25	30	N	N
Utilities	Y	Y	Y(2)	Y(3)	Y(4)	N
Communication	Y	Y	25	30	N	N
Manufacturing and Production						
Manufacturing, general	Y	Y	Y(2)	Y(3)	Y(4)	N
Photographic and optical	Y	Y	25	30	N	N
Agriculture (except livestock) and forestry	Y	Y(6)	Y(7)	Y(8)	Y(8)	Y(8)
Livestock farming and breeding	Y	Y(6)	Y(7)	N	N	N
Mining and fishing, resource production and extraction	Y	Y	Y	Y	Y	Y
Recreational						
Outdoor sports arenas and spectator sports	Y	Y(5)	Y(5)	N	N	N
Outdoor music shells, amphitheaters	Y	N	N	N	N	N
Nature exhibits and zoos	Y	Y	N	N	N	N
Amusements, parks, resorts and camps	Y	Y	Y	N	N	N
Golf courses, riding stables, and water recreation	Y	Y	25	30	N	N

Table Notes: SLUCM=Standard Land Use Coding Manual. Y (Yes) = Land Use and related structures compatible without restrictions. N (No) = Land Use and related structures are not compatible and should be prohibited. NLR = Noise Level Reduction (outdoor to indoor) to be achieved through incorporation of noise attenuation into the design and construction of the structure.
25, 30, or 35=Land use and related structures generally compatible; measures to achieve NLR of 25, 30, or 35 dB must be incorporated into the design and construction of the structure.
(1) Where the community determines that residential or school uses must be allowed, measures to achieve outdoor to indoor Noise Level Reduction (NLR) of at least 25 dB and 30 dB should be incorporated into building codes and be considered in individual approvals. Normal residential construction can be expected to provide a NLR of 20 dB, thus, the reduction requirements are often stated as 5, 10 or 15 dB over standard construction and normally assume mechanical ventilation and closed windows year-round. However, the use of NLR criteria will not eliminate outdoor noise problems. (2) Measures to achieve NLR 25 dB must be incorporated into the design and construction of portions of these buildings where the public is received, office areas, noise sensitive areas or where the normal noise level is low. (3) Measures to achieve NLR of 30 dB must be incorporated into the design and construction of portions of these buildings where the public is received, office areas, noise sensitive areas or where the normal noise level is low. (4) Measures to achieve NLR 35 dB must be incorporated into the design and construction of portions of these buildings where the public is received, office areas, noise sensitive areas or where the normal level is low. (5) Land use compatible provided special sound reinforcement systems are installed. (6) Residential buildings require an NLR of 25. (7) Residential buildings require an NLR of 30. (8) Residential buildings not permitted.
Source: 14 CFR Part 150

In addition to defining significant impacts, FAA Order 1050.1F includes additional reporting requirements, including:

- The location and number of noise-sensitive uses at or above DNL 65 dB;
- The disclosure of potentially newly non-compatible land use, regardless of whether there is a significant noise impact and
- Maps reporting the number of residences or people residing at or above DNL 65 dB for at least the 65-, 70-, and 75-dB exposure levels.

FAA Order 1050.1F states, “Special consideration needs to be given to the evaluation of the significance of noise impacts on noise sensitive areas within Section 4(f) properties (including, but not limited to, noise sensitive areas within national parks; national wildlife and waterfowl refuges; and historic sites, including traditional cultural properties) where the land use compatibility guidelines in 14 CFR Part 150 are not relevant to the value, significance, and enjoyment of the area in question.” For example, the DNL 65 dB threshold does not adequately address the impacts of noise on visitors to areas within a national park or national wildlife and waterfowl refuge where other noise is very low and a quiet setting is a generally recognized purpose and attribute.

Levels of changes for noise-sensitive locations include:

- Significant noise impact: DNL increase of 1.5 dB or more in areas of 65 dB DNL and higher

- DNL increase of 3 dB or more in areas between DNL 60 and 65 dB
- DNL increase of 5 dB or more in areas between DNL 45 and 60 dB

Potential Impacts

Construction-related Noise – The Proposed Action's construction involves temporarily using heavy machinery, equipment, and construction activities that would generate noise. The intensity and duration of construction noise can vary depending on specific construction activities and equipment used. Construction noise could occur during various times of the day, including daytime, evenings, and potentially nighttime, depending on the construction schedule and local regulations. Tree clearing for the geotechnical survey was conducted during the daytime on March 24 and March 29, 2025. The replacement ATCT would start construction in 2026 and be operational in 2028. After the replacement ATCT is operational, the existing ATCT would be demolished and transferred to area landfills.

The potential impact of construction noise can be influenced by the local environment and the sensitivity of nearby communities. Noise-sensitive areas, such as residential neighborhoods, hospitals, or schools, could be more affected by construction noise. Vegetation and man-made structures can reduce noise exposure. The nearest noise-sensitive area is a residential area about 0.25 mile south of the Direct Study Area (Replacement ATCT). It is buffered by approximately 1,300 feet of dense vegetative growth. Construction of the Proposed Action would involve the use of equipment that would generate temporary construction-related noise for the duration of construction. The loudest noise from construction equipment would include the use of front loaders, backhoes, and dozers. The maximum sound level at 50 feet away from the construction equipment would be 80 dB from front loaders, 80 dB from backhoes, and 85 dB from dozers (FHWA, 2024). Using a standard noise drop-off rate of 6 dB per doubling of distance, temporary construction noise levels calculated at the closest residential area would be 52 dB from front loaders, 52 dB from backhoes, and 57 dB from dozers. Normal background sound levels in residential/suburban areas range from 45-55 dB. Therefore, when compared to the No Action Alternative, the construction of the Proposed Action would not affect noise-sensitive areas.

Operational – The operation of the Proposed Action would not change the Airport's current noise DNL 65dB noise contour. The operation of the Proposed Action would not change the Airport's current operations, aircraft fleet mix, or runway use percentages. Therefore, when compared to the No Action Alternative, the operation of the Proposed Action would not affect noise-sensitive areas.

Implementing the Proposed Action would cause a less than significant environmental effect on Noise and Noise Compatible Land Use. When considering projects planned to occur in the reasonably foreseeable future, the Proposed Action would not cause significant environmental

effects. Therefore, the Proposed Action's construction and operation, combined with the reasonably foreseeable future projects, would not have a significant environmental impact.

Mitigation Measures - The Proposed Action would not have a significant impact on noise-sensitive areas; therefore, no mitigation is proposed.

3.2.11 Socioeconomics and Children's Environmental Health and Safety Risks

Per guidance within the FAA (2015) 1050.1F Desk Reference, this section evaluates the potential for the Proposed Action to affect socioeconomics, and children's environmental health and safety risks.

Socioeconomics – Socioeconomics is an umbrella term that describes a project's social or economic aspects or a combination of the two. A socioeconomic analysis evaluates how elements of the human environment, such as population, employment, housing, and public services, might be affected by a proposed action and alternative(s). The Uniform Relocation Assistance and Real Property Acquisitions Policy Act of 1970 (42 U.S.C. § 4601 et seq.) is the primary federal regulation governing socioeconomics. It includes provisions that must be followed if property acquisition or displacement of people would occur resulting from the proposed action.

Children's Environmental Health and Safety Risks – Areas of particular concern for children's environmental health and safety risks include schools, daycare facilities, children's health clinics, and child-friendly recreational facilities. Pursuant to Executive Order 13045, Protection of Children from Environmental Health Risks and Safety Risks 62 Federal Register 19885 (April 21, 1997), federal agencies are directed, as appropriate and consistent with the agency's mission, to make it a high priority to identify and assess environmental health risk and safety risks that may disproportionately affect children.

3.2.11.1 Affected Environment

Socioeconomics – Population, housing, and labor force data for the City of Manassas and Prince William County is included as the basis for evaluating potential socioeconomic impacts.

Population **– *Table 3-11*** lists the population growth from 2010 to 2020 in the census tract containing the Direct Study Area and the City, County, State, and U.S. for comparison purposes. Between 2010 and 2020, the population in and around the Project Study Areas increased by an average of 22.5% while the surrounding City, Prince William County, the State of Virginia, and the United States increased at a slower rate (U.S. Census Bureau, 2020).

TABLE 3-11: POPULATION CHANGE BETWEEN 2010 AND 2020

Area	2010	2020	Percent Change
Census Tract 9104.02	4,990	6,112	22.5%
City of Manassas	37,821	42,772	13.1%
Prince William County	402,002	482,204	20.0%
State of Virginia	8,001,024	8,631,393	7.9%
United States of America	308,745,538	331,449,281	7.4%

Source: (U.S. Census Bureau, 2020) (U.S. Census Bureau, 2020)

Transportation – As shown in ***Figure 3-1***, the primary arterial roads to the Airport are Prince William Parkway (State Highway 234), located east of the Airport, and Nokesville Road (State Highway 28), north of the Airport. The roads that provide direct access to the Airport include Harry J Parrish Boulevard, Wakeman Drive, and Observation Road. Passengers, tenants, and employees use these roads to access the Airport's facilities (passenger terminal, tenant facilities, and hangars).

Housing - ***Table 3-12*** lists the total vacant housing units in Census Tract 9104.2 and surrounding communities. An average of 2.7% of housing units in the Census Tract and City, and 3.0% of housing units in the County are vacant in the referenced Census Tract.

TABLE 3-12: HOUSING UNITS

Area	Total Units	Vacant Units (percentage)
Census Tract 9104.02	2,171	2.7%
City of Manassas	14,365	2.7%
Prince William County	158,525	3.0%
State of Virginia	3,618,247	10.4%
United States	140,498,736	9.7%

Note: The U.S. Census Bureau considers vacant housing units for rent; rented but not occupied; for sale; sold but not occupied; for seasonal, recreational, or occasional use; for migrant workers; and other vacant units.

Source: (U.S. Census Bureau, 2024), (U.S. Census Bureau, 2024) (U.S. Census Bureau, 2022)

Labor Force – The U.S. Census Bureau lists 21,885 employed civilians in the City, containing the Direct Study Area. The unemployment rate averages about two percent in the City of Manassas (U.S. Census Bureau, 2024). The unemployment rate in the County is approximately two percent (FRED Economic Data, 2024).

Economic Impact – The Airport plays a significant role in the region's economy as being the busiest General Aviation airport in Virginia. The Airport drives economic activity by creating jobs, supporting business growth, and connecting Manassas and northern Virginia to the global market. The Airport's economic significance has led to $375 million being contributed to the local economy (City of Manassas, 2024).

Children's Environmental Health and Safety Risks - The nearest locations where children are likely to congregate are outside of the Indirect Study Area, specifically, Nanda Learning Day

Care Center and Cannon Branch Fort Park, located about 1.1 miles north and northeast of the Indirect Study Area, respectively (City of Manassas, 2024).

3.2.11.2 Environmental Consequences

Significance Threshold

Socioeconomics - FAA Order 1050.1F does not provide a significance threshold for socioeconomics. It provides several factors to consider when evaluating the context and intensity of potential environmental effects. Those factors to consider include the potential of the action to:

- Induce substantial economic growth in an area, either directly or indirectly (e.g., through establishing projects in an undeveloped area)
- Disrupt or divide the physical arrangement of an established community
- Cause extensive relocation when sufficient replacement housing is unavailable
- Cause extensive relocation of community businesses that would cause severe economic hardship for affected communities
- Disrupt local traffic patterns and substantially reduce the levels of service of roads serving an airport and its surrounding communities
- Produce a substantial change in the community tax base

Children's Environmental Health and Safety Risks - The FAA has not established a significance threshold pertaining to impacts on children's environmental health and safety in FAA Order 1050.1F; however, the FAA has identified a factor to consider when evaluating the context and intensity of potential environmental impacts for children's environmental health and safety. The factor to consider that may be applicable to children's environmental health and safety include but are not limited to, situations in which the proposed action or alternative(s) would have the potential to lead to a disproportionate health or safety risk to children.

Potential Impacts

Socioeconomics – The Proposed Action would positively affect employment by creating a temporary demand for construction employees. However, based on fluctuations in ATCT staff, the Proposed Action could result in the potential for a minimal 3-4 additional staff personnel/trainees to operate the ATCT compared to the No Action Alternative. Existing residents in the greater Manassas area would likely fill temporary employment positions.

The 2024 Virginia Department of Transportation (VDOT) Bidirectional Volume Data (BVD) was accessed and reviewed for roadways accessing the Airport (i.e., Piper Lane and Harry J. Parrish Boulevard; Gateway Boulevard data was not available). According to the VDOT BVD records, Piper Lane (from Nokesville Road to Norfolk Southern Railroad) had an annual daily traffic (ADT) count of 3,100 vehicles. Harry J Parrish Boulevard (from Clover Hill Road to Wakeman Drive (i.e., Airport entrance)), the ADT was 2,100 (VDOT, 2024).

As previously described, the Proposed Action's construction would cause a minor temporary increase in surface vehicles using area roadways to access the construction site (i.e., approximately 8 construction-related vehicles (e.g., cement mixers, dump trucks, and tractor-trailers) and 45 construction employee-related vehicles) duration construction from 2026 to 2027.

The trips to the project site for construction vehicles could range from 20 to 45 vehicles depending on which project component is being constructed (ATCT, support building, parking lot, FAA RTR towers, electrical building). The construction vehicle trips are assumed to arrive at the construction site in the morning and depart in the afternoon. Assuming an even distribution of vehicles along Piper Land and Harry J Parrish Blvd, the percentage increase in ADT would be 0.73% and 1.1%, respectively. This temporary increase in construction-related vehicles would not affect the level of service for these roadways. Therefore, construction-related impacts would be temporary and are not expected to cause a significant secondary (induced) impact on the surrounding area.

The Proposed Action would not cause shifts in the projected population growth, change population movement, or result in the need for extensive relocations. The Proposed Action does not anticipate increasing the demand for fire, police, and life safety services. Compared to the No Action Alternative, the Proposed Action would not disrupt any nearby surrounding communities of any planned development or relocate community businesses, and it would be consistent with the plans and goals of the community. Therefore, when compared to the No Action Alternative, the Proposed Action would have no significant effect on socioeconomics.

Children's Environmental Health and Safety Risks - The Direct Study Area is located entirely on Airport property and would, therefore, have no direct impact on schools, daycares, children's health clinics, or child-friendly recreational facilities. Construction noise levels calculated at the Nanda Learning Day Care Center and Cannon Branch Fort Park would temporarily be 39 dB from front loaders, 39 dB from backhoes, and 44 dB from dozer operations Given the distance of the Direct Study Area to land uses related to children, the Proposed Action would not have the potential to lead to a disproportionate health or safety risk to children.

Implementing the Proposed Action would cause a less than significant environmental effect on Socioeconomics and Children's Environmental Health and Safety Risks. When considering projects planned to occur in the reasonably foreseeable future, the Proposed Action would not cause significant environmental effects. Therefore, the Proposed Action's construction and operation, combined with the reasonably foreseeable future projects, would not have a significant environmental impact.

Mitigation Measures – The City does not propose mitigation measures because the Proposed Action would not cause significant direct or indirect effects on socioeconomic or children's environmental health and safety risks.

3.2.12 Visual Effects

Per guidance within the FAA (2023) 1050.1F Desk Reference, visual effects deal broadly with the extent to which the proposed action or alternative(s) would either 1) produce light emissions that create an annoyance or interfere with activities, or 2) contrast with, or detract from, the visual resources and/or the visual character of the existing environment. In keeping with FAA (2023) *1050.1F Desk Reference*, the following sections are separated into Light Emissions and Visual Resource and Visual Character sections.

- Light emissions include any light that emanates from a light source into the surrounding environment.
- Visual resources include buildings, sites, traditional cultural properties, and other natural or manmade landscape features that are visually important or have unique characteristics.
- Visual character refers to the overall visual makeup of the existing environment where the proposed action and alternative(s) would be located.

Although there are no special purpose laws or requirements specific to light emissions or visual effects, some visual resources are protected under federal, state, or local regulations, such as Section 106 of the NHPA, Section 4(f) of the DOT Act, the Wild and Scenic Rivers Act, and the Coastal Zone Management Act.

3.2.12.1 Affected Environment

The Direct Study Area (Replacement ATCT and FAA RTR) is located on the west side of the Airport. The viewshed of the Direct Study Area (Replacement ATCT and FAA RTR) includes Airport facilities such as runways, taxiways, aprons, buildings, hangars, parking lots, access roads, and the existing ATCT as well as industrial development (e.g., warehouses, Virginia Railway Express station and vehicle parking). Grass turf surrounds all paved airfield facilities. Existing light emissions within the viewshed of the Direct Study Area include lighting to the airfield (e.g., runways, taxiways, and aprons) and on the outside of airside and landside buildings and off-Airport industrial development.

The undeveloped portions of the Direct Study Area (Replacement ATCT and FAA RTR) include approximately 0.3-acre of mowed and maintained grass, 2 acre of forest habitat and 1 acre of cleared forest with remaining stumps and mulched logs/branches onsite. Dense vegetation consisting of deciduous trees and shrubs surrounds and mostly blocks views of the Direct Study Area from viewpoints to the south, west, and northwest. The closest residential area is to the Direct Study Area (Replacement ATCT) which is about 0.25 mile south. It is buffered by approximately 1,300 feet of dense vegetative growth.

A Visual Effects Study was conducted for the Proposed Action (Replacement ATCT). Daytime and nighttime ATCT photo simulations were developed west of the Airport from various

viewpoints in coordination with the FAA (see ***Appendix E***). A viewshed analysis and refined visual effects analysis for the FAA RTR were also conducted.

Four locations were selected for the visual effects analysis of the Proposed Action, which were:

- Bristoe Station Battlefield Heritage Park (highest point)
- Bristow Rd/Meadow Lane
- Split Oak Lane (worst case)
- Bristow Road/Centerville Sod

3.2.12.2 Environmental Consequences

Significance Threshold - FAA Order 1050.1F does not define a significance threshold for visual effects; however, Exhibit 4-1 of the Order provides a number of factors to consider in evaluating the context and intensity of potential environmental impacts.

For light emissions, these factors include the degree to which the action would have the potential to:

- "Create annoyance or interfere with normal activities from light emissions; and
- Affect the visual character of the area due to the light emissions, including the importance, uniqueness, and aesthetic value of the affected visual resources."

FAA Order 1050.1F does not provide a significance threshold for visual resources and character; however, it does provide factors to consider in evaluating the context and intensity of potential environmental impacts. For visual resources/visual character, these include the extent to which the action would have the potential to:

- "Affect the nature of the visual character of the area, including the importance, uniqueness, and aesthetic value of the affected visual resources;
- Contrast with the visual resources and/or visual character in the study area; and
- Block or obstruct the views of visual resources, including whether these resources would still be viewable from other locations."

Potential aesthetic effects of an action are generally assessed by comparing the visual characteristics of the proposed development to existing development in the areas and to the environmental setting and by determining if a jurisdictional agency considers this contrast objectionable. The visual effects resulting from constructing and operating the Proposed Action would result from physical changes to the visual character of the Direct Study Area, including existing development, landforms, vegetation, and water surfaces.

Potential Impacts

Construction – Demolition of the existing ATCT and the construction of the Proposed Action would change the viewshed of the Airport and local area. Construction of the Proposed Action would involve the use of cranes and other construction equipment that could be seen by the surrounding community. However, using construction equipment would be temporary and only

last for the duration of construction. Changes to visual resources and visual character from the construction of the replacement ATCT and removal of the existing ATCT would not affect or obstruct visually important resources. Due to the small scale of the FAA RTR towers and electrical support building, existing terrain, and the height of trees in view, the construction of the Proposed Action FAA RTR towers would not be visible from the four locations selected for the visual effects analysis.

Operational - The operation of the Proposed Action would change the viewshed of the local area due to the new location of the replacement ATCT and FAA RTR towers, which would be 120 feet tall and 70 feet tall, respectively, and produce light emissions. Under the No Action Alternative, the existing ATCT is not visible to the surrounding areas due to its shorter height (the cab floor is 82 feet above ground level). The clearing and grubbing of trees under the Proposed Action would not be visible from the south, west, and northwest viewpoints because the surrounding forest blocks the view. From the north, east, and southeast, the cleared area may be only slightly noticeable against the forest backdrop and obstructed by existing airside development (GA hangars).

A Visual Effects Study was conducted to assess the potential visual effects of the relocated ATCT. The assessment included creating photo simulations using 3D models and lighting data to depict daytime and nighttime views of the proposed ATCT from four viewpoints (refer to ***Appendix E***). Refer to ***Figure 3-8*** for an example of the viewshed change from Bristow Road/ Meadow Lane during the day. The results of the Visual Effects Study are the Proposed Action:

- would emit artificial light (e.g., exterior lighting for the safety and security of vehicles and people, and a rotating beacon and red obstruction lighting atop the ATCT for aircraft operations) that could be visible in the Indirect Study Area but would not illuminate surrounding areas.
- would change the viewshed but would not affect the nature of the area's visual character, including importance, uniqueness, and aesthetic value.
- would contrast with the visual resources and/or visual character or resources west of the Airport.
- would not block nor obstruct the view of visual resources.

In addition, a preliminary viewshed analysis using Google Earth and a refined visual effects analysis using LiDAR data and 3D Max software were conducted to evaluate the potential visibility of the Proposed Action's FAA RTR site from surrounding areas.

Based on the visual effects analysis, the Proposed Action (Replacement ATCT and FAA RTR) would not be seen from the Bristoe Station Battlefield Heritage Park. However, the Proposed Action (Replacement ATCT) could potentially introduce a new visual element that may not seamlessly blend with the No Action Alternative's visual character of the surrounding areas, particularly those west of the Airport. This contrast would arise from factors such as the

Proposed Action's height, design, and lighting, which might change the backdrop of the surrounding landscape when compared to a No Action Alternative. As described in Section 3.2.8 of this EA, the DHR concurred that the Proposed Action (Replacement ATCT) resulted in a *No Adverse Effect* determination on historic resources.

On January 8, 2026, the FAA submitted a Section 106 coordination letter and accompanying Project Review Application Form to the DHR. The letter and supporting materials described the addition to the APE, the potential direct effects, alternative FAA RTR locations and evaluation, and potential indirect effects (visual, atmospheric, and auditory). The FAA determined that the revised Proposed Action, with the FAA RTR towers and electrical support building, would not affect historic resources. In a January 30, 2026 DHR email to the FAA, the DHR wrote, "Implementation of the undertaking [Proposed Action] 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." Therefore, compared to the No Action Alternative, the construction of the Proposed Action would not result in a visual effect. See Section 3.2.8 and ***Appendix D*** and ***Appendix E*** for further details.

The Proposed Action would be designed to be visually compatible with the existing Airport facilities. The Airport's existing rotating beacon, located on the opposite side of the airfield and across Wakeman Drive from corporate hangar development, will be relocated to the top of the replacement ATCT. According to the FAA's Technical Operations Communication group, one RTR antenna is recommended to be 50 feet above ground, and the other two antennas at 70 feet above ground for the best coverage. Red obstruction lighting system for aircraft operations would be located atop the replacement ATCT and FAA RTR towers and would be designed to meet FAA standards (FAA AC 70/7460-1M).

The relocated rotating beacon would not result in excessive light pollution or create a negative impact on the visual character of the area. While red obstruction lighting, designed to meet FAA standards, is a distinguishing marker, it does not illuminate objects on the ground. Replacement ATCT lighting designs could include shielding outdoor lighting fixtures to focus light emission on specific areas, using light-colored exteriors to reduce the amount of artificial light needed outdoors, or using light-emitting diode (LED) lights or lower color temperature interior lighting (i.e., warmer light). The changes in lighting are not anticipated to affect the visual nature of the existing developed area and the existing lighting present.

Although the proposed replacement ATCT would be taller than the existing ATCT, it would change the viewshed but would not affect the nature of the area's visual character due to the study area being an existing and active airport. In addition, a preliminary viewshed analysis using Google Earth and a refined visual effects analysis using LiDAR data and 3D Max software were conducted to evaluate the potential visibility of the Proposed Action's FAA RTR site, including red obstruction lighting, from surrounding areas.

FIGURE 3-8: VISUAL SIMULATION – BRISTOW ROAD/MEADOW LANE EXISTING VS. PROPOSED

Source: RS&H, Inc. 2024

Based on the location of the FAA RTR towers, the majority of the viewshed that could view the towers would be on Airport property (i.e., east and southeast of the tower locations). Due to varying terrain, areas west of the FAA RTR towers were primarily visible from tree tops and not from ground level (other than the railway express parking area adjacent to Observation Road). While the Proposed Action may introduce some degree of visual change, the efforts to design and implement the project would minimize any negative impacts on the nature of the area's visual character.

In addition, the existing ATCT would be decommissioned and demolished. During this time, the visual character of the Airport may experience a change with the removal of the existing ATCT and associated structures, resulting in minor effects on the visual landscape. Impacts from the removal of an existing ATCT to the visual landscape from changes to lighting would be minimal due to the insignificant change in ambient light. The Proposed Action's lighting conditions would remain generally consistent with the No Action Alternative. Therefore, the Proposed Action's potential light emissions are expected to be negligible by comparison.

Therefore, when compared to the No Action Alternative, the operation of the Proposed Action (including the demolition of the existing ATCT) would not significantly affect light emissions or visural resources and/or visual character within the Indirect Study Area.

Implementing the Proposed Action would cause a less than significant environmental effect on Visual Effects. When considering projects planned to occur in the reasonably foreseeable future, the Proposed Action would not cause significant environmental effects. Therefore, the Proposed Action's construction and operation, combined with the reasonably foreseeable future projects, would not have a significant environmental impact.

Mitigation Measures – The City does not propose mitigation measures because the Proposed Action would not cause significant effects on the nature of the area's visual resources and/or visual character, including the importance, uniqueness, and aesthetic value of the affected visual resources.

The proposed replacement ATCT lighting designs to reduce light emissions could include shielding outdoor lighting fixtures to focus light emission on specific areas (e.g., parking areas or sidewalks), using light-colored exteriors to reduce the amount of artificial light needed outdoors, or using LED lights or warmer interior lighting (i.e., warmer light).

3.2.13 Water Resources

Per guidance within the FAA (2015) 1050.1F Desk Reference, water resources include wetlands, floodplains, surface waters, groundwater, and Wild and Scenic Rivers. As described at the beginning of this chapter, there are no Wild and Scenic Rivers that could be directly or indirectly impacted by the Proposed Action; therefore, this section does not discuss that resource category.

Wetlands – According to the EPA, wetlands are "areas where water covers the soil, or is present either near the surface of the soil all year or for varying periods of time during the year, including the growing season." The 1972 Clean Water Act (CWA) is the primary federal law that authorizes the EPA and the states to regulate water quality (33 U.S.C. § 1251 et seq.). Section 404 of the CWA requires authorization from the Secretary of the Army, acting through the U.S. Army Corps of Engineers (USACE), for the discharge of dredged or fill material into all waters of the United States, including jurisdictional wetlands (U.S. Environmental Protection Agency, 2024). Section 401 of the CWA requires water quality certification to ensure a project does not violate State or Tribal water quality regulations (U.S. Environmental Protection Agency, 2024).

Under the CWA, wetlands are defined as areas that, under normal circumstances, support a prevalence of vegetation typically adapted for life in saturated soil conditions. Per the USACE (1987) wetland delineation manual, the following three parameters must be present for an area to meet the definition of a wetland: (1) hydrophytic vegetation, (2) hydric soil, and (3) hydrology.

Executive Order 11990, *Protection of Wetlands* (1977), requires federal agencies to "avoid to the extent possible the long and short-term adverse impacts associated with the destruction or modification of wetlands and to avoid direct or indirect support of new construction in wetlands wherever there is a practicable alternative."

Floodplains – The Federal Emergency Management Agency (FEMA) considers "any land area susceptible to being inundated by floodwaters of any source" a floodplain (FEMA, 2011). The National Flood Insurance Act of 1968 (42 U.S.C. § 4001 et seq.) established the National Flood Insurance Program, administered by FEMA, to minimize flood damage within special flood hazard areas. Special flood hazard areas have a 1-percent chance of flooding within a given year, also referred to as the base flood or 100-year floodplain, and are delineated on FEMA maps, known as Flood Insurance Rate Maps (FIRM). Communities or entities insured under the National Flood Insurance Program must follow the program's floodplain management regulations for development placed within these flood hazard areas.

Executive Order 11988, *Floodplain Management* (1977) directs federal agencies to avoid, to the extent possible, the long and short-term adverse impacts associated with the occupancy and modification of 100-year floodplains and to avoid direct or indirect support of floodplain development wherever there is a practicable alternative. To accomplish this goal, the order bans activities in a floodplain unless no practicable alternative exists or measures are incorporated into the proposed activity to minimize adverse impacts on the floodplain's natural and beneficial values.

U.S. DOT Order 5650.2, *Floodplain Management and Protection,* contains policies and procedures for carrying out Executive Order 11988 (U.S. Department of Transportation, 1979). If a proposed action involves development within a floodplain, the environmental analysis must

indicate whether the encroachment would be "significant," specifically, whether it would cause one or more of the following impacts: 1) the action would have a considerable probability to cause the loss of human life; 2) the action would likely result in substantial encroachment-associated costs or effects, including the interruption of aircraft service or the loss of a vital transportation facility (e.g., flooding a runway or taxiway or removing an important navigational aid from service due to flooding); or 3) the action would cause notable adverse impacts on natural and beneficial floodplain values.

A Flood Hazard Use Permit from Prince William County is required for all work within the floodplain and/or floodway (Prince William County, 2024).

Surface Water – The Virginia Department of Environmental Quality (DEQ) defines surface waters as "all waters that are not groundwater as defined in Code of Virginia 62.1-255." Section 303 of the CWA requires states to adopt water quality standards approved by the EPA for all surface waters of the United States, including lakes, rivers, and coastal wetlands (33 U.S.C. § 1251 et seq.). It is based on the principle that all discharges into the nation's waters are unlawful unless specifically authorized by a permit. Permit review is the CWA's primary regulatory tool. As defined by the CWA, water quality standards consist of the designated beneficial uses of the water body (e.g., wildlife habitat, agricultural supply, fishing, etc.) and criteria that protect the designated uses. Water quality criteria are prescribed concentrations, or levels, of constituents – such as lead, suspended sediment, and fecal coliform bacteria – or narrative statements, which represent the quality of water that supports a particular use.

As part of the CWA, when monitoring data indicate that a concentration level for a pollutant has been exceeded, the receiving water is classified as impaired and placed on the CWA Section 303(d) List of Water Quality–Limited Segments Requiring Total Maximum Daily Loads (TMDLs), which is then developed for the pollutant(s) that caused the impairment. A TMDL is an estimate of the total load of pollutants from point, non-point, and natural sources that a water body may receive without exceeding applicable water quality standards (plus a "margin of safety"). The purpose of the TMDL is to limit the volume of pollutants discharged into the receiving water from all sources (i.e., stormwater runoff, wastewater, agriculture).

The National Pollutant Discharge Elimination System (NPDES) was established per 1972 amendments to the CWA to control discharges of pollutants from point sources. The 1987 amendments to the CWA created a section devoted to stormwater permitting (Section 402[p]) and permits individual states to administer and enforce the provisions of the CWA. As such, the state of Virginia administers and enforces the NPDES program through the Virginia Pollutant Discharge Elimination System (VPDES).

Groundwater - Per guidance within the FAA (2023) 1050.1F Desk Reference, "groundwater is subsurface water that occupies the space between sand, clay, and rock formations. The term

aquifer is used to describe the geologic layers that store or transmit groundwater to wells, springs, and other water sources."

Federal activities affecting groundwater are primarily governed by the Safe Drinking Water Act, which prohibits any federal agency from funding actions that would contaminate an EPA-designated Sole Source Aquifer or its recharge areas (42 U.S.C. § 300 et seq.). Potential impacts to a Sole Source Aquifer would require the FAA to consult with the EPA regional office, Tribal, state, or local officials.

3.2.13.1 Affected Environment

The following sections describe the existing conditions for wetlands, floodplains, surface water, and groundwater.

Wetlands – As shown in ***Figure 3-9***, the USFWS National Wetlands Inventory (NWI) identified Freshwater Forested/Shrub wetlands associated with Broad Run along the southwest portion of the Direct Study Area (Replacement ATCT) (U.S. Fish and Wildlife Service, 2024). There are no wetlands identified in the Direct Study Area (FAA RTR).

A wetland survey was performed in April 2024 within the Direct Study Area (Replacement ATCT) employing technical methods outlined in the USACE (1987) *Army Corps of Engineers Wetlands Delineation Manual* and the USACE (2012) *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Eastern Mountains and Piedmont Region*. No wetlands were identified within the footprint of the Proposed Action for the replacement ATCT (see ***Appendix C***). The wetland survey information was transmitted to the USACE for review and comment on October 29, 2024. Multiple inquiries were made to acquire the USACE's input regarding the lack of wetlands in the Direct Study Area. As of February 2026, the USACE has not replied to the information submitted.

Floodplains - According to the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM), the Direct Study Area (Replacement ATCT) is located within the FIRM Panels 51153C0157D and 51153C0159D (Federal Emergency Management Agency, 2024). The majority of the Direct Study Area (Replacement ATCT) is located within Zone AE of the 100-year floodplain (approximately 2.9 acres)(see ***Figure 3-10***). FEMA established water surface elevations for 10-, 50-, 100-, and 500-year floods and floodway for Broad Run with the USACE Hydrologic Engineering Center River Analysis System (HEC-RAS) model. The Direct Study Area (FAA RTR) is not located in a 100-year floodplain (i.e., Zone X).

FIGURE 3-9: USACE NATIONAL WETLANDS INVENTORY

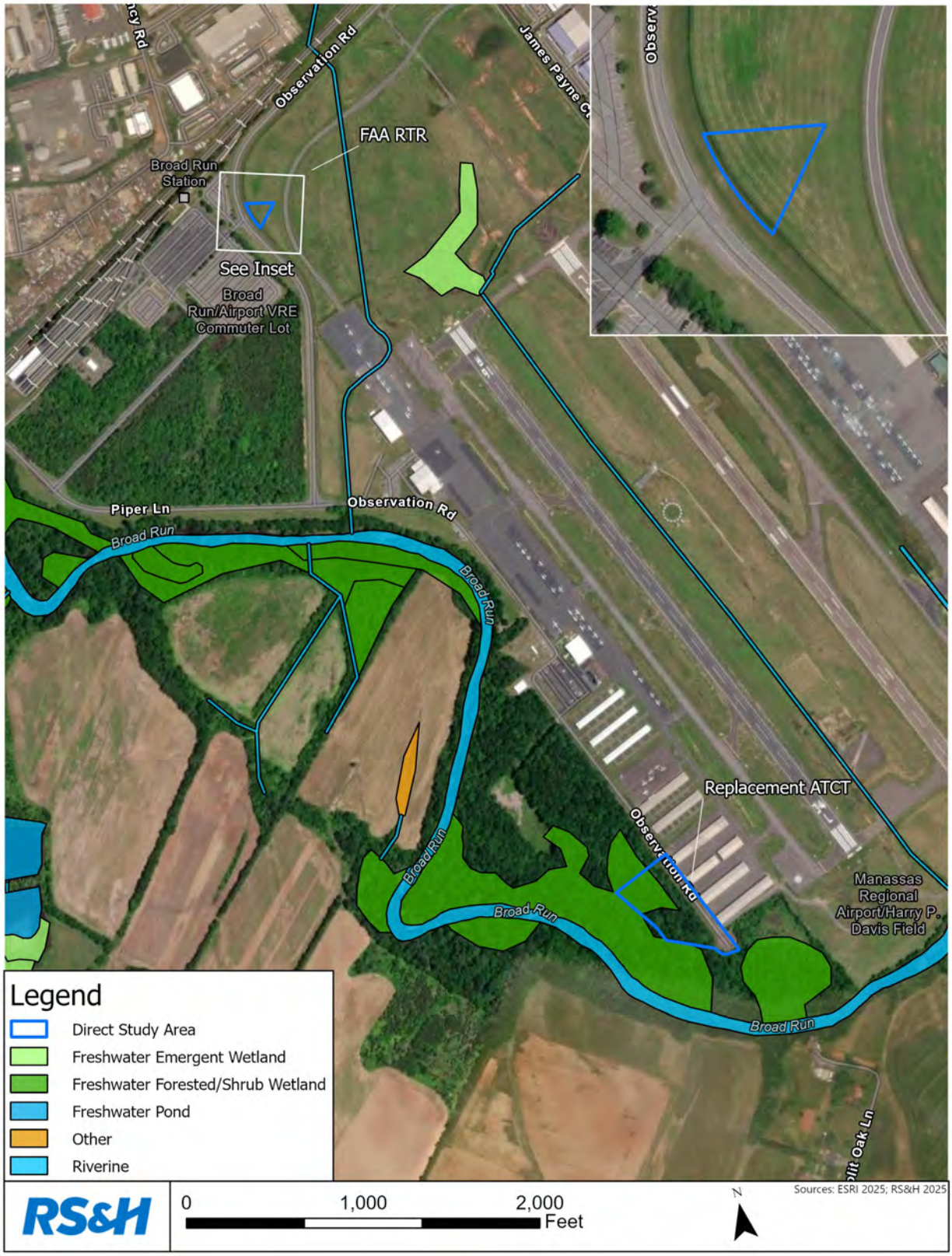
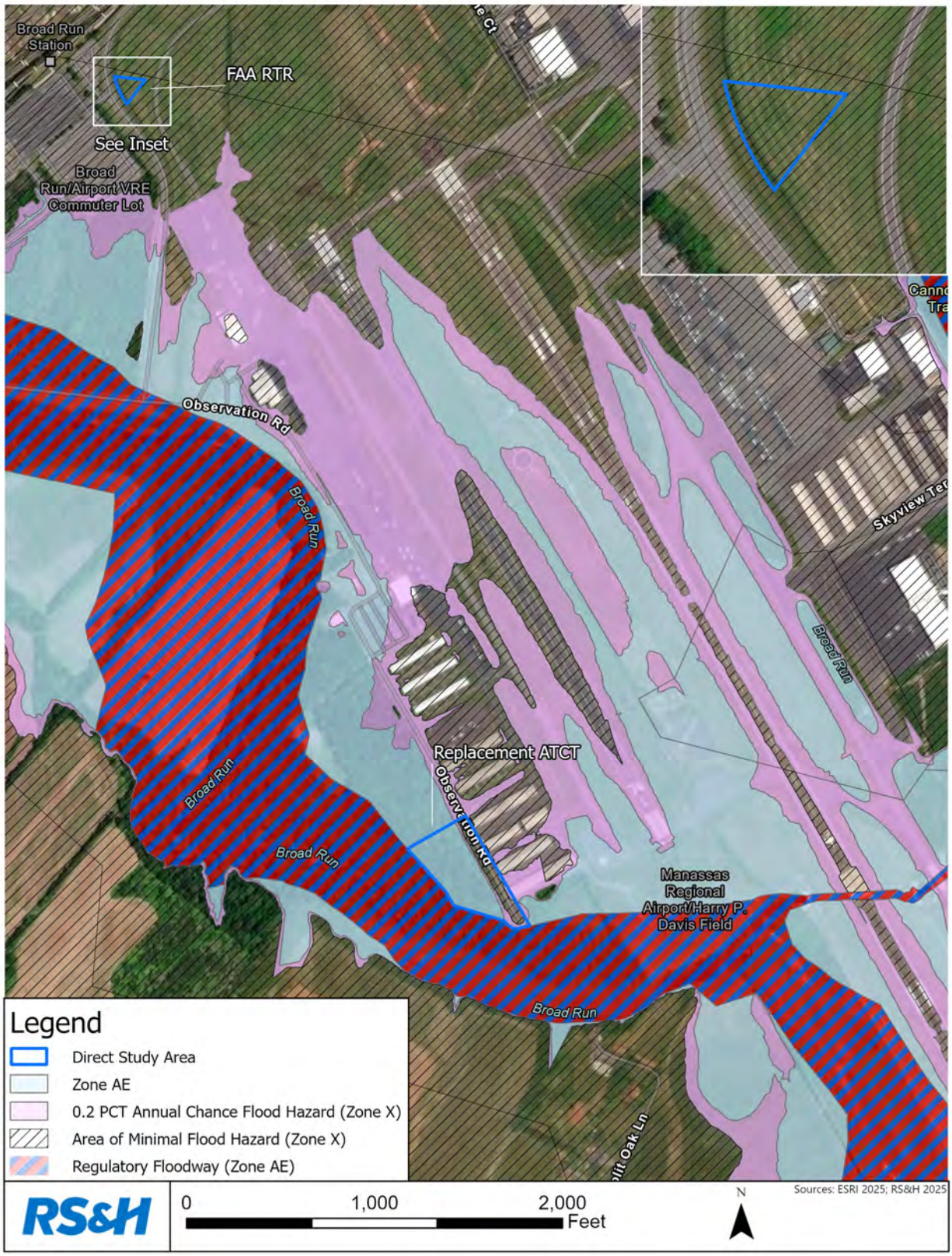


FIGURE 3-10: FLOODPLAINS



Surface Water - The Project Study Areas are within the Rocky Branch-Broad Run Watershed (HUC12: 020700100504) (U.S. Environmental Protection Agency, 2024). Broad Run, a perennial stream, flows southward through the Indirect Study Area and is approximately 270 feet southwest of the Direct Study Area (Replacement ATCT) at its nearest point. Broad Run is a 38.0-mile-long tributary of the Occoquan River (U.S. Geological Survey, 2024).

The City operates under a VDEPS General Permit (VAR050985) for stormwater discharge associated with industrial activity, effective June 1, 2024, to June 30, 2029. To comply with the VPDES General Permit, the City maintains an SPCC Plan and SWPPP for the Airport. These plans outline BMPs for controlling potential pollutant releases to the surrounding surface waters. These plans also provide detailed procedures to follow in the unlikely event of a spill to minimize potential effects on the surrounding environment.

Groundwater - The Direct Study Area is not located within a Sole Source Aquifer area; the nearest Sole Source Aquifer is the Poolesville Area Aquifer Extension of the Maryland Piedmont Aquifer, located over 24 miles north of the Direct Study Area (U.S. Environmental Protection Agency, 2024). Based on the nearest U.S. Geological Survey (USGS) groundwater monitoring wells, groundwater depth within the Direct Study Area ranges from 10 to 16 feet (U.S. Geological Survey, 2024).

3.2.13.2 Environmental Consequences

Significance Thresholds

Wetlands - FAA Order 1050.1F, Exhibit 4-1, defines the FAA's significance threshold for wetlands, which states, "The action would:

- Adversely affect a wetland's function to protect the quality or quantity of municipal water supplies, including surface waters and sole source and other aquifers;
- Substantially alter the hydrology needed to sustain the affected wetland system's values and functions or those of a wetland to which it is connected;
- Substantially reduce the affected wetland's ability to retain floodwaters or storm runoff, thereby threatening public health, safety or welfare (the term welfare includes cultural, recreational, and scientific resources or property important to the public);
- Adversely affect the maintenance of natural systems supporting wildlife and fish habitat or economically important timber, food, or fiber resources of the affected or surrounding wetlands;
- Promote development of secondary activities or services that would cause the circumstances listed above to occur; or 6. Be inconsistent with applicable state wetland strategies.
- Be inconsistent with applicable state wetland strategies."

Floodplains – FAA Order 1050.1F, Exhibit 4-1 defines the FAA's significance threshold for floodplains, which states, "The action would cause notable adverse impacts on natural and beneficial floodplain values."[13]

Surface Water - FAA Order 1050.1F, Exhibit 4-1, defines the FAA's significance threshold for surface waters, which states, "The action would:

- Exceed water quality standards established by Federal, state, local, and tribal regulatory agencies
- Contaminate public drinking water supply such that public health may be adversely affected."

Additional factors to consider include, but are not limited to, situations in which the proposed action or alternative(s) would have the potential to:

- Adversely affect natural and beneficial water resource values to a degree that substantially diminishes or destroys such values;
- Adversely affect surface waters such that the beneficial uses and values of such waters are appreciably diminished or can no longer be maintained, and such impairment cannot be avoided or satisfactorily mitigated; or
- Present difficulties based on water quality impacts when obtaining a permit or authorization.

Groundwater - FAA Order 1050.1F, Exhibit 4-1, defines the FAA's significance threshold for groundwater, which states, "The action would:

- Exceed groundwater quality standards established by Federal, state, local, and tribal regulatory agencies or
- Contaminate an aquifer used for public water supply such that public health may be adversely affected."

Potential Impacts

Wetlands – A wetland survey performed in April 2024 did not identify any wetlands within the Direct Study Area (Replacement ATCT) where ground-disturbing activities would occur (see ***Appendix C***). The wetland survey information was transmitted to the USACE for review and comment on October 29, 2024. Multiple inquiries were made to acquire the USACE's input regarding the lack of wetlands in the Direct Study Area. As of February 2026, the USACE has not replied to the information submitted. There are no wetlands within the Direct Study Area (FAA RTR).

[13] According to DOT Order 5650.2, Paragraph 4.k, "Natural and Beneficial Floodplain Values include but are not limited to: natural moderation of floods, water quality maintenance, groundwater recharge, fish, wildlife, plants, open space, natural beauty, scientific study, outdoor recreation, agriculture, aquaculture, and forestry."

When compared to the No Action Alternative, the Proposed Action would not significantly affect wetlands.

Floodplains - Using the USACE HEC-RAS model, existing floodplain conditions were updated to reflect the construction of the Proposed Action to quantify the impact on the 100-year floodplain and BFE without mitigation measures. As shown in ***Table 3-13***, the model results show that the Proposed Action would result in 3,900 cubic yards of fill within 0.71 acre of the 100-year floodplain and a BFE increase of 0.04 feet.

The Proposed Action's floodplain compensation was evaluated within the Direct Study Area (Replacement ATCT) to determine if a no-rise condition could be achieved. To minimize the impacts on the floodplain, the area between the Proposed Action fill platform and the Direct Study Area (Replacement ATCT) boundary was graded at approximately 0.5% to promote drainage while maximizing cut volume to the extent practical. The analysis resulted in approximately 4,600 cubic yards of floodplain compensation, exceeding the 3,900 cubic yards of fill placed for the Proposed Action. Additionally, Cross Section 273.9 in the revised HEC-RAS model was updated with the compensation area elevations. The model results showed no increases in BFE and a maximum decrease of 0.02 feet from the No Action Alternative, which meets the requirements of a no-rise condition.
Figure 3-11 shows the approximate limits of the flood compensation area within the Direct Study Area (Replacement ATCT). See ***Appendix F*** for the *Floodplain Findings and Assessment Report*.

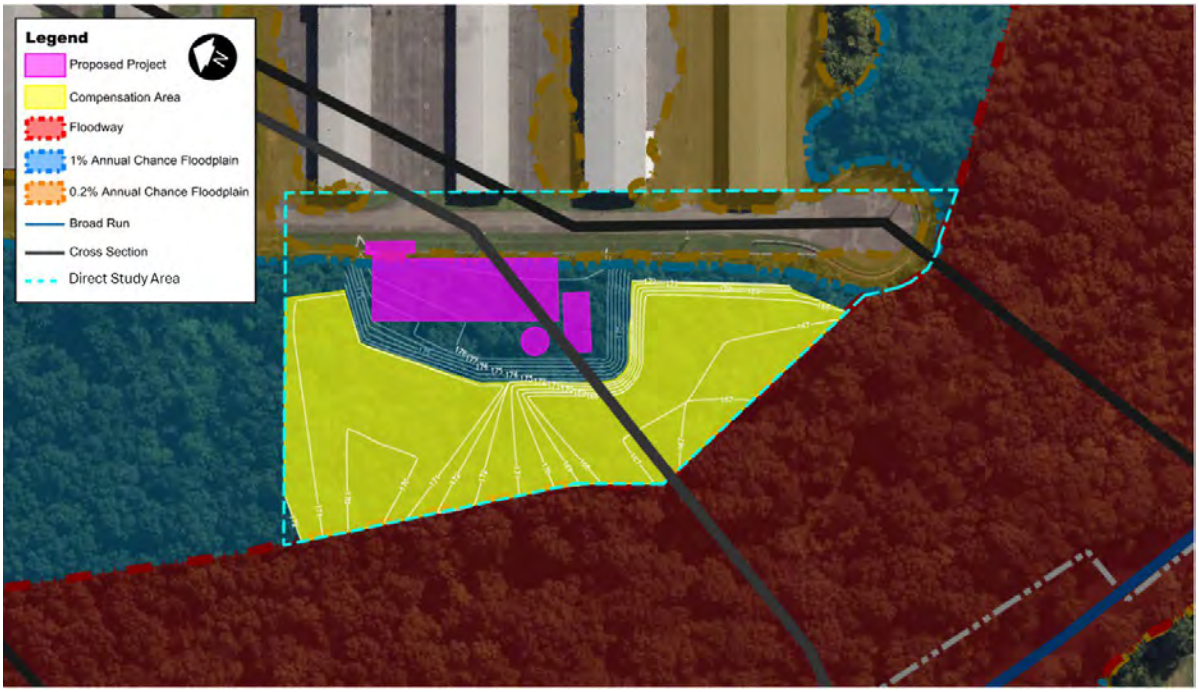
TABLE 3-13: FLOODPLAIN IMPACTS

BFE (FT NAVD88	DFE (FT NAVD88)	Disturbed Floodplain Area (ac)	Fill Volume* (cy)	BFE Increase (ft)
175.61	178.61	0.71	3,900	0.04

Notes: BFE – Base Flood Elevation; DFE – Design Flood Elevation; ac – acres; cy – cubic yards; ft – feet. Source: RS&H, 2024.

Prior to construction, a Flood Hazard Use Permit would be obtained from Prince William County that would demonstrate no-net-rise to the floodplain. To comply with minimum floodplain standards required by the National Flood Insurance Program (NFIP) for new buildings in a Zone AE floodplain, new structures must be elevated to or above the base flood elevation (BFE). In addition, construction Best Management Practices (BMPs) would help reduce construction runoff and pollutant transport. Silt fences and inlet filters would help reduce sediment transport to the surrounding floodplains. To ensure the inlet filters perform as intended, any sediment accumulated during construction should be removed to ensure proper capacity. During construction, the selected contractor would comply with the Flood Hazard Use Permit, VPDES General Permit (VAR050985), the Airport's amended SWPPP, which would include the Proposed Action, and SPCC Plan to minimize or prevent impacts to the floodplain.

FIGURE 3-11: FLOODPLAIN COMPENSATION AREA



Source: RS&H, 2024.

Through compliance with applicable permits and compensatory storage and conveyance, the natural and beneficial floodplain values would be maintained following the construction of the Proposed Action, resulting in no significant effect on floodplains when compared to the No Action Alternative. The Proposed Action's affect on the 100-year flood elevation would not result in a high probability of loss of life, substantial costs or damages (including the interruption of aircraft service or loss of a vital transportation facility), or cause adverse impacts on natural and beneficial floodplain values.

Surface Water - The Direct Study Area does not contain any surface waters; the nearest surface water is Broad Run, over 300 from the proposed ATCT location. As described previously, prior to construction, the City would provide notice to VDEQ of the Proposed Action and amend the Airport's existing SWPPP to include the measures and controls employed to meet the no net increase of stormwater nutrient and sediment load resulting from the Proposed Action. During construction, the selected contractor would implement stormwater, erosion, and sediment control BMPs in compliance with the Airport's amended SWPPP to minimize or prevent pollutants from impacting Broad Creek. For example, the Airport maintains several oil/water separators connected to paved ditches that collect runoff and separate accumulated oils and sediments. According to FAA Advisory Circular 150/5370-10, *Standard Specifications for Construction of Airports*, examples to minimize erosion include silt fences, slope drains, seeding, and mulching. Erosion and sediment control BMPs implemented during tree-clearing for the geotechnical survey on March 24 and 29, 2025, included installing a silt fence and establishing a

construction entrance to minimize soil loss and prevent sediment and pollutants from entering nearby surface waters.

Following construction, impervious surfaces would be less than 0.5 acre. The increase in the amount and rate of stormwater would be accommodated by BMPs to accomplish water quality and quantity goals due to the increase in impervious area.

Additionally, all disturbed areas would be seeded with a seed mix containing species appropriate for the region. Implementing the Proposed Action would not exceed the water quality standards established by Federal, state, or local regulatory agencies, nor contaminate public drinking water supply such that public health would be adversely affected. Through compliance with the VPDES General Permit (VAR050985), amended SWPPP, and SPCC Plan, and stormwater management improvements, the Proposed Action, when compared to the No Action Alternative, would have no significant effect on surface waters.

Groundwater - As noted in ***Section 3.2.13.1***, the depth of groundwater is around 10 feet or more below the surface. It is unlikely that construction of the Proposed Action would encounter groundwater. In addition, the Proposed Action is not located within a Sole Source Aquifer area and does not involve any groundwater withdrawals, construction of new wells, or impacts to existing wells. During construction, the selected contractor would comply with the VPDES General Permit (VAR050985), amended SWPPP, and SPCC Plan to minimize and prevent pollutants from impacting water resources, including groundwater. Following construction, the Proposed Action would not change groundwater resources. When compared to the No Action Alternative, the Proposed Action would have no significant effect on groundwater through compliance with the VPDES General Permit (VAR050985), amended SWPPP, and SPCC Plan.

Implementing the Proposed Action would cause a less than significant environmental effect on Water Resources. When considering projects planned to occur in the reasonably foreseeable future, the Proposed Action would not cause significant environmental effects. Therefore, the Proposed Action's construction and operation, combined with the reasonably foreseeable future projects, would not have a significant environmental impact.

Mitigation Measures - Prior to construction, the City would provide notice to VDEQ of the Proposed Action and amend the Airport's existing SWPPP in compliance with the City's VDEPS General Permit (VAR050985). Specifically, the City would document in the SWPPP the methods used to determine the nutrient and sediment loadings and measures to meet the no net increase of stormwater nutrient and sediment load resulting from the Proposed Action. During construction, the selected contractor would implement stormwater, erosion, and sediment control BMPs in compliance with the amended SWPPP to minimize or prevent pollutants from entering Broad Run and nearby wetlands along Broad Run. Following construction, all disturbed upland areas would be seeded with a seed mix containing species appropriate for the region. The City would also obtain a Flood Hazard Use Permit from Prince William County prior to

construction. The selected contractor would conduct all work in compliance with the Flood Hazard Use Permit, VPDES General Permit (VAR050985), amended SWPPP, and SPCC Plan. Additional mitigation measures are not required or proposed.

4
AGENCY AND PUBLIC INVOLVEMENT

The EA coordination process described in this chapter provides applicable agencies and the public the opportunity to comment on the potential effects of the construction and operation of the Proposed Action.

Per FAA Order 1050.1F, Section 2-5, Public Involvement, the FAA is to "…solicit appropriate information from the public…and provide the public with this information and allow it to comment on these findings." With the public release of the Draft EA, the City is providing the public and agencies the opportunity to provide input regarding the Proposed Action analyzed in this EA. The public and agency involvement process will:

- Provide information about the Proposed Action's purpose and need and the alternatives the EA discusses.
- Obtain feedback about the Proposed Action and its potential environmental impacts from the public and agencies interested in and affected by the Proposed Action.
- Inform those interested that the EA provides a full and fair discussion of project-related environmental effects.
- Provide timely public notices to the interested parties so that they may submit comments concerning the Proposed Action.
- Record comments received from interested parties and incorporate those comments into the document as appropriate.

4.1 PUBLIC INVOLVEMENT AND AGENCY COORDINATION APPROACH AND PROCESS

Pertinent federal statutes, regulations, executive orders, and guidance are considered when conducting the public involvement process. ***Table 4-1*** lists the agencies and Tribes that were emailed an initial coordination letter providing details on the components of the Proposed Action and provided the opportunity to comment (see ***Appendix G***). The agency comments received in response to the initial coordination letters are reflected in the applicable sections of ***Chapter 3*** (Affected Environment and Environmental Consequences).

Copies of the agency response letters are included in ***Appendix G***.

4.2 DISTRIBUTION OF DRAFT EA

A notice of availability for the Draft EA will be published in the Prince William Times (see ***Appendix G***). The Draft EA will be made available for a 30-day review (30 days after the notice of availability advertisement) at the Airport's administrative office during normal business hours, on the Airport's website (https://flyhef.com/about/plans-projects/plans-studies), and at the Central Community Library (see ***Table 4-2***).

TABLE 4-1: EARLY AGENCY COORDINATION

Agency	Date Initiated	Response (Yes or No)
EPA	12/21/23	Yes
FEMA	12/21/23	No
U.S. Department of the Interior	12/21/23	No
U.S. Department of Agriculture	12/21/23	Yes
U.S. Army Corps of Engineers	12/21/23	No
National Oceanic and Atmospheric Administration	12/21/23	No
USFWS	12/21/23	No
VDEQ	12/21/23	Yes
VDGIF	12/21/23	Yes
VDCR	12/21/23	No
State NFIP Coordinator/Lead Floodplain Program Planner	12/21/23	No
Virginia Department of Aviation	12/21/23	Yes
Virginia Department of Transportation	12/21/23	Yes
City of Manassas	12/21/23	Yes
Prince William County	12/21/23	Yes
FAA Coordination		
VDHR	1/30/24	Yes
Catawba Indian Nation	1/30/24	No
Chickahominy Indian Tribe	1/30/24	No
Delaware Nation, Oklahoma	1/30/24	No
Pamunkey Indian Tribe	1/30/24	No

Source: RS&H, 2024.

TABLE 4-2: DRAFT EA AVAILABLE LOCATIONS

Location Name	Address
Manassas Regional Airport Administrative Office (hardcopy)	10600 Harry J. Parish Blvd. Manassas, VA 20110
Manassas Regional Airport Website (electronic copy)	https://flyhef.com/about/plans-projects/plans-studies
Central Community Library (hardcopy)	8601 Mathis Ave. Manassas, VA 20110

Source: RS&H, 2024.

4.3 FINAL EA

The Final EA and the FAA's decision will be available at the Airport's administrative office, on the Airport's projects website, and at a local library.

5
LIST OF PREPARERS

This section lists the EA's principal preparers, including representatives from the City and RS&H and its EA team.

5.1 MANASSAS REGIONAL AIRPORT

Juan Rivera - Airport Director

Jolene Berry - Assistant Airport Director

5.2 RS&H, INC.

David Alberts

Position: Project Manager, Senior Environmental Planner
Education: B.S. Geography
Experience: Mr. Alberts has 28 years of NEPA-related experience. He is the RS&H Team Project Manager and is responsible for the Purpose and Need, Alternatives, technical NEPA documentation, and quality assurance of the NEPA analyses in the EA.

Dave Full, AICP

Position: Vice President, Aviation Environmental Planning Service Group
Education: M.A. Urban Planning; B.A. Urban Planning
Experience: Mr. Full has 36 years of experience. He is responsible for the quality assurance of the EA's NEPA analyses.

Dean McMath

Position: Senior Environmental Planner
Education: B.S. Biology
Experience: Mr. McMath has 39 years of NEPA-related experience, 35 of them working with the FAA as the Southwest Region Environmental Programs Manager. He is responsible for the independent quality assurance of the NEPA analyses in the EA.

Mike Alberts

Position: Senior Aviation Specialist
Education: B.S. Geography
Experience: Mr. Alberts has 28 years of aviation noise modeling/mitigation experience. He is responsible for the technical noise analysis in the EA.

Katherine Martin

Position: Environmental Consultant
Education: M.S. Environmental Science; B.S. Natural Resource Conservation
Experience: Ms. Martin has nearly 10 years of environmental consulting experience. She is an environmental scientist at RS&H and is responsible for wetland and wildlife assessments in the EA.

Monica Hamblin

Position: Aviation Environmental Specialist
Education: B.S. Interdisciplinary Studies-Environmental Science
Experience: Ms. Hamblin has 7 years of experience in the environmental field. She is responsible for assisting with data collection, technical writing, and exhibit production.

Tamsen Binggeli, AICP

Position: Aviation Environmental Specialist
Education: M.S. Environmental Science; B.B.A. International Business
Experience: Ms. Binggeli has 18 years of experience in environmental planning, permitting, and NEPA compliance. She is responsible for assisting with data collection, technical writing, and exhibit production.

Steven Wilson, PE

Position: Water Resources Engineer
Education: M.E. Environmental Engineering Sciences; B.S. Civil Engineering
Experience: Mr. Wilson has 10 years of engineering experience with 8 years dedicated to the aviation industry. He is responsible for helping prepare the Water Resources documentation, specifically the Floodplains and Surface Waters analyses in the EA.

Michael Fesanco, C.M.

Position: Aviation Environmental Specialist
Education: M.S. Aviation Management; B.S. Aviation Management
Experience: Mr. Fesanco has 3 year of experience in the environmental field. He is responsible for assisting with data collection, technical writing, and exhibit production.

Joel Azopardi

Position: Visualization Project Lead, Visualization Production Manager
Education: B.A. (Hons) Technical Illustration
Experience: Mr. Azopardi has 18 years of 3D Visualization experience in Architectural Visualization and the AEC industry. He is responsible for the visualization methodology, photography, and quality assurance of the visual effects photo simulations in the EA.

Chris Gallop

Position: Associate Director, Creative Services
Education: A.A. 3D Art
Experience: Mr. Gallop has 25 years of experience in Visualization, Animation, and Production Management. He Manages two dynamic departments: the Visualization Team, which specializes in creating convincing and comprehensive photorealistic renders, animations, & interactive experiences, and the Graphic Design Team, which produces stunning graphics for pre-marketing, pursuits, presentations, conferences, and events. Responsibilities include overseeing production, ensuring deliverable deadlines are met, coordinating with other departments and external firms, delegating assignments, supervising staff, conducting employee evaluations, interviewing, and training.

Jason Frank

Position: Creative Services Specialist
Education: B.F.A. Animation
Experience: Mr. Frank has over 5 years of experience in 3D and visualization. He is a member of the Visualization team. He is responsible for executing the camera matching, 3D rendering, and post-production of the visual effects photo simulations in the EA.

5.3 THE MANNIK AND SMITH GROUP, INC.

Robert Chidester, RPA 1066050

Position: Cultural Resources Service Director / Senior Project Manager
Education: Ph.D., Anthropology and History
Experience: Dr. Chidester has over 15 years of experience in NEPA and Section 106 (National Historic Preservation Act) compliance. He is the Cultural Resources Lead and is responsible for the Cultural Resources portion of the NEPA analyses in the EA.

6
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APPENDIX A
AVIATION PLANNING

Federal Aviation Administration

Manassas Regional Airport
Manassas, Virginia

Airport Traffic Control Tower
Siting Report

Engineering Service
Terminal Engineering Center

Developed by:
Nayear Fam

Effective Date: December 10, 2024

EXECUTIVE SUMMARY

The Manassas Regional Airport (HEF) Airport Traffic Control Tower (ATCT) is a sponsor-owned facility. The existing HEF tower is a Hunt/AVCO tower commissioned in 1992. The existing cab size is approximately 189 square feet with a cab floor height of 82 feet above ground level (AGL). The HEF ATCT is a level 3 facility. This siting report provides a discussion of the siting process, evaluation criteria for the new tower, an overview of all potential sites considered, a detailed evaluation of the primary site options, and the conclusions and recommendations.

The cost estimates and building sizes presented in this report are for planning and site selection purposes only.

The proposed action is to identify and reserve a location on the airport for a potential replacement of the ATCT. Representatives from the Federal Aviation Administration (FAA) and the Manassas Regional Airport Commission met virtually via the Virtual Immersive Siting Tower Assessment (VISTA) process on February 20–21, 2024, and February 23, 2024, to participate in ATCT siting activities. The team followed VISTA Memo Version 1.1, dated October 16, 2023, to determine viable/preferred ATCT sites for a potential new ATCT.

Recommended Action/Location

The recommended site is Site 3. The tower center coordinates are longitude 38° 43' 2.41" N and latitude 77° 31' 6.22" W, and the cab floor height is 120 feet AGL [301 feet above mean sea level (AMSL)]. The proposed top of tower height is 155 feet AGL, with a ground elevation of 181 feet AMSL for a total height of 336 feet AMSL. This is the shortest possible ATCT that meets all siting criteria and is deemed safe under the Air Traffic Organization (ATO) Safety Management System (SMS). The proposed tower provides unobstructed views of all controlled airport surface areas and maximum visibility of all airborne traffic.

The tower will have an eight (8)-sided, 550 square-foot (sf) cab with mullions and slat-wall consoles. The proposed tower will facilitate a safe operating environment for aeronautical activity at HEF well into the future and will be built to resist seismic events. The recommended site provides the best available location for visibility of airport traffic control.

Impacts

The Safety Risk Management (SRM) Panel conducted on Site 3 identified one low-risk hazard as trees are blocking the view of the Taxiway (TWY) Kilo extension from Site 3 to the end of the west side of Runway (RWY) 34R. The Obstruction Evaluation/Airport Airspace Analysis (OE/AAA) identified that the structure must be lighted in accordance with Advisory Circular 70/7460-1M, Obstruction Marking and Lighting and that the HEFZ and HEF Remote Transmitter/Receivers (RTRs) must be relocated. Refer to Paragraph 1.4.3, Siting Criteria Evaluation, for impacts from the proposed construction of this ATCT at Site 3. There are no other known impacts in terms of Line of Sight (LOS); Terminal Instrument Procedures (TERPS); future airport development; or local weather phenomena with the potential to impair visibility.

APPROVAL AUTHORITIES

DAVID D LESLIE Digitally signed by DAVID D LESLIE
Date: 2024.12.23 08:34:23 -05'00'

Director of Air Traffic Services, Eastern Service Area

JAMES DOUGLAS PARRISH Digitally signed by JAMES DOUGLAS PARRISH
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Director of Facilities & Engineering Services, FAA Headquarters

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1.0 PREFERRED SITES

All pre-sites were evaluated against the required siting criteria. Visibility and impacts were assessed and documented to determine which sites were viable sites. The following preferred sites were selected based on team discussion and inputs on the advantages and disadvantages of each site: Site 1 and Site 3.

Though a particular site may be preferable in terms of safety, operations, cost, constructability, or other criteria, it is understood that any of the preferred sites would be acceptable as the recommended site should the identified recommended site be eliminated for any reason.

1.1 Preferred Sites Aerial View

Figure 1. Preferred Sites Aerial View

1.2 Site Comparison Chart

Item Description	Site 1			Site 3		
Recommended Site:				Recommended		
Latitude	38° 43' 14.20" N			38° 43' 2.41" N		
Longitude	77° 31' 14.63" W			77° 31' 6.22" W		
Estimated Ground Level (AMSL)	179'			181'		
Cab Floor Level (AGL)	111'			120'		
Cab Floor Level (AMSL)	290'			301'		
Eye-Level (AGL)	116'			125'		
Eye-Level (AMSL)	295'			306'		
Top of Tower (AGL)	146'			155'		
Top of Tower (AMSL)	325'			336'		
Maximum Distance (to farthest point on all runways and taxiways)	4,556' (RWY 34R)			3,746' (RWY 16L)		
2-Point Lateral Discrimination (Deg) (Pass/Fail)	Pass			Pass		
Object Discrimination (Pass/Fail) Front View (Minivan)	Pass			Pass		
Line of Sight Angle of Incidence	Pass – 1.48			Pass – 1.74		
ATCT Orientation Direction	Southeast			South		
Cab Size	550 sf			550 sf		
Columns/Mullions	Mullions			Mullions		
Console Type (Traditional, Slat-Wall)	Slat-Wall			Slat-Wall		
Land Area	~2 acres			~2 acres		
Access to ATCT Site (Yes or No)	Yes			Yes		
Tech Ops Preliminary Review Issues	Yes			Yes		
TERPS Impacts	No			No		
14 CFR Part 77 Impacts	Yes			Yes		
ATCT Potential Impacts to Future & Existing Navaids	Yes			Yes		
Comparative Cost Estimate* ($150K per vertical foot)	$16,650,000			$18,000,000		
Safety Assessment Initial Risk Ranking	**L**	**M**	**H**	**L**	**M**	**H**
	1	0	0	1	0	0
Safety Assessment Predicted Residual Risk Ranking	**L**	**M**	**H**	**L**	**M**	**H**
	1	0	0	1	0	0

* The comparative cost estimate is not for budgetary purposes; it is for site comparison purposes only.

1.3 Site 1

1.3.1 Description

Site 1 is located behind the existing tower and is oriented to the Local Control (LC1) at the Panel B position facing southeast. Site 1 has improved visibility over the existing tower, has established access and utilities, and has nearby parking. However, Site 1 is not centrally located on airport property. In addition, trees located just off airport property obscure the controller view of the RWY 34R runup area, TWY Kilo extension, and portions of the west side of RWY 34R when below 111 feet AGL cab floor height.

1.3.2 Site Reference Data

Site 1 is located at latitude 38° 43' 14.20" N and longitude 77° 31' 14.63" W with cab floor height of 111 feet AGL (290 feet AMSL) and a top of tower height of 146 feet AGL (325 feet AMSL). Refer to Paragraph 1.2, Site Comparison Chart, for additional site reference data.

1.3.3 Siting Criteria Evaluation

A. TERPS

There are no known TERPS impacts for Site 1. Refer to Appendix F for additional information.

B. 14 CFR Part 77, OE/AAA Requirements

The structure at Site 1 must be lighted in accordance with Advisory Circular 70/7460-1M, Obstruction Marking and Lighting. Refer to Appendix F for additional information.

C. Impacts to Communications, Navigation and Surveillance Equipment

The FAA's HEFZ and HEF Remote Transmitter/Receivers (RTRs) must be relocated with a limited facility height of 100 feet AGL. Refer to Appendix F for additional information.

D. Visibility Performance Requirements

A visibility siting requirements analysis was conducted using the FAA's human factors tool to address the unobstructed view, object discrimination, and LOS angle of incidence requirements. Site 1 passed these analyses and does not require any additional mitigation strategies. Refer to Appendix H for additional information.

E. Safety Assessment

The SRM Panel conducted on Site 1 identified one (1) low-risk hazard from trees blocking the view of the planned extension of TWY Kilo to the end of the west side of RWY 34R; however, the Airport Manager advised during the siting assessment and SRM Panel that, if the trees cannot be removed, the future taxiway extension would not be constructed; therefore, there are no risk level hazards associated with this issue. Refer to Appendix K for information on this hazard.

F. Operational Requirements

1. ATCT Orientation: Southeast

2. Weather: No issues were identified.

3. Look-Down Angle: The look-down angle is adequate to see all movement areas of the airport.

4. Look-Up Angle: The look-up LOS in the cab is adequate to see all necessary areas. It is noted that, at 1,500 feet, there is a 19–20 second loss of aircraft over the cab; however, the airport has Standard Terminal Automation Replacement System (STARS) to maintain visibility of aircraft. HEF ATC stated that visibility of the aircraft is maintained the entire time.

5. Look Across LOS: The look across LOS in the cab is adequate to see all necessary areas.

6. Cab Mullion Orientation: HEF ATC selected a mullion configuration with a rotation of 0 degrees.

7. Cab Column Orientation: The selected column configuration is CS1 with a cab rotation of 345 degrees. However, HEF ATC selected the mullion configuration over the column configuration.

8. Construction: Construction of Site 1 would not obstruct any movement areas.

9. Access: The airport will provide secure access.

10. Non-Movement Areas: No issues were identified with non-movement areas.

11. Cab Size Evaluation: A space planning exercise was conducted in a virtual 550 sf cab to identify any space constraints on the proposed control cab. No issues were identified.

12. Rotating Beacon: The rotating beacon is located across the airfield close to TWY Zulu. The airport would like to place the beacon on top of the new tower. If the rotating beacon is not relocated, it can be shielded if needed.

G. Economic Considerations

As this tower will be constructed by the airport, the airport will identify economic consideration and associated costs. A comparative cost estimate based on $150,000 per vertical foot is provided in Paragraph 1.2, Site Comparison Chart. This estimate is to be used for comparative purposes only between the preferred sites.

H. Environmental

A Phase I Environmental Site Assessment (ESA) is not required for sponsor owned ATCTs.

I. Servicing Security Element

Physical security protective measures shall be implemented based on a Facility Security Level (FSL)-1 Critical Infrastructure (CI) site, per FAA Order 1600.69C.

1.4 Site 3

1.4.1 Description

Site 3 is located adjacent to the approach end of RWY 34L and is oriented to the LC1 position facing south. It is centrally located in the middle of the airport and the middle of the long runways (RWY 34R and RWY 16L). This site has an improved LOS to runway extension, TWY Charlie, TWY Zulu on the north side, terminal, and ramp. It is located far away from buildings and hangars; its remote location adds extra security. Site 3 is located at the threshold of RWY 34L at the north third of the airport and ATC stated that they can clearly see the lineup of aircraft at the correct runway. This site also provides enough space in the cab for another LC if needed. At Site 3, fewer trees would have to be removed. In addition, there is no future development or construction planned at Site 3. It is noted that utilities will need to be brought in from 200 yards away.

1.4.2 Site Reference Data

Site 3 is located at latitude 38° 43' 2.41" N and longitude 77° 31' 6.22" W with cab floor height of 120 feet AGL (301 feet AMSL) and a top of tower height of 155 feet AGL (336 feet AMSL). Refer to Paragraph 1.2, Site Comparison Chart, for additional site reference data.

1.4.3 Siting Criteria Evaluation

A. TERPS

There are no known TERPS impacts for Site 3. Refer to Appendix F for additional information.

B. 14 CFR Part 77, OE/AAA Requirements

The structure at Site 3 must be lighted in accordance with Advisory Circular 70/7460-1M, Obstruction Marking and Lighting. Refer to Appendix F for additional information.

C. Impacts to Communications, Navigation and Surveillance Equipment

The FAA's HEFZ and HEF RTRs must be relocated with a limited facility height of 100 feet AGL. Refer to Appendix F for additional information.

D. Visibility Performance Requirements

A visibility siting requirements analysis was conducted using the FAA's human factors tool to address the unobstructed view, object discrimination, and LOS angle of incidence requirements. Site 3 passed all analyses and does not require any additional mitigation strategies. Refer to Appendix H for additional information.

E. Safety Assessment

The SRM Panel conducted on Site 3 identified one (1) low-risk hazard from trees blocking the view of the planned extension of TWY Kilo to the end of the west side of RWY 34R; however, the Airport Manager advised during the siting assessment and SRM Panel that, if the trees cannot be removed, the future taxiway extension would not be constructed;

therefore, there are no risk level hazards associated with this issue. Refer to Appendix K for information on this hazard.

F. Operational Requirements

1. ATCT Orientation: South

2. Weather: No issues were identified.

3. Look-Down Angle: The look-down angle is adequate to see all movement areas of the airport.

4. Look-Up Angle: Aircraft overflying the ATCT at 1,500 feet for pattern entry were not in sight for approximately 20 seconds. However, ATC stated that STARS equipment is available to maintain situational awareness of traffic. The look-up LOS in the cab is adequate to see all necessary areas.

5. Look Across LOS: The look across LOS in the cab is adequate to see all necessary areas.

6. Cab Mullion Orientation: HEF ATC selected a mullion configuration with a rotation of 2 degrees.

7. Cab Column Orientation: HEF ATC identified a column configuration of CS2 with a cab rotation of 357 degrees. However, HEF ATC selected the mullion configuration over the column configuration.

8. Construction: Construction of Site 3 would not obstruct any movement areas.

9. Access: The airport will provide secure access.

10. Non-Movement Areas: No issues were identified with non-movement areas.

11. Cab Size Evaluation: A space planning exercise was conducted in a virtual 550 sf cab to identify any space constraints on the proposed control cab. No issues were identified.

12. Rotating Beacon: The rotating beacon is located across the airfield. The airport would like to place the beacon on top of the new tower. If the rotating beacon is not relocated, it can be shielded if needed.

G. Economic Considerations

As this tower will be constructed by the airport, the airport will identify economic consideration and associated costs. A comparative cost estimate based on $150,000 per vertical foot is provided in Paragraph 1.2, Site Comparison Chart. This estimate is to be used for comparative purposes only between the preferred sites.

H. Environmental

A Phase I ESA is not required for sponsor owned ATCTs.

I. Servicing Security Element

Physical security protective measures shall be implemented based on a FSL-1 CI site, per FAA Order 1600.69C.

2.0 FINAL SITE RECOMMENDATION

The final recommended site selection for HEF based on the siting criteria is Site 3. HEF ATC explained that Site 3 has a better LOS, is more centrally located on the airport, and is closer to the RWY 34 thresholds than Site 1. The siting assessment and the SRM Panel conducted identified an initial risk from trees blocking the view of the planned extension of TWY Kilo to the end of the west side of RWY 34R; however, the HEF Airport Manager advised during the siting assessment and SRM Panel that, if the trees cannot be removed, the future taxiway extension would not be constructed; therefore, there are no risk level hazards associated with this issue. The airport sponsor has agreed to approximately 2 acres for the tower.

3.0 CAB SIZE AND ORIENTATION

The cab will be an eight (8)-sided 550 sf cab facing south. The tower has five (5) authorized positions in the cab: LC1, Ground Control (GC), Flight Data/Clearance Delivery (FD/CD), and Controller-in-Charge (CIC). See Figure 2 for cab orientation.

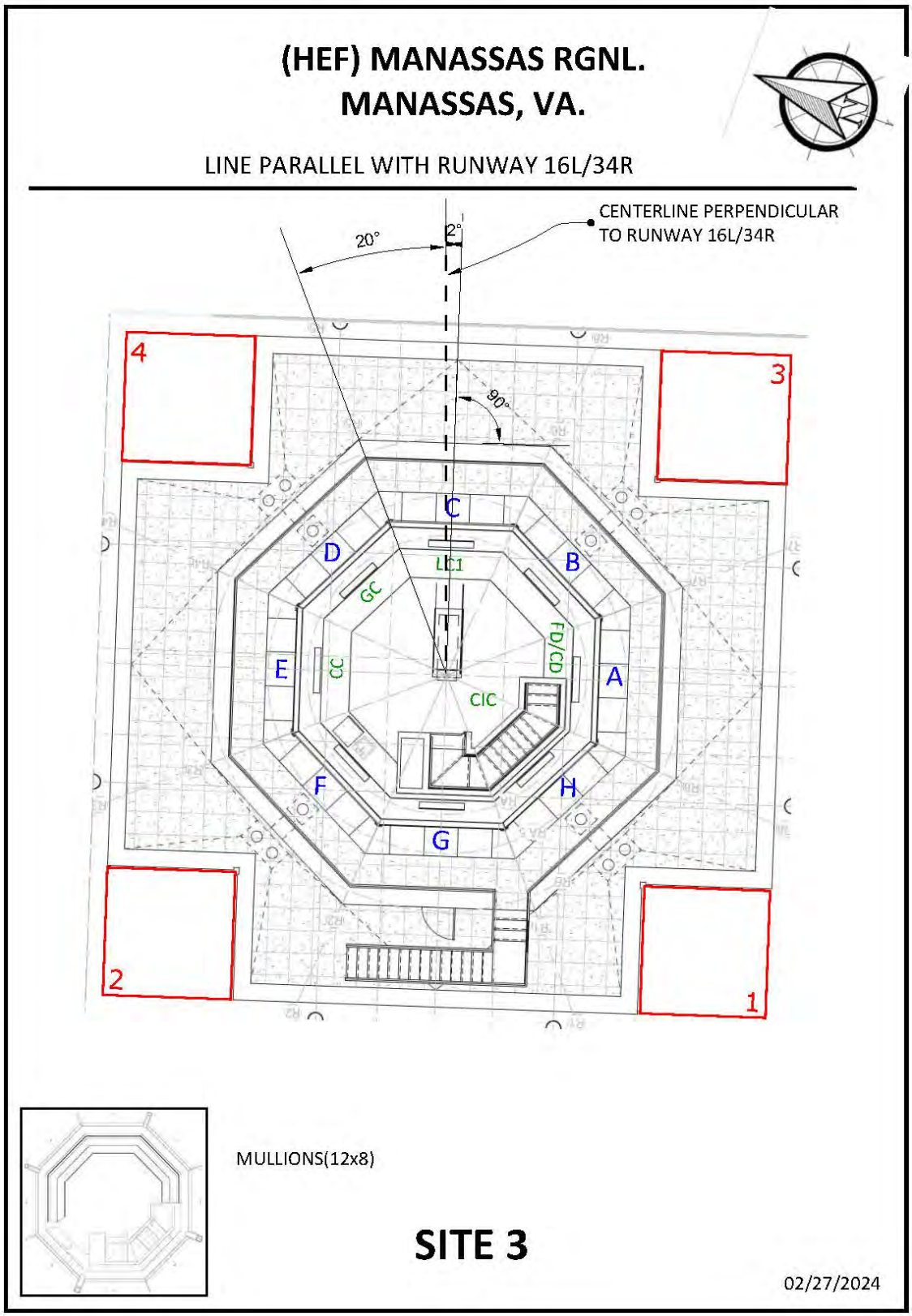

Figure 2. Site 3 Cab Orientation

4.0 SUPPLEMENTAL INFORMATION

Appendix A – Airport Concurrence Letter

Appendix B – Cost Estimate

Appendix C – All Sites Evaluated

Appendix D – Panoramic Views

Appendix E – Drawings (Cab Layout, Airport Layout Plan, Cab Structures, Airport Cable Drawings)

Appendix F – Obstruction Evaluation/Airport Airspace Analysis (OE/AAA)

Appendix G – Environmental Documentation

Appendix H – Human Factors Analysis

Appendix I – Servicing Security Element

Appendix J – Other Pertinent Information

Appendix K – Safety Risk Management Document

Appendix A – Airport Concurrence Letter

Refer to the Knowledge Sharing Network (KSN) for the airport concurrence letter.

Appendix B – Cost Estimate

Not applicable to sponsor-owned towers.

Appendix C – All Sites Evaluated

In addition to preferred Site 1 and Site 3, Site 2 was evaluated and subsequently deemed non-viable due to LOS issues and obstructions. All movement areas were not visible. The HEF Air Traffic Manager (ATM) could not see the end of the primary runway and RWY 34R runup area is too far away. The ATM had no LOS of TWY Whiskey and could not see the north side of the extension of the threshold, RWY 34R and RWY 34L. The ATM moved up the tower up to 91 feet AGL cab floor and still could not see the far south side of the runway. RWY 16R at TWY Whiskey was blocked. The ATM moved the tower up to 101 feet AGL cab floor. The trees were blocking at RWY 34R. The north side view was better, but the hold short was not clear. The ATM could see the east side of RWY 34R. The ATM stated that that the growth of the trees will obstruct the west edge of RWY 34R. The ATM moved the tower up to 120 feet AGL cab floor. A portion of the RWY 34R runup was still blocked and could not see TWY Whiskey and the west side of TWY Kilo. The runway extension will be obstructed if the trees grow anymore. Tree growth is not under airport control for private property. The ATM stated that the LOS is unacceptable, RWY 34L runup block is not visible, and when the trees grow, the runway extension will not be visible.

A. Reference Location: Behind the west ramp

B. Airport Quadrant: West

C. Acreage: ~2 acres

D. ATCT Orientation: South at LC1 at Panel B

E. ATCT Position Locations:

- FD/CD – Panel A
- LC1 – Panel B
- GC – Panel C
- LC2 – Panel D
- Cab Coordinator – Panel E
- CIC – Desk in the back by the stairs

Appendix D – Panoramic Views

Refer to the KSN for panoramic views of Site 1 and Site 3.

Appendix E – Drawings
(Cab Layout, Airport Layout Plan, Cab Structures, Airport Cable Drawings)

Refer to the KSN for relevant drawings.

Appendix F – Obstruction Evaluation/Airport Airspace Analysis (OE/AAA)

Refer to the KSN for the final determination letters for Site 1 and Site 3.

Appendix G – Environmental Documentation

A Phase I ESA is not required for sponsor owned ATCTs.

Appendix H – Human Factors Analysis

Refer to the KSN for the human factors analyses.

Appendix I – Servicing Security Element

Physical security protective measures shall be implemented based on a FSL-1 CI site, per FAA Order 1600.69C.

Appendix J – Other Pertinent Information

Refer to the KSN for the meeting minutes and other pertinent information.

Appendix K – Safety Risk Management Document

Refer to the KSN for the complete safety analysis.

APPENDIX B
CONSTRUCTION EMISSIONS INVENTORY

The U.S. Environmental Protection Agency (USEPA) sets National Ambient Air Quality Standards (NAAQS) to protect public health and the environment. The USEPA identifies the following seven criteria air pollutants for which NAAQS are applicable: carbon monoxide (CO), lead (Pb), nitrogen dioxide (NO_2), ozone (O_3), particulate matter (PM_{10} and $PM_{2.5}$), and sulfur dioxide (SO_2). The USEPA[1] describes these pollutants as "criteria" air pollutants because the agency regulates them by developing human health-based and/or environmentally based criteria (science-based guidelines) for setting permissible levels (see ***Table C-1***).

TABLE C-1 2024 National Ambient Air Quality Standards

Pollutant		Primary/ Secondary	Averaging Time	Level	Form
Carbon Monoxide (CO)		Primary	8 hours	9 ppm	Not to be exceeded more than once per year
			1 hour	35 ppm	
Lead (Pb)		Primary and Secondary	Rolling 3 month average	0.15 µg/m^3 (1)	Not to be exceeded
Nitrogen Dioxide (NO_2)		Primary	1 hour	100 ppb	98th percentile of 1-hour daily maximum concentrations, averaged over 3 years
		Primary and Secondary	1 year	53 ppb (2)	Annual Mean
Ozone (O_3)		Primary and Secondary	8 hours	0.070 ppm (3)	Annual fourth-highest daily maximum 8-hour concentration, averaged over 3 years
Particle Pollution (PM)	$PM_{2.5}$	Primary	1 year	9.0 µg/m^3	annual mean, averaged over 3 years
		Secondary	1 year	15.0 µg/m^3	annual mean, averaged over 3 years
		Primary and Secondary	24 hours	35 µg/m^3	98th percentile, averaged over 3 years
	PM_{10}	Primary and Secondary	24 hours	150 µg/m^3	Not to be exceeded more than once per year on average over 3 years
Sulfur Dioxide (SO_2)		Primary	1 hour	75 ppb (4)	99th percentile of 1-hour daily maximum concentrations, averaged over 3 years
		Secondary	1 year	10 ppb	annual mean, averaged over 3 years

Source: EPA 2024. Note Units of measure for the standards are parts per million (ppm) by volume, parts per billion (ppb) by volume, and micrograms per cubic meter of air (µg/m^3).

(1) In areas designated nonattainment for the Pb standards prior to the promulgation of the current (2008) standards, and for which implementation plans to attain or maintain the current (2008) standards have not been submitted and approved, the previous standards (1.5 µg/m^3 as a calendar quarter average) also remain in effect.

(2) The level of the annual NO_2 standard is 0.053 ppm. It is shown here in terms of ppb for the purposes of clearer comparison to the 1-hour standard level.

(3) Final rule signed October 1, 2015, and effective December 28, 2015. The previous (2008) O_3 standards are not revoked and remain in effect for designated areas. Additionally, some areas may have certain continuing implementation obligations under the prior revoked 1-hour (1979) and 8-hour (1997) O_3 standards.

[1] U.S. Environmental Protection Agency. Criteria Air Pollutants. Retrieved March 2024 from https://www.epa.gov/criteria-air-pollutants

(4) The previous SO_2 standards (0.14 ppm 24-hour and 0.03 ppm annual) will additionally remain in effect in certain areas: (1) any area for which it is not yet 1 year since the effective date of designation under the current (2010) standards, and (2) any area for which an implementation plan providing for attainment of the current (2010) standard has not been submitted and approved and which is designated nonattainment under the previous SO_2 standards or is not meeting the requirements of a SIP call under the previous SO_2 standards (40 CFR 50.4(3)). A SIP call is an EPA action requiring a state to resubmit all or part of its State Implementation Plan to demonstrate attainment of the required NAAQS.

According to the USEPA, Prince William County and the City of Manassas is classified as in "attainment" for all criteria pollutants excluding 8-Hour Ozone (2015) and (2008).[2] Prince William County and the City of Manassas is in "Moderate – Nonattainment" for 8-Hour Ozone (2015) and in "Marginal – Maintenance" for 8-Hour Ozone (2008), which is comprised of nitrogen oxide (NO_x) and volatile organic compounds (VOCs). Prince William County and the City of Manassas resides in the Ozone Transportation Region (OTR)[3]. All construction activity would occur in the EA's Project Study Area which is also an "attainment" area for all NAAQS excluding 8-Hour Ozone (2015) and (2008) standards.

This construction emission inventory (CEI) assessment was prepared to disclose the Proposed Project's potential construction-related air emissions. Construction of the Proposed Project is anticipated to occur in 2026 through 2027.

C.1 Construction Emissions Inventory Approach

Construction of the Proposed Project would include earthwork, grading, leveling, construction equipment storage, and movement activities that are sources of off-road, on-road, and fugitive dust emissions.

Non-road Emission Sources

Non-road sources associated with the Proposed Project's construction include exhaust from heavy construction equipment (e.g., cranes, dozers, and pavers) and fugitive dust emissions.

On-road Emission Sources

On-road emission sources associated with the Proposed Project's construction include material delivery vehicles (e.g., trucks carrying concrete or asphalt) and passenger vehicles transporting construction personnel to and from the job site.

Fugitive Emissions

Paving or dust emission sources associated with the Proposed Project's construction include asphalt storage, material movement on paved and unpaved roads, soil handling, un-stabilized land, and wind erosion. Paving or dust emissions were based on the number of months for construction.

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[2] U.S. Environmental Protection Agency. Green Book: Virginia Nonattainment/Maintenance Status for Each County by Year for All Criteria Pollutants. Retrieved April 2024 from https://www3.epa.gov/airquality/greenbook/anayo_va.html

[3] U.S Environmental Protection Agency. Nonattainment and Ozone Transport Region (OTR) SIP Requirements. Retrieved April 2024 from https://www.epa.gov/air-quality-implementation-plans/nonattainment-and-ozone-transport-region-otr-sip-requirements

Construction emissions are estimated based on these factors: construction schedule; the number of construction vehicles and/or equipment; the types of construction vehicles and/or equipment; types of fuel used to power the equipment and vehicles; vehicle and equipment hourly activity/vehicle miles traveled; construction materials used and their quantities; and the duration of construction.

C.2 MOVES3

The CEI used the EPA MOtor Vehicle Emissions Simulator 3 (MOVES3.1) to analyze the Proposed Project's potential on-road and non-road construction emissions.

C.2.1 Construction Emissions Inventory Inputs

The Proposed Project's construction components are shown in **Table C-2**. The Proposed Project's cost estimates and typical construction practices were used to develop the CEI inputs displayed in **Table C-3**, and

TABLE C-4. Inputs were coordinated with construction management engineers and are based on engineering judgment and past experience with airport construction projects. MOVES3.1 emission factors and load factors were developed to determine the on-road and non-road emissions from the construction of the Proposed Project.

TABLE C-2: HEF ATC REPLACEMENT CONSTRUCTION COMPONENTS

Component Name	Project Type	Year	Months
D-1	Parking Lot	2026	3
D-2	ATC Support Building	2026	12
D-3	Replacement ATC	2026	24
D-4	Tree Removal	2026	3
D-5	Floodplain Compensation	2026	3
D-6	Demolition of Existing ATC Tower	2026	1
D-7	Demolition of Existing ATC Support Building	2026	1

TABLE C-3: 2026 NON-ROAD CONSTRUCTION EMISSIONS INVENTORY INPUTS

Equipment Type	Fuel Type	Horsepower	Operating Hours
40 Ton Crane	Diesel	300	776.00
40 Ton Rough Terrain Crane	Diesel	300	16.00
Auger Drill	Diesel	175	24.00

Equipment Type	Fuel Type	Horsepower	Operating Hours
Backhoe	Diesel	100	432.00
Bob Cat	Diesel	75	191.84
Boom Manlift	Diesel	75	96.00
Bulldozer	Diesel	175	927.20
Chain Saw	Diesel	11	895.20
Compacting Equipment	Diesel	6	120.54
Concrete Pump	Diesel	11	3.60
Concrete Ready Mix Trucks	Diesel	600	242.54
Dump Truck	Diesel	600	63.30
Excavator with Bucket	Diesel	175	31.60
Flat Bed or Dump Trucks	Diesel	600	1,782.40
Fork Truck	Diesel	100	800.00
Forktruck (Hoist)	Diesel	100	348.48
Front Loader	Diesel	150	911.20
Generator Sets	Diesel	40	31.60
Grub the site down 2'-0	Diesel	300	871.20
High Lift	Diesel	100	112.00
Line Painting Truck and Sprayer	Diesel	600	8.00
Log Chipper	Diesel	100	895.20
Man Lift	Diesel	75	90.00
Man Lift (Fascia Construction)	Diesel	75	48.00
Material Deliveries	Diesel	600	24.00
Mulcher	Diesel	100	895.20
Paving Machine	Diesel	175	32.00
Pickup Truck	Diesel	600	36.90
Roller	Diesel	100	190.24
Seed Truck Spreader	Diesel	600	69.70
Dozer	Diesel	175	120.54
Survey Crew Trucks	Diesel	600	63.56
Ten Wheelers	Diesel	600	887.20
Ten Wheelers- Material Delivery	Diesel	600	32.00
Tool Truck	Diesel	600	374.00
Tractor	Diesel	100	1,782.40
Tractor Trailer- Material Delivery	Diesel	600	641.28
Tractor Trailer- Steel Deliveries	Diesel	600	16.00
Tractor Trailer with Boom Hoist- Delivery	Diesel	600	128.54
Tractor Trailers Temp Fac.	Diesel	600	27.82
Trowel Machines (2) machines	Diesel	600	2.40
		Total	**15,041.70**

Source: RS&H 2024.

TABLE C-4: 2027 NON-ROAD CONSTRUCTION EMISSIONS INVENTORY INPUTS

Equipment Type	Fuel Type	Horsepower	Operating Hours
Fork Truck	Diesel	100	1,200.0
High Lift	Diesel	100	440.0
Man Lift	Diesel	75	1,200.0
Man Lift (Fascia Construction)	Diesel	75	120.0
Material Deliveries	Diesel	600	8.0
Tool Truck	Diesel	600	180.0
Tractor Trailer- Material Delivery	Diesel	600	156.0
		Total	**3,304.0**

Source: RS&H 2024.

The development of Vehicle Miles Traveled (VMT) is based on engineering judgment and past experience with airport construction projects. The calculation of VMT is developed by using the number of construction employees and the number of expected equipment types during the construction of the Proposed Project. The distance traveled by employees and material deliveries for the Proposed Project are based on a 30-mile round trip per passenger car and a 40-mile round trip per material delivery that would originate from the greater Manassas area. The round-trip distance is applied to each passenger and material delivery vehicle and multiplied by each day of construction to develop the total VMT used for MOVES3.1. On-road construction emissions for 2026 to 2027 are shown in

Table *C-5* and **Table C-6**.

TABLE C-5: 2026 ON-ROAD CONSTRUCTION EMISSIONS INVENTORY INPUTS

Equipment	Fuel Type	VMT*
Single Unit Short-haul Truck	Diesel	42,082.23
Combination Short-haul Truck	Diesel	4,693.60
Passenger Car	Gasoline	364,126.24

Note – VMT = vehicle miles traveled.
Source: MOVES3.1, RS&H 2024.

TABLE C-6: 2027 ON-ROAD CONSTRUCTION EMISSIONS INVENTORY INPUTS

Equipment	Fuel Type	VMT*
Single Unit Short-haul Truck	Diesel	3,546.00
Combination Short-haul Truck	Diesel	240.00
Passenger Car	Gasoline	158,871.00

Note – VMT = vehicle miles traveled.
Source: MOVES3.1, RS&H 2024

C.2.2 Construction Emissions Inventory Results

For informational purposes, **Table C-7** and **Table C-8** shows the criteria pollutants, as well as the, greenhouse gas GHG emissions in tons per year during the Proposed Project's construction. The primary greenhouse gas emissions are Carbon Dioxide (CO_2), Methane (CH_4), and Nitrous Oxide (N_2O). These resulting GHG emissions in tons per year during the Proposed Project's construction.

TABLE C-7: PROPOSED PROJECT MOVES3 RESULTS FOR 2026 (TONS PER YEAR)

							GHGs		
2026	**CO**	**VOC**	**NOx**	**PM_{10}**	**$PM_{2.5}$**	**SOx**	**CO_2**	**CH_4**	**N_2O**
NONROAD	0.36	0.08	0.87	0.06	0.06	0.00	1,340.84	N/A	N/A
ONROAD	1.13	0.02	0.16	0.01	0.01	0.00	150.41	0.00	0.00
FUGITIVE	0.00	0.37	0.00	0.13	N/A	0.00	N/A	N/A	N/A
TOTAL	1.49	0.47	1.02	0.20	0.07	0.00	1,491.24	0.00	0.00
De Minimis Levels[1]	100	50	100	100	100	100	N/A	N/A	N/A

Note – N/A = not applicable. Totals may not sum due to rounding.
1: De Minimis Levels shown represent an area that would be in non-attainment for NAAQS pollutants, see 40 CFR 93.153 https://www.ecfr.gov/current/title-40/section-93.153. However, Prince William County and the City of Manassas is in "attainment" for all NAAQS excluding "Moderate – Nonattainment" classification for 8-Hour Ozone (2015) and in "Marginal – Maintenance" for 8-Hour Ozone (2008).
Source: MOVES3.1, RS&H 2024. EPA, 2024.

TABLE C-8: PROPOSED PROJECT MOVES3 RESULTS FOR 2027 (TONS PER YEAR)

							GHGs		
2027	**CO**	**VOC**	**NOx**	**PM_{10}**	**$PM_{2.5}$**	**SOx**	**CO_2**	**CH_4**	**N_2O**
NONROAD	0.05	0.01	0.29	0.01	0.01	0.00	174.01	N/A	N/A
ONROAD	0.44	0.00	0.02	0.00	0.00	0.00	47.14	0.00	0.00
FUGITIVE	0.00	0.00	0.00	0.05	N/A	0.00	N/A	N/A	N/A
TOTAL	0.49	0.01	0.31	0.05	0.01	0.00	221.15	0.00	0.00
De Minimis Levels[1]	100	50	100	100	100	100	N/A	N/A	N/A

Note – N/A = not applicable. Totals may not sum due to rounding.
1: De Minimis Levels shown represent an area that would be in non-attainment for NAAQS pollutants, see 40 CFR 93.153 https://www.ecfr.gov/current/title-40/section-93.153. However, Prince William County and the City of Manassas is in "attainment" for all NAAQS excluding Moderate – Nonattainment" classification for 8-Hour Ozone (2015) and in "Marginal – Maintenance" for 8-Hour Ozone (2008).
Source: MOVES3.1, RS&H 2024. EPA, 2024.

Table C-9 shows the CO_2e values for construction years 2026 through 2027 using the CEI results from **Table C-7**, and **Table C-8**. The GHG emissions for the U.S. in 2022 was 6,378 million metric tons of Carbon Dioxide equivalent (MMT CO_{2e}) and 117 MMT CO_{2e} was produced from the State of Virginia in 2022 (EPA, 2024). In the context of global and U.S. Greenhouse Gas emissions, the construction of the Proposed Project's emissions of 0.0015 MMT CO_{2e} for 2026 and 0.00022 MMT CO_{2e} for 2027 would not be significant.

TABLE C-9: PROPOSED PROJECT CO_2E

Year	Pollutant	Emissions Quantity (Tons) Construction Emissions	AR6 GWP	CO_2e
2026	CO_2	1491.2431	1	1,491.24
	CH_4	0.0039	28	0.11
	N_2O	0.0005	265	0.13
			Total	***1,491.49***
2027	CO_2	221.15	1	221.15
	CH_4	0.00143	28	0.04
	N_2O	0.00019	265	0.05
			Total	***221.24***

Note: Totals may not sum due to rounding.

Sources: MOVES 3.1; Interagency Working Group, 2021, IPCC Sixth Assessment 2023.

APPENDIX C
WETLAND DELINEATION AND THREATENED AND ENDANGERED SPECIES REPORT

RS&H

October 2024

Manassas Regional Airport Wetlands and Waters Delineation, Threatened and Endangered Species Report

Manassas Regional Airport Wetlands and Waters Delineation, Threatened and Endangered Species Report

October 2024

Manassas/Prince William County, VA

Prepared by RS&H, Inc. at the direction of Manassas Regional Airport (HEF)

Table of Contents

1 Introduction

RS&H conducted a waters of the U.S. (WOTUS) delineation for a proposed replacement air traffic control tower (ATCT) at the Manassas Regional Airport (HEF, Airport) on April 23 and April 24, 2024. In 2016, Biologists conducted a wetland delineation and wildlife species survey for ± 48 acres of Airport land, including the Direct Study Area described in this report; however, it was determined that the length of time between the present and the previous study exceeded the acceptable interval, rendering the previous findings unreliable. Therefore, a new survey was deemed necessary.

This delineation was performed to evaluate the presence of jurisdictional WOTUS and identify their boundaries within the project area. It is anticipated that this delineation report will be used in support of the jurisdictional determination process for on-site aquatic resources. If it is determined that jurisdictional resources will be impacted, this delineation report will also support applications for regulatory permits that may be required from the United States Army Corps of Engineers (USACE) for proposed construction activities.

As required under Section 404 of the Clean Water Act (CWA), wetlands were delineated using the routine method described in the USACE 1987 Wetlands Delineation Manual (1987 Manual) and the USACE Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Eastern Mountains and Piedmont Region (Version 2.0) (April 2012). Wetland types and boundaries were determined through initial map review, followed by fieldwork involving the examination of three (3) parameters: hydrology, vegetation, and soils. Delineation criteria and indicators for each of these parameters are outlined in the 1987 Manual and the 2012 Regional Supplement. The 2012 Regional Supplement presents wetland indicators, delineation guidance, and other information that is specific to the Eastern Mountain and Piedmont region. Wetlands are classified according to the Cowardin Classification System used for the United States Fish and Wildlife Service (USFWS) National Wetlands Inventory (NWI).

This document contains the following four (4) attachments:

- **Attachment 1 – Figures:** contains maps and aerial photographs of the project area
- **Attachment 2 – Wetland Determination Data Forms**: documents the three (3) criteria for wetlands at all sample points
- **Attachment 3** – **Site Photographs** contains photographs taken during the site visit
- **Attachment 4** – **Regulatory Correspondence** contains documentation regarding threatened and endangered species from USFWS and VaFWIS.
- **Attachment 5** – **2016 Preliminary Jurisdictional Determination Letter** contains the preliminary jurisdictional determination letter from USACE from the previous study in 2016.
- **Attachment 6** – **2024 USACE Coordination** contains an email from October 2024 to USACE for a path forward when wetlands are not identified, which did not receive a response.

1.1 Previous Study

In 2016, the Airport authorized a preliminary wetland delineation which included 25 acres of land adjacent to the hangar, apron, and parking areas on the west side of the Air Operations Area (AOA), located between the fence line and Broad Run, a tributary of the Occoquan River.

The current Study Area encompasses 3.9 acres within the southeastern portion of the previously delineated area. As part of the 2016 delineation, 0.36 acre of wetlands were identified within the current Study Area boundary. The location of the proposed Project relative to the previously identified wetlands can be seen in **Figure 7** of **Attachment 1**. The USACE preliminary jurisdictional determination letter related to the 2016 study is included in **Attachment 5**.

2 Project Overview

The City of Manassas proposes infrastructure developments at 10600 Harry J Parrish Blvd, Manassas, VA 20110. These developments constitute a replacement ATCT, support facility, and ATCT employee parking located southwest of the airfield from Observation Road.

Attachment 1 – Figures contains numbered maps of the project area. **Figure 1** provides a vicinity map that depicts the location of the project area relative to the surrounding landscape. An aerial overview of the survey area including locations of the data points (DPs) is in **Figure 2**, and **Figure 3** contains a 7.5-minute series United States Geological Survey (USGS) topographic overview map. **Figure 4** depicts the National Wetlands Inventory (NWI) features within and around the survey area, **Figure 5** shows the mapped soil units within and around the survey area. **Figure 6a** through **6e** area historical aerial photographs of the site, from years 1994, 2002, 2011, and 2023. **Figure 7** shows the study area relative to the previous area that was delineated in 2016.

3 Methods

3.1 Map and Database Review

The following resources were considered and, if applicable, consulted before and during the field delineation to assist in the identification of potential WOTUS within the project area.

3.1.1 Topography, Geology, & Climate

USGS topographic maps illustrate elevation contours, drainage patterns, and hydrography. 7.5-minute USGS Quad maps assisted in determining the likelihood of the project area containing jurisdictional waterbodies and verified which direction water flows within the study area. In addition, the "Land Resource Regions and Major Land Resource Areas of the United States, the Caribbean, and the Pacific Basin" is a resource published by the U.S. Government Printing Office.

It delineates various land resource regions and major land resource areas and provides detailed descriptions and classifications of different land types based on soil, climate, geology, and other factors. RS&H reviewed these resources as a reference for understanding the broader landscape characteristics expected in the study area.

3.1.2 USFWS NWI Data

NWI maps are a comprehensive dataset created by the U.S. Fish and Wildlife Service (USFWS) that delineate wetland areas across the United States. These maps provide detailed information on the location, extent, and classification of wetlands, including their type, size, and associated habitat characteristics. Surveyors reviewed NWI data as a contributing resource to help identify potential wetland features located within the project area.

3.1.3 NRCS Soil Survey Data

The United States Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) maintains an online Web Soil Survey database. The data provided in the Web Soil Survey provides a basis for the soil textures and types one can expect to find at a particular delineation area. NRCS-mapped soils help determine which of the soils exhibit hydric characteristics and are assigned a hydric indicator status of "hydric" or "non-hydric" by the National Technical Committee for Hydric Soils.

3.1.4 Historical Aerial Photography

Aerial photography provides insight into the state and function of natural resources. Signs of inundation and vegetative signatures on aerial images indicate whether land might be functioning as a wetland or supporting a stream system. Information in this report considers historic and current aerial photography utilizing Google Earth, before and during the field delineation, to further understand local hydrology within the project area.

3.1.5 Precipitation Data

The Automated Geographic Adaptive Climatology Information System (AgACIS) offers a comprehensive repository of historical climate data, including temperature, precipitation, and other meteorological variables. This tool, developed by the National Climatic Data Center (NCDC), enables users to access climate information for specific locations and time periods. Precipitation data from the Airport weather station between April 9, 2024 to April 24, 2024 assists in the understanding of hydrological conditions and climate patterns influencing wetland formation and maintenance at the study area.

3.2 Waters of the U.S. Delineation

The wetland delineation was conducted based on the 1987 Manual and the 2012 Regional Supplement. The three-parameter approach requires an investigation of hydrological characteristics, hydrophytic vegetation, and hydric soils at selected sample points within a

project area. Sample points are located to determine upland/wetland boundaries and to record significant spatial changes in wetland plant communities. All three (3) indicator parameters must be met for the area to be classified as a wetland. Data collected for any waterbodies include average water depth, average width of waterbody, length of linear segments within the project boundary, and water flow classification (i.e., tidal, non-tidal, ephemeral, intermittent, and/or perennial.). See subsections on Hydrology, Vegetation, and Soils below, for indicator-specific information.

3.2.1 Hydrology

Wetland hydrology is characterized when, under normal conditions, the surface is either inundated or the upper horizon(s) of the soil are saturated at a sufficient frequency and duration to support anaerobic conditions. Seasonal and long-term rainfall patterns, local geology and topography, soil type, local water table conditions, and drainage are factors that influence hydrology.

Wetland hydrology indicators include oxidized rhizospheres among living roots, saturated soils, standing surface water, algal mat, aquatic fauna, high water table, iron deposits, sparsely vegetated concave surface, geomorphic position, moss trim lines, water-stained leaves, crawfish burrows, watermarks on trees and other standing features, drainage patterns, and surface soil cracks. These indicators help determine if an area exhibited wetland hydrology during the field survey.

3.2.2 Vegetation

In accordance with the procedure set forth in the 1987 Manual and 2012 Regional Supplement, the hydrophytic status of vegetation communities was determined by identifying dominant species and, if necessary, calculating a "Prevalence Index," as defined in the 1987 Manual.

Individual plant species were compared to the National Wetland Plant List (NWPL), and their regional wetland indicator status was determined. Species are classified as follows:

- Obligate Wetland (OBL) if they almost always occur in wetlands (>99 percent of the time)
- Facultative Wetland (FACW) if they usually occur in wetlands (67 to 99 percent of the time)
- Facultative (FAC) if they are equally likely to occur in wetlands and non-wetlands (34 to 66 percent of the time)
- Facultative Upland (FACU) if they usually occur in non-wetlands (67 to 99 percent of the time)
- Obligate Upland (UPL) if they almost always occur in non-wetlands (>99 percent of the time)

A no indicator (NI) status is recorded for species for which there is insufficient information available to determine an indicator status.

Hydrophytic (wetland) vegetation is considered prevalent where more than 50 percent of the dominant species in a plant community have an indicator status of OBL, FACW, or FAC. However, in cases where the vegetation community does not meet this hydrophytic threshold, but indicators of hydric soils and wetlands hydrology are present, the prevalent index can be applied. Calculation of this index is based on consideration of both dominant and non-dominant plants in the vegetation community, whereby each indicator status category is given a numeric code and weighted by absolute percent cover. The prevalent index ranges from 1 to 5 and an index of 3.0 or less indicates that hydrophytic vegetation is present. In the current delineation, and as shown on the wetland determination data forms in **Attachment 2**, the prevalent index was calculated for each sample point's vegetative community.

3.2.3 Soils

Hydric soils are defined as soils that are saturated, flooded, or ponded long enough during the growing season to develop anaerobic conditions in the upper horizons. Anaerobic conditions developed by repeated or prolonged saturation or flooding result in permanent changes in soil color and chemistry. The changes in soil color are used to differentiate hydric from non-hydric soils.

At each data point, in areas where the absence of inundation of heavy saturation allowed, a pit was excavated to a depth from 16 to 24 inches to reveal soil profiles and to determine whether positive indicators of hydric soils were present. Hydric soil indicators are related to color, structure, organic content, and the presence of reducing conditions. Color characteristics (Hue, Value, and Chroma) were recorded using Munsell Charts.

3.3 Wildlife & Critical Habitat

The USFWS Information, Planning, and Consultation (IPaC) system is a digital platform designed to facilitate streamlined access to information on threatened and endangered (T&E) species. It serves as a comprehensive database containing spatially referenced species information, habitat data, and consultation records. The system aids in project planning and decision-making by providing a means to assess whether T&E species are present within a specific project area. The Virginia Fish and Wildlife Information Service (VaFWIS) is an online tool that delivers data on wildlife species, habitats, and natural resources in Virginia to support environmental assessments and conservation planning. RS&H queried these systems to identify potential T&E species occurrences and review critical habitat designations, enabling a more informed understanding of potential impacts on T&E species and supporting compliance with regulatory requirements.

4 Results

4.1 Topography, Geology, & Climate

The USGS Quadrangle map for Manassas, VA (2024) depicts the study area as generally flat and sloping toward the northeast. Elevations within the study area range from approximately 170 feet above mean sea level (amsl) in the southeast to 150 feet amsl. The study area occurs in the Eastern Mountains and Piedmont Region (USACE, 2012); more specifically, the USDA NRCS Major Land Resource Area (MLRA) Northern Piedmont region (148) subregion of Land Resource Region (LRR) N (East and Central Farming and Forest Region). The topography of the Eastern Mountains and Piedmont region ranges from moderately steep to steep rolling hills that are covered with mixed hardwoods and small farms. The climate is characterized by four distinct seasons, with cold, moist winters, cool and wet springs and falls, and hot and humid summers with short periods of drought. Maximum precipitation occurs during high-intensity convective thunderstorms in early spring and summer (USDA NRCS, 2022).

4.2 USFWS NWI Data

Online research revealed one (1) NWI feature was identified within the project area. NWI data classifies approximately 1.79 acres of the study area as Freshwater Forested/Shrub Wetland habitat (PFO1C), located primarily on the northwestern portion of the site. This designation includes all nontidal wetlands which are dominated by trees, shrubs, and emergent species and is characterized by woody angiosperms (shrubs or trees) with leaves that are shed during the cold or dry season. Surface water in PFO1C systems is present for extended periods, especially early in the growing season, but is absent by the end of the growing season in most years. The water table after flooding ceases is variable, extending from saturated to the surface to a water table well below the ground surface (NWI, 2024). The location of NWI features found in the study area can be seen in **Figure 4** in **Attachment 1**.

4.3 NRCS Soil Survey Data

The study area consists of three (3) different soil types: Elsinboro sandy loam, 2 to 7 percent slopes, Alden silt loam, 0 to 2 percent slopes, and Rowlant silt loam, 0 to 2 percent slopes. The Elsinboro soil series is a well-draining non-hydric soil classified as prime farmland that rarely floods. Aldin silt loam soils are poorly draining, hydric, non-prime farmland that occasionally flood. Rowland silt loam, also classified as non-prime farmland, is a moderately well-drained non-hydric soil that frequently floods. **Table 1** below provides detailed information on the soil units represented within the project area based on information collected from the Web Soil Survey database. Refer to **Figure 5** in **Attachment 1** for an illustration of the mapped soil units in and surrounding the survey area.

Table 1: NRCS Soil Types

Soil Unit Name	Acres in study area	Hydric/Non-Hydric
Elsinboro sandy loam, 2 to 7 percent slopes	2.0	Non-Hydric
Alden silt loam, 0 to 2 percent slopes	1.8	Hydric
Rowland silt loam, 0 to 2 percent slopes	0.2	Non-Hydric

4.4 Historical Aerial Photography

Historical aerial imagery for the project and surrounding areas was evaluated using photographs collected from Google Earth for the years 1994, 2011, 2015, and 2023. As shown in **Figure 6a** through **6e** in **Attachment 1**, the site has remained forested. A potential drainage pathway can be seen in the southeast portion of the site, however, no standing water is visible, except in Broad Run which is outside of the study area.

4.5 Precipitation Data

Table 2 provides precipitation at the Airport from April 9, 2024 to April 24, 2024, collected from the weather station at the Airport.

Table 2: AgACIS Precipitation at HEF – 4/9/24 through 4/24/24

Date	Average Temperature (°F)	Precipitation (in)
4/9/2024	55	0
4/10/2024	69	<0.01
4/11/2024	66	0.08
4/12/2024	61.5	0.06
4/13/2024	55.5	<0.01
4/14/2024	59	0
4/15/2024	69.5	<0.01
4/16/2024	63.5	0
4/17/2024	64.5	<0.01
4/18/2024	65.5	0
4/19/2024	55	<0.01
4/20/2024	64.5	<0.01
4/21/2024	48	0
4/22/2024	49.5	0
4/23/2024	52	0
4/24/2024	66	0

4.6 Ecological Site Condition

The study area is forested, and site conditions are consistent with aerial imagery and topographic information. Vegetation is diverse, with a mixture of hardwood species in the

canopy including American elm (*Ulmus Americana),* red maple (*Acer rubrum*), pignut hickory (*Carya glabra*), and white oak (*Quercus alba*). Typical shrub/sapling species are common pawpaw (*Asimina triloba*) and blackhaw (*Viburnum prunifolium*) with tree saplings scattered throughout. Groundcover vegetation is varied and includes Japanese honeysuckle (*Lonicera japonica*), mayapple (*Podophyllum peltatum*), star chickweed (*Stellaria pubera*), common wood sedge (*Carex blanda),* wild geranium (*Geranium maculatum*), and Virginia springbeauty (*Claytonia virginica*). Hydrologic indicators identified within the study area include high water table, drift deposits, water-stained leaves, sparsely vegetated concave surfaces, drainage patterns, and FAC-neutral vegetation. Surveyors identified limited obligate wetland vegetation but no wetland soils within the study area. Individual species list and wetland hydrologic indicators per DP can be found in the USACE wetland data sheets located in **Attachment 2**. Representative photos of the survey area and soils can be seen in **Attachment 3**.

4.7 Wildlife & Critical Habitat

The survey area underwent a review through the USFWS IPaC system and the VaFWIS tool. Within these frameworks, three (3) species were considered for impacts by USFWS within the project area. The VaFWIS review identified eleven (11) listed species as potentially occurring within a 2-mile radius of the study area. RS&H Biologist actively documented observations of wildlife and wildlife signs, while also evaluating the survey area for suitable habitat to support threatened, endangered, and other wildlife species. The survey documented sightings or signs of various wildlife species including the pileated woodpecker (*Dryocopus pileatus*), blue jay (*Cryanocitta cristata*), gray squirrel (*Scurius carolinensis*), cardinal (*Cardinalis cardinalis*), white tailed deer (*Odocoileus virginianus*), racoon (*Procyon lotor*), and zebra swallowtail butterfly (*Eurytides marcellus*). Protected species identified through IPaC and VaFWIS review are provided in Tables 3a and 3b below.

Table 3a: Federally listed T&E Species that may occur within the study area (USFWS 2024)

Wildlife Species	Scientific Name	Federal Listing	State Listing	Category	IPaC Effect Determination	Likeliness to Encounter
Tricolored Bat	*Perimyotis subflavus*	Proposed Endangered	Endangered	Mammal	NLAA	Low
Dwarf Wedgemussel	*Alasmidonta heterodon*	Endangered	Endangered	Clam	No effect	None
Monarch Butterfly	*Danaus plexippus*	Candidate	Candidate	Insect	No effect	None

Table 3b: State listed species that could occur within a 2-mile radius of the study area (VaFWIS, 2024)

Common Name	Scientific Name	Taxa	State Listing
Northern long-eared bat	*Myotis septentrionalis*	Mammal	Threatened
Tricolored bat	*Perimyotis subflavus*	Mammal	Endangered
Little brown bat	*Myotis lucifugus*	Mammal	Endangered
Dwarf wedgemussel	*Alasmidonta heterodon*	Clam	Endangered
Yellow lance	*Elliptio lanceolata*	Clam	Threatened
Brook floater	*Alasmidonta varicose*	Clam	Threatened
Atlantic sturgeon	*Acipenser oxyrinchus*	Fish	Endangered
Peregrine falcon	*Falco peregrinus*	Bird	Threatened
Henslow's sparrow	*Centronyx henslowii*	Bird	Threatened
Loggerhead shrike	*Lanius ludovicianus*	Bird	Threatened
Monarch butterfly	*Danaus plexippus*	Insect	Candidate

5 Conclusion

The 2016 preliminary wetland delineation included the proposed Project Area and found that there were 0.36 acre of wetlands within the current survey boundary. RS&H analyzed fifteen (15) data points throughout the study area and determined that there are no WOTUS waterbodies/wetlands identified using the three-parameter approach outlined in the 1987 Manual and 2012 Regional Supplement. An extremely shallow, weakly formed ephemeral channel with discontinuous banks was identified in the northwestern portion of the survey area. This channel lacks features such as a defined bed and banks found in relatively permanent waters. In addition, soil characteristics were not indicative of wetland soils, and it is likely that precipitation does not remain long enough for wetland conditions to form. In 2023, the Supreme Court decided *Sackett v. EPA*, and defined WOTUS as "only those relatively permanent, standing, or continuously flowing bodies of water" (EPA, 2023). In addition, *Sackett v. EPA* holds that a wetland is a WOTUS when the wetland has a "continuous surface connection" with WOTUS, "making it difficult to determine where the 'water' ends and the 'wetland' begins" (U.S. Supreme Court, 2023).

The NWI wetland mapping tool reviewed for this report and field analysis did not identify navigable waters, interstate waters, part of a tributary system, adjacent wetlands, or impoundments. Although there are some hydrologic indicators present in the study area such as drift debris, water-stained leaves, and sparsely vegetated concave surfaces that could be the

result of past flooding events, there are no areas in which wetland soils or conditions exist under the definition of WOTUS under the CWA.

See **Attachment 4** for additional wildlife information, including the USFWS Official Species List and Section 7 Determination Table, and the VaFWIS Search Report for listed species within 2-miles of the study area.

6 References

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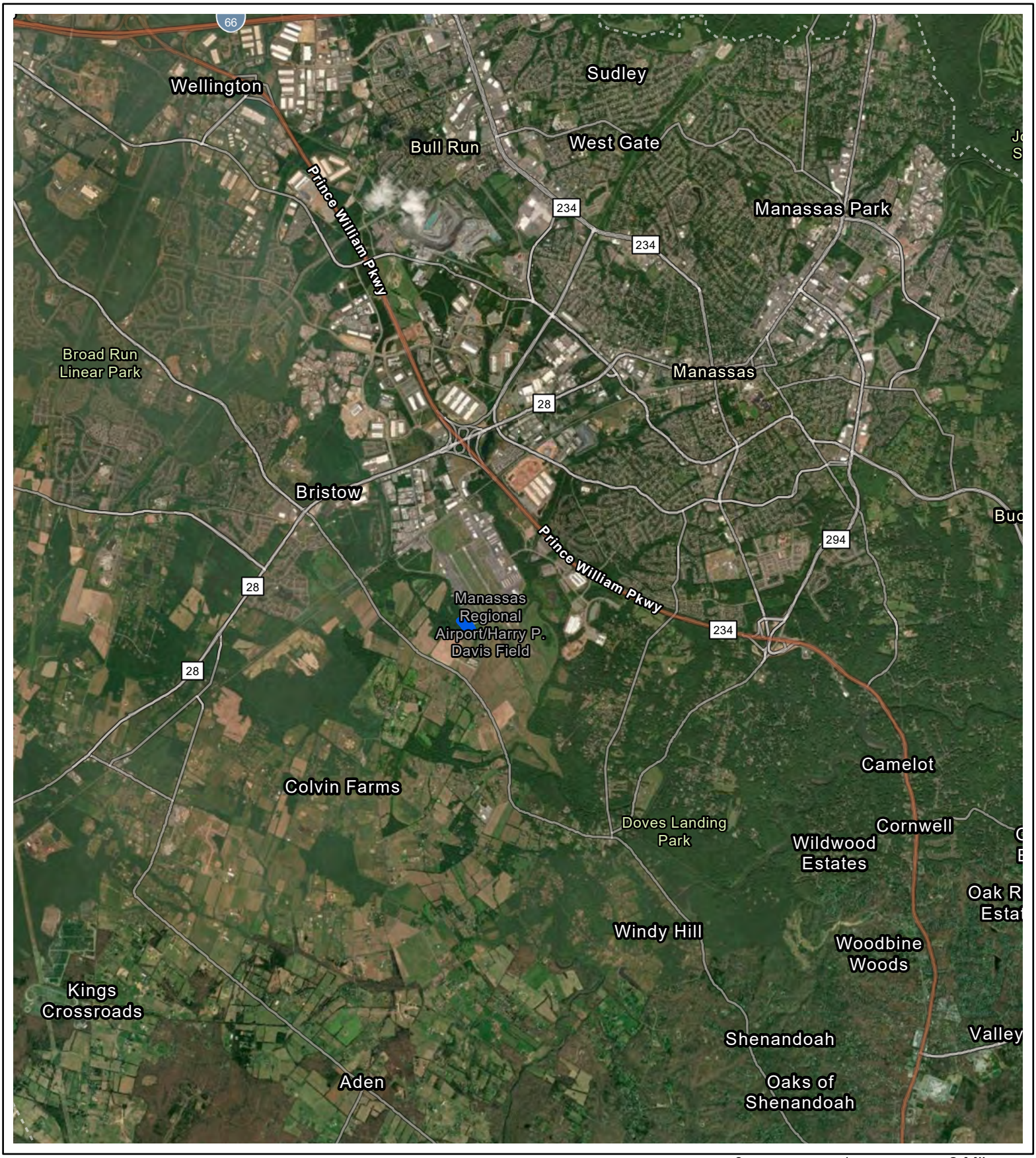
Attachment 1 – Figures



Sources: ESRI 2023: RS&H 2024

0 1 2 Miles

Legend

Direct Study Area

Figure 1: Site Location

RS&H

N

Sources: ESRI 2023; RS&H 2024

0 100 200 Feet

Legend

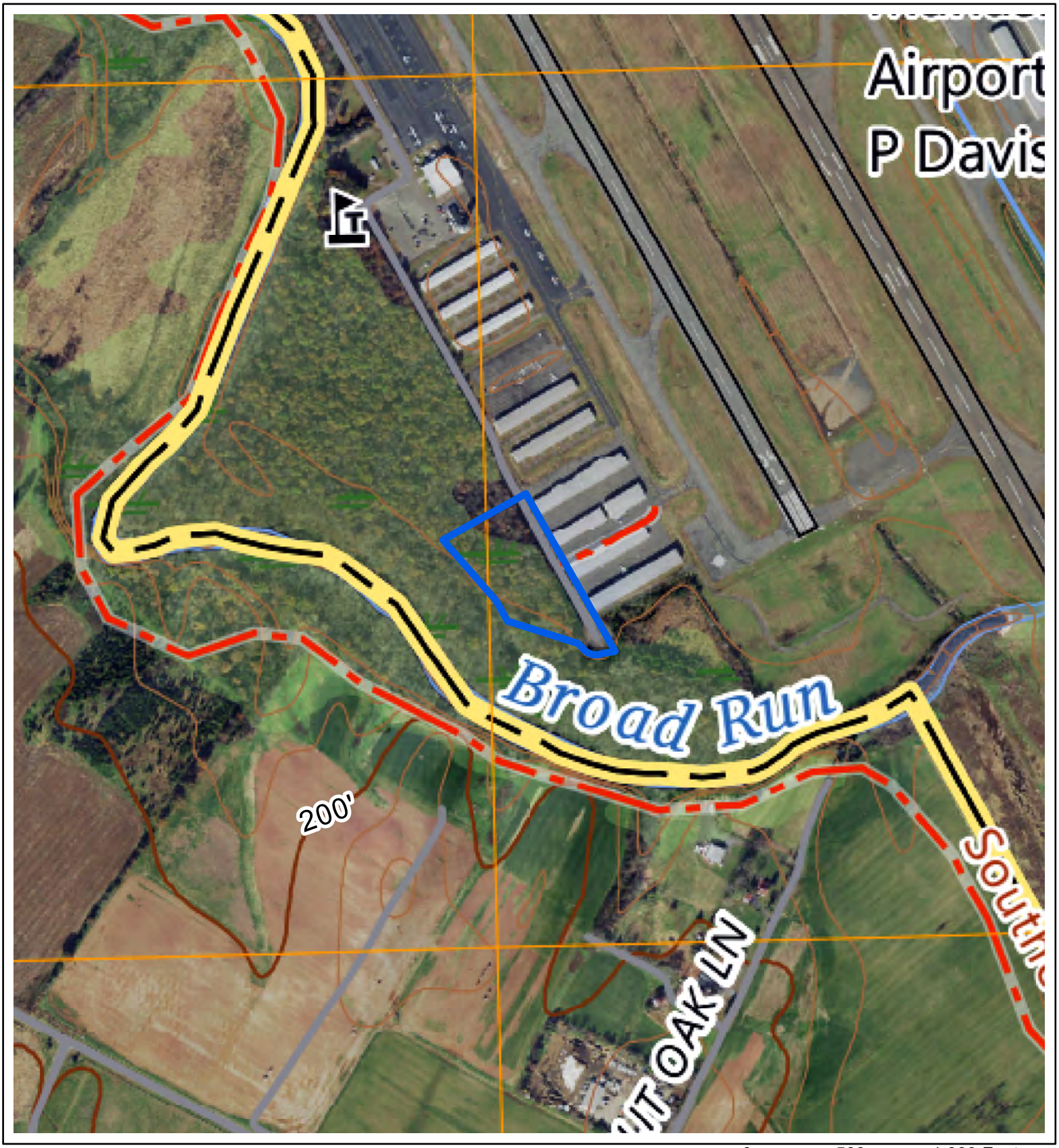
Survey Data Points (DP)

Direct Study Area

N

Figure 2: Survey Area

RS&H



Sources: ESRI 2023; RS&H 2024

0 500 1,000 Feet

Note: Contours are 10 foot intervals

Legend

Direct Study Area

Figure 3: USGS 7.5-Minute Quadrangle Topography

RS&H

N

Sources: ESRI 2023; RS&H 2024

0 100 200 Feet

Legend

- Survey Data Points (DP)
- Freshwater Forested/Shrub Wetland
- Riverine
- Direct Study Area

N

Figure 4: NWI Data

RS&H

Sources: ESRI 2023; RS&H 2024

0 100 200 Feet

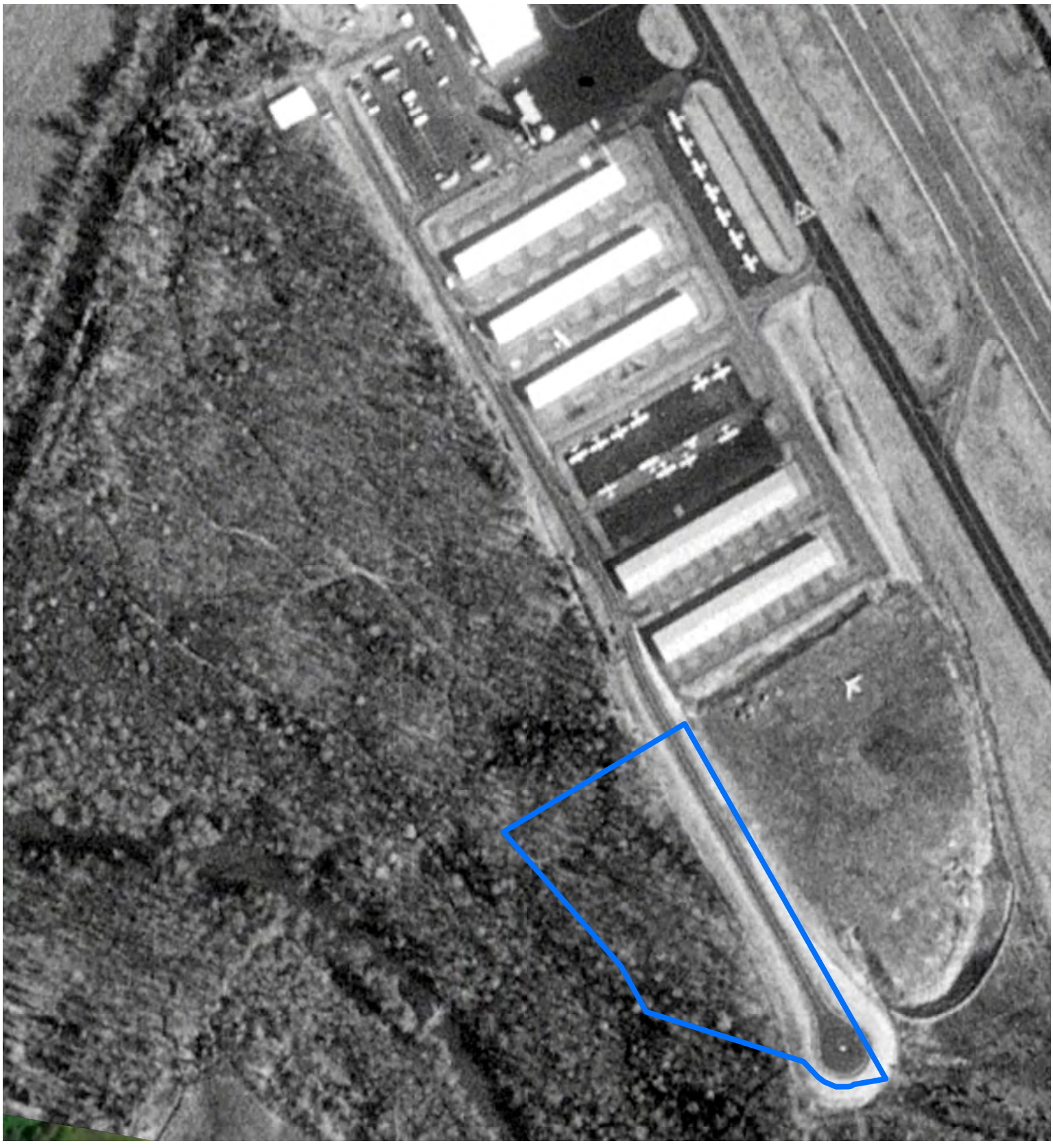
Legend

- Survey Data Points (DP)
- Aden Silt Loam
- Elsinboro Sandy Loam
- Rowland Silt Loam
- Direct Study Area

N

Figure 5: NRCS Soil Survey

RS&H



Sources: ESRI 2023; RS&H 2023

0 250 500 Feet

Figure 6a
1994 Imagery

Legend

Direct Study Area

RS&H

N

Sources: ESRI 2023; RS&H 2023

0 250 500 Feet

Figure 6b
2002 Imagery

Legend

Direct Study Area

RS&H

N

Sources: ESRI 2023; RS&H 2023

0 250 500 Feet

Figure 6c
2011 Imagery

Legend

Direct Study Area

RS&H

N

Sources: ESRI 2023; RS&H 2023

0 250 500 Feet

Figure 6d
2015 Imagery

Legend

Direct Study Area

RS&H

N

Sources: ESRI 2023; RS&H 2023

0 250 500 Feet

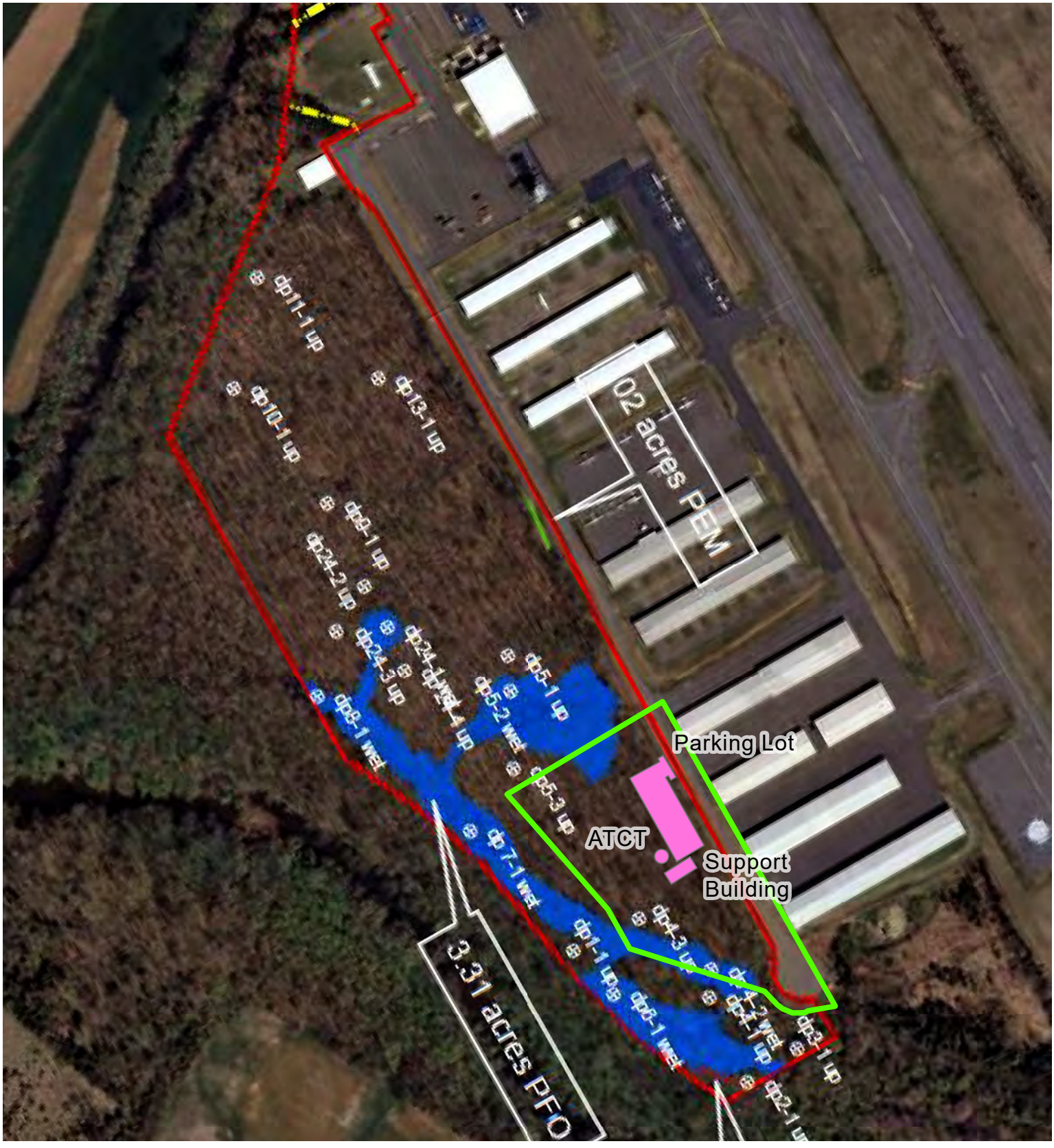
Figure 6e
2023 Imagery

Legend

Direct Study Area

RS&H

N



Sources: ESRI 2023; RS&H 2023

0 300 600 Feet

2016 Wetland Report Imagery

Legend

- Direct Study Area
- Proposed Action

Figure 7

RS&H

N

Attachment 2 – Wetland Determination Data Forms

U.S. Army Corps of Engineers
WETLAND DETERMINATION DATA SHEET – Eastern Mountains and Piedmont Region
See ERDC/EL TR-12-9; the proponent agency is CECW-CO-R

OMB Control #: 0710-0024, Exp:11/30/2024
Requirement Control Symbol EXEMPT:
(Authority: AR 335-15, paragraph 5-2a)

Project/Site: Manassas Regional Airport City/County: Manassas/Prince William County Sampling Date: 4/23/2024

Applicant/Owner: HEF State: VA Sampling Point: DP1

Investigator(s): Katy Martin Section, Township, Range: Map 091; Block 00; Lot 2

Landform (hillside, terrace, etc.): Local relief (concave, convex, none): Slope (%):

Subregion (LRR or MLRA): LRR N Lat: 38.717736 Long: -77.519406 Datum: WGS84

Soil Map Unit Name: Alden silt loam NWI classification: PFO1C

Are climatic / hydrologic conditions on the site typical for this time of year? Yes x No (If no, explain in Remarks.)

Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes x No

Are Vegetation , Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X	No	**Is the Sampled Area**
Hydric Soil Present?	Yes	No X	**within a Wetland?** **Yes** **No** X
Wetland Hydrology Present?	Yes X	No	

Remarks:
Forested area located in the NW of the survey area near the boundary. Lots of fallen debris that do not appear to be influenced by flooding events (do not appear to be drift lines). Area slopes generally towards the SE. Soils were dry and no water was present nearby.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- Surface Water (A1)
- High Water Table (A2)
- Saturation (A3)
- Water Marks (B1)
- Sediment Deposits (B2)
- Drift Deposits (B3)
- Algal Mat or Crust (B4)
- Iron Deposits (B5)
- Inundation Visible on Aerial Imagery (B7)
- x Water-Stained Leaves (B9)
- Aquatic Fauna (B13)
- True Aquatic Plants (B14)
- Hydrogen Sulfide Odor (C1)
- Oxidized Rhizospheres on Living Roots (C3)
- Presence of Reduced Iron (C4)
- Recent Iron Reduction in Tilled Soils (C6)
- Thin Muck Surface (C7)
- Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- Surface Soil Cracks (B6)
- Sparsely Vegetated Concave Surface (B8)
- Drainage Patterns (B10)
- Moss Trim Lines (B16)
- Dry-Season Water Table (C2)
- Crayfish Burrows (C8)
- Saturation Visible on Aerial Imagery (C9)
- Stunted or Stressed Plants (D1)
- Geomorphic Position (D2)
- Shallow Aquitard (D3)
- Microtopographic Relief (D4)
- X FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes	No x	Depth (inches):
Water Table Present?	Yes	No x	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes	No x	Depth (inches):

Wetland Hydrology Present? **Yes** X **No**

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Four Strata) – Use scientific names of plants. Sampling Point: DP1

Tree Stratum (Plot size: 30 ft)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2. *Ulmus americana*	15	Yes	FACW
3. *Acer rubrum*	30	Yes	FAC
4. *Quercus lyrata*	2	No	OBL
5.			
6.			
7.			
	47	=Total Cover	
50% of total cover: 24		20% of total cover:	10
Sapling/Shrub Stratum (Plot size: 15 ft)			
1. *Asimina triloba*	25	Yes	FAC
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
	25	=Total Cover	
50% of total cover: 13		20% of total cover:	5
Herb Stratum (Plot size: 5 ft)			
1. *Podophyllum peltatum*	5	No	FACU
2. *Ulmus americana*	5	No	FACW
3. *Trifolium repens*	2	No	FACU
4. *Rubus pensilvanicus*	10	Yes	FAC
5. *Acer rubrum*	3	No	FAC
6. *Lonicera japonica*	3	No	FACU
7. *Stellaria pubera*	3	No	UPL
8. *Carex blanda*	15	Yes	FAC
9.			
10.			
11.			
	46	=Total Cover	
50% of total cover: 23		20% of total cover:	10
Woody Vine Stratum (Plot size:)			
1.			
2.			
3.			
4.			
5.			
		=Total Cover	
50% of total cover:		20% of total cover:	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 5 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	2	x 1 =	2
FACW species	20	x 2 =	40
FAC species	83	x 3 =	249
FACU species	10	x 4 =	40
UPL species	3	x 5 =	15
Column Totals:	118 (A)		346 (B)

Prevalence Index = B/A = 2.93

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is >50%
- ___ 3 - Prevalence Index is ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody Vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** X **No** ___

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: DP1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-7.5	10YR 3/4	100					Sandy	Sandy silt (Texture not available). Many fine roots
7.5-16	7.5R 4/6	100					Sandy	Sandy silt (texture not available)

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10) **(LRR N)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ___ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ___ Loamy Mucky Mineral (F1) **(MLRA 136)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ___ Umbric Surface (F13) **(MLRA 122, 136)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ___ Red Parent Material (F21) **(MLRA 127, 147, 148)**

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- ___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Red Parent Material (F21) **(outside MLRA 127, 147, 148)**
- ___ Very Shallow Dark Surface (F22)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ___ **No** X

Remarks:

U.S. Army Corps of Engineers

WETLAND DETERMINATION DATA SHEET – Eastern Mountains and Piedmont Region

See ERDC/EL TR-12-9; the proponent agency is CECW-CO-R

OMB Control #: 0710-0024, Exp:11/30/2024
Requirement Control Symbol EXEMPT:
(Authority: AR 335-15, paragraph 5-2a)

Project/Site: Manassas Regional Airport City/County: Manassas/Prince William County Sampling Date: 4/23/2024

Applicant/Owner: HEF State: VA Sampling Point: DP2

Investigator(s): Katy Martin Section, Township, Range: Map 091; Block 00; Lot 2

Landform (hillside, terrace, etc.): Local relief (concave, convex, none): Slope (%):

Subregion (LRR or MLRA): LRR N Lat: 38.717783 Long: -77.519228 Datum: WGS84

Soil Map Unit Name: Alden silt loam NWI classification: PFO1C

Are climatic / hydrologic conditions on the site typical for this time of year? Yes x No (If no, explain in Remarks.)

Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes x No

Are Vegetation , Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X	No	**Is the Sampled Area**
Hydric Soil Present?	Yes	No X	**within a Wetland?** **Yes** **No** X
Wetland Hydrology Present?	Yes X	No	

Remarks:
Forested area located in the NE portion of the survey area. Lots of dead leaves with little bare ground or herbaceous species. Lots of fallen branches. Drift deposits are present, likely from previous flooding events and the nearby intermittent stream. No water flowed into hole following soil plug excavation.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- Surface Water (A1)
- High Water Table (A2)
- Saturation (A3)
- Water Marks (B1)
- Sediment Deposits (B2)
- x Drift Deposits (B3)
- Algal Mat or Crust (B4)
- Iron Deposits (B5)
- Inundation Visible on Aerial Imagery (B7)
- x Water-Stained Leaves (B9)
- Aquatic Fauna (B13)
- True Aquatic Plants (B14)
- Hydrogen Sulfide Odor (C1)
- Oxidized Rhizospheres on Living Roots (C3)
- Presence of Reduced Iron (C4)
- Recent Iron Reduction in Tilled Soils (C6)
- Thin Muck Surface (C7)
- Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- Surface Soil Cracks (B6)
- Sparsely Vegetated Concave Surface (B8)
- Drainage Patterns (B10)
- Moss Trim Lines (B16)
- Dry-Season Water Table (C2)
- Crayfish Burrows (C8)
- Saturation Visible on Aerial Imagery (C9)
- Stunted or Stressed Plants (D1)
- Geomorphic Position (D2)
- Shallow Aquitard (D3)
- Microtopographic Relief (D4)
- X FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes	No x	Depth (inches):
Water Table Present?	Yes	No x	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes	No x	Depth (inches):

Wetland Hydrology Present? **Yes** X **No**

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Four Strata) – Use scientific names of plants. Sampling Point: DP2

Tree Stratum (Plot size: 30 ft)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2. *Ulmus americana*	15	Yes	FACW
3. *Acer rubrum*	35	Yes	FAC
4. *Carya glabra*	5	No	FACU
5.			
6.			
7.			
	55	=Total Cover	
50% of total cover: 28		20% of total cover:	11

Sapling/Shrub Stratum (Plot size: 15 ft)			
1. *Asimina triloba*	5	Yes	FAC
2. *Carya glabra*	1	No	FACU
3.			
4.			
5.			
6.			
7.			
8.			
9.			
	6	=Total Cover	
50% of total cover: 3		20% of total cover:	2

Herb Stratum (Plot size: 5 ft)			
1. *Dioscorea villosa*	1	No	FAC
2. *Lonicera japonica*	2	No	FACU
3. *Carex blanda*	15	Yes	FAC
4. *Stellaria pubera*	2	No	UPL
5. *Podophyllum peltatum*	3	No	FACU
6. *Campsis radicans*	1	No	FAC
7. *Asimina triloba*	3	No	FAC
8.			
9.			
10.			
11.			
	27	=Total Cover	
50% of total cover: 14		20% of total cover:	6

Woody Vine Stratum (Plot size:)			
1.			
2.			
3.			
4.			
5.			
		=Total Cover	
50% of total cover:		20% of total cover:	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	15	x 2 =	30
FAC species	60	x 3 =	180
FACU species	11	x 4 =	44
UPL species	2	x 5 =	10
Column Totals:	88 (A)		264 (B)

Prevalence Index = B/A = 3.00

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is >50%
- ___ 3 - Prevalence Index is ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody Vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** X **No** ___

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: DP2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6.5	7.5R 3/3	100					Sandy	Sandy silt; many roots throughout
6.5-16	7.5R 4/4	100					Loamy/Clayey	Silt

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10) **(LRR N)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ___ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ___ Loamy Mucky Mineral (F1) **(MLRA 136)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ___ Umbric Surface (F13) **(MLRA 122, 136)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ___ Red Parent Material (F21) **(MLRA 127, 147, 148)**

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- ___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Red Parent Material (F21) **(outside MLRA 127, 147, 148)**
- ___ Very Shallow Dark Surface (F22)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ___ **No** X

Remarks:

U.S. Army Corps of Engineers
WETLAND DETERMINATION DATA SHEET – Eastern Mountains and Piedmont Region
See ERDC/EL TR-12-9; the proponent agency is CECW-CO-R

OMB Control #: 0710-0024, Exp:11/30/2024
Requirement Control Symbol EXEMPT:
(Authority: AR 335-15, paragraph 5-2a)

Project/Site: Manassas Regional Airport City/County: Manassas/Prince William County Sampling Date: 4/23/2024
Applicant/Owner: HEF State: VA Sampling Point: DP3
Investigator(s): Katy Martin Section, Township, Range: Map 091; Block 00; Lot 2
Landform (hillside, terrace, etc.): Local relief (concave, convex, none): Slope (%):
Subregion (LRR or MLRA): LRR N Lat: 38.717661 Long: -77.519144 Datum: WGS84
Soil Map Unit Name: Alden silt loam NWI classification: PFO1C
Are climatic / hydrologic conditions on the site typical for this time of year? Yes x No (If no, explain in Remarks.)
Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes x No
Are Vegetation , Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X	No	**Is the Sampled Area**
Hydric Soil Present?	Yes	No X	**within a Wetland?** **Yes** **No** X
Wetland Hydrology Present?	Yes X	No	

Remarks:
DP collected within what appears to be an ephemeral channel with discontinuous banks, no water present, no defined stream bed or bank. Lots of leaf litter. Drift debris nearby. Although the area is likely impacted by precipitation, the water likely doesn't remain long enough for wetland soils/ conditions to form.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- Surface Water (A1)
- High Water Table (A2)
- Saturation (A3)
- Water Marks (B1)
- Sediment Deposits (B2)
- x Drift Deposits (B3)
- Algal Mat or Crust (B4)
- Iron Deposits (B5)
- Inundation Visible on Aerial Imagery (B7)
- x Water-Stained Leaves (B9)
- Aquatic Fauna (B13)
- True Aquatic Plants (B14)
- Hydrogen Sulfide Odor (C1)
- Oxidized Rhizospheres on Living Roots (C3)
- Presence of Reduced Iron (C4)
- Recent Iron Reduction in Tilled Soils (C6)
- Thin Muck Surface (C7)
- Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- Surface Soil Cracks (B6)
- Sparsely Vegetated Concave Surface (B8)
- x Drainage Patterns (B10)
- Moss Trim Lines (B16)
- Dry-Season Water Table (C2)
- Crayfish Burrows (C8)
- Saturation Visible on Aerial Imagery (C9)
- Stunted or Stressed Plants (D1)
- Geomorphic Position (D2)
- Shallow Aquitard (D3)
- Microtopographic Relief (D4)
- X FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes	No x	Depth (inches):
Water Table Present?	Yes	No x	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes	No x	Depth (inches):

Wetland Hydrology Present? **Yes** X **No**

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Four Strata) – Use scientific names of plants. Sampling Point: DP3

Tree Stratum (Plot size: 30 ft)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2. *Ulmus americana*	30	Yes	FACW
3. *Acer rubrum*	10	Yes	FAC
4.			
5.			
6.			
7.			
	40	=Total Cover	
50% of total cover: 20		20% of total cover: 8	

Sapling/Shrub Stratum (Plot size: 15 ft)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Asimina triloba*	10	Yes	FAC
2. *Ilex opaca*	2	No	FACU
3. *Ulmus americana*	5	Yes	FACW
4.			
5.			
6.			
7.			
8.			
9.			
	17	=Total Cover	
50% of total cover: 9		20% of total cover: 4	

Herb Stratum (Plot size: 5 ft)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Arisaema dracontium*	1	No	FACW
2. *Lonicera japonica*	5	Yes	FACU
3. *Carex blanda*	15	Yes	FAC
4. *Stellaria pubera*	2	No	UPL
5. *Podophyllum peltatum*	3	No	FACU
6. *Campsis radicans*	1	No	FAC
7. *Claytonia virginica*	3	No	FAC
8. *Geranium maculatum*	1	No	FACU
9. *Rubus pensilvanicus*	2	No	FAC
10. *Ulmus americana*	3	No	FACW
11.			
	36	=Total Cover	
50% of total cover: 18		20% of total cover: 8	

Woody Vine Stratum (Plot size:)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
		=Total Cover	
50% of total cover:		20% of total cover:	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 5 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 83.3% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	39	x 2 =	78
FAC species	41	x 3 =	123
FACU species	11	x 4 =	44
UPL species	2	x 5 =	10
Column Totals:	93 (A)		255 (B)

Prevalence Index = B/A = 2.74

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

X 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody Vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** X **No** ___

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: DP3

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6.5	10YR 3/3	100					Loamy/Clayey	Loamy silt; many roots
6.5-18	10YR 3/3	75	7.5R 5/8	25		M	Loamy/Clayey	Loamy silt

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10) **(LRR N)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ___ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ___ Loamy Mucky Mineral (F1) **(MLRA 136)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ___ Umbric Surface (F13) **(MLRA 122, 136)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ___ Red Parent Material (F21) **(MLRA 127, 147, 148)**

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- ___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Red Parent Material (F21) **(outside MLRA 127, 147, 148)**
- ___ Very Shallow Dark Surface (F22)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ___ **No** X

Remarks:

U.S. Army Corps of Engineers

WETLAND DETERMINATION DATA SHEET – Eastern Mountains and Piedmont Region

See ERDC/EL TR-12-9; the proponent agency is CECW-CO-R

OMB Control #: 0710-0024, Exp:11/30/2024
Requirement Control Symbol EXEMPT:
(Authority: AR 335-15, paragraph 5-2a)

Project/Site: Manassas Regional Airport City/County: Manassas/Prince William County Sampling Date: 4/23/2024

Applicant/Owner: HEF State: VA Sampling Point: DP4

Investigator(s): Katy Martin Section, Township, Range: Map 091; Block 00; Lot 2

Landform (hillside, terrace, etc.): Local relief (concave, convex, none): Slope (%):

Subregion (LRR or MLRA): LRR N Lat: 38.717781 Long: -77.518572 Datum: WGS84

Soil Map Unit Name: Alden silt loam NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes x No (If no, explain in Remarks.)

Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes x No

Are Vegetation , Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X	No	**Is the Sampled Area**
Hydric Soil Present?	Yes	No X	**within a Wetland?** **Yes** **No** X
Wetland Hydrology Present?	Yes X	No	

Remarks:
DP in what appears to be a shallow concave surface with little groundcover. Area likely influenced by flooding, however, the water doesn't stay around long enough for wetland soils/conditions to form.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- Surface Water (A1)
- High Water Table (A2)
- Saturation (A3)
- Water Marks (B1)
- Sediment Deposits (B2)
- Drift Deposits (B3)
- Algal Mat or Crust (B4)
- Iron Deposits (B5)
- Inundation Visible on Aerial Imagery (B7)
- x Water-Stained Leaves (B9)
- Aquatic Fauna (B13)
- True Aquatic Plants (B14)
- Hydrogen Sulfide Odor (C1)
- Oxidized Rhizospheres on Living Roots (C3)
- Presence of Reduced Iron (C4)
- Recent Iron Reduction in Tilled Soils (C6)
- Thin Muck Surface (C7)
- Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- Surface Soil Cracks (B6)
- x Sparsely Vegetated Concave Surface (B8)
- x Drainage Patterns (B10)
- Moss Trim Lines (B16)
- Dry-Season Water Table (C2)
- Crayfish Burrows (C8)
- Saturation Visible on Aerial Imagery (C9)
- Stunted or Stressed Plants (D1)
- Geomorphic Position (D2)
- Shallow Aquitard (D3)
- Microtopographic Relief (D4)
- X FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes	No x	Depth (inches):
Water Table Present?	Yes	No x	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes	No x	Depth (inches):

Wetland Hydrology Present? **Yes** X **No**

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Four Strata) – Use scientific names of plants. Sampling Point: DP4

Tree Stratum (Plot size: 30 ft)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2. *Ulmus americana*	20	Yes	FACW
3. *Acer rubrum*	30	Yes	FAC
4. *Quercus alba*	5	No	FACU
5.			
6.			
7.			
	55	=Total Cover	
50% of total cover: 28		20% of total cover:	11

Sapling/Shrub Stratum (Plot size: 15 ft)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
		=Total Cover	
50% of total cover:		20% of total cover:	

Herb Stratum (Plot size: 5 ft)			
1. *Carex intumescens*	10	Yes	FACW
2. *Claytonia virginica*	1	No	FAC
3. *Lonicera japonica*	2	No	FACU
4. *Ulmus americana*	3	No	FACW
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	16	=Total Cover	
50% of total cover: 8		20% of total cover:	4

Woody Vine Stratum (Plot size:)			
1.			
2.			
3.			
4.			
5.			
		=Total Cover	
50% of total cover:		20% of total cover:	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	33	x 2 =	66
FAC species	31	x 3 =	93
FACU species	7	x 4 =	28
UPL species	0	x 5 =	0
Column Totals:	71 (A)		187 (B)

Prevalence Index = B/A = 2.63

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is >50%
- ___ 3 - Prevalence Index is ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody Vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** X **No** ___

Remarks: (Include photo numbers here or on a separate sheet.)
Mostly bare ground and leaves. Lots of fallen branches.

SOIL

Sampling Point: DP4

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-5	10YR 3/3	100					Loamy/Clayey	Loamy silt; many roots
5-8.5	10YR 5/2	70	10YR 3/2	30	D	M	Loamy/Clayey	
8.5-20	10YR 5/2	50	10YR 5/8	50	D	M	Loamy/Clayey	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10) **(LRR N)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ___ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ___ Loamy Mucky Mineral (F1) **(MLRA 136)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ___ Umbric Surface (F13) **(MLRA 122, 136)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ___ Red Parent Material (F21) **(MLRA 127, 147, 148)**

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- ___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Red Parent Material (F21) **(outside MLRA 127, 147, 148)**
- ___ Very Shallow Dark Surface (F22)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ___ **No** X

Remarks:

U.S. Army Corps of Engineers
WETLAND DETERMINATION DATA SHEET – Eastern Mountains and Piedmont Region
See ERDC/EL TR-12-9; the proponent agency is CECW-CO-R

OMB Control #: 0710-0024, Exp:11/30/2024
Requirement Control Symbol EXEMPT:
(Authority: AR 335-15, paragraph 5-2a)

Project/Site: Manassas Regional Airport City/County: Manassas/Prince William County Sampling Date: 4/23/2024

Applicant/Owner: HEF State: VA Sampling Point: DP5

Investigator(s): Katy Martin Section, Township, Range: Map 091; Block 00; Lot 2

Landform (hillside, terrace, etc.): Local relief (concave, convex, none): Slope (%):

Subregion (LRR or MLRA): LRR N Lat: 38.717664 Long: -77.518494 Datum: WGS84

Soil Map Unit Name: Alden silt loam NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes x No (If no, explain in Remarks.)

Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes x No

Are Vegetation , Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X	No	**Is the Sampled Area**
Hydric Soil Present?	Yes	No X	**within a Wetland?** **Yes** **No** X
Wetland Hydrology Present?	Yes X	No	

Remarks:
DP in area with little groundcover and lots of water stained leaves. Water appeared in hole after approximately 25 minutes (12" below ground). Nearby drift deposits NE of the datapoint at elevation increase. Although the area appears to be influenced by flooding, it doesn't appear that water remains long enough for wetland conditions and soils to develop.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- Surface Water (A1)
- x High Water Table (A2)
- Saturation (A3)
- Water Marks (B1)
- Sediment Deposits (B2)
- x Drift Deposits (B3)
- Algal Mat or Crust (B4)
- Iron Deposits (B5)
- Inundation Visible on Aerial Imagery (B7)
- x Water-Stained Leaves (B9)
- Aquatic Fauna (B13)
- True Aquatic Plants (B14)
- Hydrogen Sulfide Odor (C1)
- Oxidized Rhizospheres on Living Roots (C3)
- Presence of Reduced Iron (C4)
- Recent Iron Reduction in Tilled Soils (C6)
- Thin Muck Surface (C7)
- Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- Surface Soil Cracks (B6)
- x Sparsely Vegetated Concave Surface (B8)
- x Drainage Patterns (B10)
- Moss Trim Lines (B16)
- Dry-Season Water Table (C2)
- Crayfish Burrows (C8)
- Saturation Visible on Aerial Imagery (C9)
- Stunted or Stressed Plants (D1)
- Geomorphic Position (D2)
- Shallow Aquitard (D3)
- Microtopographic Relief (D4)
- X FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes	No x	Depth (inches):
Water Table Present?	Yes x	No	Depth (inches): 12
Saturation Present? (includes capillary fringe)	Yes	No x	Depth (inches):

Wetland Hydrology Present? **Yes** X **No**

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Four Strata) – Use scientific names of plants. Sampling Point: DP5

Tree Stratum (Plot size: 30 ft)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2. *Ulmus americana*	15	Yes	FACW
3. *Acer rubrum*	20	Yes	FAC
4. *Quercus alba*	3	No	FACU
5.			
6.			
7.			
	38	=Total Cover	
50% of total cover: 19		20% of total cover:	8

Sapling/Shrub Stratum (Plot size: 15 ft)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
		=Total Cover	
50% of total cover:		20% of total cover:	

Herb Stratum (Plot size: 5 ft)			
1. *Ulmus americana*	3	No	FACW
2. *Carex intumescens*	15	Yes	FACW
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	18	=Total Cover	
50% of total cover: 9		20% of total cover:	4

Woody Vine Stratum (Plot size:)			
1. *Smilax rotundifolia*	3	No	FAC
2.			
3.			
4.			
5.			
	3	=Total Cover	
50% of total cover: 2		20% of total cover:	1

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	33	x 2 =	66
FAC species	23	x 3 =	69
FACU species	3	x 4 =	12
UPL species	0	x 5 =	0
Column Totals:	59 (A)		147 (B)

Prevalence Index = B/A = 2.49

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is >50%
- ___ 3 - Prevalence Index is ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody Vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** X **No** ___

Remarks: (Include photo numbers here or on a separate sheet.)
Mostly bare ground and leaves. Lots of fallen branches.

SOIL

Sampling Point: DP5

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR 4/3	100					Loamy/Clayey	Silt; fine roots present
4-10	10YR 5/3	80	10YR 5/8	20	D	M	Loamy/Clayey	Silt; fine roots present
10-22.5	10YR 6/3	20	10YR 5/8	80	D	M	Loamy/Clayey	Silt

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10) **(LRR N)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ___ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ___ Loamy Mucky Mineral (F1) **(MLRA 136)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ___ Umbric Surface (F13) **(MLRA 122, 136)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ___ Red Parent Material (F21) **(MLRA 127, 147, 148)**

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- ___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Red Parent Material (F21) **(outside MLRA 127, 147, 148)**
- ___ Very Shallow Dark Surface (F22)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: ___

Depth (inches): ___

Hydric Soil Present? **Yes** ___ **No** X

Remarks:

U.S. Army Corps of Engineers
WETLAND DETERMINATION DATA SHEET – Eastern Mountains and Piedmont Region
See ERDC/EL TR-12-9; the proponent agency is CECW-CO-R

OMB Control #: 0710-0024, Exp:11/30/2024
Requirement Control Symbol EXEMPT:
(Authority: AR 335-15, paragraph 5-2a)

Project/Site: Manassas Regional Airport City/County: Manassas/Prince William County Sampling Date: 4/23/2024

Applicant/Owner: HEF State: VA Sampling Point: DP6

Investigator(s): Katy Martin Section, Township, Range: Map 091; Block 00; Lot 2

Landform (hillside, terrace, etc.): Local relief (concave, convex, none): Slope (%):

Subregion (LRR or MLRA): LRR N Lat: 38.717694 Long: -77.518653 Datum: WGS84

Soil Map Unit Name: Alden silt loam NWI classification: PFO1C

Are climatic / hydrologic conditions on the site typical for this time of year? Yes x No (If no, explain in Remarks.)

Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes x No

Are Vegetation , Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X	No	**Is the Sampled Area**
Hydric Soil Present?	Yes	No X	**within a Wetland?** **Yes** **No** X
Wetland Hydrology Present?	Yes X	No	

Remarks:
Area appears to be influenced by flooding (drift deposits, water stained leaves, sparsely vegetated). Water appeared in the hole where soil was excavated after approximately 20 minutes (12" below ground). However, water does not appear to remain long enough to develop wetland soils.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- Surface Water (A1)
- x High Water Table (A2)
- Saturation (A3)
- Water Marks (B1)
- Sediment Deposits (B2)
- x Drift Deposits (B3)
- Algal Mat or Crust (B4)
- Iron Deposits (B5)
- Inundation Visible on Aerial Imagery (B7)
- x Water-Stained Leaves (B9)
- Aquatic Fauna (B13)
- True Aquatic Plants (B14)
- Hydrogen Sulfide Odor (C1)
- Oxidized Rhizospheres on Living Roots (C3)
- Presence of Reduced Iron (C4)
- Recent Iron Reduction in Tilled Soils (C6)
- Thin Muck Surface (C7)
- Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- Surface Soil Cracks (B6)
- x Sparsely Vegetated Concave Surface (B8)
- x Drainage Patterns (B10)
- Moss Trim Lines (B16)
- Dry-Season Water Table (C2)
- Crayfish Burrows (C8)
- Saturation Visible on Aerial Imagery (C9)
- Stunted or Stressed Plants (D1)
- Geomorphic Position (D2)
- Shallow Aquitard (D3)
- Microtopographic Relief (D4)
- X FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes	No	Depth (inches):
Water Table Present?	Yes x	No	Depth (inches): 12
Saturation Present? (includes capillary fringe)	Yes	No	Depth (inches):

Wetland Hydrology Present? **Yes** X **No**

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
Water infiltrated hole ~ 20 minutes after soil excavation. Area appears to be within a flood pathway.

VEGETATION (Four Strata) – Use scientific names of plants. Sampling Point: DP6

Tree Stratum (Plot size: 30 ft)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2. *Ulmus americana*	20	Yes	FACW
3. *Acer rubrum*	20	Yes	FAC
4. *Quercus alba*	5	No	FACU
5.			
6.			
7.			
	45 =Total Cover		
50% of total cover: 23	20% of total cover: 9		

Sapling/Shrub Stratum (Plot size: 15 ft)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
	=Total Cover		
50% of total cover:	20% of total cover:		

Herb Stratum (Plot size: 5 ft)			
1. *Carex sp.*	15	Yes	
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	15 =Total Cover		
50% of total cover: 8	20% of total cover: 3		

Woody Vine Stratum (Plot size:)			
1.			
2.			
3.			
4.			
5.			
	=Total Cover		
50% of total cover:	20% of total cover:		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 66.7% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is >50%
- ___ 3 - Prevalence Index is ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody Vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** X **No** ___

Remarks: (Include photo numbers here or on a separate sheet.)
Very little groundcover. Area appears to be within a floodway.

SOIL

Sampling Point: DP6

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-5	10YR 3/3	100					Loamy/Clayey	Silt; many fine roots
5-22	10YR 5/1	50	7.5R 5/8	50	D	M	Loamy/Clayey	Silt

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10) **(LRR N)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ___ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ___ Loamy Mucky Mineral (F1) **(MLRA 136)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ___ Umbric Surface (F13) **(MLRA 122, 136)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ___ Red Parent Material (F21) **(MLRA 127, 147, 148)**

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- ___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Red Parent Material (F21) **(outside MLRA 127, 147, 148)**
- ___ Very Shallow Dark Surface (F22)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ___ **No** X

Remarks:

U.S. Army Corps of Engineers
WETLAND DETERMINATION DATA SHEET – Eastern Mountains and Piedmont Region
See ERDC/EL TR-12-9; the proponent agency is CECW-CO-R

OMB Control #: 0710-0024, Exp:11/30/2024
Requirement Control Symbol EXEMPT:
(Authority: AR 335-15, paragraph 5-2a)

Project/Site: Manassas Regional Airport City/County: Manassas/Prince William County Sampling Date: 4/23/2024

Applicant/Owner: HEF State: VA Sampling Point: DP7

Investigator(s): Katy Martin Section, Township, Range: Map 091; Block 00; Lot 2

Landform (hillside, terrace, etc.): Local relief (concave, convex, none): Slope (%):

Subregion (LRR or MLRA): LRR N Lat: 38.717581 Long: -77.518542 Datum: WGS84

Soil Map Unit Name: Alden silt loam NWI classification: PFO1C

Are climatic / hydrologic conditions on the site typical for this time of year? Yes x No (If no, explain in Remarks.)

Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes x No

Are Vegetation , Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X	No	**Is the Sampled Area**
Hydric Soil Present?	Yes	No X	**within a Wetland?** **Yes** **No** X
Wetland Hydrology Present?	Yes	No X	

Remarks:
Somewhat sparse vegetation. Soils do not exhibit hydric conditions. Surrounding area lacks wetland hydrology indicators.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- Surface Water (A1)
- High Water Table (A2)
- Saturation (A3)
- Water Marks (B1)
- Sediment Deposits (B2)
- Drift Deposits (B3)
- Algal Mat or Crust (B4)
- Iron Deposits (B5)
- Inundation Visible on Aerial Imagery (B7)
- Water-Stained Leaves (B9)
- Aquatic Fauna (B13)
- True Aquatic Plants (B14)
- Hydrogen Sulfide Odor (C1)
- Oxidized Rhizospheres on Living Roots (C3)
- Presence of Reduced Iron (C4)
- Recent Iron Reduction in Tilled Soils (C6)
- Thin Muck Surface (C7)
- Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- Surface Soil Cracks (B6)
- Sparsely Vegetated Concave Surface (B8)
- Drainage Patterns (B10)
- Moss Trim Lines (B16)
- Dry-Season Water Table (C2)
- Crayfish Burrows (C8)
- Saturation Visible on Aerial Imagery (C9)
- Stunted or Stressed Plants (D1)
- Geomorphic Position (D2)
- Shallow Aquitard (D3)
- Microtopographic Relief (D4)
- FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes	No x	Depth (inches):
Water Table Present?	Yes	No x	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes	No x	Depth (inches):

Wetland Hydrology Present? **Yes** **No** X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Four Strata) – Use scientific names of plants. Sampling Point: DP7

Tree Stratum (Plot size: 30 ft)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2. *Ulmus americana*	20	Yes	FACW
3. *Acer rubrum*	25	Yes	FAC
4. *Quercus alba*	8	No	FACU
5.			
6.			
7.			
	53	=Total Cover	
50% of total cover: 27		20% of total cover: 11	

Sapling/Shrub Stratum (Plot size: 15 ft)			
1. *Carya glabra*	20	Yes	FACU
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
	20	=Total Cover	
50% of total cover: 10		20% of total cover: 4	

Herb Stratum (Plot size: 5 ft)			
1. *Carex blanda*	5	Yes	FAC
2. *Podophyllum peltatum*	1	No	FACU
3. *Smilax rotundifolia*	1	No	FAC
4. *Viburnum prunifolium*	15	Yes	FACU
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	22	=Total Cover	
50% of total cover: 11		20% of total cover: 5	

Woody Vine Stratum (Plot size:)			
1.			
2.			
3.			
4.			
5.			
		=Total Cover	
50% of total cover:		20% of total cover:	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 60.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	20	x 2 =	40
FAC species	31	x 3 =	93
FACU species	44	x 4 =	176
UPL species	0	x 5 =	0
Column Totals:	95 (A)		309 (B)
Prevalence Index = B/A =			3.25

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is >50%
- ___ 3 - Prevalence Index is ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody Vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** X **No** ___

Remarks: (Include photo numbers here or on a separate sheet.)
Sparse groundcover, mostly dead leaves.

SOIL

Sampling Point: DP7

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-5	7.5R 3/4	100					Loamy/Clayey	Silt; many fine roots
5-8	7.5R 4/4	100					Loamy/Clayey	Silt; many fine roots
8-23	7.5R 5/8	100					Loamy/Clayey	Silt

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10) **(LRR N)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ___ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ___ Loamy Mucky Mineral (F1) **(MLRA 136)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ___ Umbric Surface (F13) **(MLRA 122, 136)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ___ Red Parent Material (F21) **(MLRA 127, 147, 148)**

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- ___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Red Parent Material (F21) **(outside MLRA 127, 147, 148)**
- ___ Very Shallow Dark Surface (F22)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ___ **No** X

Remarks:

U.S. Army Corps of Engineers
WETLAND DETERMINATION DATA SHEET – Eastern Mountains and Piedmont Region
See ERDC/EL TR-12-9; the proponent agency is CECW-CO-R

OMB Control #: 0710-0024, Exp:11/30/2024
Requirement Control Symbol EXEMPT:
(Authority: AR 335-15, paragraph 5-2a)

Project/Site: Manassas Regional Airport City/County: Manassas/Prince William County Sampling Date: 4/24/2024

Applicant/Owner: HEF State: VA Sampling Point: DP8

Investigator(s): Katy Martin Section, Township, Range: Map 091; Block 00; Lot 2

Landform (hillside, terrace, etc.): Local relief (concave, convex, none): Slope (%):

Subregion (LRR or MLRA): LRR N Lat: 38.717192 Long: -77.518125 Datum: WGS84

Soil Map Unit Name: Elsinboro sandy loam NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes x No (If no, explain in Remarks.)

Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes x No

Are Vegetation , Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	No X	**Is the Sampled Area within a Wetland?** **Yes** **No** X
Hydric Soil Present?	Yes	No X	
Wetland Hydrology Present?	Yes	No X	

Remarks:
Diverse groundcover comprised of monstly upland species. No hydrologic indicators present.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- Surface Water (A1)
- High Water Table (A2)
- Saturation (A3)
- Water Marks (B1)
- Sediment Deposits (B2)
- Drift Deposits (B3)
- Algal Mat or Crust (B4)
- Iron Deposits (B5)
- Inundation Visible on Aerial Imagery (B7)
- Water-Stained Leaves (B9)
- Aquatic Fauna (B13)
- True Aquatic Plants (B14)
- Hydrogen Sulfide Odor (C1)
- Oxidized Rhizospheres on Living Roots (C3)
- Presence of Reduced Iron (C4)
- Recent Iron Reduction in Tilled Soils (C6)
- Thin Muck Surface (C7)
- Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- Surface Soil Cracks (B6)
- Sparsely Vegetated Concave Surface (B8)
- Drainage Patterns (B10)
- Moss Trim Lines (B16)
- Dry-Season Water Table (C2)
- Crayfish Burrows (C8)
- Saturation Visible on Aerial Imagery (C9)
- Stunted or Stressed Plants (D1)
- Geomorphic Position (D2)
- Shallow Aquitard (D3)
- Microtopographic Relief (D4)
- FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes	No x	Depth (inches):
Water Table Present?	Yes	No x	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes	No x	Depth (inches):

Wetland Hydrology Present? **Yes** **No** X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Four Strata) – Use scientific names of plants. Sampling Point: DP8

Tree Stratum (Plot size: 30 ft)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2. *Ulmus americana*	10	Yes	FACW
3. *Carya glabra*	25	Yes	FACU
4. *Quercus nigra*	10	Yes	FAC
5.			
6.			
7.			
	45	=Total Cover	
50% of total cover: 23		20% of total cover: 9	

Sapling/Shrub Stratum (Plot size: 15 ft)			
1. *Rosa multiflora*	10	Yes	FACU
2. *Carya glabra*	10	Yes	FACU
3. *Viburnum prunifolium*	5	No	FACU
4. *Lonicera morrowii*	10	Yes	FACU
5.			
6.			
7.			
8.			
9.			
	35	=Total Cover	
50% of total cover: 18		20% of total cover: 7	

Herb Stratum (Plot size: 5 ft)			
1. *Parthenocissus quinquefolia*	15	Yes	FACU
2. *Carya glabra*	3	No	FACU
3. *Ulmus americana*	2	No	FACW
4. *Rosa multiflora*	10	Yes	FACU
5. *Galium aparine*	2	No	FACU
6. *Lonicera japonica*	3	No	FACU
7. *Podophyllum peltatum*	2	No	FACU
8. *Asimina triloba*	1	No	FAC
9.			
10.			
11.			
	38	=Total Cover	
50% of total cover: 19		20% of total cover: 8	

Woody Vine Stratum (Plot size:)			
1.			
2.			
3.			
4.			
5.			
		=Total Cover	
50% of total cover:		20% of total cover:	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 8 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 25.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	12	x 2 =	24
FAC species	11	x 3 =	33
FACU species	95	x 4 =	380
UPL species	0	x 5 =	0
Column Totals:	118 (A)		437 (B)

Prevalence Index = B/A = 3.70

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody Vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** ___ **No** X

Remarks: (Include photo numbers here or on a separate sheet.)
Fewer downed trees, much more diverse groundcover than in other areas of the survey area.

SOIL

Sampling Point: DP8

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6	7.5R 3/4	100					Loamy/Clayey	Silty loam; few roots
6-20	7.5R 4/6	100					Loamy/Clayey	Silt

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10) **(LRR N)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ___ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ___ Loamy Mucky Mineral (F1) **(MLRA 136)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ___ Umbric Surface (F13) **(MLRA 122, 136)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ___ Red Parent Material (F21) **(MLRA 127, 147, 148)**

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- ___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Red Parent Material (F21) **(outside MLRA 127, 147, 148)**
- ___ Very Shallow Dark Surface (F22)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ___ **No** X

Remarks:

U.S. Army Corps of Engineers
WETLAND DETERMINATION DATA SHEET – Eastern Mountains and Piedmont Region
See ERDC/EL TR-12-9; the proponent agency is CECW-CO-R

OMB Control #: 0710-0024, Exp:11/30/2024
Requirement Control Symbol EXEMPT:
(Authority: AR 335-15, paragraph 5-2a)

Project/Site: Manassas Regional Airport City/County: Manassas/Prince William County Sampling Date: 4/24/2024

Applicant/Owner: HEF State: VA Sampling Point: DP9

Investigator(s): Katy Martin Section, Township, Range: Map 091; Block 00; Lot 2

Landform (hillside, terrace, etc.): Local relief (concave, convex, none): Slope (%):

Subregion (LRR or MLRA): LRR N Lat: 38.717378 Long: -77.518292 Datum: WGS84

Soil Map Unit Name: Elsinboro sandy loam NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes x No (If no, explain in Remarks.)

Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes x No

Are Vegetation , Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X	No	**Is the Sampled Area**
Hydric Soil Present?	Yes	No X	**within a Wetland?** **Yes** **No** X
Wetland Hydrology Present?	Yes X	No	

Remarks:
Area slightly depressed, appears to be influenced by flooding events based on sparse groundcover vegetation (FACU, FAC), water stained leaves and drift deposits. However, soils do not indicate that water remains long enough to create true wetland soils/wetland characteristics.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- Surface Water (A1)
- High Water Table (A2)
- Saturation (A3)
- Water Marks (B1)
- Sediment Deposits (B2)
- x Drift Deposits (B3)
- Algal Mat or Crust (B4)
- Iron Deposits (B5)
- Inundation Visible on Aerial Imagery (B7)
- x Water-Stained Leaves (B9)
- Aquatic Fauna (B13)
- True Aquatic Plants (B14)
- Hydrogen Sulfide Odor (C1)
- Oxidized Rhizospheres on Living Roots (C3)
- Presence of Reduced Iron (C4)
- Recent Iron Reduction in Tilled Soils (C6)
- Thin Muck Surface (C7)
- Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- Surface Soil Cracks (B6)
- x Sparsely Vegetated Concave Surface (B8)
- x Drainage Patterns (B10)
- Moss Trim Lines (B16)
- Dry-Season Water Table (C2)
- Crayfish Burrows (C8)
- Saturation Visible on Aerial Imagery (C9)
- Stunted or Stressed Plants (D1)
- Geomorphic Position (D2)
- Shallow Aquitard (D3)
- Microtopographic Relief (D4)
- FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes	No x	Depth (inches):
Water Table Present?	Yes	No x	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes	No x	Depth (inches):

Wetland Hydrology Present? **Yes** X **No**

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Four Strata) – Use scientific names of plants. Sampling Point: DP9

Tree Stratum (Plot size: 30 ft)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2. *Ulmus americana*	25	Yes	FACW
3. *Acer rubrum*	20	Yes	FAC
4. *Quercus alba*	5	No	FACU
5.			
6.			
7.			
	50	=Total Cover	
50% of total cover: 25		20% of total cover: 10	

Sapling/Shrub Stratum (Plot size: 15 ft)			
1. *Asimina triloba*	2	Yes	FAC
2. *Viburnum prunifolium*	3	Yes	FACU
3.			
4.			
5.			
6.			
7.			
8.			
9.			
	5	=Total Cover	
50% of total cover: 3		20% of total cover: 1	

Herb Stratum (Plot size: 5 ft)			
1. *Carya glabra*	1	No	FACU
2. *Viburnum prunifolium*	3	Yes	FACU
3. *Claytonia virginica*	1	No	FAC
4. *Carex blanda*	2	Yes	FAC
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	7	=Total Cover	
50% of total cover: 4		20% of total cover: 2	

Woody Vine Stratum (Plot size:)			
1.			
2.			
3.			
4.			
5.			
		=Total Cover	
50% of total cover:		20% of total cover:	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 66.7% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	25	x 2 =	50
FAC species	25	x 3 =	75
FACU species	12	x 4 =	48
UPL species	0	x 5 =	0
Column Totals:	62 (A)		173 (B)

Prevalence Index = B/A = 2.79

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is >50%
- ___ 3 - Prevalence Index is ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody Vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** X **No** ___

Remarks: (Include photo numbers here or on a separate sheet.)
Very little herbaceous and shrub species. Area appears to be in a slight depression.

SOIL

Sampling Point: DP9

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-10	7.5R 3/3	100					Loamy/Clayey	Silt; many roots throughout
10-23	7.5R 4/6	100					Loamy/Clayey	Silt

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10) **(LRR N)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ___ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ___ Loamy Mucky Mineral (F1) **(MLRA 136)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ___ Umbric Surface (F13) **(MLRA 122, 136)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ___ Red Parent Material (F21) **(MLRA 127, 147, 148)**

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- ___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Red Parent Material (F21) **(outside MLRA 127, 147, 148)**
- ___ Very Shallow Dark Surface (F22)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ___ **No** X

Remarks:

DP in area where water appears to convey during flooding events. Found hardware/gardenign cloth near DP 8 in a shallow channel that appears to lead to this location.

U.S. Army Corps of Engineers **WETLAND DETERMINATION DATA SHEET – Eastern Mountains and Piedmont Region** See ERDC/EL TR-12-9; the proponent agency is CECW-CO-R	*OMB Control #: 0710-0024, Exp:11/30/2024* *Requirement Control Symbol EXEMPT:* *(Authority: AR 335-15, paragraph 5-2a)*

Project/Site: Manassas Regional Airport City/County: Manassas/Prince William County Sampling Date: 4/24/2024

Applicant/Owner: HEF State: VA Sampling Point: DP10

Investigator(s): Katy Martin Section, Township, Range: Map 091; Block 00; Lot 2

Landform (hillside, terrace, etc.): Local relief (concave, convex, none): Slope (%):

Subregion (LRR or MLRA): LRR N Lat: 38.717378 Long: -77.518292 Datum: WGS84

Soil Map Unit Name: Elsinboro sandy loam NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes x No (If no, explain in Remarks.)

Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes x No

Are Vegetation , Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X	No	**Is the Sampled Area**
Hydric Soil Present?	Yes	No X	**within a Wetland?** **Yes** **No** X
Wetland Hydrology Present?	Yes X	No	

Remarks:
Survey point was taken just outside of the depression where DP9 is located. Drift deposits appear to be nearby. Area likely influenced by flooding events, however, wetland conditions/soils have not developed.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- Surface Water (A1)
- High Water Table (A2)
- Saturation (A3)
- Water Marks (B1)
- Sediment Deposits (B2)
- x Drift Deposits (B3)
- Algal Mat or Crust (B4)
- Iron Deposits (B5)
- Inundation Visible on Aerial Imagery (B7)
- x Water-Stained Leaves (B9)
- Aquatic Fauna (B13)
- True Aquatic Plants (B14)
- Hydrogen Sulfide Odor (C1)
- Oxidized Rhizospheres on Living Roots (C3)
- Presence of Reduced Iron (C4)
- Recent Iron Reduction in Tilled Soils (C6)
- Thin Muck Surface (C7)
- Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- Surface Soil Cracks (B6)
- Sparsely Vegetated Concave Surface (B8)
- x Drainage Patterns (B10)
- Moss Trim Lines (B16)
- Dry-Season Water Table (C2)
- Crayfish Burrows (C8)
- Saturation Visible on Aerial Imagery (C9)
- Stunted or Stressed Plants (D1)
- Geomorphic Position (D2)
- Shallow Aquitard (D3)
- Microtopographic Relief (D4)
- FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes	No x	Depth (inches):
Water Table Present?	Yes	No x	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes	No x	Depth (inches):

Wetland Hydrology Present? **Yes** X **No**

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Four Strata) – Use scientific names of plants.

Sampling Point: DP10

Tree Stratum (Plot size: 30 ft)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2. *Ulmus americana*	10	Yes	FACW
3. *Acer rubrum*	25	Yes	FAC
4.			
5.			
6.			
7.			
	35	=Total Cover	
50% of total cover: 18		20% of total cover: 7	

Sapling/Shrub Stratum (Plot size: 15 ft)			
1. *Asimina triloba*	7	Yes	FAC
2. *Carya glabra*	2	Yes	FACU
3.			
4.			
5.			
6.			
7.			
8.			
9.			
	9	=Total Cover	
50% of total cover: 5		20% of total cover: 2	

Herb Stratum (Plot size: 5 ft)			
1. *Asimina triloba*	5	Yes	FAC
2. *Viburnum prunifolium*	3	No	FACU
3. *Ulmus americana*	5	Yes	FACW
4. *Podophyllum peltatum*	1	No	FACU
5. *Claytonia virginica*	2	No	FAC
6. *Stellaria pubera*	5	Yes	UPL
7. *Viola sororia*	5	Yes	FAC
8. *Galium circaezans*	1	No	UPL
9.			
10.			
11.			
	27	=Total Cover	
50% of total cover: 14		20% of total cover: 6	

Woody Vine Stratum (Plot size:)			
1.			
2.			
3.			
4.			
5.			
		=Total Cover	
50% of total cover:		20% of total cover:	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 6 (A)

Total Number of Dominant Species Across All Strata: 8 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 75.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	15	x 2 =	30
FAC species	44	x 3 =	132
FACU species	6	x 4 =	24
UPL species	6	x 5 =	30
Column Totals:	71 (A)		216 (B)

Prevalence Index = B/A = 3.04

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

X 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody Vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** X **No** ___

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: DP10

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-2	10YR 3/4	100					Loamy/Clayey	Silt; many fine roots
2-7	10YR 3/6	100					Loamy/Clayey	Silt
7-23	7.5R 4/6	100					Loamy/Clayey	Silty clay

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10) **(LRR N)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ___ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ___ Loamy Mucky Mineral (F1) **(MLRA 136)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ___ Umbric Surface (F13) **(MLRA 122, 136)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ___ Red Parent Material (F21) **(MLRA 127, 147, 148)**

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- ___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Red Parent Material (F21) **(outside MLRA 127, 147, 148)**
- ___ Very Shallow Dark Surface (F22)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ___ **No** X

Remarks:

Approximately 30 ft from DP 9, outside depression. Displayed similar soils despite being in what appears to be a different ecotone.

U.S. Army Corps of Engineers
WETLAND DETERMINATION DATA SHEET – Eastern Mountains and Piedmont Region
See ERDC/EL TR-12-9; the proponent agency is CECW-CO-R

OMB Control #: 0710-0024, Exp:11/30/2024
Requirement Control Symbol EXEMPT:
(Authority: AR 335-15, paragraph 5-2a)

Project/Site: Manassas Regional Airport City/County: Manassas/Prince William County Sampling Date: 4/24/2024

Applicant/Owner: HEF State: VA Sampling Point: DP11

Investigator(s): Katy Martin Section, Township, Range: Map 091; Block 00; Lot 2

Landform (hillside, terrace, etc.): Local relief (concave, convex, none): Slope (%):

Subregion (LRR or MLRA): LRR N Lat: 38.717025 Long: -77.518744 Datum: WGS84

Soil Map Unit Name: Elsinboro sandy loam NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes x No (If no, explain in Remarks.)

Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes x No

Are Vegetation , Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X	No	**Is the Sampled Area**
Hydric Soil Present?	Yes	No X	**within a Wetland?** **Yes** **No** X
Wetland Hydrology Present?	Yes X	No	

Remarks:
Survey point in the SW portion of the site. Bottom portion of soils were much more saturated than the top, and water seeped into the hole after approximately 20 minutes (20" below ground). UPL and FACU dominated groundcover. Water appears to not remain long enough to develop wetland soils/conditions.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- Surface Water (A1)
- x High Water Table (A2)
- Saturation (A3)
- Water Marks (B1)
- Sediment Deposits (B2)
- Drift Deposits (B3)
- Algal Mat or Crust (B4)
- Iron Deposits (B5)
- Inundation Visible on Aerial Imagery (B7)
- Water-Stained Leaves (B9)
- Aquatic Fauna (B13)
- True Aquatic Plants (B14)
- Hydrogen Sulfide Odor (C1)
- Oxidized Rhizospheres on Living Roots (C3)
- Presence of Reduced Iron (C4)
- Recent Iron Reduction in Tilled Soils (C6)
- Thin Muck Surface (C7)
- Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- Surface Soil Cracks (B6)
- Sparsely Vegetated Concave Surface (B8)
- x Drainage Patterns (B10)
- Moss Trim Lines (B16)
- Dry-Season Water Table (C2)
- Crayfish Burrows (C8)
- Saturation Visible on Aerial Imagery (C9)
- Stunted or Stressed Plants (D1)
- Geomorphic Position (D2)
- Shallow Aquitard (D3)
- Microtopographic Relief (D4)
- X FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes	No x	Depth (inches):
Water Table Present?	Yes x	No	Depth (inches): 20
Saturation Present? (includes capillary fringe)	Yes	No x	Depth (inches):

Wetland Hydrology Present? **Yes** X **No**

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
Bottom portion of soil profile much more saturated than the top. Water seeps in ~20 minutes.

VEGETATION (Four Strata) – Use scientific names of plants.

Sampling Point: DP11

Tree Stratum (Plot size: 30 ft)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2. *Ulmus americana*	15	Yes	FACW
3. *Quercus alba*	5	No	FACU
4. *Carya glabra*	10	Yes	FACU
5.			
6.			
7.			
	30	=Total Cover	
50% of total cover: 15		20% of total cover: 6	

Sapling/Shrub Stratum (Plot size: 15 ft)			
1. *Ulmus americana*	5	Yes	FACW
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
	5	=Total Cover	
50% of total cover: 3		20% of total cover: 1	

Herb Stratum (Plot size: 5 ft)			
1. *Lonicera japonica*	15	Yes	FACU
2. *Ulmus americana*	10	Yes	FACW
3. *Carya glabra*	3	No	FACU
4. *Claytonia virginica*	3	No	FAC
5. *Quercus alba*	1	No	FACU
6. *Carex blanda*	10	Yes	FAC
7. *Smilax ecirrhata*	5	No	UPL
8.			
9.			
10.			
11.			
	47	=Total Cover	
50% of total cover: 24		20% of total cover: 10	

Woody Vine Stratum (Plot size:)			
1.			
2.			
3.			
4.			
5.			
		=Total Cover	
50% of total cover:		20% of total cover:	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 66.7% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	30	x 2 =	60
FAC species	13	x 3 =	39
FACU species	34	x 4 =	136
UPL species	5	x 5 =	25
Column Totals:	82 (A)		260 (B)
Prevalence Index = B/A =			3.17

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is >50%
- ___ 3 - Prevalence Index is ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody Vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** X **No** ___

Remarks: (Include photo numbers here or on a separate sheet.)
Very little herbaceous and shrub species. Area appears to be in a slight depression.

SOIL

Sampling Point: DP11

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4.5	10YR 3/4	100					Loamy/Clayey	Silt; many fine roots
4.5-9	10YR 3/6	100					Loamy/Clayey	Silt; few fine roots
9-24	7.5R 4/6	100					Loamy/Clayey	Silt

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10) **(LRR N)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ___ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ___ Loamy Mucky Mineral (F1) **(MLRA 136)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ___ Umbric Surface (F13) **(MLRA 122, 136)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ___ Red Parent Material (F21) **(MLRA 127, 147, 148)**

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- ___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Red Parent Material (F21) **(outside MLRA 127, 147, 148)**
- ___ Very Shallow Dark Surface (F22)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ___ **No** X

Remarks:

DP adjacent to floodway (to the SW). Elevation increases to the east. Water seeps into hole after ~20 minutes.

U.S. Army Corps of Engineers

WETLAND DETERMINATION DATA SHEET – Eastern Mountains and Piedmont Region

See ERDC/EL TR-12-9; the proponent agency is CECW-CO-R

OMB Control #: 0710-0024, Exp:11/30/2024
Requirement Control Symbol EXEMPT:
(Authority: AR 335-15, paragraph 5-2a)

Project/Site: Manassas Regional Airport City/County: Manassas/Prince William County Sampling Date: 4/24/2024

Applicant/Owner: HEF State: VA Sampling Point: DP 12

Investigator(s): Katy Martin Section, Township, Range: Map 091; Block 00; Lot 2

Landform (hillside, terrace, etc.): Local relief (concave, convex, none): Slope (%):

Subregion (LRR or MLRA): LRR N Lat: 38.717264 Long: -77.518564 Datum: WGS84

Soil Map Unit Name: Elsinboro sandy loam NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes x No (If no, explain in Remarks.)

Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes x No

Are Vegetation , Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	No X	**Is the Sampled Area within a Wetland?** **Yes** **No** X
Hydric Soil Present?	Yes	No X	
Wetland Hydrology Present?	Yes	No X	

Remarks:
Area dominated by FAC/UPL plants with no hydrology indicators present. Appears to be an upland.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- Surface Water (A1)
- High Water Table (A2)
- Saturation (A3)
- Water Marks (B1)
- Sediment Deposits (B2)
- Drift Deposits (B3)
- Algal Mat or Crust (B4)
- Iron Deposits (B5)
- Inundation Visible on Aerial Imagery (B7)
- Water-Stained Leaves (B9)
- Aquatic Fauna (B13)
- True Aquatic Plants (B14)
- Hydrogen Sulfide Odor (C1)
- Oxidized Rhizospheres on Living Roots (C3)
- Presence of Reduced Iron (C4)
- Recent Iron Reduction in Tilled Soils (C6)
- Thin Muck Surface (C7)
- Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- Surface Soil Cracks (B6)
- Sparsely Vegetated Concave Surface (B8)
- Drainage Patterns (B10)
- Moss Trim Lines (B16)
- Dry-Season Water Table (C2)
- Crayfish Burrows (C8)
- Saturation Visible on Aerial Imagery (C9)
- Stunted or Stressed Plants (D1)
- Geomorphic Position (D2)
- Shallow Aquitard (D3)
- Microtopographic Relief (D4)
- FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes	No x	Depth (inches):
Water Table Present?	Yes	No x	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes	No x	Depth (inches):

Wetland Hydrology Present? **Yes** **No** X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
DP at the top of the elevated area between DP 10 and DP 11.

VEGETATION (Four Strata) – Use scientific names of plants. Sampling Point: DP 12

Tree Stratum (Plot size: 30 ft)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2. *Carya glabra*	5	Yes	FACU
3. *Quercus alba*	15	Yes	FACU
4.			
5.			
6.			
7.			
	20	=Total Cover	
50% of total cover: 10		20% of total cover: 4	

Sapling/Shrub Stratum (Plot size: 15 ft)			
1. *Carya glabra*	5	No	FACU
2. *Asimina triloba*	25	Yes	FAC
3.			
4.			
5.			
6.			
7.			
8.			
9.			
	30	=Total Cover	
50% of total cover: 15		20% of total cover: 6	

Herb Stratum (Plot size: 5 ft)			
1. *Ulmus americana*	5	Yes	FACW
2. *Carex blanda*	5	Yes	FAC
3. *Parthenocissus quinquefolia*	5	Yes	FACU
4. *Lonicera japonica*	3	No	FACU
5. *Thalictrum thalictroides*	1	No	FACU
6. *Stellaria pubera*	3	No	UPL
7. *Geranium maculatum*	3	No	FACU
8. *Acer rubrum*	2	No	FAC
9. *Oxalis stricta*	1	No	FACU
10.			
11.			
	28	=Total Cover	
50% of total cover: 14		20% of total cover: 6	

Woody Vine Stratum (Plot size:)			
1.			
2.			
3.			
4.			
5.			
		=Total Cover	
50% of total cover:		20% of total cover:	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 50.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	5	x 2 =	10
FAC species	32	x 3 =	96
FACU species	38	x 4 =	152
UPL species	3	x 5 =	15
Column Totals:	78 (A)		273 (B)

Prevalence Index = B/A = 3.50

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody Vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** ___ **No** X

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: DP 12

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	7.5R 3/4	100					Sandy	Sandy silt; many fine roots
4-21	7.5R 4/6	100					Sandy	Sandy silt

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10) **(LRR N)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ___ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ___ Loamy Mucky Mineral (F1) **(MLRA 136)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ___ Umbric Surface (F13) **(MLRA 122, 136)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ___ Red Parent Material (F21) **(MLRA 127, 147, 148)**

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- ___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Red Parent Material (F21) **(outside MLRA 127, 147, 148)**
- ___ Very Shallow Dark Surface (F22)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ___ **No** X

Remarks:

Approximately 30 ft from DP 9, outside depression. Displayed similar soils despite being in what appears to be a different ecotone.

U.S. Army Corps of Engineers

WETLAND DETERMINATION DATA SHEET – Eastern Mountains and Piedmont Region

See ERDC/EL TR-12-9; the proponent agency is CECW-CO-R

OMB Control #: 0710-0024, Exp:11/30/2024
Requirement Control Symbol EXEMPT:
(Authority: AR 335-15, paragraph 5-2a)

Project/Site: Manassas Regional Airport City/County: Manassas/Prince William County Sampling Date: 4/24/2024

Applicant/Owner: HEF State: VA Sampling Point: DP 13

Investigator(s): Katy Martin Section, Township, Range: Map 091; Block 00; Lot 2

Landform (hillside, terrace, etc.): Local relief (concave, convex, none): Slope (%):

Subregion (LRR or MLRA): LRR N Lat: 38.716886 Long: -77.518092 Datum: WGS84

Soil Map Unit Name: Elsinboro sandy loam NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes x No (If no, explain in Remarks.)

Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes x No

Are Vegetation , Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	No X	**Is the Sampled Area within a Wetland?** **Yes** **No** X
Hydric Soil Present?	Yes	No X	
Wetland Hydrology Present?	Yes X	No	

Remarks:
Dominted by FACU/UPL vegetation. Some drift deposits present, likely from past flooding events. However, water does not appear to remain long enough for wetland soils or conditions to develop.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- Surface Water (A1)
- High Water Table (A2)
- Saturation (A3)
- Water Marks (B1)
- Sediment Deposits (B2)
- x Drift Deposits (B3)
- Algal Mat or Crust (B4)
- Iron Deposits (B5)
- Inundation Visible on Aerial Imagery (B7)
- Water-Stained Leaves (B9)
- Aquatic Fauna (B13)
- True Aquatic Plants (B14)
- Hydrogen Sulfide Odor (C1)
- Oxidized Rhizospheres on Living Roots (C3)
- Presence of Reduced Iron (C4)
- Recent Iron Reduction in Tilled Soils (C6)
- Thin Muck Surface (C7)
- Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- Surface Soil Cracks (B6)
- Sparsely Vegetated Concave Surface (B8)
- Drainage Patterns (B10)
- Moss Trim Lines (B16)
- Dry-Season Water Table (C2)
- Crayfish Burrows (C8)
- Saturation Visible on Aerial Imagery (C9)
- Stunted or Stressed Plants (D1)
- Geomorphic Position (D2)
- Shallow Aquitard (D3)
- Microtopographic Relief (D4)
- FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes	No x	Depth (inches):
Water Table Present?	Yes	No x	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes	No x	Depth (inches):

Wetland Hydrology Present? **Yes** X **No**

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Four Strata) – Use scientific names of plants. Sampling Point: DP 13

Tree Stratum (Plot size: 30 ft)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2. *Ulmus americana*	5	Yes	FACW
3. *Carya glabra*	5	Yes	FACU
4. *Quercus alba*	5	Yes	FACU
5. *Acer rubrum*	15	Yes	FAC
6.			
7.			
	30	=Total Cover	
50% of total cover: 15		20% of total cover: 6	

Sapling/Shrub Stratum (Plot size: 15 ft)			
1. *Viburnum prunifolium*	20	Yes	FACU
2. *Asimina triloba*	5	Yes	FAC
3.			
4.			
5.			
6.			
7.			
8.			
9.			
	25	=Total Cover	
50% of total cover: 13		20% of total cover: 5	

Herb Stratum (Plot size: 5 ft)			
1. *Viburnum prunifolium*	5	Yes	FACU
2. *Parthenocissus quinquefolia*	3	No	FACU
3. *Stellaria pubera*	1	No	UPL
4. *Toxicodendron radicans*	3	No	FAC
5. *Erythronium americanum*	5	Yes	UPL
6. *Carex blanda*	10	Yes	FAC
7. *Podophyllum peltatum*	2	No	FACU
8. *Carya glabra*	5	Yes	FACU
9.			
10.			
11.			
	34	=Total Cover	
50% of total cover: 17		20% of total cover: 7	

Woody Vine Stratum (Plot size:)			
1.			
2.			
3.			
4.			
5.			
		=Total Cover	
50% of total cover:		20% of total cover:	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 10 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 40.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	5	x 2 =	10
FAC species	33	x 3 =	99
FACU species	45	x 4 =	180
UPL species	6	x 5 =	30
Column Totals:	89 (A)		319 (B)

Prevalence Index = B/A = 3.58

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody Vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** ___ **No** X

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: DP 13

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	7.5R 3/4	100					Loamy/Clayey	Silt; many fine roots
4-22	10YR 3/6	100					Loamy/Clayey	Silt

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10) **(LRR N)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ___ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ___ Loamy Mucky Mineral (F1) **(MLRA 136)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ___ Umbric Surface (F13) **(MLRA 122, 136)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ___ Red Parent Material (F21) **(MLRA 127, 147, 148)**

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- ___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Red Parent Material (F21) **(outside MLRA 127, 147, 148)**
- ___ Very Shallow Dark Surface (F22)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ___ **No** X

Remarks:

U.S. Army Corps of Engineers
WETLAND DETERMINATION DATA SHEET – Eastern Mountains and Piedmont Region
See ERDC/EL TR-12-9; the proponent agency is CECW-CO-R

OMB Control #: 0710-0024, Exp:11/30/2024
Requirement Control Symbol EXEMPT:
(Authority: AR 335-15, paragraph 5-2a)

Project/Site: Manassas Regional Airport City/County: Manassas/Prince William County Sampling Date: 4/24/2024

Applicant/Owner: HEF State: VA Sampling Point: DP 14

Investigator(s): Katy Martin Section, Township, Range: Map 091; Block 00; Lot 2

Landform (hillside, terrace, etc.): Local relief (concave, convex, none): Slope (%):

Subregion (LRR or MLRA): LRR N Lat: 38.717828 Long: -77.518719 Datum: WGS84

Soil Map Unit Name: Alden Silt loam NWI classification: PFO1C

Are climatic / hydrologic conditions on the site typical for this time of year? Yes x No (If no, explain in Remarks.)

Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes x No

Are Vegetation , Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	No X	**Is the Sampled Area within a Wetland?** **Yes** **No** X
Hydric Soil Present?	Yes X	No	
Wetland Hydrology Present?	Yes X	No	

Remarks:
Damp moss, drift deposits, and water stained leaves in the area. Vegetation dominated by FA/FACU species. Wetland hydrology indicators likely due to past flooding events, however, water does not remain in the area long enough for wetland soils to develop.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- Surface Water (A1)
- High Water Table (A2)
- Saturation (A3)
- Water Marks (B1)
- Sediment Deposits (B2)
- x Drift Deposits (B3)
- Algal Mat or Crust (B4)
- Iron Deposits (B5)
- Inundation Visible on Aerial Imagery (B7)
- x Water-Stained Leaves (B9)
- Aquatic Fauna (B13)
- True Aquatic Plants (B14)
- Hydrogen Sulfide Odor (C1)
- Oxidized Rhizospheres on Living Roots (C3)
- Presence of Reduced Iron (C4)
- Recent Iron Reduction in Tilled Soils (C6)
- Thin Muck Surface (C7)
- Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- Surface Soil Cracks (B6)
- x Sparsely Vegetated Concave Surface (B8)
- Drainage Patterns (B10)
- Moss Trim Lines (B16)
- Dry-Season Water Table (C2)
- Crayfish Burrows (C8)
- Saturation Visible on Aerial Imagery (C9)
- Stunted or Stressed Plants (D1)
- Geomorphic Position (D2)
- Shallow Aquitard (D3)
- Microtopographic Relief (D4)
- FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes	No x	Depth (inches):
Water Table Present?	Yes	No x	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes	No x	Depth (inches):

Wetland Hydrology Present? **Yes** X **No**

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
Saturated moss adjacent to DP.

VEGETATION (Four Strata) – Use scientific names of plants.

Sampling Point: DP 14

Tree Stratum (Plot size: 30 ft)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2. *Quercus alba*	10	Yes	FACU
3. *Ulmus americana*	2	No	FACW
4. *Acer rubrum*	5	Yes	FAC
5.			
6.			
7.			
	17	=Total Cover	
50% of total cover: 9		20% of total cover:	4

Sapling/Shrub Stratum (Plot size: 15 ft)			
1. *Viburnum prunifolium*	3	No	FACU
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
	3	=Total Cover	
50% of total cover: 2		20% of total cover:	1

Herb Stratum (Plot size: 5 ft)			
1. *Oxalis stricta*	5	Yes	FACU
2. *Carex blanda*	10	Yes	FAC
3. *Claytonia virginica*	1	No	FAC
4. *Toxicodendron radicans*	2	No	FAC
5. *Carya glabra*	3	No	FACU
6. *Bryophyta (moss)*	7	Yes	
7. *Quercus alba*	3	No	FACU
8. *Viburnum prunifolium*	3	No	FACU
9.			
10.			
11.			
	34	=Total Cover	
50% of total cover: 17		20% of total cover:	7

Woody Vine Stratum (Plot size:)			
1.			
2.			
3.			
4.			
5.			
		=Total Cover	
50% of total cover:		20% of total cover:	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 40.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	2	x 2 =	4
FAC species	18	x 3 =	54
FACU species	27	x 4 =	108
UPL species	0	x 5 =	0
Column Totals:	47 (A)		166 (B)

Prevalence Index = B/A = 3.53

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody Vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** ___ **No** X

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: DP 14

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-5	7.5R 3/3	100					Loamy/Clayey	Silt; many fine roots
5-13	7.5R 5/1	70	7.5R 5/8	30	D	M	Loamy/Clayey	Silt
13-24	7.5R 5/8	90	7.5R 5/1	10	D	M	Loamy/Clayey	Silt

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10) **(LRR N)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ___ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ___ Loamy Mucky Mineral (F1) **(MLRA 136)**
- ___ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ___ Umbric Surface (F13) **(MLRA 122, 136)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ___ Red Parent Material (F21) **(MLRA 127, 147, 148)**

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- ___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Red Parent Material (F21) **(outside MLRA 127, 147, 148)**
- ___ Very Shallow Dark Surface (F22)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** X **No** ___

Remarks:

U.S. Army Corps of Engineers
WETLAND DETERMINATION DATA SHEET – Eastern Mountains and Piedmont Region
See ERDC/EL TR-12-9; the proponent agency is CECW-CO-R

OMB Control #: 0710-0024, Exp:11/30/2024
Requirement Control Symbol EXEMPT:
(Authority: AR 335-15, paragraph 5-2a)

Project/Site: Manassas Regional Airport City/County: Manassas/Prince William County Sampling Date: 4/24/2024

Applicant/Owner: HEF State: VA Sampling Point: DP 15

Investigator(s): Katy Martin Section, Township, Range: Map 091; Block 00; Lot 2

Landform (hillside, terrace, etc.): Local relief (concave, convex, none): Slope (%):

Subregion (LRR or MLRA): LRR N Lat: 38.717728 Long: -77.518789 Datum: WGS84

Soil Map Unit Name: Alden silt loam NWI classification: PFO1C

Are climatic / hydrologic conditions on the site typical for this time of year? Yes x No (If no, explain in Remarks.)

Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes x No

Are Vegetation , Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	No X	**Is the Sampled Area within a Wetland?** **Yes** **No** X
Hydric Soil Present?	Yes	No X	
Wetland Hydrology Present?	Yes X	No	

Remarks:
Nearby drift deposits likely a result of past flooding events. Vegetation and soils do not indicate that water remains long enough to develop wetland conditions.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- Surface Water (A1)
- High Water Table (A2)
- Saturation (A3)
- Water Marks (B1)
- Sediment Deposits (B2)
- x Drift Deposits (B3)
- Algal Mat or Crust (B4)
- Iron Deposits (B5)
- Inundation Visible on Aerial Imagery (B7)
- Water-Stained Leaves (B9)
- Aquatic Fauna (B13)
- True Aquatic Plants (B14)
- Hydrogen Sulfide Odor (C1)
- Oxidized Rhizospheres on Living Roots (C3)
- Presence of Reduced Iron (C4)
- Recent Iron Reduction in Tilled Soils (C6)
- Thin Muck Surface (C7)
- Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- Surface Soil Cracks (B6)
- Sparsely Vegetated Concave Surface (B8)
- Drainage Patterns (B10)
- Moss Trim Lines (B16)
- Dry-Season Water Table (C2)
- Crayfish Burrows (C8)
- Saturation Visible on Aerial Imagery (C9)
- Stunted or Stressed Plants (D1)
- Geomorphic Position (D2)
- Shallow Aquitard (D3)
- Microtopographic Relief (D4)
- FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes	No x	Depth (inches):
Water Table Present?	Yes	No x	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes	No x	Depth (inches):

Wetland Hydrology Present? **Yes** X **No**

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Four Strata) – Use scientific names of plants.

Sampling Point: DP 15

Tree Stratum (Plot size: 30 ft)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2. *Acer rubrum*	25	Yes	FAC
3. *Carya glabra*	10	Yes	FACU
4. *Ulmus americana*	5	No	FACW
5. *Quercus alba*	3	No	FACU
6.			
7.			
	43	=Total Cover	
50% of total cover: 22		20% of total cover: 9	

Sapling/Shrub Stratum (Plot size: 15 ft)			
1. *Carya glabra*	5	Yes	FACU
2. *Viburnum prunifolium*	5	Yes	FACU
3.			
4.			
5.			
6.			
7.			
8.			
9.			
	10	=Total Cover	
50% of total cover: 5		20% of total cover: 2	

Herb Stratum (Plot size: 5 ft)			
1. *Carex blanda*	10	Yes	FAC
2. *Carex intumescens*	15	Yes	FACW
3. *Viburnum prunifolium*	15	Yes	FACU
4. *Geranium maculatum*	2	No	FACU
5. *Viola sororia*	5	No	FAC
6.			
7.			
8.			
9.			
10.			
11.			
	47	=Total Cover	
50% of total cover: 24		20% of total cover: 10	

Woody Vine Stratum (Plot size:)			
1. *Smilax rotundifolia*	5	Yes	FAC
2.			
3.			
4.			
5.			
	5	=Total Cover	
50% of total cover: 3		20% of total cover: 1	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 8 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 50.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	20	x 2 =	40
FAC species	45	x 3 =	135
FACU species	40	x 4 =	160
UPL species	0	x 5 =	0
Column Totals:	105 (A)		335 (B)

Prevalence Index = B/A = 3.19

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody Vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** ___ **No** X

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: DP 15

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR 3/3	100					Loamy/Clayey	Silt; many fine roots
4-9	10YR 7/2	50	10YR 5/8	50	D	M	Loamy/Clayey	Silt; few fine roots
9-24	10YR 5/8	90	10YR 7/2	10	D	M	Loamy/Clayey	Silt

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10) **(LRR N)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ___ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ___ Loamy Mucky Mineral (F1) **(MLRA 136)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ___ Umbric Surface (F13) **(MLRA 122, 136)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ___ Red Parent Material (F21) **(MLRA 127, 147, 148)**

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- ___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Red Parent Material (F21) **(outside MLRA 127, 147, 148)**
- ___ Very Shallow Dark Surface (F22)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ___ **No** X

Remarks:

Attachment 3 – Site Photographs

DP 1 – Facing North

DP 1 – Facing East

DP 1 – Facing South

DP 1 – Facing West

DP 1 – Soil Profile

DP 2 – Facing North

DP 2 – Facing East

DP 2 – Facing South

DP 2 – Facing West

DP 2 – Soil Profile

DP 3 – Facing North

DP 3 – Facing East

DP 3 – Facing South

DP 3 – Facing West

DP 3 – Soil Profile

DP 4 – Facing North

DP 4 – Facing East

DP 4 – Facing South

DP 4 – Facing West

DP 4 – Soil Profile

DP 5 – Facing North

DP 5 – Facing East

DP 5 – Facing South

DP 5 – Facing West

DP 5 – Soil Profile

DP 6 – Facing North

DP 6 – Facing East

DP 6 – Facing South

DP 6 – Facing West

DP 6 – Soil Profile

DP 7 – Facing North

DP 7 – Facing East

DP 7 – Facing South

DP 7 – Facing West

DP 7 – Soil Profile

DP 8 – Facing North

DP 8 – Facing East

DP 8 – Facing South

DP 8 – Facing West

DP 8 – Soil Profile

DP 9 – Facing North

DP 9 – Facing East

DP 9 – Facing South

DP 9 – Facing West

DP 9 – Soil Profile

DP 10 – Facing North

DP 10 – Facing East

DP 10 – Facing South

DP 10 – Facing West

DP 10 – Soil Profile

DP 11 – Facing North

DP 11 – Facing East

DP 11 – Facing South

DP 11 – Facing West

DP 11 – Soil Profile

DP 12 – Facing North

DP 12 – Facing East

DP 12 – Facing South

DP 12 – Facing West

DP 12 – Soil Profile

DP 13 – Facing North

DP 13 – Facing East

DP 13 – Facing South

DP 13 – Facing West

DP 13 – Soil Profile

DP 14 – Facing North

DP 14 – Facing East

DP 14 – Facing South

DP 14 – Facing West

DP 14 – Soil Profile

DP 15 – Facing North

DP 15 – Facing East

DP 15 – Facing South

Photo unavailable

DP 15 – Facing West

DP 15 – Soil Profile

Drift Debris

Drift Debris

Intermittent Stream

Intermittent Stream

Attachment 4 – Regulatory Correspondence

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Virginia Ecological Services Field Office
6669 Short Lane
Gloucester, VA 23061-4410
Phone: (804) 693-6694

In Reply Refer To: 10/09/2024 19:24:08 UTC
Project Code: 2024-0088272
Project Name: HEF Replacement Air Traffic Control Tower

Subject: List of threatened and endangered species that may occur in your proposed project location or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*). Any activity proposed on National Wildlife Refuge lands must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)(c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

https://www.fws.gov/sites/default/files/documents/endangered-species-consultation-handbook.pdf

Migratory Birds: In addition to responsibilities to protect threatened and endangered species under the Endangered Species Act (ESA), there are additional responsibilities under the Migratory Bird Treaty Act (MBTA) and the Bald and Golden Eagle Protection Act (BGEPA) to protect native birds from project-related impacts. Any activity, intentional or unintentional, resulting in take of migratory birds, including eagles, is prohibited unless otherwise permitted by the U.S. Fish and Wildlife Service (50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)). For more information regarding these Acts, see https://www.fws.gov/program/migratory-bird-permit/what-we-do.

The MBTA has no provision for allowing take of migratory birds that may be unintentionally killed or injured by otherwise lawful activities. It is the responsibility of the project proponent to comply with these Acts by identifying potential impacts to migratory birds and eagles within applicable NEPA documents (when there is a federal nexus) or a Bird/Eagle Conservation Plan (when there is no federal nexus). Proponents should implement conservation measures to avoid or minimize the production of project-related stressors or minimize the exposure of birds and their resources to the project-related stressors. For more information on avian stressors and recommended conservation measures, see https://www.fws.gov/library/collections/threats-birds.

In addition to MBTA and BGEPA, Executive Order 13186: *Responsibilities of Federal Agencies to Protect Migratory Birds*, obligates all Federal agencies that engage in or authorize activities that might affect migratory birds, to minimize those effects and encourage conservation measures that will improve bird populations. Executive Order 13186 provides for the protection of both migratory birds and migratory bird habitat. For information regarding the implementation of Executive Order 13186, please visit https://www.fws.gov/partner/council-conservation-migratory-birds.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Project Code in the header of this

letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List
- USFWS National Wildlife Refuges and Fish Hatcheries
- Bald & Golden Eagles
- Migratory Birds

OFFICIAL SPECIES LIST

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

Virginia Ecological Services Field Office
6669 Short Lane
Gloucester, VA 23061-4410
(804) 693-6694

PROJECT SUMMARY

Project Code: 2024-0088272
Project Name: HEF Replacement Air Traffic Control Tower
Project Type: Airport - New Construction
Project Description: The City of Manassas proposes a replacement air traffic control tower (ATCT), support facility, and ATCT employee parking at the Manassas Regional Airport. The proposed location is within a 3.9 acre forested area off of Observation Road.

Project Location:

The approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/@38.71738725,-77.5184733026195,14z

Counties: Manassas County, Virginia

ENDANGERED SPECIES ACT SPECIES

There is a total of 3 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries[1], as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

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1. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

MAMMALS

NAME	STATUS
Tricolored Bat *Perimyotis subflavus* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/10515	Proposed Endangered

CLAMS

NAME	STATUS
Dwarf Wedgemussel *Alasmidonta heterodon* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/784	Endangered

INSECTS

NAME	STATUS
Monarch Butterfly *Danaus plexippus* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/9743	Candidate

CRITICAL HABITATS

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

YOU ARE STILL REQUIRED TO DETERMINE IF YOUR PROJECT(S) MAY HAVE EFFECTS ON ALL ABOVE LISTED SPECIES.

USFWS NATIONAL WILDLIFE REFUGE LANDS AND FISH HATCHERIES

Any activity proposed on lands managed by the National Wildlife Refuge system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

THERE ARE NO REFUGE LANDS OR FISH HATCHERIES WITHIN YOUR PROJECT AREA.

BALD & GOLDEN EAGLES

Bald and golden eagles are protected under the Bald and Golden Eagle Protection Act[1] and the Migratory Bird Treaty Act[2].

Any person or organization who plans or conducts activities that may result in impacts to bald or golden eagles, or their habitats[3], should follow appropriate regulations and consider

implementing appropriate conservation measures, as described in the links below. Specifically, please review the "Supplemental Information on Migratory Birds and Eagles".

---

1. The Bald and Golden Eagle Protection Act of 1940.
2. The Migratory Birds Treaty Act of 1918.
3. 50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)

There are likely bald eagles present in your project area. For additional information on bald eagles, refer to Bald Eagle Nesting and Sensitivity to Human Activity

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, see the PROBABILITY OF PRESENCE SUMMARY below to see when these birds are most likely to be present and breeding in your project area.

NAME	BREEDING SEASON
Bald Eagle *Haliaeetus leucocephalus* This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/1626	Breeds Sep 1 to Jul 31

PROBABILITY OF PRESENCE SUMMARY

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read "Supplemental Information on Migratory Birds and Eagles", specifically the FAQ section titled "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

Probability of Presence (▪)

Green bars; the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during that week of the year.

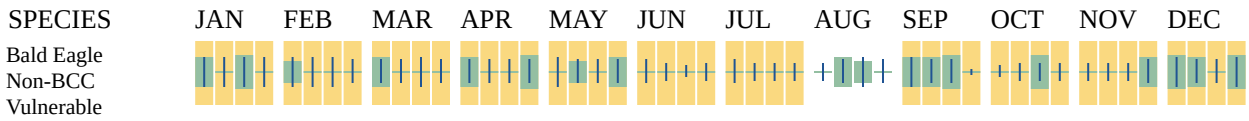
Breeding Season (▪)
Yellow bars; liberal estimate of the timeframe inside which the bird breeds across its entire range.

Survey Effort (|)
Vertical black lines; the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps.

No Data (–)
A week is marked as having no data if there were no survey events for that week.

---

probability of presence | breeding season | survey effort | no data



Additional information can be found using the following links:

- Eagle Management https://www.fws.gov/program/eagle-management
- Measures for avoiding and minimizing impacts to birds https://www.fws.gov/library/collections/avoiding-and-minimizing-incidental-take-migratory-birds
- Nationwide conservation measures for birds https://www.fws.gov/sites/default/files/documents/nationwide-standard-conservation-measures.pdf
- Supplemental Information for Migratory Birds and Eagles in IPaC https://www.fws.gov/media/supplemental-information-migratory-birds-and-bald-and-golden-eagles-may-occur-project-action

MIGRATORY BIRDS

Certain birds are protected under the Migratory Bird Treaty Act[1] and the Bald and Golden Eagle Protection Act[2].

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats[3] should follow appropriate regulations and consider implementing appropriate conservation measures, as described in the links below. Specifically, please review the "Supplemental Information on Migratory Birds and Eagles".

---

1. The Migratory Birds Treaty Act of 1918.
2. The Bald and Golden Eagle Protection Act of 1940.
3. 50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, see the PROBABILITY OF PRESENCE SUMMARY below to see when these birds are most likely to be present and breeding in your project area.

NAME	BREEDING SEASON
Bald Eagle *Haliaeetus leucocephalus* This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/1626	Breeds Sep 1 to Jul 31
Chimney Swift *Chaetura pelagica* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9406	Breeds Mar 15 to Aug 25
Grasshopper Sparrow *Ammodramus savannarum perpallidus* This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/8329	Breeds Jun 1 to Aug 20
Prairie Warbler *Setophaga discolor* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9513	Breeds May 1 to Jul 31
Prothonotary Warbler *Protonotaria citrea* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9439	Breeds Apr 1 to Jul 31
Red-headed Woodpecker *Melanerpes erythrocephalus* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9398	Breeds May 10 to Sep 10
Rusty Blackbird *Euphagus carolinus* This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/9478	Breeds elsewhere
Wood Thrush *Hylocichla mustelina* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9431	Breeds May 10 to Aug 31

PROBABILITY OF PRESENCE SUMMARY

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read "Supplemental Information on Migratory Birds and Eagles", specifically the FAQ section titled "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

Probability of Presence (■)

Green bars; the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during that week of the year.

Breeding Season (■)
Yellow bars; liberal estimate of the timeframe inside which the bird breeds across its entire range.

Survey Effort (|)
Vertical black lines; the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps.

No Data (–)
A week is marked as having no data if there were no survey events for that week.

Additional information can be found using the following links:

- Eagle Management https://www.fws.gov/program/eagle-management
- Measures for avoiding and minimizing impacts to birds https://www.fws.gov/library/collections/avoiding-and-minimizing-incidental-take-migratory-birds
- Nationwide conservation measures for birds https://www.fws.gov/sites/default/files/documents/nationwide-standard-conservation-measures.pdf
- Supplemental Information for Migratory Birds and Eagles in IPaC https://www.fws.gov/media/supplemental-information-migratory-birds-and-bald-and-golden-eagles-may-occur-project-action

IPAC USER CONTACT INFORMATION

Agency: Portland city
Name: Katy Martin
Address: 811 SW 6th Ave Ste 1000
City: Portland
State: OR
Zip: 97204
Email katherine.martin@rsandh.com
Phone: 3055879181

LEAD AGENCY CONTACT INFORMATION

Lead Agency: Federal Aviation Administration

You have indicated that your project falls under or receives funding through the following special project authorities:

- BIPARTISAN INFRASTRUCTURE LAW (BIL) (OTHER)

United States Department of the Interior

FISH AND WILDLIFE SERVICE

Virginia Field Office
6669 Short Lane
Gloucester, VA 23061

Date: 10/17/2024

Self-Certification Letter

Project Name: HEF Replacement Air Traffic Control Tower

Dear Applicant:

Thank you for using the U.S. Fish and Wildlife Service (Service) Virginia Ecological Services online project review process. By submitting this letter, in conjunction with your project review package to our office for review, you are certifying that you have completed the online project review process for the project named above in accordance with all instructions provided, using the best available information to reach your determinations. From the date of receipt, our office has 60 days (50 CFR § 402.13(c)(2)) to review your project package. If we do not concur with the Section 7 determination(s) provided or if we have any questions/concerns regarding the information provided, you will be contacted. If you are not contacted during the 60-day review period, this letter and your project review package, complete the review of your project in accordance with the Endangered Species Act of 1973 (16 U.S.C. 1531-1544, 87 Stat. 884), as amended (ESA). This letter also provides information for your project review under the National Environmental Policy Act of 1969 (P.L. 91-190, 42 U.S.C.4321-4347, 83 Stat. 852), as amended. A copy of this letter and the project review package must be submitted to this office for this self-certification letter to be valid. This letter and the project review package will be maintained in our records.

The ESA Section 7 Determination Table in the enclosed project review package summarizes your ESA analyses and determinations. These analyses resulted in a “no effect” and/or a “may affect, not likely to adversely affect” determination for proposed/listed species and/or proposed/designated critical habitat.

The use of the online project review process in strict accordance with the instructions provided as documented in the enclosed project review package resulted in reaching the appropriate determinations. Therefore, we concur with the not likely to adversely affect determination(s) for proposed/listed species and proposed/designated critical habitat provided in the ESA Section 7 Determination Table.

Should project plans change, surveys expire, or information on the distribution or status of proposed/listed species and/or proposed/designated critical habitat become available/change, this letter is no longer valid and you must submit an updated project package.

Note that under 50 CFR 402.12(e) of the regulations implementing Section 7 of the ESA, the accuracy of official species lists should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information.

Information about the online project review process including instructions and use, species information, and other information regarding project reviews within Virginia is available on our website (https://www.fws.gov/office/virginia-ecological-services/virginia-field-office-online-review-process). If you have any questions, please contact Troy Andersen of this office at (804) 728-0695.

Sincerely,

Cindy Schulz
Field Supervisor
Virginia Ecological Services

Enclosures - project review package

Endangered Species Act (ESA) Section 7 Determination Table

Project Name: HEF Replacement Air Traffic Control Tower

Date: 10/17/2024

Consultation Code: 2024-0088272

Species / Resource Name *Insert name of species or resource as listed on Official Species List.*	**Habitat/Species Presence in Action Area** *Indicate if suitable habitat and species are present in the Action Area (see examples in Step 5).*	**Sources of Info** *Explain what info suitable habitat/species presence is based on.*	**ESA Section 7 Determination** *Using reasoning and decision tables in Step 5, select determination for each species (e.g. no effect, not likely to adversely affect, or likely to adversely affect).*	**Project Elements that Support Determination** *Explain which project elements may impact the habitat or individuals of each species and any Avoidance and Minimization Measures being implemented.*
Tricolored Bat *(Perimyotis subflabus)*	Suitable habitat present	VAFO CH Map Tool; VDCR-NHP; USFWS ECOS; Center for Biological Diversity website; The USFWS indicates that bats spend the winter hibernating in caves or mines (hibernacula). There are no caves or mines in the project study area.	Not likely to adversely affect	The entire project area is forested and immediately adjacent to aircraft hangars, taxi lanes, and parking lots. There are few large trees and no caves for hibernation. Tricolored bats that may be present during construction are highly mobile and would relocate to adjacent suitable habitat in the vicinity. The amount of forested habitat (approx. 2 acres) is negligible compared to the suitable habitat in the vicinity.
Dwarf Wedgemussel *(Alasmidonta heterodon)*	No suitable habitat present	VAFO CH Map Tool; VDCR-NHP; USFWS ECOS; USFWS indicates that mussels live in streams and rivers, of which there are none within the project study area.	No effect	N/A
Monarch Butterfly *(Danaus Plexippus)*	No suitable habitat present	VAFO CH Map Tool; VDCR-NHP; Reviewed habitat information on NPS.gov; FS.USDA.gov	No effect	N/A
Critical Habitat not present		VAFO CH Map Tool		

VaFWIS Search Report Compiled on 10/10/2024, 7:23:27 PM

Help

Known or likely to occur within a **2 mile radius around point 38.7209000 -77.5132992** in **153 Prince William County, 683 Manassas City, VA**

View Map of Site Location

557 Known or Likely Species ordered by Status Concern for Conservation (displaying first 24) (24 species with Status* or Tier I** or Tier II**)

BOVA Code	Status*	Tier**	Common Name	Scientific Name	Confirmed	Database(s)
050022	FEST	Ia	Bat, northern long-eared	Myotis septentrionalis		BOVA
010032	FESE	Ib	Sturgeon, Atlantic	Acipenser oxyrinchus		BOVA
060029	FTST	IIa	Lance, yellow	Elliptio lanceolata	Yes	BOVA,SppObs,HU6
050020	SE	Ia	Bat, little brown	Myotis lucifugus		BOVA
050027	FPSE	Ia	Bat, tri-colored	Perimyotis subflavus		BOVA
060006	SE	Ib	Floater, brook	Alasmidonta varicosa	Yes	BOVA,TEWaters,Habitat,SppObs,HU6
040096	ST	Ia	Falcon, peregrine	Falco peregrinus		BOVA
040293	ST	Ia	Shrike, loggerhead	Lanius ludovicianus	Potential	BOVA,BBA
040379	ST	Ia	Sparrow, Henslow's	Centronyx henslowii		BOVA
040292	ST		Shrike, migrant loggerhead	Lanius ludovicianus migrans		BOVA
100079	FC	IIIa	Butterfly, monarch	Danaus plexippus		BOVA
030063	CC	IIIa	Turtle, spotted	Clemmys guttata		BOVA
030012	CC	IVa	Rattlesnake, timber	Crotalus horridus		BOVA
010077		Ia	Shiner, bridle	Notropis bifrenatus		BOVA
040306		Ia	Warbler, golden-winged	Vermivora chrysoptera		BOVA
100248		Ia	Fritillary, regal	Speyeria idalia idalia		BOVA,HU6

040213		Ic	Owl, northern saw-whet	Aegolius acadicus		BOVA,HU6
040052		IIa	Duck, American black	Anas rubripes		BOVA,HU6
040036		IIa	Night-heron, yellow-crowned	Nyctanassa violacea violacea		BOVA
040181		IIa	Tern, common	Sterna hirundo		BOVA,HU6
040320		IIa	Warbler, cerulean	Setophaga cerulea		BOVA,HU6
040140		IIa	Woodcock, American	Scolopax minor	Potential	BOVA,BBA,HU6
040203		IIb	Cuckoo, black-billed	Coccyzus erythropthalmus	Potential	BOVA,BBA
040105		IIb	Rail, king	Rallus elegans		BOVA

To view **All 557 species** View 557

*FE=Federal Endangered; FT=Federal Threatened; SE=State Endangered; ST=State Threatened; FP=Federal Proposed; FC=Federal Candidate; CC=Collection Concern

**I=VA Wildlife Action Plan - Tier I - Critical Conservation Need; II=VA Wildlife Action Plan - Tier II - Very High Conservation Need; III=VA Wildlife Action Plan - Tier III - High Conservation Need; IV=VA Wildlife Action Plan - Tier IV - Moderate Conservation Need
Virginia Widlife Action Plan Conservation Opportunity Ranking:
a - On the ground management strategies/actions exist and can be feasibly implemented.; b - On the ground actions or research needs have been identified but cannot feasibly be implemented at this time.; c - No on the ground actions or research needs have been identified or all identified conservation opportunities have been exhausted.

View Map of All Query Results from All Observation Tables

Bat Colonies or Hibernacula: **Not Known**

Anadromous Fish Use Streams

N/A

Impediments to Fish Passage

N/A

Colonial Water Bird Survey

N/A

Threatened and Endangered Waters (18 Reaches)

View Map of All Threatened and Endangered Waters

Stream Name	T&E Waters Species						View Map
	Highest TE*	BOVA Code, Status*, Tier**, Common & Scientific Name					
Broad Run (011037)	SE	060006	SE	Ib	Floater, brook	Alasmidonta varicosa	Yes
Broad Run (015607)	SE	060006	SE	Ib	Floater, brook	Alasmidonta varicosa	Yes
Broad Run (016525)	SE	060006	SE	Ib	Floater, brook	Alasmidonta varicosa	Yes
Broad Run (016765)	SE	060006	SE	Ib	Floater, brook	Alasmidonta varicosa	Yes
Broad Run (019062)	SE	060006	SE	Ib	Floater, brook	Alasmidonta varicosa	Yes
Broad Run (019494)	SE	060006	SE	Ib	Floater, brook	Alasmidonta varicosa	Yes
Broad Run (020916)	SE	060006	SE	Ib	Floater, brook	Alasmidonta varicosa	Yes
Broad Run (021994)	SE	060006	SE	Ib	Floater, brook	Alasmidonta varicosa	Yes
Broad Run (022362)	SE	060006	SE	Ib	Floater, brook	Alasmidonta varicosa	Yes
Broad Run (022431)	SE	060006	SE	Ib	Floater, brook	Alasmidonta varicosa	Yes
Broad Run (023568)	SE	060006	SE	Ib	Floater, brook	Alasmidonta varicosa	Yes
Broad Run (024722)	SE	060006	SE	Ib	Floater, brook	Alasmidonta varicosa	Yes
Broad Run (024825)	SE	060006	SE	Ib	Floater, brook	Alasmidonta varicosa	Yes
Broad Run (025139)	SE	060006	SE	Ib	Floater, brook	Alasmidonta varicosa	Yes
Broad Run (026195)	SE	060006	SE	Ib	Floater, brook	Alasmidonta varicosa	Yes
Broad Run (027949)	SE	060006	SE	Ib	Floater, brook	Alasmidonta varicosa	Yes
Broad Run (029210)	SE	060006	SE	Ib	Floater, brook	Alasmidonta varicosa	Yes

Broad Run (06822)	SE	060006	SE	Ib	Floater, brook	Alasmidonta varicosa	Yes

Managed Trout Streams

N/A

Bald Eagle Concentration Areas and Roosts

N/A

Bald Eagle Nests

N/A

Species Observations (142 records - displaying first 20 , 8 Observations with Threatened or Endangered species)

View Map of All Query Results Species Observations

obsID	class	Date Observed	Observer	N Species			View Map
				Different Species	Highest TE*	Highest Tier**	
55402	SppObs	Aug 21 1998	BEATY, WINTERRINGER, ZIMMERMAN, MAIR, JONES, DORSEY, CHEN, , AND GILBERT, VIRGINIA COOPERATIVE FISH AND WILDLIFE RESEARCH UNIT	6	FTSE	I	Yes
55694	SppObs	Aug 21 1998	Braven B. Beaty and Richard J. Neves, Virginia Cooperative Fish and Wildlife Unit, VA Tech	6	FTSE	I	Yes
3602	SppObs	Sep 24 1991	Div. Natural Heritage	4	FTSE	I	Yes
315311	SppObs	Sep 16 2005	D. Neves, J. Jones, A. Liberty, H. Dan, J. Schmerfeld, T. Bolton	2	FTST	II	Yes
55533	SppObs	Sep 4 1997	BEATY, AND JONES, VIRGINIA COOPERATIVE FISH AND WILDLIFE RESEARCH UNIT.	4	FTST	II	Yes
648647	SppObs	Aug 15 2023	Caitlin Carey; Brian Watson; Brittany Bajo-Walker; Ki	5	SE	I	Yes
5952	SppObs	Aug 24 1993	Stevenson, P. H.	8	SE	I	Yes
5949	SppObs	Aug 23 1993	Stevenson, P. H.	9	SE	I	Yes
607558	SppObs	Jun 6 2009	Mark; Causey	1		III	Yes

603467	SppObs	May 29 2009	Mark; Causey	1		III	Yes
602319	SppObs	May 29 2009	Mark; Causey	1		III	Yes
320587	SppObs	Jun 23 2007	Mark Causey	1		III	Yes
320589	SppObs	May 31 2007	Mark Causey	1		III	Yes
320586	SppObs	May 31 2007	Mark Causey	1		III	Yes
317031	SppObs	Jun 4 2006	Mark Causey	1		III	Yes
312736	SppObs	Jul 10 2005	Mark Causey	1		III	Yes
307474	SppObs	Jun 6 2004	Mark Causey	1		III	Yes
307473	SppObs	Jun 6 2004	Mark Causey	1		III	Yes
302356	SppObs	Jul 13 2003	Mark Causey	1		III	Yes
302334	SppObs	Jun 22 2003	Mark Causey	1		III	Yes

Displayed 20 Species Observations

Selected 142 Observations View all 142 Species Observations

Habitat Predicted for Aquatic WAP Tier I & II Species (2 Reaches)

View Map Combined Reaches from Below of Habitat Predicted for WAP Tier I & II Aquatic Species

Stream Name	Tier Species						View Map
	Highest TE*	BOVA Code, Status*, Tier**, Common & Scientific Name					
Broad Run (20700102)	SE	060006	SE	Ib	Floater, brook	Alasmidonta varicosa	Yes
Kettle Run (20700102)	SE	060006	SE	Ib	Floater, brook	Alasmidonta varicosa	Yes
Kettle Run (20700102)	SE	060006	SE	Ib	Floater, brook	Alasmidonta varicosa	Yes

Habitat Predicted for Terrestrial WAP Tier I & II Species

N/A

Virginia Breeding Bird Atlas Blocks (3 records)

View Map of All Query Results Virginia Breeding Bird Atlas Blocks

BBA ID	Atlas Quadrangle Block Name	Breeding Bird Atlas Species			View Map
		Different Species	Highest TE*	Highest Tier**	
51181	Independent Hill, NW	1			Yes
50184	Nokesville, CE	94	ST	I	Yes
50182	Nokesville, NE	84		II	Yes

Public Holdings:

N/A

Summary of BOVA Species Associated with Cities and Counties of the Commonwealth of Virginia:

FIPS Code	City and County Name	Different Species	Highest TE	Highest Tier
153	Prince William	483	FESE	I
683	Manassas City	372	FESE	I

USGS 7.5' Quadrangles:
Nokesville
Independent Hill

USGS NRCS Watersheds in Virginia:

N/A

USGS National 6th Order Watersheds Summary of Wildlife Action Plan Tier I, II, III, and IV Species:

HU6 Code	USGS 6th Order Hydrologic Unit	Different Species	Highest TE	Highest Tier
PL33	Kettle Run	59	FTSE	I
PL34	Broad Run-Rocky Branch	59	FTSE	I
PL41	Occoquan River-Occoquan Reservoir-Lake Jackson	56		I

Compiled on 10/10/2024, 7:23:27 PM I2702119.0 report=all searchType= R dist= 3218 poi= 38.7209000 -77.5132992

PixelSize=64; Anadromous=0.014738; BBA=0.026725; BECAR=0.01434; Bats=0.013611; Buffer=0.063965; County=0.04508; HU6=0.038879; Impediments=0.013584; Init=0.096402; PublicLands=0.017498; Quad=0.023521; SppObs=0.14728; TEWaters=0.019476; TierReaches=0.029096; TierTerrestrial=0.024215; Total=0.8735; Tracking_BOVA=0.309501; Trout=0.01494; huva=0.021125

Attachment 5 – 2016 Preliminary Jurisdictional Determination Letter

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

March 14, 2017

PRELIMINARY JURISDICTIONAL DETERMINATION

Northern Virginia Regulatory Section
NAO-2017-00508 (Manassas Regional Airport)

Manassas Regional Airport
10600 Harry J. Parrish Boulevard
Manassas, VA 20110

Ladies and/or Gentlemen:

This letter is in regard to your request for a verification of a preliminary jurisdictional determination for waters of the U.S. (including wetlands) on property known as the Manassas Regional Airport, located on an approximately 47 acre parcel, at 10600 Harry J. Parrish Boulevard, in Manassas, Virginia.

The maps entitled "Manassas Regional Airport Corporate Development Environmental Assessment Wetland Delineation Map", by Mill Creek Environmental Consultants, LTD dated October 2016 (*copies enclosed)* provides the location of waters and/or wetlands on the property listed above. The basis for this delineation includes application of the Corps' 1987 Wetland Delineation Manual and *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Eastern Mountains and Piedmont Region*, and the positive indicators of wetland hydrology, hydric soils, and hydrophytic vegetation and the presence of an ordinary high water mark.

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 Ms. Theresita Crockett-Augustine either via email (**theresita.m.crockett-augustine@usace.army.mil**) or via standard mail to US Army Corps of Engineers, Northern Virginia Field Office at 18139 Triangle Plaza, Suite 213, Dumfries, Virginia 22026 within 30 days of receipt and keep one for your records. This delineation of waters and/or wetlands is valid for a period of five years from the date of this letter unless new information warrants revision prior to the expiration date.

If you have any questions, please contact Ms. Theresita Crockett-Augustine at (703) 221-9736 or **theresita.m.crockett-augustine@usace.army.mil**.

Sincerely,

Theresita Crockett-Augustine
Environmental Scientist
Northern Virginia Regulatory Section

Enclosures

Appendix 2 - PRELIMINARY JURISDICTIONAL DETERMINATION (PJD) FORM

BACKGROUND INFORMATION:

A. REPORT COMPLETION DATE FOR PJD: March 14, 2017

B. NAME AND ADDRESS OF PERSON REQUESTING PRELIMINARY JD:
Manassas Regional Airport
10600 Harry J. Parrish Boulevard
Manassas, VA 20110

DISTRICT OFFICE, FILE NAME, AND NUMBER: NAO**,** Manassas Regional Airport, NAO-2017-00508

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

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

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

Latitude: 38.723 ° N Longitude: -77.517 ° W

Universal Transverse Mercator:

Name of nearest waterbody: Cannon Branch

D. REVIEW PERFORMED FOR SITE EVALUATION (CHECK ALL THAT APPLY):
☐ Office (Desk) Determination. Date:
☒ Field Determination. Date(s): 2/16/17

TABLE OF AQUATIC RESOURCES IN REVIEW AREA WHICH "MAY BE" SUBJECT TO REGULATORY JURISDICTION.

Site Number	Latitude (decimal degrees)	Longitude (decimal degrees)	Estimated amount of aquatic resource in review area (acreage and linear feet, if applicable)	Type of aquatic resource (i.e., wetland vs. non-wetland waters)	Geographic authority to which the aquatic resource "may be" subject (i.e., Section 404 or Section 10/404)
1			114 LF	RPW	Section 404
2			4.84 acre	Wetland	Section 404
3					

1. The Corps of Engineers believes that there may be jurisdictional aquatic resources in the review area, and the requestor of this PJD is hereby advised of his or her option to request and obtain an approved JD (AJD) for that review area based on an informed decision after having discussed the various types of JDs and their characteristics and circumstances when they may be appropriate.
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 AJD for the activity, the permit applicant is hereby made aware that: (1) the permit applicant has elected to seek a permit authorization based on a PJD, which does not make an official determination of jurisdictional aquatic resources; (2) the applicant has the option to request an AJD before accepting the terms and conditions of the permit authorization, and that basing a permit authorization on an AJD could possibly result in less compensatory mitigation being required or different special conditions; (3) 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) 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) undertaking any activity in reliance upon the subject permit authorization without requesting an AJD constitutes the applicant's acceptance of the use of the PJD; (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 PJD constitutes agreement that all aquatic resources in the review area affected in any way by that activity will be treated as jurisdictional, and waives 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 AJD or a PJD, the JD will be processed as soon as practicable. Further, an AJD, 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. If, during an administrative appeal, it becomes appropriate to make an official determination whether geographic jurisdiction exists over aquatic resources in the review area, or to provide an official delineation of jurisdictional aquatic resources in the review area, the Corps will provide an AJD to accomplish that result, as soon as is practicable. This PJD finds that there "may be" waters of the U.S. and/or that there "may be" navigable waters of the U.S. on the subject review area, and identifies all aquatic features in the review area 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 subject file. Appropriately reference sources below where indicated for all checked items.

☒ Maps, plans, plots or plat submitted by or on behalf of the PJD requestor:
Map:

☒ Data sheets prepared/submitted by or on behalf of the PJD requestor.

☒ Office concurs with data sheets/delineation report.

☐ Office does not concur with data sheets/delineation report. Rationale:

☐ 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:

☒ 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):

or ☒ Other (Name & Date):

☐ Previous determination(s):

File no. and date of response letter:

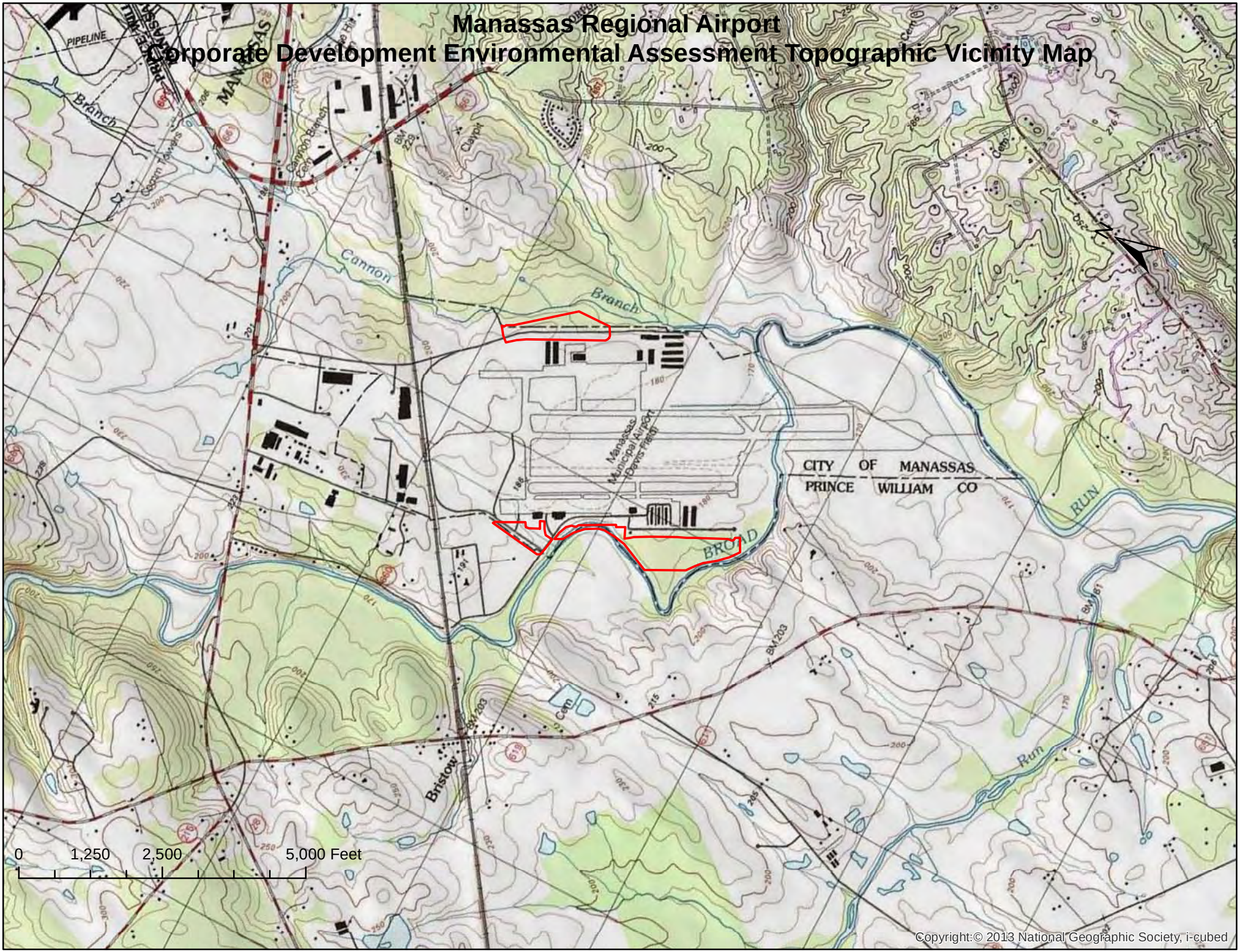
☐ Other information (please specify):

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.

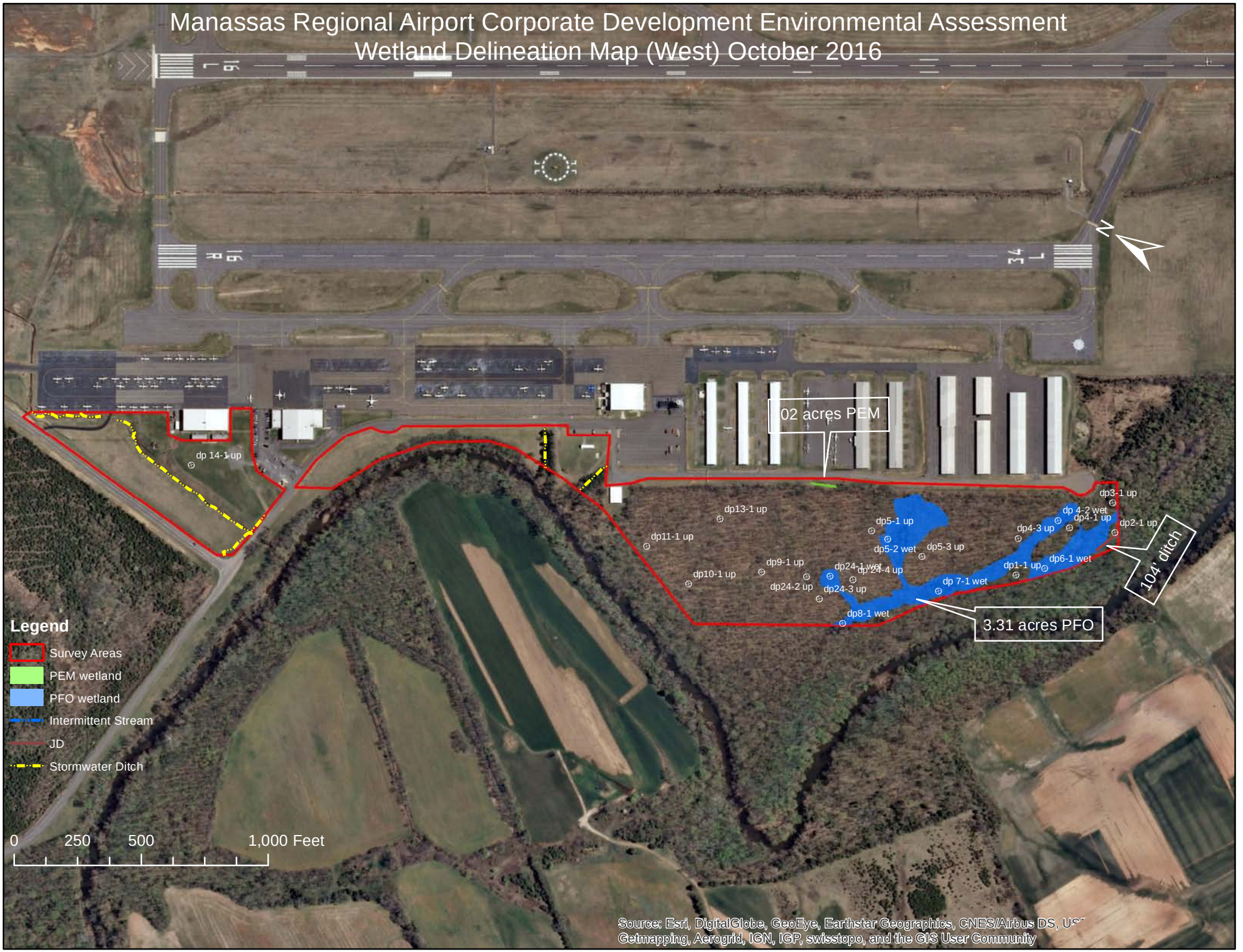
_____	_____
Signature and date of Regulatory staff member completing PJD	Signature and date of person requesting PJD (REQUIRED, unless obtaining the signature is impracticable)[1]

1 Districts may establish timeframes for requester to return signed PJD forms. If the requester does not respond within the established time frame, the district may presume concurrence and no additional follow up is necessary prior to finalizing an action.

Manassas Regional Airport
Corporate Development Environmental Assessment Topographic Vicinity Map



Manassas Regional Airport Corporate Development Environmental Assessment
Wetland Delineation Map (West) October 2016




Manassas Regional Airport Corporate Development Environmental Assessment
Wetland Delineation Map (East) October 2016
Legend
Survey Areas
PEM wetland
PFO wetland
Intermittent Stream
0
125
250
500 Feet
N
10' intermittent stream
dp18-2 wet
dp 18-1 up
dp 23-1 up
.004 acres PEM
.02 acres PFO
dp17-2 up
dp16-1 up
dp22-1 up
1.49 acres PFO
dp21-1up
dp 20-1 wet
dp19-1 up
dp15-2 wet
dp 20-2 up
dp15-1 up
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, U
Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

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

MARCH 14, 2017

Supplemental Preapplication Information

Project Number: NAO-2017-00508 (Manassas Regional Airport)
Applicant: Manassas Regional Airport
Project Location: Manassas, Virginia

1. A search of the Virginia Department of Historic Resources data revealed the following:

☐ No known historic properties are located on the property.

☒ The following known architectural resources are located on the property:

DHR ID	Address	Restricted	Property Names
076-5036	Centreville Road - Alt Route 28, John Marshall Highway - Alt Route 55, Linton Hall Road - Alt Route 619, Sudley Road - Alt Route 234	Unrestricted	Bristoe Station Battlefield (Historic), Bull Run Bridge (Historic), Kettle Run Battlefield (Historic), Manassas Station Operations Battlefield (Historic), Union Mills (Historic)
076-5399	-	Unrestricted	Orange and Alexandria Railway section (Descriptive), Train Tracks, South of the Route 28 and 234 Intersection (Function/Location)

☒ The following known archaeological resources are located on the property:

DHR ID	Site Name	Site Category	Time Period	NR Eligible	Restricted
44PW0729	-	DSS Legacy	Middle Archaic (6500 - 3001 B.C.), Woodland (1200 B.C. - 1606 A.D.)	-	Restricted: No release

☐ The following known historic resources are located in the vicinity of the property (potential for effects to these resources from future development):

NOTE:

1) *The information above is for planning purposes only. In most cases, the property has not been surveyed for historic resources. Undiscovered historic resources may be located on the subject property or adjacent properties and this supplemental information is not intended to satisfy the Corps' requirements under Section 106 of the National Historic Preservation Act (NHPA).*
2) *Prospective permittees should be aware that Section 110k of the NHPA (16 U.S.C. 470h-2(k)) 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.*

2. A search of the data supplied by the U.S. Fish & Wildlife Service, the Virginia Department of Conservation and Recreation and the Virginia Department of Game and Inland Fisheries revealed the following:

☐ No known populations of threatened or endangered species are located on or within the vicinity of the subject property.

☒ The following federally-listed species may occur within the vicinity of the subject property. See attached.

☒ The following state-listed (or other) species may occur within the vicinity of the subject property:

Genus	Species	Subspecies	Common Name	Fedstatus	Statestatus
Alasmidonta	varicosa	-	Floater, brook	-	State Endangered

NHR ID	Site Description	Legal Status	Type	Site Name
S_1325	This SCU delineates riparian reaches that provide habitat for one or more rare aquatic plants or animals.	SL	SCU	BROAD RUN SCU

Please note this information is being provided to you based on the preliminary data you submitted to the Corps relative to project boundaries and project plans. Consequently, these findings and recommendations are subject to change if the project scope changes or new information becomes available and the accuracy of the data.

Attachment 6 – 2024 USACE Coordination

From: Martin, Katherine
To: cenao-reg_rod@USACE.army.mil
Subject: Wetlands question - Manassas
Date: Tuesday, October 29, 2024 10:49:00 AM

Hi there!

We performed a wetland delineation in the spring at an area owned by the HEF airport in Manassas, where we didn't find any jurisdictional wetlands (the only water feature was a dried up little drainage pathway/stream, but the soils did not qualify as wetlands). Is it still necessary to coordinate with USACE and get a jurisdictional determination?

Thanks,
Katy

APPENDIX D
CULTURAL RESOURCES SURVEY

U.S. Department of Transportation
Federal Aviation Administration

Beckley Airports Field Office
176 Airport Circle, Room 101
Beaver, West Virginia 25813
Telephone: (304) 252-6216
FAX: (304) 253-8028

January 30, 2024

Adrienne Birge-Wilson
Division of Review and Compliance
Virginia Department of Historic Resources
2801 Kensington Avenue
Richmond, VA 23221

RE: Early Agency Coordination
Environmental Assessment for a Replacement Air Traffic Control Tower (ATCT)
Manassas Regional Airport
Manassas, VA

Dear Ms. Birge Wilson

The City of Manassas (City) proposes the construction and operation of a replacement Air Traffic Control Tower (ATCT) at Manassas Regional Airport (HEF or Airport) (see **Figure 1**). The City proposes to construct a replacement ATCT at the Airport to improve the functional and operational capabilities of the service provided by the FAA ATCT personnel. The need to replace the ATCT is a combination of safety, operational, and infrastructure deficiencies.

The City will request the Federal Aviation Administration's (FAA) unconditional approval of the project as shown on the Airport's Airport Layout Plan as well as federal funding for the proposed replacement ATCT. This request is a Federal action, subject to the requirements of the National Environmental Policy Act (NEPA). In compliance with NEPA and under the direction of the FAA, the City through their consultant (RS&H, Inc.) is initiating preparation of an Environmental Assessment (EA). The EA will assess the potential environmental impacts of the replacement ATCT components at each site:

- Clearing and grading activities and construction staging areas;
- Construction of a replacement ATCT with support building;
- Construction of ATCT employee parking lot; and
- Demolition and disposal of the existing ATCT.

The Proposed Action, Alternative 1, Alternative 2, and the direct study area are within City of Manassas limits (see **Figure 2**). The EA will evaluate each of the three site locations (see **Figure 2**). The siting of the Proposed Action and two alternatives took into consideration clearing an FAA recommended 2-acre site and avoiding an existing floodway, wetlands, and an archaeological site.

In accordance with the NEPA and FAA Orders 1050.1F, *Policies and Procedures for Considering Environmental Impacts* and 5050.4B, *National Environmental Policy Act (NEPA) Implementing Instructions of Airport Actions*, the EA will analyze the potential environmental effects of the Proposed Action. As part of the EA process, various field surveys will be conducted. These include a threatened and endangered species survey, floodplain analysis, and wetland delineation (including a jurisdictional determination).

On behalf of the City, we are sending you this early notification letter to:

1. Advise your agency of the preparation of the EA;
2. Request any relevant information that your agency may have regarding the project site or environs; and
3. Solicit early comments regarding potential environmental, social, and economic issues for consideration during the preparation of the EA.

You may send any information and comments to Susan Stafford of my staff at susan.stafford@faa.gov or to the address provided at the top of this letter. We would appreciate your prompt response within 30 days.

We would like to thank you for your interest in this project and look forward to working with you as we prepare the EA. If you have any questions or need additional information regarding Proposed Action or EA, please do not hesitate to contact me at (304) 252-6216.

Sincerely,

MATTHEW DIGIULIAN

Digitally signed by MATTHEW DIGIULIAN
Date: 2024.01.30 07:21:10 -05'00'

Matthew Di Giulian, P.E.
Manager
Beckley Airports Field Office

Attachments

cc: Juan Rivera, Manassas Regional Airport
Jolene Berry, Manassas Regional Airport
Susan Stafford, Federal Aviation Administration
Scott Denny, Virginia Department of Aviation

Figure 1
Airport Location

Figure 2
Proposed Action & Alternatives

From: Stafford, Susan (FAA)
To: Alberts, David; Juan Rivera (jrivera@ci.manassas.va.us)
Subject: FW: HEF West Corporate Development and East Parcel Development (DHR File No. 2017-0348)
Date: Thursday, March 21, 2024 2:40:19 PM

FYI

Susan B. Stafford
Environmental Protection Specialist
Beckley Airports Field Office
176 Airport Circle, Rm 101
Beaver, WV 25813
304-252-6216 x 130

From: Birge-wilson, Adrienne (DHR) <adrienne.birge-wilson@dhr.virginia.gov>
Sent: Thursday, March 21, 2024 9:59 AM
To: Stafford, Susan (FAA) <Susan.Stafford@faa.gov>
Subject: RE: HEF West Corporate Development and East Parcel Development (DHR File No. 2017-0348)

Susan- We understand that the FAA has determined that the subject area is not viable for additional archaeological testing and the area is also beyond any proposed disturbance associated with the current ATCT project. We concur with the condition that future proposals at HEF will be coordinated with DHR, to include all ground disturbing activities including development areas, staging areas, as well as any identified project mitigation efforts that require additional ground disturbing activities.

V/R,
Adrienne Birge-Wilson
Architectural Historian | Review and Compliance Division
Department of Historic Resources
Email adrienne.birge-wilson@dhr.virginia.gov
Phone 804-482-6092

From: Stafford, Susan (FAA) <Susan.Stafford@faa.gov>
Sent: Wednesday, March 20, 2024 1:08 PM
To: Birge-wilson, Adrienne (DHR) <adrienne.birge-wilson@dhr.virginia.gov>
Cc: Juan Rivera (jrivera@ci.manassas.va.us) <jrivera@ci.manassas.va.us>; Alberts, David <David.Alberts@rsandh.com>
Subject: HEF West Corporate Development and East Parcel Development (DHR File No. 2017-0348)

Adrienne,

Based on our recent discussions about concerns you addressed below, regarding an area adjacent to the HEF ATCT Alternative 2 location, I have prepared the attached letter for your review.

Thank you,

Susan B. Stafford
Environmental Protection Specialist
Beckley Airports Field Office
176 Airport Circle, Rm 101
Beaver, WV 25813
304-252-6216 x 130

From: Birge-wilson, Adrienne (DHR) <adrienne.birge-wilson@dhr.virginia.gov>
Sent: Wednesday, March 6, 2024 1:14 PM
To: Stafford, Susan (FAA) <Susan.Stafford@faa.gov>
Subject: FW: Manassas Regional Airport (HEF) Replacement Air Traffic Control Tower (ATCT) (DHR File No. 2024-3226) | e-Mail #03397

---------- Original Message ----------
From: Adrienne Birge-wilson;
Received: Wed Mar 06 2024 11:19:59 GMT-0500 (Eastern Standard Time)
To: Susan Stafford;
Cc: a;
Subject: Manassas Regional Airport (HEF) Replacement Air Traffic Control Tower (ATCT) (DHR File No. 2024-3226) | e-Mail #03397

Susan-

We appreciate the early coordination letter and we will need some additional information in order to provide meaningful comments on the impacts to historic resources. Please provide an archives search. In general, for incoming projects, applicants are asked to complete an archives search before submitting the project for review. An archives search is how you will find out if the property has been evaluated for archaeological or historical importance.

To get an archives search done, applicants can request an archives search by going to the following address and filling out the online form (for a fee): https://www.dhr.virginia.gov/archive/archives-search-service/. The archives search is not done by the same division at DHR that does the actual project review. When the archives search is complete, the Review and Compliance Division (my Division) can begin a review, assuming all the additional documentation is complete. **Please note that applicants can come to DHR archives for a free search, but appointments are required. Contact quatro.hubbard@dhr.virginia.gov for an appointment.

Regarding archaeology, the area of potential effects (APE) exhibits moderate to high probability for containing precolonial Native American archaeological deposits. A Phase I archaeological survey is recommended to assess this potential and identify any previous unrecorded archaeological resources. Aerial imagery, captured on 8/18/2023 and obtained from Google Earth, shows heavy machinery and paving within an area immediate east of the Alternative 2 polygon and overlapping the Direct Study Area. We are not aware of any correspondence with our agency regarding these operations and it is unclear whether this recent development is part of this proposed project.

Adrienne Birge-Wilson, Architectural Historian
Office of Review and Compliance
Division of Resource Services and Review
Phone: (804) 482-6092
Adrienne.Birge-Wilson@dhr.virginia.gov

U.S. Department of Transportation
Federal Aviation Administration

Beckley Airports Field Office
176 Airport Circle, Room 101
Beaver, West Virginia 25813
Telephone: (304) 252-6216
FAX: (304) 253-8028

March 20, 2024

Adrienne Birge-Wilson, Architectural Historian
Review and Compliance Division
Department of Resource Services
2801 Kensington Avenue
Richmond, Virginia 23221

RE: HEF West Corporate Development and East Parcel Development (DHR File No. 2017-0348)

Dear Ms. Birge-Wilson:

Thank you for your email response on the early coordination letter for the proposed air traffic control tower (ATCT) project at Manassas Regional Airport (HEF) (DHR File No. 2024-3226). In your response, you noted that the area of potential effects (APE) exhibits moderate to high probability for containing precolonial Native American archaeological deposits. A Phase I archaeological survey was recommended to assess this potential and identify any previous unrecorded archaeological resources. You also noted that aerial imagery, captured on August 18, 2023 and obtained from Google Earth, shows heavy machinery and paving within an area adjacent to the Alternative 2 polygon and overlapping the Direct Study Area. You are not aware of any correspondence with DHR regarding these operations and it is unclear whether this recent development is part of this proposed project.

In April 2017, a Project Review Application Form was submitted to your office that included a Phase I Archaeological Study for the Proposed West Corporate Development and East Parcel Development at HEF. The submittal received your concurrence on June 2, 2017 (DHR File No. 2017-0348). The Phase I Archaeological Study was completed in support of a March 2018 Environmental Assessment (EA) for the West Corporate Development and East Parcel Development project. The disturbance you noted is associated with the 2017 coordination with your office and the 2018 EA.

Based on your response for the currently proposed ATCT project, it has come to our attention that the study area evaluated as the 2017 direct APE does not fully align with the study area evaluated in the 2018 EA. An area to the southwest of the direct APE was included in the 2018 EA study area but was omitted from the 2017 direct APE coordinated with your office. As you

noted, the area has recently been disturbed by heavy machinery. This disturbance is associated with a mitigation area for floodplain impacts identified in the 2018 EA. The area was selected due to its location within the 2018 EA study area in a location beyond the proposed development actions in the EA. At the time of its construction, it was assumed that it was also within the 2017 direct APE and this discrepancy in mapped study areas was not identified.

Based on the recent disturbance incurred, the FAA has determined that the area is not viable for additional archaeological testing. This area is also beyond any proposed disturbance associated with the current ATCT project. Due to this discrepancy being brought to our attention, future proposals at HEF will ensure that coordination efforts with your office include all ground disturbing activities including development areas, staging areas, as well as any identified project mitigation efforts that require additional ground disturbing activities. If proposed staging and/or mitigation is unknown at the time the project is coordinated with your office, additional coordination will be initiated once impacts associated with the staging and/or mitigation efforts are identified. If you concur that no additional testing can be completed in the identified area, and with the proposed path forward for future projects, please acknowledge your concurrence below.

Should you have any questions, or require additional information, please do not hesitate to contact me at susan.stafford@faa.gov or (304) 252-6216 x130.

Sincerely,

Susan Stafford
Environmental Protection Specialist

Concur:

_____ _____

Adrienne Birge-Wilson **Date**
Architectural Historian**,**
Review and Compliance Division
Department of Resource Services

Non-concur:

_____ _____

Adrienne Birge-Wilson **Date**
Architectural Historian**,**
Review and Compliance Division
Department of Resource Services

cc: David E. Alberts, Aviation Senior Environmental Manager, RS&H, Inc.
Juan Rivera, Airport Director, Manassas Regional Airport

From:	Stafford, Susan (FAA)
To:	Alberts, David
Subject:	FW: Manassas Regional Airport (HEF) Replacement Air Traffic Control Tower (ATCT) (DHR File No. 2024-3226) | e-Mail #03397
Date:	Friday, March 15, 2024 2:04:48 PM
Attachments:	44PW0729 Revised VCRIS Map 2024-3226.pdf 44PW0729 Revised VCRIS Record.pdf

Dave,

Below is the response I received last week from DHR on the early coordination letters for the HEF ATCT project. If you look at the third paragraph, there is a discrepancy between what was defined in the HEF West Corporate Development and East Parcel Development EA as the survey area associated with the West Corporate Development portion of the project (attached) and what was defined as the Direct APE and survey area associated with the West Corporate Development portion of the project evaluated for cultural resources (attached). I've been working with DHR to try and resolved the discrepancy. They have redefined the boundary for Site 44PW729 (attached), but we have not resolved the survey area discrepancy.

Susan B. Stafford
Environmental Protection Specialist
Beckley Airports Field Office
176 Airport Circle, Rm 101
Beaver, WV 25813
304-252-6216 x 130

From: Birge-wilson, Adrienne (DHR) <adrienne.birge-wilson@dhr.virginia.gov>
Sent: Wednesday, March 6, 2024 1:14 PM
To: Stafford, Susan (FAA) <Susan.Stafford@faa.gov>
Subject: FW: Manassas Regional Airport (HEF) Replacement Air Traffic Control Tower (ATCT) (DHR File No. 2024-3226) | e-Mail #03397

---------- Original Message ----------
From: Adrienne Birge-wilson;
Received: Wed Mar 06 2024 11:19:59 GMT-0500 (Eastern Standard Time)
To: Susan Stafford;
Cc: a;
Subject: Manassas Regional Airport (HEF) Replacement Air Traffic Control Tower (ATCT) (DHR File No. 2024-3226) | e-Mail #03397

Susan-

We appreciate the early coordination letter and we will need some additional information in order to provide meaningful comments on the impacts to historic resources. Please provide an archives search. In general, for incoming projects, applicants are asked to complete an archives search before submitting the project for review. An archives search is how you will find out if the property has been evaluated for archaeological or historical importance.

To get an archives search done, applicants can request an archives search by going to the following address and filling out the online form (for a fee): https://www.dhr.virginia.gov/archive/archives-search-service/. The archives search is not done by the same division at DHR that does the actual project review. When the archives search is complete, the Review and Compliance Division (my Division) can begin a review, assuming all the additional documentation is complete. **Please note that applicants can come to DHR archives for a free search, but appointments are required. Contact quatro.hubbard@dhr.virginia.gov for an appointment.

Regarding archaeology, the area of potential effects (APE) exhibits moderate to high probability for containing precolonial Native American archaeological deposits. A Phase I archaeological survey is recommended to assess this potential and identify any previous unrecorded archaeological resources. Aerial imagery, captured on 8/18/2023 and obtained from Google Earth, shows heavy machinery and paving within an area immediate east of the Alternative 2 polygon and overlapping the Direct Study Area. We are not aware of any correspondence with our agency regarding these operations and it is unclear whether this recent development is part of this proposed project.

Adrienne Birge-Wilson, Architectural Historian
Office of Review and Compliance
Division of Resource Services and Review
Phone: (804) 482-6092
Adrienne.Birge-Wilson@dhr.virginia.gov

Snapshot

Date Generated: March 14, 2024

Site Name: No Data
Site Classification: Terrestrial, open air
Year(s): 6500 - 3001 B.C.E, 1200 B.C.E - 1606 C.E
Site Type(s): Camp
Other DHR ID: No Data
Temporary Designation: No Data

Site Evaluation Status

DHR Staff: Potentially Eligible

Locational Information

USGS Quad: NOKESVILLE
County/Independent City: Manassas (Ind. City)
Physiographic Province: Piedmont
Elevation: No Data
Aspect: No Data
Drainage: Potomac
Slope: No Data
Acreage: 0.140
Landform: Other
Ownership Status: No Data
Government Entity Name: No Data

Site Components

Component 1

Category: No Data
Site Type: No Data
Cultural Affiliation: Native American
Cultural Affiliation Details: No Data
DHR Time Period: Middle Archaic Period
Start Year: -6500
End Year: -3001
Comments: No Data

Component 2

Category: No Data
Site Type: No Data
Cultural Affiliation: Native American
Cultural Affiliation Details: No Data
DHR Time Period: Early Woodland, Late Woodland, Middle Woodland
Start Year: -1200
End Year: 1606
Comments: No Data

Component 3

Category: Domestic
Site Type: Camp
Cultural Affiliation: No Data
Cultural Affiliation Details: No Data
DHR Time Period: No Data
Start Year: No Data

End Year: No Data
Comments: No Data

Bibliographic Information

Bibliography:

Tery Harris
2017 Phase I Archaeological Study for the Proposed West Corporate Development and East Parcel Development at Manassas Regional Airport, City of Manassas, Prince William County, Virginia
prepared by Elizabeth Anderson Comer/Archaeology.
DHR Project No 2017-0348
DHR Report No. PW-661

Informant Data:

No Data

CRM Events

Event Type: DHR Staff: Other

DHR ID: 44PW0729
Staff Name: Sean Tennant
Event Date: 3/13/2024
Staff Comment Updated the site boundary to better align with the mapping presented in the 1994 WMCAR report, in consultation with Adrienne Birge-Wilson.

Event Type: DHR Staff: Other

DHR ID: 44PW0729
Staff Name: Adrienne Birge-Wilson, DHR
Event Date: 6/2/2017
Staff Comment DHR File No. 2017-0348
Manassas Regional Airport West Corporate Development and East Parcel Development, City of Manassas

DHR concurs with FAA that the proposed airport improvement project will have no adverse effect on historic properties with the condition that protective measures should be employed during construction for adjacent site 44PW0729.

Event Type: DHR Staff: Potentially Eligible

DHR ID: 44PW0729
Staff Name: David H. Dutton, DHR
Event Date: 10/25/1994
Staff Comment The survey identified one new prehistoric site, 44PW0729. Based upon the information provided in the report, we agree with the consultant's recommendation of Evaluation (Phase II testing) for this site to determine conclusively its potential eligibility in terms of National Register criteria.

DHR File No. 1993-0611-F
West Complex of Manassas Regional Airport; C & P Job No. 9214
Manassas Regional Airport Environmental Assessment
City of Manassas and Prince William County, Virginia

Event Type: Survey:Phase I/Reconnaissance

Project Staff/Notes:
Site 1
Project Review File Number: 1993-0611
Sponsoring Organization: No Data
Organization/Company: William and Mary Center for Archaeological Research
Investigator: WMCAR
Survey Date: 8/11/1994
Survey Description:
This site was located during an archaeological assessment of the Manassas Regional Airport. Artifacts were recovered from subsurface shovel testing at 23m (75 ft.) intervals, with additional tests to define site limits.

Current Land Use	Date of Use	Comments
Forest	*No Data*	Reforested.

Threats to Resource: No Data
Site Conditions: No Surface Deposits but With Subsurface Integrity
Survey Strategies: Subsurface Testing

Specimens Collected: Yes

Specimens Observed, Not Collected: Yes

Artifacts Summary and Diagnostics:

1 cordmarked shell-tempered sherd, 1 sand/grit tempered sherd, 1 shell tempered sherd, 1 possible Rossville/Morrow Mtn. hafted biface proximal fragment, 3 quartz debitage, 3 quartzite debitage, 2 metavolcanic debitage, 7 fire cracked rock.

Summary of Specimens Observed, Not Collected:

See report

Current Curation Repository: WMCAR

Permanent Curation Repository: No Data

Field Notes: Yes

Field Notes Repository: WMCAR

Photographic Media: No Data

Survey Reports: Yes

Survey Report Information:

"A Phase I Archaeological Survey of the Proposed Helicopter Facilities, Manassas Regional Airport, Prince William County," by Veronica Deitrick and Christopher McDaid (1994).

Survey Report Repository: WMCAR/DHR

DHR Library Reference Number: PW-104

Significance Statement: No Data

Surveyor's Eligibility Recommendations: Recommended Potentially Eligible

Surveyor's NR Criteria Recommendations, : D

Surveyor's NR Criteria Considerations: No Data

Virginia Dept. of Historic Resources

V-CRIS

Virginia Cultural Resource Information System

Legend

- Archaeological Resources
- Archaeology Labels
- DHR Easements
- County Boundaries

N

Feet

0 50 100 150 200

1:2,500 / 1"=208 Feet

Title: Archaeological Resources

Date: 3/14/2024

DISCLAIMER:Records of the Virginia Department of Historic Resources (DHR) have been gathered over many years from a variety of sources and the representation depicted is a cumulative view of field observations over time and may not reflect current ground conditions.The map is for general information purposes and is not intended for engineering, legal or other site-specific uses. Map may contain errors and is provided "as-is". More information is available in the DHR Archives located at DHR's Richmond office.

Notice if AE sites:Locations of archaeological sites may be sensitive the National Historic Preservation Act (NHPA), and the Archaeological Resources Protection Act (ARPA) and Code of Virginia §2.2-3705.7 (10). Release of precise locations may threaten archaeological sites and historic resources.

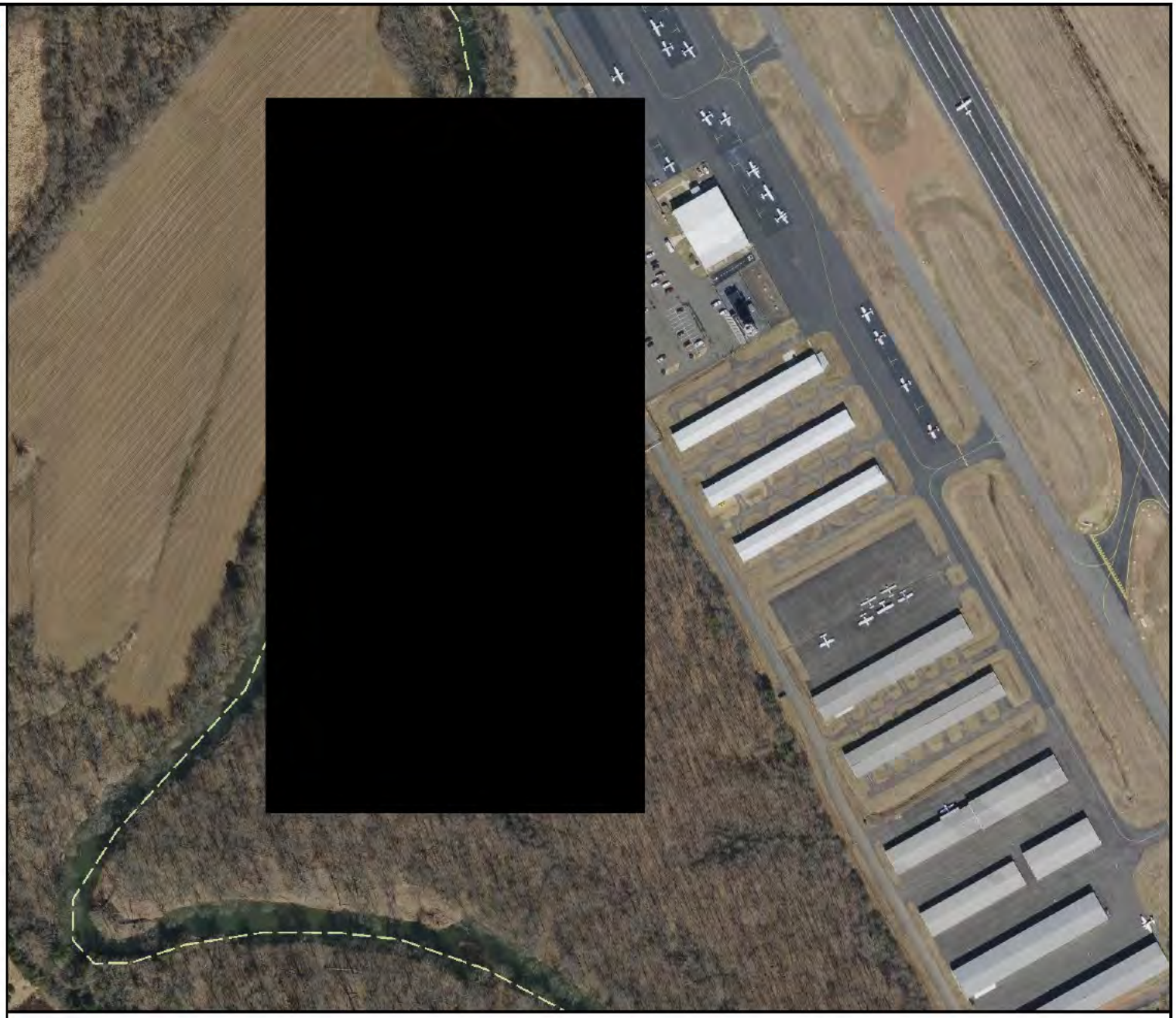
Virginia Dept. of Historic Resources

V-CRIS

Virginia Cultural Resource Information System

Legend

- Archaeological Resources
- Archaeology Labels
- DHR Easements
- County Boundaries



N

Feet

0 100 200 300 400

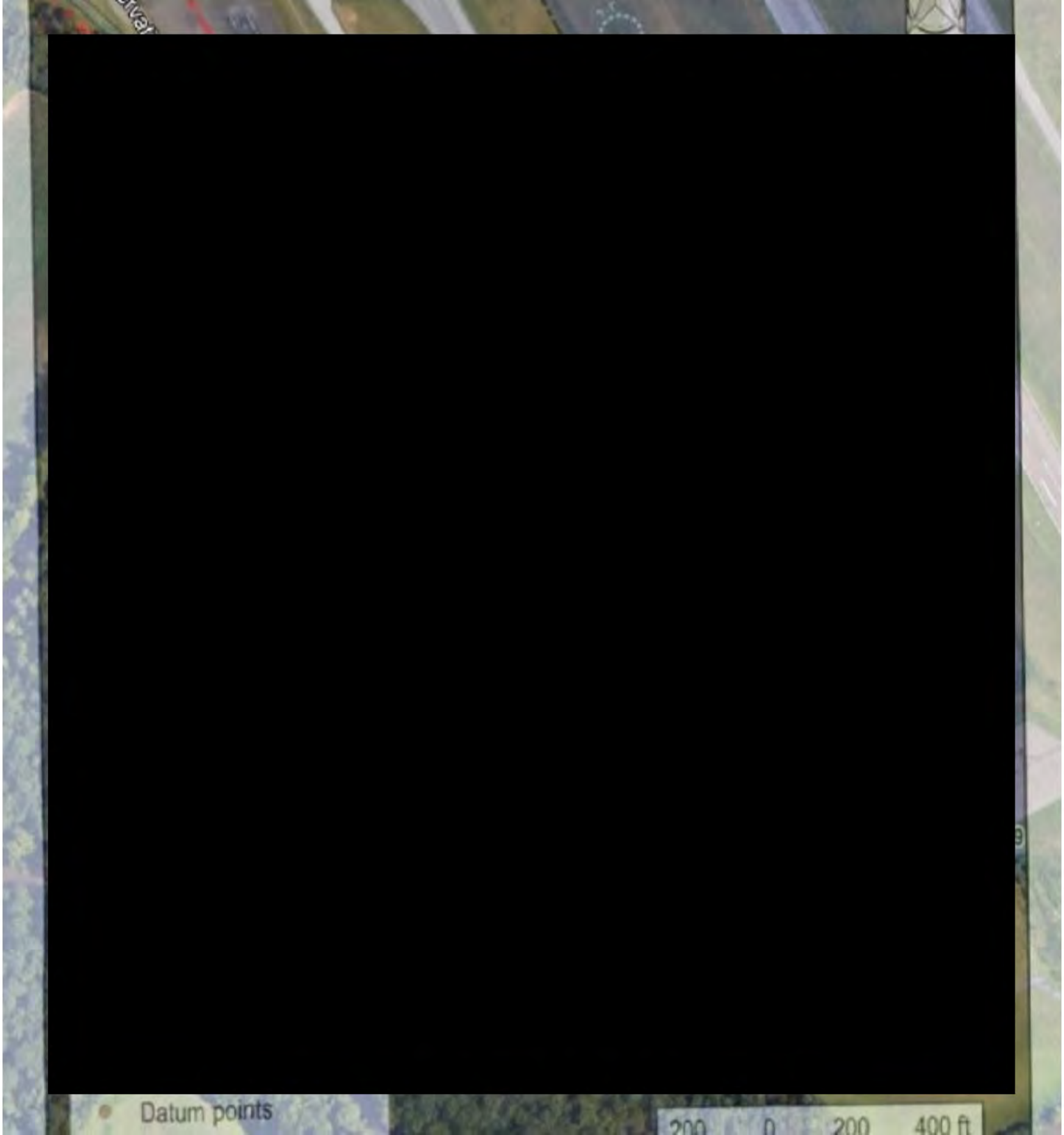
1:4,514 / 1"=376 Feet

Title:

Date: 3/14/2024

DISCLAIMER:Records of the Virginia Department of Historic Resources (DHR) have been gathered over many years from a variety of sources and the representation depicted is a cumulative view of field observations over time and may not reflect current ground conditions.The map is for general information purposes and is not intended for engineering, legal or other site-specific uses. Map may contain errors and is provided "as-is". More information is available in the DHR Archives located at DHR's Richmond office.

Notice if AE sites:Locations of archaeological sites may be sensitive the National Historic Preservation Act (NHPA), and the Archaeological Resources Protection Act (ARPA) and Code of Virginia §2.2-3705.7 (10). Release of precise locations may threaten archaeological sites and historic resources.


Datum points
200 0 200 400 ft


Piper Ln
Observation Rd
Observation Rd
Wakeman Dr
Skyview Terrace
Legend
N
Survey Area
Project Study Area
County/City Boundary

U.S. Department of Transportation
Federal Aviation Administration

Beckley Airports Field Office
176 Airport Circle, Room 101
Beaver, West Virginia 25813
Telephone: (304) 252-6216
FAX: (304) 253-8028

March 21, 2025

Adrienne Birge-Wilson
Division of Review and Compliance
Virginia Department of Historic Resources
2801 Kensington Avenue
Richmond, VA 23221

RE: Section 106 No Historic Properties Affected Finding and Section 4(f) *De Minimis* Impact Determination for a Replacement Air Traffic Control Tower (ATCT), Manassas Regional Airport, Manassas, VA; DHR File No. 2024-3226

Dear Ms. Birge-Wilson,

On March 6, 2024, the Virginia Department of Historic Resources (VDHR) responded to our letter initiating consultation for the proposed Manassas Regional Airport Air Traffic Control Tower (ATCT) replacement project (Proposed Undertaking). The VDHR response stated in part, "Regarding archaeology, the area of potential effects (APE) exhibits moderate to high probability for containing pre-colonial Native American archaeological deposits. A Phase I archaeological survey is recommended to assess this potential and identify any previous unrecorded archaeological resources."

The City of Manassas has completed a VDHR Project Review Application Form which includes a Phase I Archaeological Survey as well as a Visual Effects Study for the Proposed Undertaking. The Direct Area of Potential Effects (APE) encompasses approximately four (4) acres and includes the site of the proposed ATCT, support building, parking lot, and any areas with potential for ground disturbance. A portion of the Direct APE overlaps with a Phase I cultural resources survey that was completed in 2017 (DHR File No. 2017-0348). This previous survey did not identify any cultural resources within the boundary of the current project area. Given the recent date of this survey, the area of overlap was not resurveyed. The current survey area covered approximately 2.4 acres of the Direct APE outside of the 2017 survey boundary and consisted of shovel testing at a 15-meter interval on a grid pattern as well as a visual inspection of the entire four (4) acre study area. No surface artifact deposits were encountered, and none of the twenty-three (23) excavated shovel tests yielded any artifacts or evidence of subsurface cultural features.

The Indirect APE is defined as approximately 1,600-acres surrounding the project area where the expected visibility of the proposed ATCT could occur. Bristoe Station Battlefield (DHR Resource 076-0024 and 076-5036) is located outside of the Proposed Undertaking's Direct APE, but within the Indirect APE. The Battlefield is identified as potentially eligible for listing in the National Register of Historic Places. The Visual Effects Study evaluated light emissions as well as visual resources and visual character effects that may result from the Proposed Undertaking to properties identified with the project's Indirect APE utilizing both daytime and nighttime simulations.

The Visual Effects Study concluded that the Proposed Undertaking would not result in light emission effects to the degree that the Proposed Undertaking would: 1) have the potential to create annoyance or interfere with normal activities; or, 2) have the potential to affect the visual character of the area due to light emissions. The Study also concluded that the Proposed Undertaking would result in visual resources and visual character effects that: 1) would change the viewshed but would not affect the nature of the visual character of the area; 2) would to a degree contrast with the visual resources and/or visual character of areas west of the Airport; and, 3) would not block or obstruct the views of visual resources.

The Visual Effects Study also concluded that the ATCT's lighting system would not compromise the character of the Bristoe Station Battlefield Heritage Park which is a 140-acre county owned park, located approximately one-mile west of the Proposed Undertaking, preserving a portion of the Bristoe Station Battlefield. While the proposed replacement ATCT would not be seen from the Bristoe Station Battlefield Heritage Park, it could introduce a new visual element that may not seamlessly blend with the existing visual character of the surrounding areas, particularly those west of the Airport. However, the proposed replacement ATCT would be designed to be visually compatible with the existing Airport facilities and the surrounding environment.

The FAA respectfully requests your review of the Phase I Archaeological Survey and Visual Effects Study. In accordance with 36 CFR Part 800.3(g), the FAA requests your concurrence with the defined Direct and Indirect APEs as well as concurrence with a finding of no historic properties affected per 36 CFR 800.4(d)(1). This finding is based on the lack of artifacts or cultural features encountered during the Archaeological Survey of the Direct APE and the conclusions reached in the Visual Effects Study regarding the Indirect APE. In accordance with Section 4(f) of the Department of Transportation Act of 1966 (49 U.S.C. § 303), the FAA also intends to make a *de minimis* impact determination based on concurrence with our finding of no historic properties affected. If you have any questions or need additional information regarding the Proposed Undertaking, please do not hesitate to contact Susan Stafford of my staff at susan.stafford@faa.gov or (609) 916-5793. We would appreciate your response within 30 days per 36CFR 800.5(c).

Sincerely,

Matthew Di Giulian, P.E.
Manager
Beckley Airports Field Office

Attachments

- VDHR Project Review Form
- FAA to VDHR Letter, dated 1/30/24
- Phase I Archaeological Survey, October 2024
- Visual Effects Study, February 2025

cc:
Juan Rivera, Manassas Regional Airport
Jolene Berry, Manassas Regional Airport
Susan Stafford, Federal Aviation Administration
Stephen Smiley, Virginia Department of Aviation
David Alberts, RS&H, Inc.

Project Review Application Form

This application must be completed for all projects that will be federally funded, licensed, or permitted, or that are subject to state review. Please allow 30 days from receipt for the review of a project. All information must be completed before review of a project can begin and incomplete forms will be returned for completion.

I. GENERAL PROJECT INFORMATION

1. Has this project been previously reviewed by DHR? YES X NO ___ **DHR File #** 2024-3226

2. Project Name Environmental Assessment for a Replacement Air Traffic Control Tower (ATCT)

3. Project Location Manassas ___ Prince William

City **Town** **County**

4. Specify Federal and State agencies involved in project (providing funding, assistance, license or permit). Refer to the list of agencies and abbreviations in the instructions.

Lead Federal Agency Federal Aviation Administration

Other Federal Agency ___

State Agency ___

5. Lead Agency Contact Information

Contact Person Susan Stafford

Mailing Address FAA Beckley Airports Office 176 Airport Circle, Room 101, Beaver, WV 25813

Phone Number 304-252-6216 **Fax Number** 304-253-8028

Email Address susan.stafford@faa.gov

6. Applicant Contact Information

Contact Person Juan Rivera, C.M., ACE, Airport Director

Mailing Address 10600 Harry J Parrish Blvd. Manassas, VA 20110

Phone Number 703-361-1882 **Fax Number**

Email Address jrivera@manassasva.gov

II. PROJECT LOCATION AND DESCRIPTION

7. USGS Quadrangle Name Nokesville

8. Number of acres included in the project 3.9 acres

MAIL COMPLETED FORM AND ATTACHMENTS TO:
Virginia Department of Historic Resources
Attention: Project Review
2801 Kensington Avenue, Richmond, VA 23221
www.dhr.virginia.gov

9. Have any architectural or archaeological surveys of the area been conducted? YES X NO If

yes, list author, title, and date of report here. Indicate if a copy is on file at DHR.
A total of 27 previous cultural inventory surveys have previously been conducted. See Phase I. Appendix B

10. Are any structures 50 years old or older within or adjacent to the project area? If yes, give date(s) of construction and provide photographs. The ATCT was built in the 1960s and was moved and reassembled at HEF in 1991. YES X NO

11. Does the project involve the rehabilitation, alteration, removal, or demolition of any structure building, designed site (e.g. park, cemetery), or district that is 50 years or older? If *yes*, this must be explained fully in the project description. The existing ATCT is planned for demolition. YES X NO

12. Does the project involve any ground disturbance (e.g. excavating for footings, installing sewer or water lines or utilities, grading roads, etc.)? If *yes*, this must be explained fully in the project description. YES X NO

13. DESCRIPTION: Attach a complete description of the project. Refer to the instructions for the required information.
See FAA to VDHR letter dated 1/30/24, attached.

To the best of my knowledge, I have accurately described the proposed project and its likely impacts.

[signature] 2/3/25
Signature of Applicant/Agent Date

The following information must be attached to this form:

- X Completed DHR Archives search
- X USGS map with APE shown
- X Complete project description
- X Any required photographs and plans

____ No historic properties affected _____ No adverse effect
____ Additional information is needed in order to complete our review.
____ We have previously reviewed this project. A copy of our correspondence is attached.
Comments: _____

Signature _____ Date _____

Phone number _____ DHR File # _____
This Space For Department Of Historic Resources Use Only

MAIL COMPLETED FORM AND ATTACHMENTS TO:
Virginia Department of Historic Resources
Attention: Project Review
2801 Kensington Avenue, Richmond, VA 23221
www.dhr.virginia.gov

U.S. Department of Transportation
Federal Aviation Administration

Beckley Airports Field Office
176 Airport Circle, Room 101
Beaver, West Virginia 25813
Telephone: (304) 252-6216
FAX: (304) 253-8028

January 30, 2024

Adrienne Birge-Wilson
Division of Review and Compliance
Virginia Department of Historic Resources
2801 Kensington Avenue
Richmond, VA 23221

RE: Early Agency Coordination
Environmental Assessment for a Replacement Air Traffic Control Tower (ATCT)
Manassas Regional Airport
Manassas, VA

Dear Ms. Birge Wilson

The City of Manassas (City) proposes the construction and operation of a replacement Air Traffic Control Tower (ATCT) at Manassas Regional Airport (HEF or Airport) (see **Figure 1**). The City proposes to construct a replacement ATCT at the Airport to improve the functional and operational capabilities of the service provided by the FAA ATCT personnel. The need to replace the ATCT is a combination of safety, operational, and infrastructure deficiencies.

The City will request the Federal Aviation Administration's (FAA) unconditional approval of the project as shown on the Airport's Airport Layout Plan as well as federal funding for the proposed replacement ATCT. This request is a Federal action, subject to the requirements of the National Environmental Policy Act (NEPA). In compliance with NEPA and under the direction of the FAA, the City through their consultant (RS&H, Inc.) is initiating preparation of an Environmental Assessment (EA). The EA will assess the potential environmental impacts of the replacement ATCT components at each site:

- Clearing and grading activities and construction staging areas;
- Construction of a replacement ATCT with support building;
- Construction of ATCT employee parking lot; and
- Demolition and disposal of the existing ATCT.

The Proposed Action, Alternative 1, Alternative 2, and the direct study area are within City of Manassas limits (see **Figure 2**). The EA will evaluate each of the three site locations (see **Figure 2**). The siting of the Proposed Action and two alternatives took into consideration clearing an FAA recommended 2-acre site and avoiding an existing floodway, wetlands, and an archaeological site.

In accordance with the NEPA and FAA Orders 1050.1F, *Policies and Procedures for Considering Environmental Impacts* and 5050.4B, *National Environmental Policy Act (NEPA) Implementing Instructions of Airport Actions*, the EA will analyze the potential environmental effects of the Proposed Action. As part of the EA process, various field surveys will be conducted. These include a threatened and endangered species survey, floodplain analysis, and wetland delineation (including a jurisdictional determination).

On behalf of the City, we are sending you this early notification letter to:

1. Advise your agency of the preparation of the EA;
2. Request any relevant information that your agency may have regarding the project site or environs; and
3. Solicit early comments regarding potential environmental, social, and economic issues for consideration during the preparation of the EA.

You may send any information and comments to Susan Stafford of my staff at susan.stafford@faa.gov or to the address provided at the top of this letter. We would appreciate your prompt response within 30 days.

We would like to thank you for your interest in this project and look forward to working with you as we prepare the EA. If you have any questions or need additional information regarding Proposed Action or EA, please do not hesitate to contact me at (304) 252-6216.

Sincerely,

MATTHEW DIGIULIAN

Digitally signed by MATTHEW DIGIULIAN
Date: 2024.01.30 07:21:10 -05'00'

Matthew Di Giulian, P.E.
Manager
Beckley Airports Field Office

Attachments

cc: Juan Rivera, Manassas Regional Airport
Jolene Berry, Manassas Regional Airport
Susan Stafford, Federal Aviation Administration
Scott Denny, Virginia Department of Aviation

Figure 1
Airport Location

Figure 2
Proposed Action & Alternatives

RS&H

PHASE I ARCHAEOLOGICAL SURVEY

AIR TRAFFIC CONTROL TOWER REPLACEMENT
MANASSAS REGIONAL AIRPORT (HEF)
CITY OF MANASSAS
PRINCE WILLIAM COUNTY, VIRGINIA

OCTOBER 2024 (REVISED)

PREPARED FOR:
REYNOLDS, SMITH & HILLS, INC.
2600 PARK TOWER DR., SUITE 101
VIENNA, VA 22180

PREPARED BY:
THE MANNIK & SMITH GROUP, INC.
1800 INDIAN WOOD CIRCLE
MAUMEE, OH 43537

Results of a Phase I Archaeological Survey for the Proposed Air Traffic Control Tower Replacement Project at Manassas Regional Airport (HEF) in the City of Manassas, Prince William County, Virginia

VHDR File Number Not Yet Assigned

Submitted by:

Dr. Robert C. Chidester, RPA 1066050
Principal Investigator / Project Manager

Prepared by:

Timothy J. Maze, M.S.
Robert C. Chidester, Ph.D.
Meagan N. Bell, M.P.S.
Julia R. Joblinski, B.A.
Jeffrey P. Nagle, M.A.

The Mannik & Smith Group, Inc.
1800 Indian Wood Circle
Maumee, OH 43537

Submitted to:

Reynolds, Smith & Hills, Inc.
2600 Park Tower Drive, Suite 101
Vienna, VA 22180

Lead Federal Agency:

Federal Aviation Administration

October 2024 (Revised)

ABSTRACT

In June 2024, Reynolds, Smith & Hills, Inc. (RS&H) contracted The Mannik & Smith Group, Inc. (MSG) to conduct a Phase I archaeological reconnaissance survey for the proposed Air Traffic Control Tower Replacement project at Manassas Regional Airport (HEF) in the City of Manassas, Prince William County, Virginia. The Project involves the construction of a new air traffic control tower along with an associated support building and parking lot on the west side of Observation Road at its south end. Including a buffer for ancillary work areas, the overall Project Area encompasses 3.9 ac (1.6 ha). A portion of the Project Area overlaps with a Phase I cultural resources survey that was previously completed in 2017; this previous survey did not identify any cultural resources within the boundary of the current Project Area (Harris 2017). Given the recent date of this survey, the area of overlap was not surveyed again. Thus, the current Survey Area covered 2.4 ac (1.0 ha).

Background research efforts included a literature review of cultural resources data in the Virginia Cultural Resources Information System database, examination of historic cartographic resources, and secondary-source research on the general environmental, pre-contact and post-contact cultural/historical contexts that have shaped the development of the Manassas Regional Airport. Based on this research, it was anticipated that the archaeological survey was most likely to encounter small pre-contact lithic scatters representing short-term encampments. Although the Bristoe Station and Kettle Run battlefields are located near the Project Area, the results of prior studies (Jacobs et al. 2016, Harris 2017) did not indicate a likelihood that battlefield-related artifacts would be present.

The survey consisted of shovel testing at 15-m (49.2-ft) intervals on a grid pattern within the Survey Area and visual inspection of the entire Project Area. No surface artifact deposits were encountered, and none of the 23 excavated STPs yielded any artifacts or evidence of subsurface cultural features.

In summary, no archaeological resources have been identified within the Project Area for the proposed Air Traffic Control Tower Replacement project. Therefore, the project will not have any impact on archaeological resources that are listed on or eligible for the National Register of Historic Places. No further archaeological investigations are recommended.

TABLE OF CONTENTS

FIGURES

TABLE OF CONTENTS (Continued)

TABLES

APPENDICES

1.0 INTRODUCTION AND DESCRIPTION OF UNDERTAKING

In June 2024, Reynolds, Smith & Hills, Inc. (RS&H) contracted The Mannik & Smith Group, Inc. (MSG) to conduct a Phase I archaeological reconnaissance survey for the proposed Air Traffic Control Tower Replacement project (hereafter, the Project) at Manassas Regional Airport (HEF) in the City of Manassas, Prince William County, Virginia (Figure 1.1). The Project requires the approval of the Federal Aviation Administration, and is therefore subject to review under the National Environmental Policy Act of 1969 (NEPA) and the National Historic Preservation of 1966 (as amended) (NHPA). RS&H is preparing an Environmental Assessment (EA) for the Project, which includes consultation with the Virginia Department of Historic Resources (VDHR) (which serves as the State Historic Preservation Office) pursuant to Section 106 of the NHPA. The Phase I archaeological survey was completed to assist with this consultation.

The Project involves the construction of a new air traffic control tower along with an associated support building and parking lot in the west-central portion of the airport property, on the west side of Observation Road at its south end. The new control tower will measure approximately 8.5 m (28 ft) in diameter. The support building will have a footprint of 18 m (60 ft) x 8 m (26 ft), while the parking lot will measure 57 m (188 ft) x 19 m (63 ft) with access from Observation Road. An area measuring approximately 1.15 ac (0.5 ha) and extending approximately 36 m (119 ft) off of Observation Road will be cleared of trees prior to construction. Including a buffer for ancillary work areas, the overall Project Area encompasses 3.9 ac (1.6 ha). A portion of the Project Area overlaps with a Phase I cultural resources survey that was previously completed in 2017; this previous survey did not identify any cultural resources within the boundary of the current Project Area (Harris 2017). Given the recent date of this survey, the area of overlap was not surveyed again. Thus, the Survey Area covered 2.4 ac (1.0 ha) (Figure 1.2).

Background research and field reconnaissance were completed in June. The following report includes overviews of the environmental, pre-contact and post-contact cultural contexts of Prince William County and the City of Manassas; the results of a cultural resources literature review; the methods used during the field survey; and the results of the survey. Appendices include reproductions of historic maps of the Project Area, the literature review results in tabular format, a photograph log, and curricula vitae of the Principal Investigator and Field Director.

Dr. Robert Chidester, RPA, served as the Project Manager and Principal Investigator for this survey. Dr. Chidester, who meets the Secretary of the Interior's standards (36 CFR 61) in archaeology and history, coordinated all project tasks. The literature review was conducted by Project Archaeologist Nicole Davis, B.S., and fieldwork was conducted by Field Director Timothy Maze, M.S. The environmental and pre-contact cultural overviews were prepared by Project Archaeologist Julia Joblinski, B.A., while the post-contact cultural overview was prepared by Project Historian Jeffrey Nagle, M.A. Maze and Chidester are the primary authors of this report. Project Archaeologists Meagan Bell, M.P.S., Elizabeth Hickle, B.S., Adam Darkow, B.A., and Nicole Davis, B.S., prepared the figures and appendices.

Mannik Smith Group
TECHNICAL SKILL. CREATIVE SPIRIT.
www.MannikSmithGroup.com

Figure 1.1
Project Location
Phase I Archaeological Survey
Manassas Regional Airport
City of Manassas, Prince William County, VA

0 0.25 0.5 mi
0 0.5 1 km

Map Credits:
7.5' Nokesville, VA US Topographic Map provided by ESRI, accessed July 2024.

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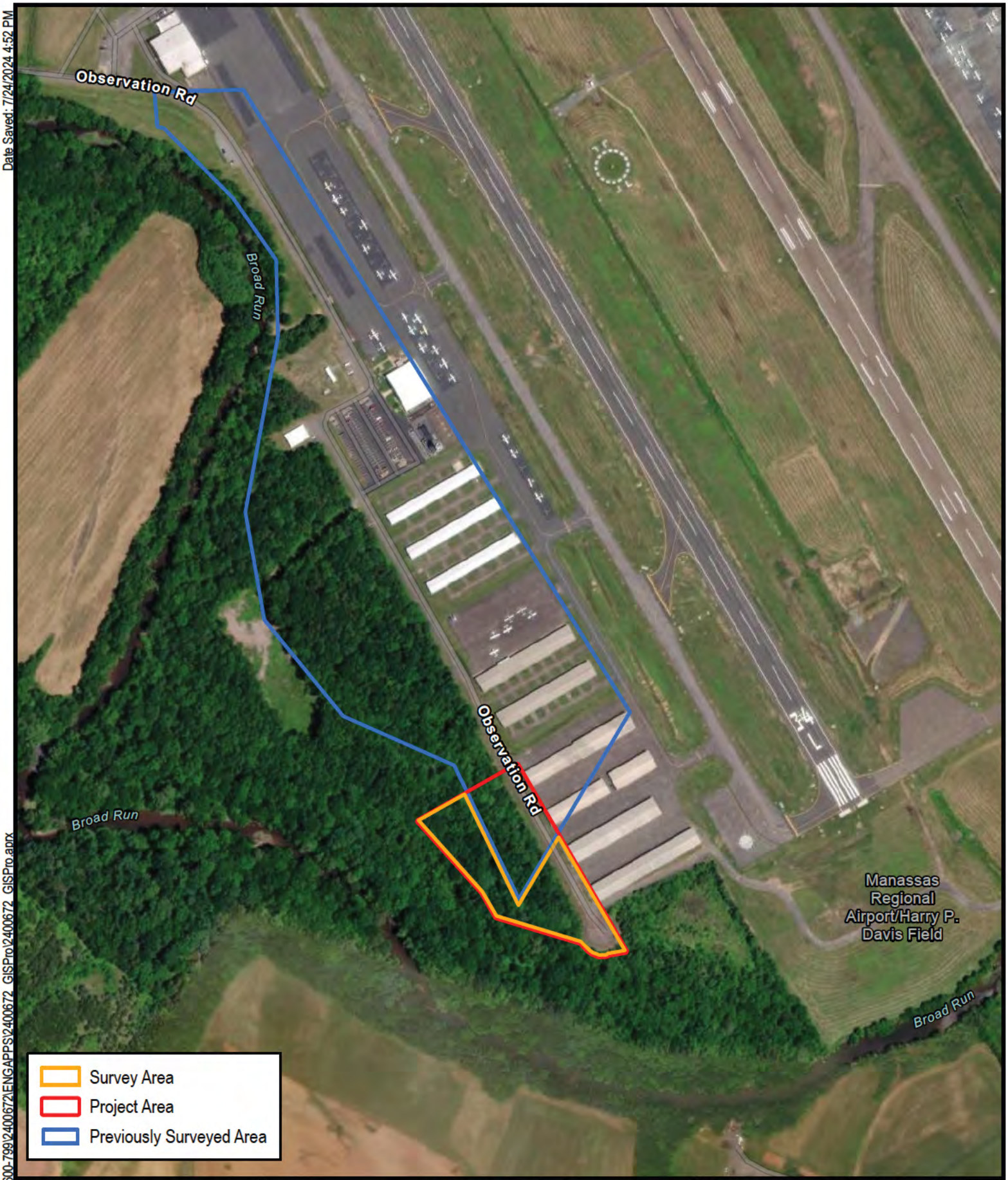

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Figure 1.2
Survey Area
Phase I Archaeological Survey
Manassas Regional Airport
City of Manassas, Prince William County, VA

0 250 500 Feet
0 75 150 Meters

Map Credits:
Prince William County aerial photography provided by ESRI, accessed July 2024.

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2.0 BACKGROUND RESEARCH

The specific methods utilized during any archaeological survey should ideally be based on a sound research design that takes into account environmental variables, documentation of known and suspected archaeological sites in the general vicinity of the project area, and a thorough understanding of the relevant pre-contact and post-contact contexts for a given area. This background information is presented here.

2.1 Environmental Context

Before proceeding to the statement of pre-contact and post-contact cultural contexts and the literature review of previously recorded cultural resources within the vicinity of the Project Area, this section will discuss the environmental context of northern Virginia, focusing on Prince William County. Included are sub-sections on the physiography and geology of Virginia, the paleoclimate and paleoecology of the region, the modern environment of Prince William County, and current land use and soils within the Project Area.

2.1.1 Physiography and Geology of Northern Virginia and Prince William County

The state of Virginia is located on the east coast of the United States, abutting to the coast of the Atlantic Ocean to the east, and connecting to West Virginia and Kentucky to the west, North Carolina and Tennessee to the south, and Maryland to the north. Prince William County is located in the northern region of Virginia, much of which is located in the Piedmont physiographic province of the state. Small portions of the eastern end of the county are within the Coastal Plain and Blue Ridge physiographic provinces. The Project Area is within the north-central portion of Prince William County (Bailey 1999; National Park Service [NPS] 2009).

The Piedmont physiographic province stretches from northeastern Virginia to the south, to make up much of the south-central region of the state. Geology within the Piedmont province consists of bedrock buried by 2 – 20 m (6.6 – 66 ft) of saprolite (weathered and disintegrating bedrock). This bedrock is largely made up of igneous and metamorphic rock dating to the Proterozoic and Paleozoic eras, which are characteristic of the Appalachian Mountains. Unlike the other physiographic provinces of the state – which contain more topographic variation due to their location within or near the Appalachian mountain belt – the Piedmont physiographic province contains gently rolling topography (Geology of Virginia [GOV] 2024c). Some physiographic features of this part of the Piedmont province within Prince William County consist of Mesozoic basins and western Piedmont-Potomac Terrane. Three sub-provinces of the Piedmont province – foothills, Mesozoic lowlands, and the outer Piedmont – are present within Prince William County, consisting of broad rolling hills and low-moderate slopes underlain by Mesozoic sedimentary and igneous rocks (Bailey 1999, 2016; GOV 2024c).

The portion of Prince William County that contains the Coastal Plain physiographic province (the easternmost part of the county) primarily consists of coastal terrace containing Quaternary alluvium and gravel, among other Cretaceous and Ordovician sediments and rock outcrops (Virginia Energy 2024). The Coastal Plain province within Prince William County consists of two sub-provinces: the upland and lowland sub-provinces. These sub-provinces consist of broad upland landforms with low slopes and gentle drainage (except in areas there is significant erosion on the edges of streams), and flat, lowly sloping areas along rivers and the Chesapeake Bay, which has facilitated the growth of marshes and swamps. The northern Blue Ridge physiographic sub-province (part of the Blue Ridge province), which makes up the north-northwestern end of Prince William County, consists of steep slopes, narrow ridges and broad mountains, much unlike the gently rolling topography of the physiographic regions to the east (Bailey 1999; NPS 2009; Virginia Department of Conservation and Recreation [VDC&R] 2021).

2.1.2 Paleoclimate and Paleoecology of Northern Virginia

No glaciers extended as far as present-day Maryland during the Pleistocene. However, the effects of the rebounding and subsidence of the Laurentide ice sheet are noticeable in the landscape of modern-day Virginia. Retreating glacial ice caused ocean levels to rise, and especially in areas like the Coastal Plain physiographic province where forested swamps and wetlands were prevalent, flooding of lower-lying topography, rivers, and streams occurred frequently. The present-day Chesapeake Bay was directly impacted, causing parts of Virginia's east coast to sink into the Atlantic Ocean with post-glacial rising sea levels (U.S. Geological Survey [USGS] 2022; Dalton et al. 2020).

Since most of the bedrock within Prince William County is of igneous or metamorphic origin (and, therefore, there is less sedimentary rock in which to find fossils), there is a dearth of information on extinct animal species that were present within Prince William County prior to the arrival of European colonists. However, multiple species of Pleistocene megafauna and other species of mammals were known to live within what is now modern-day Virginia, including the following: Imperial mammoth (*Mammuthus imperator)* and Columbian mammoth *(Mammuthus columbi*), mastodon (*Mammut americanum*), Ice Age and long-horned bison *(Bison antiquus*, *Bison latifrons*), various horse species (namely *Equus hippidion*)*,* short-faced bear (*Arctodus simus*), tapir species (*Tapirus haysii* and *veroensis*), American black bear (*Ursus americanus*), American Lion (*Panthera atrox*), giant ground sloth (*Eremotherium mirabile* and *Megalonyx jeffersonii*), dire wolf (*Canis dirus*), giant armadillo (*Holmesina floridanus*), North American beaver *(Castor canadensis*), peccaries (*Platygonus compressus*), round-tailed muskrat (*Neofiber alleni*), saber-toothed cat (*Smilodon fatalis*), and stag moose (*Cervalces scotti*) (Handley 1992).

Not much is known about the historic flora that existed in Prince William County; however, according to early accounts from European settlers, the landscape and flora which existed in the Piedmont province likely consisted of savanna-like grasslands and woodlands, which were managed with intentional fires set by indigenous peoples (VDC&R 2021). In places like the the northern Blue Ridge sub-province, for instance, taller mountain ranges were likely treeless while lower mountains were covered with coniferous forest; lower-lying places, such as the Coastal Plain province, likely contained open parkland vegetation with coniferous tree cover and savanna-like grassland (Handley 1992).

2.1.3 Modern Environment of Prince William County

In modern-day Prince William County, winters are typically cold with average temperatures in the 36 °F range; summers are mild, with an average temperature of approximately 76 °F, not typically getting higher than 88 °F. Average precipitation is approximately 36 inches, most of which falls during the growing season (April-September). Prior to European settlement, the majority of Prince William County consisted of savanna-like grasslands and dense woodlands, although most of this has been cleared for agriculture and industrial encroachment in the present day. Being that the state has one of the most topographically diverse settings on the east coast, heterogeneous vegetation and wildlife habitats can thrive within close proximity (Elder 1989; VDC&R 2021).

2.1.4 Current Land Use and Soils

Current land use within the Project Area can be described as undeveloped woodlot on the edge of the HEF property. The southern end of Observation Road, including a turnaround at the end of the road, occupy the eastern edge of the Project Area (see Figure 1.2).

Soil properties can generally be correlated with the likely presence of archaeological resources. Poorly drained soils, for instance, generally retain a low probability for archaeological resources since they are frequently inundated with water and are otherwise uninhabitable. Well-drained soils generally retain a higher probability for archaeological resources since they would have proffered a relatively dry habitation space. Different combinations of soil types within an area can also be useful for predicting the likely existence of archaeological resources. Well-drained hummocks, for instance, often contain archaeological resources when in proximity to poorly-drained soils, and may have been preferred locations for pre-contact hunter-gatherers due to the diversity in faunal and floral taxa that are characteristic of wetland or estuarine environments. The Project Area is characterized by three individual soil types (U.S. Department of Agriculture, Natural Resources Conservation Service 2024), which are summarized in Table 2.1 and shown on Figure 2.1.

Table 2.1 Soil Types within the Project Area

Map Symbol	Soil Name	Slope (%)	Drainage	Landform Type(s)	Acres	% of Project Area
1A	Aden silt loam	0-2	Poorly drained	Terraces	1.75	44.75%
20B	Elsinboro sandy loam	2-7	Well drained	Stream terraces, flood plain	1.99	50.89%
49A	Rowland	0-2	Moderately well drained	Flood plain	0.17	4.34%

2.2 Pre-Contact Cultural Contexts

2.2.1 The Paleoindian Period (13,000–10,000 B.P.)

The Paleoindian period in present-day Virginia and the eastern United States ranged between 13,000-10,000 years before present (B.P.). Before discussing the Paleoindian period in full, however, it should be noted here that prior to the use of Clovis-type projectile points (one of the main markers of the Paleoindian period in the state), the region of what is currently North America was likely populated by humans before 13,000 B.P., possibly by 15,000 B.P. or earlier. Recent radiocarbon studies on the buried stratigraphy at the Cactus Hill site in Sussex County in southeastern Virginia have shown that pre-Clovis peoples occupied the site by approximately 15,000 B.P. Material culture within the same strata consisted of unfluted knives, expedient tools such as prismatic blades and blade cores made from river cobbles, groundstone tools made from sandstone, and possibly non-descript tools made from bone and wood (McAvoy and McAvoy 1997; Carr 2018; Johnson et al. 2022).

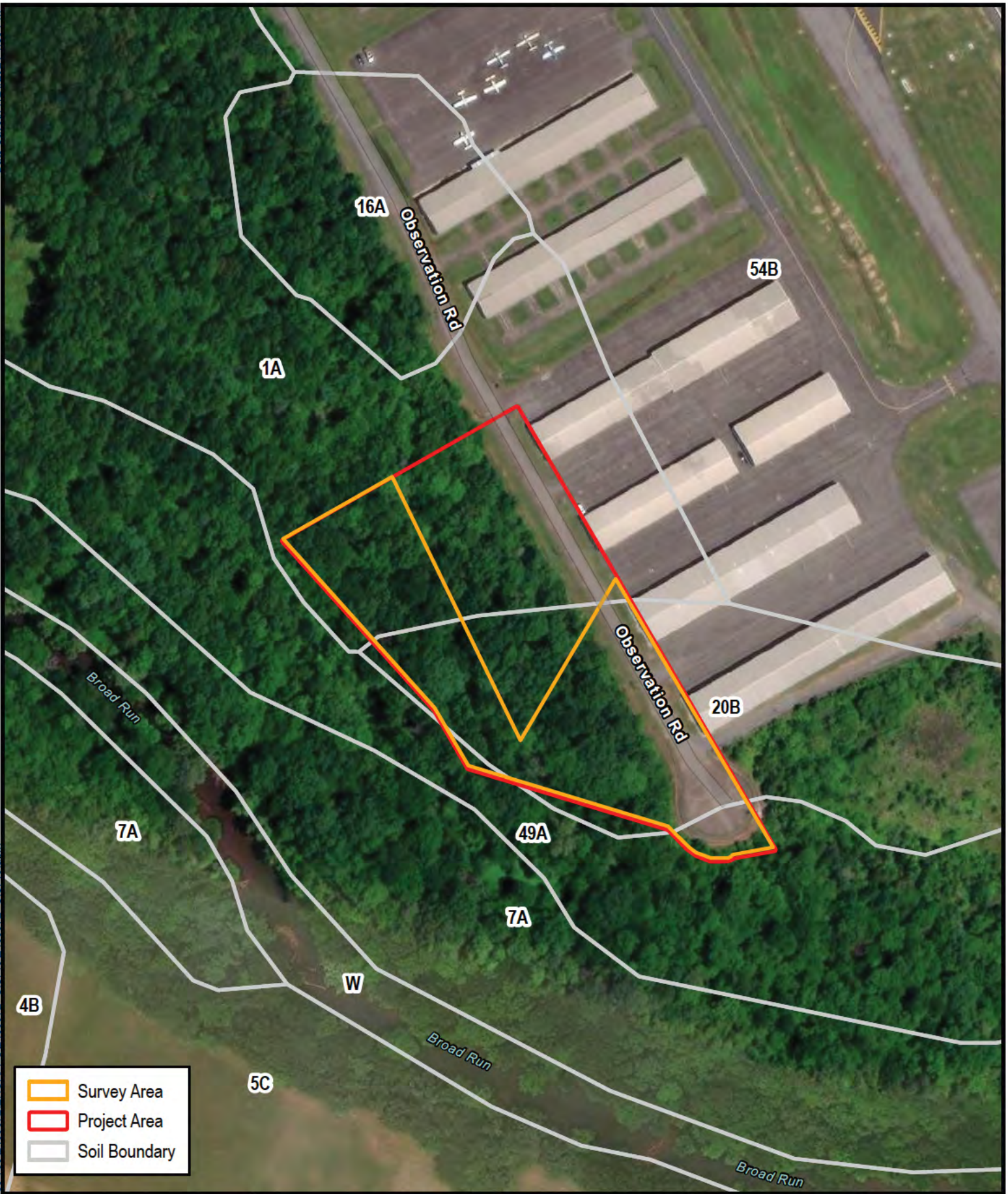

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Figure 2.1
Soils within the Project Area
Phase I Archaeological Survey
Manassas Regional Airport
City of Manassas, Prince William County, VA

0 100 200 Feet
0 25 50 Meters

Map Credits:
Prince William County aerial photography provided by ESRI, accessed July 2024.

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The general assumption in eastern North America is that Paleoindian peoples lived in fairly small family groups, foraging for plant foods and likely taking advantage of Pleistocene megafauna species as they migrated seasonally. However, there is no explicit evidence of fluted projectile point use at butchering sites in the eastern United States (Hranicky 2009). Evidence from Maryland also suggests that Paleoindian peoples were more socially connected across long distances than originally assumed. First, quarry sites are prevalent in the state, containing a wide range of tools made from chert, aside from the typical fluted Clovis-type projectile points. Paleoindian peoples were quarrying large amounts of materials and camping near the quarries, indicating prolonged use. At campsites, locally-quarried chert types were found alongside tools made of non-local cherts (including chalcedony and jasper), indicating that trade networks had a much wider range than previously thought. Data from these campsites also indicated prolonged use, meaning that they were visited and lived in frequently; people were using spaces near water, such as on river terraces and nearby swamps and wetlands (Custer 1990; Dent 1995). While group size likely remained limited to immediate family, there is evidence of group interaction on a wider scale than previously assumed. Diagnostic stone tools from the Paleoindian period in Prince William County specifically include Clovis, Dalton, and Hardaway projectile points (Gardner 1989; McAvoy 1992).

2.2.2 Archaic Period (10,000–3200 B.P.)

The Archaic period can be divided into three phases, Early (10,000–8800 B.P.), Middle (8800–5500 B.P.), and Late (5500–3200 B.P.). Tool production moved from fluted lanceolate projectile points to smaller, stemmed and side-notched projectile points by the middle of the Early Archaic period; however, Paleoindian tool types were still in use during the Paleoindian-Early Archaic transition, indicating a slow change in subsistence strategies. It is assumed that the change in stone tool production was brought about by environmental changes, namely the overall warming and moistening of the environment. These environmental changes shifted people from foraging and large game hunting to relying on more local resources, such as a wide range of smaller game species (e.g., white-tailed deer and fish). There was also an increased reliance on plant foods, marked by the presence of groundstone tools such as grinding stones, mortars and pestles (Kraft 1976; Dent 1995). There is also a dramatic increase in Archaic-range sites within eastern North America and Prince William County specifically. In both Prince William County and Virginia as a whole, Archaic-period peoples would have had access to a wide range of topography (and, thus, a wide range in animal and plant habitats, increasing one's choices for food). Fauna from multiple sites in Virginia indicate that by the Early Archaic period, groups were utilizing a wide range of animal species (Kraft 1976; Leedecker and Holt 1991). Diagnostic tools include Palmer corner-notched, Kirk corner-notched and Kirk Stemmed, and bifurcate projectile points; the Early Archaic also saw the introduction of ground axes, adzes, and celts, typically made from mafic, igneous materials. It has also been noted that non-projectile chert tools, such as end scrapers, were being used in higher quantities (Coe 1964; Custer 1990).

The Middle Archaic period (8800–5500 B.P.) is well represented in Virginia, in part by better site preservation, longer-term settlements, and also due to an assumed increase in population or group size. By the Middle Archaic period, the environment had grown even warmer but dryer, and it stayed this way into the Late Archaic period. This Holocene environment, however, allowed more species and habitats to develop, thus allowing for a wider range of choices in people's diets and subsistence movement (Delcourt and Delcourt 1987). This change in environment likely resulted in movements of small bands of people from season to season, with encampments becoming less permanent and group interaction possibly becoming less frequent on a large scale (Mouer 1991). However, site data seems to support the theory that during seasons when fish were in abundance within drainage areas and streams, Middle Archaic-period peoples would gather in large fishing

groups and take advantage of the high volume of fish, while also decreasing the amount of labor it took to catch and process the fish (and also increasing group cooperation and interaction on a smaller scale) (Gardner 1978; Custer 1990). Diagnostic projectile points include stemmed and side-notched varieties from the Stanley, Morrow Mountain, Neville, Halifax and Guilford types. Grinding tools, like mortars and pestles, became commonplace by the Middle Archaic. Marine food sources, namely from wetland and floodplain areas, are seen in faunal assemblages with high frequency (Custer 2000; Dent 1995).

During the Late Archaic period (5500–3200 B.P.) in Virginia, the climate remained much the same, except for the increase of shallow estuarine waters (especially on the east coast, near the Chesapeake Bay). These estuarine areas were yet another source of food, and towards the end of the Late Archaic period, indigenous groups exhibited an ever-increasing reliance on marine mollusks. Fishing-related tools such as net sinkers were common by the Late Archaic. The increased manufacture of expedient tools, such as flake scrapers, burins, drills, and utilized flakes, is demonstrated by their recovery in larger quantities on Late Archaic archaeological sites. Ground stone tools remained common, with the addition of grooved axes and steatite bowls during the Late Archaic. Projectile points from the Vernon, Perkiomen, Brewerton, Holmes, and Susquehanna types are diagnostic to the Late Archaic period (Dent 1995).

2.2.3 Woodland Period (3200–400 B.P.)

The Woodland period is divided into three phases: Early (3200 B.P.–2300 B.P.), Middle (2300–1100 B.P.), and Late (1100–400 B.P.). The transition from the Late Archaic to the Early Woodland was somewhat smooth, with the Late Archaic-Transitional sub-period in which groups became mostly sedentary, occupying areas containing tributaries and interior river drainages (Mouer 1991). The Early Woodland in the eastern United States is mostly marked by the introduction of “crude” pottery types and experimentation with horticulture. The population growth that began in the Late Archaic and the Late Archaic-Transitional period continued, and groups became mostly sedentary. The use of steatite continued, primarily as temper for pottery vessels, particularly the Marcey Creek and Seldon Island pottery types. These pottery types are thought to be the first ones used within the Piedmont province, and they were fairly rudimentary as the vessels were shallow and were somewhat poorly built from slabs. Vessels tempered with sand and quartz became popular as well, with the use of Accokeek-style pottery towards the end of the Early Woodland period (Dent 1995).

During the Middle Woodland period (2300-1100 B.P.) in Virginia, large settlements existed along coastal areas and within the estuarine settings of the Chesapeake Bay. Archaeological data implies that the Piedmont province was used primarily for game hunting in groups, rather than as a place to set up a home base. Settlements in the Coastal Plain province contained storage facilities, and were localized nearby or adjacent to wild food sources (Curry and Kavanagh 1991). While not formally part of the Hopewell cultural sphere centered in the Ohio River valley to the west, there were changes in widespread regional group interaction in Virginia, marked by non-local chert and stone materials as well as pottery styles. Towards the end of the Middle Woodland and the start of the Late Woodland periods, pottery styles shifted from the thick, shallow vessels that were popular in the Early Woodland to thinner vessels of conical and globular shapes, employing coiling as a manufacturing method. Much like pottery in other places within the eastern United States, cordmarking, net impressing, and other surface treatment techniques became commonplace in Prince William County and northern Virginia. Accokeek, Mockley, and Popes Creek are diagnostic ceramic ware types of the Middle Woodland, along with small triangular notched and lanceolate projectile points (Dent 1995).

The Late Woodland period (1100–400 B.P.) is marked by larger villages localized on floodplains, further reliance on agriculture, and an increase in social stratification. The Potomac and Monocracy River floodplains seemed to be an ideal village setting for Late Woodland peoples, containing fertile bottomland soils for the cultivation of corn, squash, and beans. Many village sites have been outlined with some form of fortification or palisades, which may indicate some amount of inter-group conflict. Starchy tubers, berries, and roots of edible and medicinal types were foraged in addition to plant cultivation. Due to the landscape's diverse habitats, Late Woodland peoples had a diverse meat diet as well, taking advantage of small mammal, waterfowl, fish, and marine mussel populations. Villages closer to the coastline used more marine food sources than their inland counterparts, who relied more heavily on mammalian species (Hantman and Klein 1992). Jewelry and personal adornments have been found on Late Woodland sites within northern Virginia, including slate gorgets. Diagnostic pottery vessel types include Keyser, Shepard, Potomac Creek, and Dan River styles; projectile points include the small, Madison-style chert points, but there is evidence of animal parts being used as projectiles as well, including shark teeth, stingray barbs, sharpened antler, and sharpened bone fragments. Late Woodland village sites exhibit a much wider array of food sources, depending on the season and availability; as such, their tools needed to be diverse as well. Hefty ground stone tools, like manos, metates, mortars, and pestles are common on Late Woodland village sites; woodworking and carving implements, net sinkers, and fishing harpoons have also been found. Bone tools, such as bone and antler agricultural tools and bone awls, became commonplace (Dent 1995; Hantman and Klein 1992).

Two cultural complexes – the Montgomery and Keyser complexes – manifested during the Late Woodland in and around Virginia, ca. 600-700 B.P. The Montgomery Complex is most easily identified through their pottery: Shepard style ceramic wares, which can be identified as granitic, grit-tempered, cordmarked vessels with conical bases and slightly restricted necks. Shepard ceramics often contained raised collars made by appliqueing a thin strip of wet clay to the unfired vessel. These vessels were often decorated via incising, corded stick impressions, and/or punctations. Site data suggests that Montgomery Complex peoples relied heavily on cultivated corn, squash and beans, but also took advantage of available forageable foods in nearby floodplains. Keyser Complex peoples briefly overlapped Montgomery Complex groups, but mostly after 600 B.P. Keyser Complex ceramics contain shell fragments as pottery temper, and surface decoration primarily consisted of cordmarking and tool impressions. Keyser Complex village sites were typically placed along rivers (Dent 1995).

2.3 Post-Contact Cultural Contexts

Due to the small size of the Project Area, this section will focus on two major themes relevant to the project location: the American Civil War and the history of Manassas Regional Airport.

2.3.1 Manassas and the American Civil War

2.3.1.1 Manassas as a Strategic Location during the Civil War

Manassas as it exists was largely a post-Civil War creation, but the now-city was the site of multiple battles during the American Civil War. Although rail infrastructure was slow to develop in Virginia as in much of the South, by the late 1850s, Manassas Junction was an important spot in the state. Manassas Junction marked the spot where freight and passengers from the narrow-gauge Manassas Gap Railroad (connecting west to Strasburg and the Shenandoah Valley) were loaded onto the standard-gauge Orange and Alexandria Railroad, the only railroad linking Washington with the Virginia piedmont and – after another change to the Virginia Central Railroad

at Gordonsville in Orange County – the state's capital and largest city, Richmond (Johnson 2004; Virginia Railway Express 2024).

The outbreak of civil war following the election of Abraham Lincoln made Manassas Junction a militarily strategic point. In the early summer of 1861, Union armies outnumbered Confederate forces in northern Virginia but were divided between the Shenandoah Valley in the west and the vicinity of Washington in the east. As newly-volunteered Union troops under Irvin McDowell advanced on Manassas Junction to sever the internal Confederate rail line, sightseers and picnickers from the capital followed. July 18 saw initial skirmishes, and Confederates from the Shenandoah Valley began concentrating at Manassas Junction, joining with the army already there under P.G.T. Beauregard for the first military operation to use railroads. Concentrated on the south side of bridges and fords crossing Bull Run to the north and west of modern Manassas, the Confederates repulsed the Union advance down the rail line and across the creek in a confused battle on July 21, in which both sides were equally untrained, were clad in similarly disorganized uniforms and followed nearly identical flags. The First Battle of Bull Run was the bloodiest battle yet in American history, and made it clear that the rebellion would not be decided in a single decisive encounter (Luebke 2023).

By 1862, Confederates had abandoned northern Virginia to reinforce Richmond and the York-James peninsula as George McClellan's Army of the Potomac advanced slowly from the Chesapeake. Union forces in northern Virginia were organized into the Army of Virginia under John Pope. With the Army of the Potomac stuck outside Richmond and slowly withdrawing to the north, Confederates under Robert E. Lee, Thomas Jackson and James Longstreet moved against the Army of Virginia scattered along the Rappahannock River. On August 27, Jackson's troops marched 50 miles around the end of the line and seized the Union supply depot at Manassas Junction, raiding food and destroying materiel. The Army of Virginia abandoned its defensive line and returned to Manassas on the 28th, thinking they had Jackson trapped. Finding the Confederates dug in along an unfinished rail line near the site of the first battle, Pope ordered his troops into futile, uncoordinated attacks on the defensive position over the next two days. On August 30, James Longstreet pushed his troops forward in one of the largest flank attacks of the Civil War, bloodily sweeping Pope's Army of Virginia northeast to Centreville and opening the way for Lee's advance into Maryland (Luebke 2021).

In 1863 Manassas was the site of yet another battle: the Battle of Bristoe Station. In the wake of the Confederate retreat after Gettysburg, Lee's Army of Northern Virginia had retreated to the Rapidan River near Culpeper. Seeing the Union Army of the Potomac's supply depot at Centreville as a target, Confederate forces under A. P. Hill followed the Army of the Potomac to an Orange and Alexandria Railroad bridge over Broad Run, south of modern Manassas. However, Hill's forces had missed the rear guard dug in and concealed along the rail line. In a matter of hours, Hill's troops took 1,400 casualties without making any strategic or tactical advance (Singel 2010).

2.3.1.2 Preservation of Manassas-Area Battlefields

In the early 20th century, formal memorialization began around the battlefields at Manassas. The United Daughters of the Confederacy (UDC) and the state of New York both commissioned monuments. As part of the national reconciliation of the emerging industrial and colonial power and the post-*Plessy* end of the last vestiges of Reconstruction, George Round organized the "Manassas National Jubilee of Peace" on the 50th anniversary of First Bull Run in 1911, with the hope that the Jubilee would lead to the causes of the war being "buried, forgotten and forever settled" (quoted in Zenzen 1998:7). Tens of thousands arrived in Manassas by rail for a picnic with food provided by the UDC and speeches from the governor of Virginia and President Taft (Zenzen

1998:4-7). Interest in the preservation of the battlefields at Manassas had already begun to percolate within the Union veteran organization, the Grand Army of the Republic, although it took the purchase of a Confederate park by the Sons of Confederate Veterans and, later, the New Deal expansion of the national park system under the Resettlement Administration, the Civilian Conservation Corps, the Works Progress Administration and others for the battlefields of First and Second Bull Run to be formally established as National Battlefield Parks in 1938 (Zenzen 1998:7-24).

Through the second half of the 20th century, suburban growth outside Washington and a proposed Disney theme park in Manassas encroached on the area. In the 1980s, the site of Bristoe Station was private land slated for use as a landfill; it was established as Bristoe Station Battlefield Heritage Park in 2006 by Prince William County, almost 70 years after the establishment of a national park for the better-known battlefields to its north (Backus and Orrison 2015:xiv).

2.3.2 Manassas Regional Airport (HEF)

2.3.2.1 Civil Aviation in the United States

In the two decades following Wilbur and Orville Wright's famous first flight in 1903, civil aviation in the U.S. grew quickly. The U.S. Post Office's Airmail Services began in 1918, and the federal government encouraged – but did not fund – the construction of airfields in support of the U.S. Postal Service and the U.S. military. Instead, local interests – both public and private – often joined together to build airfields. Some of the first municipal airports in the country were in places as disparate as Tucson, Arizona (1919), Cleveland, Ohio (1925), and Albany, New York (1928). "Municipal airports were symbolic of civic progressiveness and pride" (Eggebeen 2007).

Several pieces of legislation passed during the early and mid-20th century greatly impacted the development of airfields – later airports – in the U.S. The Air Commerce Act, passed in 1926, not only created the Aeronautics Branch in the Department of Commerce, but also codified local responsibility for airports. Through the mid-1930s, public fascination with and support of air travel grew. Bolstered by the Urban Boosterism movement of putting effort into promoting the growth and development of one's own city, so too did public funding efforts and operation of the country's major airports continue to increase. With the passing of the Civil Aeronautics Act in 1938, the federal government began contributing to the construction of airports, and aid came directly. Following World War II, aviation in the U.S. had gained a place of priority in transportation planning and had become a highly popular method of travel. In 1946 Congress passed the Federal Airport Act, which led to a long-term program of federal aid to municipal airports to comply with increasing regulations for airport safety. Notably, at this time passenger terminals were not considered critical for airport safety or operations, so the construction of passenger terminals remained unfunded through federal monies (Eggebeen 2007).

2.3.2.2 History of Aviation in Manassas

The first airport in Manassas was established in 1932, when 17 residents of the farming community, led by Mayor Harry Davis, purchased a part of the Ben Lomond plantation to serve as a local landing field. The first airport was officially opened June 8, 1932 (Anderson 1999). "What Manassas needs or wants with an airport," wrote *Washington Daily News* aviation columnist Ernie Pyle, "I haven't the slightest idea." At that point, Manassas was an unincorporated village of 1,212, located 30 miles from Washington; the airport was "on rolling ground alongside a dirt road," with "no hangar, but there is a telephone in a little shack." Despite this, Pyle estimated 3,000 farmers, babies, and Civil War veterans turned out to see the new airport and hear from "Manassas airport

orators" that Virginia-based Smithsonian director Samuel P. Langley invented the airplane, not the Wright Brothers, who were "just a couple of boys who also ran" (Pyle 1932).

In the 1930s, boosterish city governments – and particularly city planners – began to see airports as a part of their purview, although their plans tended to follow the lead of existing industry practices and planners' successes at exerting their influence were quite limited when compared to their role in highway planning. Still, states and cities understood airports' potential for economic development; by the early 1940s, all 48 states had passed laws authorizing municipalities to acquire airports, which contemporary legal scholar Charles Rhyne considered "as essential to cities today as the highways and streets over which surface traffic [moved] in metropolitan areas" (quoted in Bednarek 2001:149).

After the Second World War, cities whose small airports had been federalized by the Navy or the Army Air Forces found themselves acquiring larger, up-to-date airports, a result of wartime construction and improvements (Bednarek 2001:163). While Manassas was not one of these, the city did join many others in moving to acquire its local airport from its private holders and purchased the original 94-acre airport in October 1945 (Richmond News-Leader 1945). The transition to peacetime was expected to bring a boom in general aviation, as pilots trained by the U.S. Navy and Army Air Force were mustered out of service and planned postwar prosperity reigned. And briefly, a boom did appear: in 1946, 33,254 light aircraft were sold, more than doubling pre-war sales of private airplanes. But this boom passed swiftly. In 1947 and 1948, the number of airplanes sold fell by half each year; by 1951, only 2,302 new planes were sold. The general aviation industry contracted sharply, while the unexpected growth of the airlines meant the federal government's attention quickly turned elsewhere (Bednarek 2003:86-95).

2.3.2.3 Manassas Regional Airport / Harry P. Davis Field

When the first Manassas airport was established, Manassas was an unincorporated settlement of 1,200, set in a rural county of just under 14,000. By the 1960s, the expansion of Washington, D.C.'s sprawling suburbs had tripled Manassas' population and sent Prince William County's population to 50,000, a number that would more than double again by the end of the decade.

The expansion of tract housing through Prince William County and into Manassas along State Route 234 spelled the end for the first Manassas Airport, where the noisy flightpath crossed expected new housing along the planned extension of Interstate 66, a direct link between the county and downtown Washington. The city purchased a new 268-acre site further from planned development in 1963, and the original airport was redeveloped as the Manaport Plaza strip mall. In 1964, the current site of Manassas Regional Airport was opened, with a 3,700-foot runway, a rotating beacon, and siting for an expected 100 small planes (Anderson 1999). In a Civil War-themed speech, Virginia governor and Massive Resistance architect Albertis Harrison noted that "not since First and Second Manassas have Prince William and Virginia faced such a monumental adjustment" as suburbanization. "We are experiencing a rate of growth unmatched in 100 years," he claimed, "one that promises to continue and even accelerate, and one that will test the same qualities of dedication of leadership, yes, and of sacrifice too, that were in evidence on the battlefields of Bull Run" (Daniel 1964).

Like many airports in the period, the development was expected to serve not just as an airport but as the core of a larger industrial park. Because industrial tenants were less likely to be concerned about airplane noise and because they had similar requirements for large, low-lying construction, cities began to site industrial parks alongside new airports in the 1950s – a development that also allowed them to capture some of the postwar suburbanization of American industry (Bednarek

2016:199-201). In addition to the "first-class 3,700 foot lighted runway" and "complete executive airport facilities for the air-minded industry," the 600-acre Manassas Airport Industrial Park complex boasted the ability to move products "from plant to consumer days ahead of other competition" with its airport and easy access to the "Washington Circumferential Highway" (Tayman 1964).

Although it served primarily as a general aviation airport, the arrival of IBM in Manassas in 1968 brought more than a manufacturing and laboratory facility that would eventually be listed as a Superfund site (Choose Manassas 2019, EPA 2010). Colgan Air, a local air taxi and flying lessons service, began Manassas Regional Airport's first regularly scheduled service in 1970, connecting the Washington suburb directly with Poughkeepsie in upstate New York, the location of IBM's headquarters. This service would continue for the rest of the decade, until IBM ceased manufacturing operations in Manassas, and spurred Colgan Air's growth into a regional carrier eventually acquired by Presidential Airways (Lewis 1982, Anderson 1999).

By the 1990s, Manassas was firmly within the Washington suburbs, a far cry from the unincorporated farm community of 1,200 of 1932. Manassas Regional Airport was the third-busiest airport in Virginia by 1998, behind only Washington Dulles International and Washington National, despite only serving general and corporate aviation customers. In 1996, amidst competition with Vienna and other suburbs for jobs and residents from new "Silicon Dominion" corporate titans like America Online, Manassas Airport added a new $4.2 million terminal building in the postmodern style, with a roof cambered like a plane's wing. At its dedication, state Secretary of Transportation Robert Martinez noted the new terminal would "be a highly-visible front and backyard to your region because it will be the first and last thing visitors to Manassas see" (McCallister 2000, Fisher 1996).

2.4 Literature Review

MSG completed a cultural resources literature review within a 3.2-km (2.0-mi) buffer (hereafter referred to as the Study Area) around the Project Area. The literature review was directed toward identifying previously recorded cultural resources and general information about the historic development of the project vicinity. Research was conducted using the VDHR's Virginia Cultural Resources Information System (VCRIS) online database (https://www.dhr.virginia.gov/programs/vcris/) and other online sources, as well as MSG's in-house library. MSG collected data for the following:

- Architectural Resources, including the National Register of Historic Places (NRHP) and Virginia Landmarks Register (VLR)
- Archaeological Resources
- Battlefield Sites
- Previous Cultural Resource Management and Historic Resource Inventory reports
- Historic cartographic resources

The results of the literature review are described below, and presented graphically in Figures 2.2-2.6. Details about previously recorded cultural resources within the Study Area are presented in tabular form in Appendix B.

2.4.1 Architectural Resources

A total of 80 architectural resources are present within the Study Area (Figure 2.2; Appendix B, Table B1). Single-family dwellings predominate, but other resource types include farm buildings, mills, cemeteries, commercial properties, multi-family dwellings, rail-related properties, two historic districts, a military fort, and a battlefield. Twenty-one of the individual properties are associated with one of the two historic districts.

Four of the architectural resources are listed on both the NRHP and the VLR. These include the Brentsville Historic District, Cannon Branch Fort, and two single-family dwellings. A fifth property, the Bristoe Station Battlefield, was once listed on the VLR but has been de-listed. Two farm properties have formally been determined eligible for the NRHP, and a collection of resources that include the Bristoe Station Battlefield, Bull Run Bridge, Kettle Run Battlefield, Manassas Station Operations Battlefield, and Union Mills is listed as potentially eligible for the NRHP. A total of 33 properties have been formally determined ineligible for NRHP listing. The remaining 39 architectural resources have not been evaluated for NRHP eligibility. None of the 80 architectural resources within the Study Area are located within or adjacent to the current Project Area.

2.4.2 Archaeological Resources

A total of 122 previously recorded archaeological resources are present within the Study Area (Figure 2.3; Appendix B, Table B2). Pre-contact archaeological components represented by these sites include all time periods except for the Paleoindian period, though a number of pre-contact sites / site components cannot be assigned to specific time periods. Pre-contact site components are all described as either camps or lithic workshops. Post-contact site components represent all time periods from 1750 forward; site functions include farmsteads and farm components, dwellings, mills, cemeteries, battlefields, military camps, forts, and earthworks, trash scatters/pits/middens, and a blacksmith shop.

Three of the archaeological sites within the Study Area have been determined eligible for listing on the NRHP, and nine sites are listed as potentially eligible. One site, a Civil War earthworks, has been listed on the NRHP. Fifteen archaeological sites have been determined not eligible for the NRHP. The remaining 92 archaeological sites within the Study Area have not been evaluated for NRHP eligibility.

While none of the archaeological sites within the Study Area are located within or directly adjacent to the Project Area, one site is located approximately 0.3 km (0.2 mi) north of the Project Area, in the same woodlot on the west side of Observation Road. Site 44PW0729 is a pre-contact camp site with Middle Archaic, Early Woodland, Middle Woodland, and Late Woodland components. This site was originally recorded during a Phase I survey conducted in 1994, and re-located during a Phase I survey conducted in 2017 (Harris 2017). This site is listed as potentially eligible for the NRHP.

2.4.3 Battlefield Sites

As noted above in Section 2.4.1, there are two battlefield site listings within the Study Area (Figure 2.4; Appendix B, Table B3), though these appear represent partially the same resource. The Bristoe Station Battlefield was once listed on the VLR but has been de-listed, while a battlefield resource group that includes the Bristoe Station Battlefield, Bull Run Bridge, Kettle Run Battlefield, Manassas Station Operations Battlefield, and Union Mills is listed as potentially eligible for the NRHP. Neither of these resources are located within or adjacent to the current Project Area.

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Figure 2.2
Historic Properties within the Study Area
Phase I Archaeological Survey
Manassas Regional Airport
City of Manassas, Prince William County, VA

0 0.5 1 mi
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Map Credits:
Prince William, Fairfax County aerial photography provided by ESRI, accessed

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Figure 2.4
Literature Review - Battlefields
Phase I Archaeological Survey
Manassas Regional Airport
City of Manassas, Prince William County, VA

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2.4.1 Previous Cultural Resource Management and Historic Resource Inventory Reports

A total of 27 previous cultural resource management and historic resource inventory surveys have previously been conducted within the Study Area (Figures 2.5-2.6; Appendix B, Table B4), including seven surveys for various developments at the Manassas Regional Airport. As noted in Section 1.0, one of these surveys (Harris 2017) partially overlaps the current Project Area. This survey involved both shovel testing and metal detection survey.

2.4.2 Historic Cartographic Resources

Two historic cartographic resources were examined as part of the literature review. These include a railroad map from 1854 (Faul 1854) and a 15' topographic quadrangle from 1943 (USGS 2024) (see Appendix A). Neither map shows any sites or structures within or adjacent to the current Project Area. While the hamlet of Bristow is not labeled on the 1854 map, a cluster of structures is shown around the location where the Manassas Gap Railroad crossed Broad Run. Kettle Run is shown to the southwest of the Project Area. Upland areas are shown on both side of Broad Run in the vicinity of the Project Area.

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Figure 2.5
Literature Review - Archaeological Surveys
Phase I Archaeological Survey
Manassas Regional Airport
City of Manassas, Prince William County, VA

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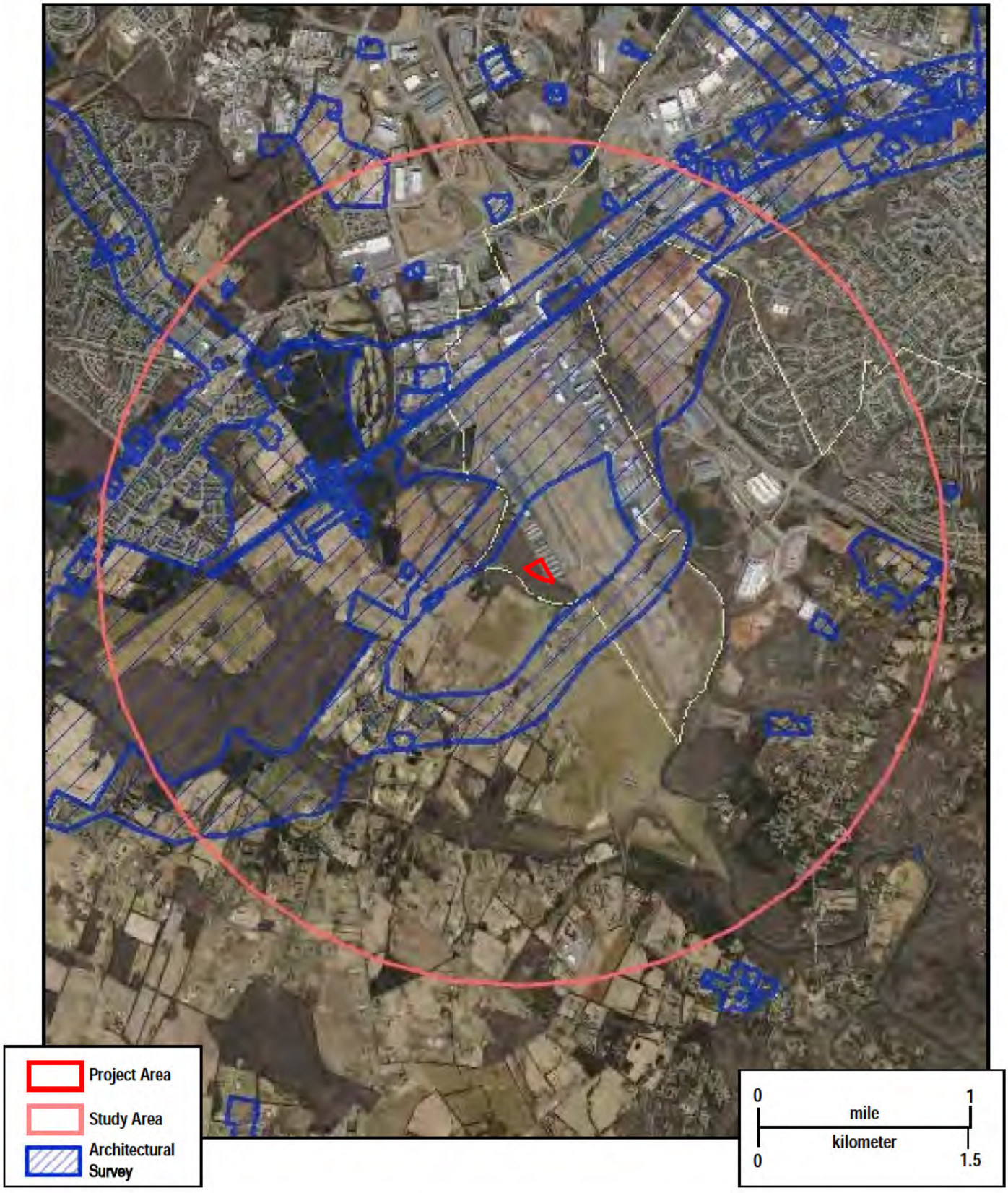

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Figure 2.6
Literature Review - Architectural Surveys
Phase I Archaeological Survey
Manassas Regional Airport
City of Manassas, Prince William County, VA

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3.0 RESEARCH DESIGN

This section of the report includes an archaeological sensitivity assessment and survey objectives based on the results of the background research (detailed in Section 2), a description of the research and field methods employed to identify archaeological resources within the Survey Area (see Figure 1.2), and a statement of expected results.

3.1 Archaeological Sensitivity Assessment and Survey Objectives

Pre-contact indigenous populations in Virginia can generally be characterized as practicing some combination of hunting, gathering and/or horticulture. Consequently, populations were intimately tethered to elements in the natural environment, most notably the distribution of plant and animal species, raw material sources, water resources, soil types, and landform features. Since these resources were unevenly distributed across the landscape during the prehistoric period, it is logical to assume that aboriginal subsistence and settlement systems articulated with these distributions (Cavallo and Mounier 1980:59).

Based on the known pre-contact culture history of the region and the environmental setting of the Project Area, the pre-contact archaeological site types most likely to be present within the Survey Area are short-term camp sites and lithic workshops. Particularly sensitive areas include areas characterized by well-drained soils in close proximity to water resources such as streams, drainages or extensive wetlands. Conversely, areas exhibiting a low sensitivity for prehistoric cultural resources are those that are characterized by poorly drained or hydric soils, excessive distance from water resources, and areas of excessive [greater than 15%] slope. The Project Area sits within a forested area on the southwestern edge of the Manassas Regional Airport, about 76 m (250 ft) east of Broad Run; a shallow, dry creek bed crosses through the Survey Area. The Survey Area is mostly level, with the exception of a slope adjacent to Observation Road. A little over half of the Project Area consists of moderately well drained and well drained soils within the flood plain of Broad Run, while the remainder consists of poorly drained soils on the terrace above Broad Run. Therefore, the Project Area exhibits a relatively high sensitivity for pre-contact cultural resources.

Based on the known history of the region and the environmental setting of the project vicinity, the post-contact archaeological site types most likely to be present within the Survey Area include historic plantation and farmstead components (e.g., Orser 1990); sites related to early settler-colonialism (e.g., Breen et al. 2017); and sites associated with the Civil War (e.g., Bruwelheide et al. 2023; Potter et al. 2001). The nearby Manassas Battlefield Park is already a significant archaeological site but its boundaries do not include surrounding sites that may have directly or indirectly contributed to the battle itself, or the events that occurred before and after (Galke 2009; Martin et al.1997). Despite the location of the Survey Area near the Bristoe Station Battlefield and associated resources, there is no specific evidence of any military activity within the Survey Area during the Civil War. Furthermore, the 2017 survey that included a portion of the current Project Area, and which included metal detection survey, did not identify any Civil War-era artifacts (Harris 2017). Overall, the Project Area exhibits only moderate probability for post-contact archaeological resources.

Based on this sensitivity assessment, the objective of the current survey was to determine the presence or absence of both pre-contact and post-contact archaeological resources within the Project Area, consistent with the goals of state and federal guidelines for Phase I (reconnaissance) archaeological surveys.

3.2 Archival and Background Research

As described in Section 2.0, background research included a cultural resources literature review using the VCRIS database to identify previously documented cultural resources in the vicinity of the Project Area, as well as examination of historic cartographic resources obtained online to identify potential locations of

archaeological resources associated with historically-documented structure locations. In addition, various archival and online sources were consulted to develop general contexts for the environment, pre-contact culture history and post-contact culture history of the Manassas area. The purpose of this research was to identify environmental characteristics and historic trends that may influence the distribution of archaeological resources across the landscape in Prince William County.

3.3 Field Survey Methods

The archaeological reconnaissance survey was conducted in accordance with the guidelines developed by the VDHR (VDHR 2017). In areas where ground surface visibility was less than 50% (such as domestic yard areas or woodlots), cylindrical shovel test pits (STPs) measuring 30 cm (11.8 in) in diameter were excavated at 15-m (49.2-ft) intervals throughout the Survey Area. These STPs were excavated until culturally sterile subsoil was encountered or to a depth of 50 cm (19.7 in), whichever came first. Excavated soil was screened through ¼-in wire mesh, and recovered artifacts were bagged and labeled with the provenience. When surface artifacts or features were not present to indicate site boundaries, radial STPs were excavated at a distance of 7.5 m (24.6 ft) in cardinal directions from positive STPs in order to delineate the size of the archaeological site. Locations of surface artifact concentrations were recorded using a hand-held Trimble GPS unit capable of sub-meter accuracy.

In addition, the entire Project Area was visually inspected and photographically documented (see Appendix C). Members of the field crew took detailed notes about soil colors, textures, inclusions, stratigraphy, and other relevant information. When cultural material was identified, site boundaries were delineated and field site numbers were assigned. Metal detection survey was not conducted as part of the current survey.

3.4 Expected Results

Based on the results of background research and the archaeological sensitivity assessment described above, it was anticipated that the archaeological survey was most likely to encounter small pre-contact lithic scatters representing short-term encampments.

The results of the 2017 metal detection survey by Harris resulted primarily in the recovery of early 20th-century shotgun shell casings and undatable metal objects. Furthermore, a previous study of the Bristoe Station and Kettle Run battlefields (Jacobs et al. 2016) described by Harris did not indicate a high likelihood of associated artifacts in the location of the current Project Area (Harris 2017:39).

4.0 RESULTS

MSG conducted the archaeological reconnaissance survey of the 2.4-ac (1.0 ha) Survey Area in June 2024. The Survey Area is characterized by heavily wooded, low-lying terrain with dense vegetation that borders the southwestern edge of Observation Road. The north and west sections of the Survey Area were flat and heavily wooded. A shallow, dry creek bed ran east to west through the center of the Survey Area. Due to the heavily wooded nature of the Project Area, surface visibility in the area was approximately 30% and thus shovel testing on a 15-m (49-ft) interval grid was conducted throughout the flat part of the Survey Area (Figure 4.1; Appendix C). A total of 23 shovel tests pits were plotted throughout the Survey Area. One shovel test pit was recorded as "wet" since, while it was dry at the time of the survey, it was located within the bed of an ephemeral stream (see Appendix C, Photos 10-11). One shovel test was recorded as "sloped" as it was located in an area exhibiting greater than 20% slope of the ground surface. The remaining 21 shovel test pits were excavated and recorded as negative, i.e., exhibiting intact soil strata but lacking any cultural material or evidence for subsurface cultural features.

A general pedestrian overview of the Survey Area also yielded negative results, with no surface artifacts being observed. A majority of the southeastern section of the Survey Area consisted of a fenced-in asphalt road which was surrounded by a downward slope covered by dense vegetation. Due to the disturbed nature of this section of the Survey Area, formal STPs were not warranted, but a thorough visual inspection of the area was made which yielded negative results.

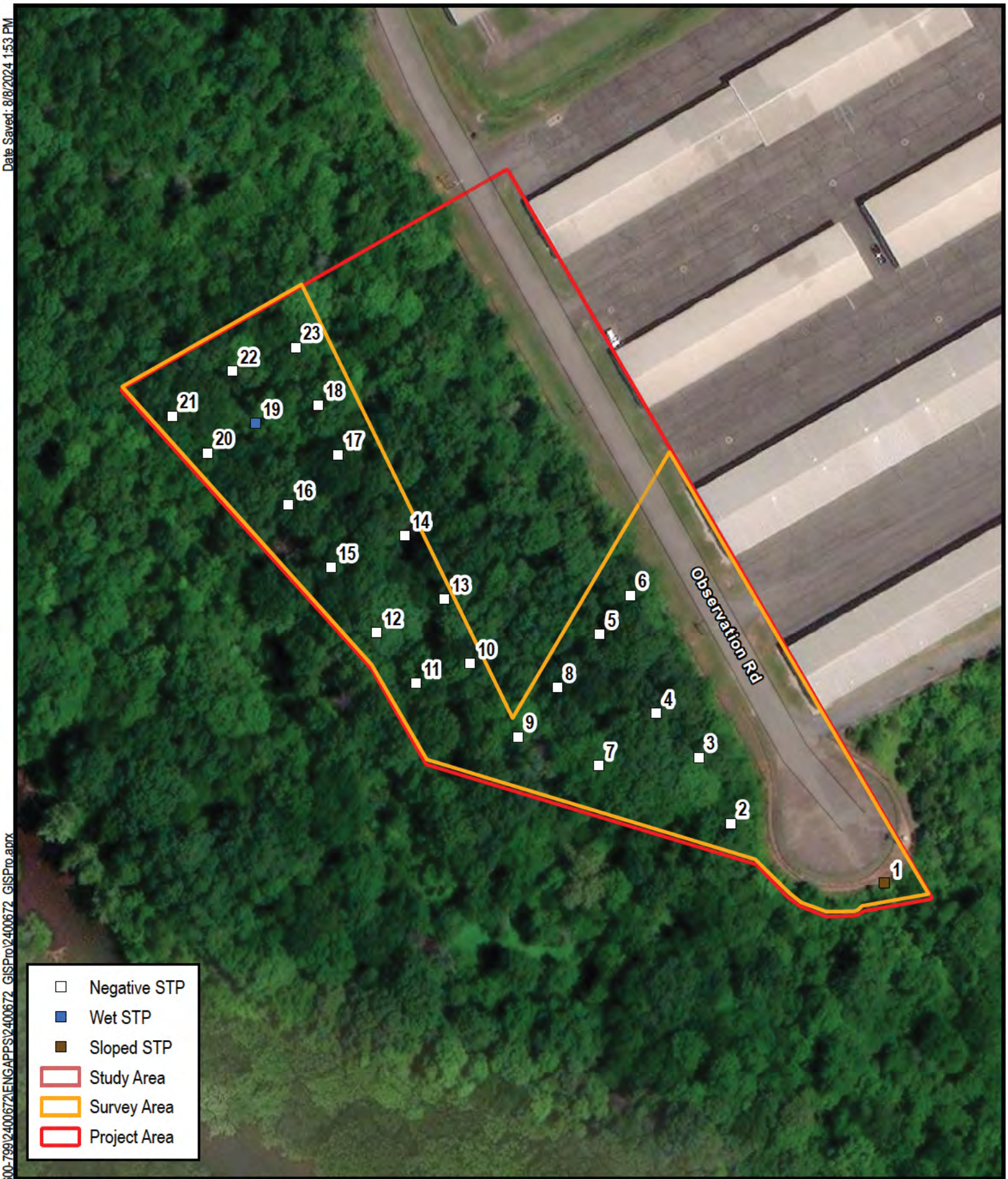

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Figure 4.1
Survey Methods and Results
Phase I Archaeological Survey
Manassas Regional Airport
City of Manassas, Prince William County, VA

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Map Credits:
Prince William County aerial photography provided by ESRI, accessed July 2024.

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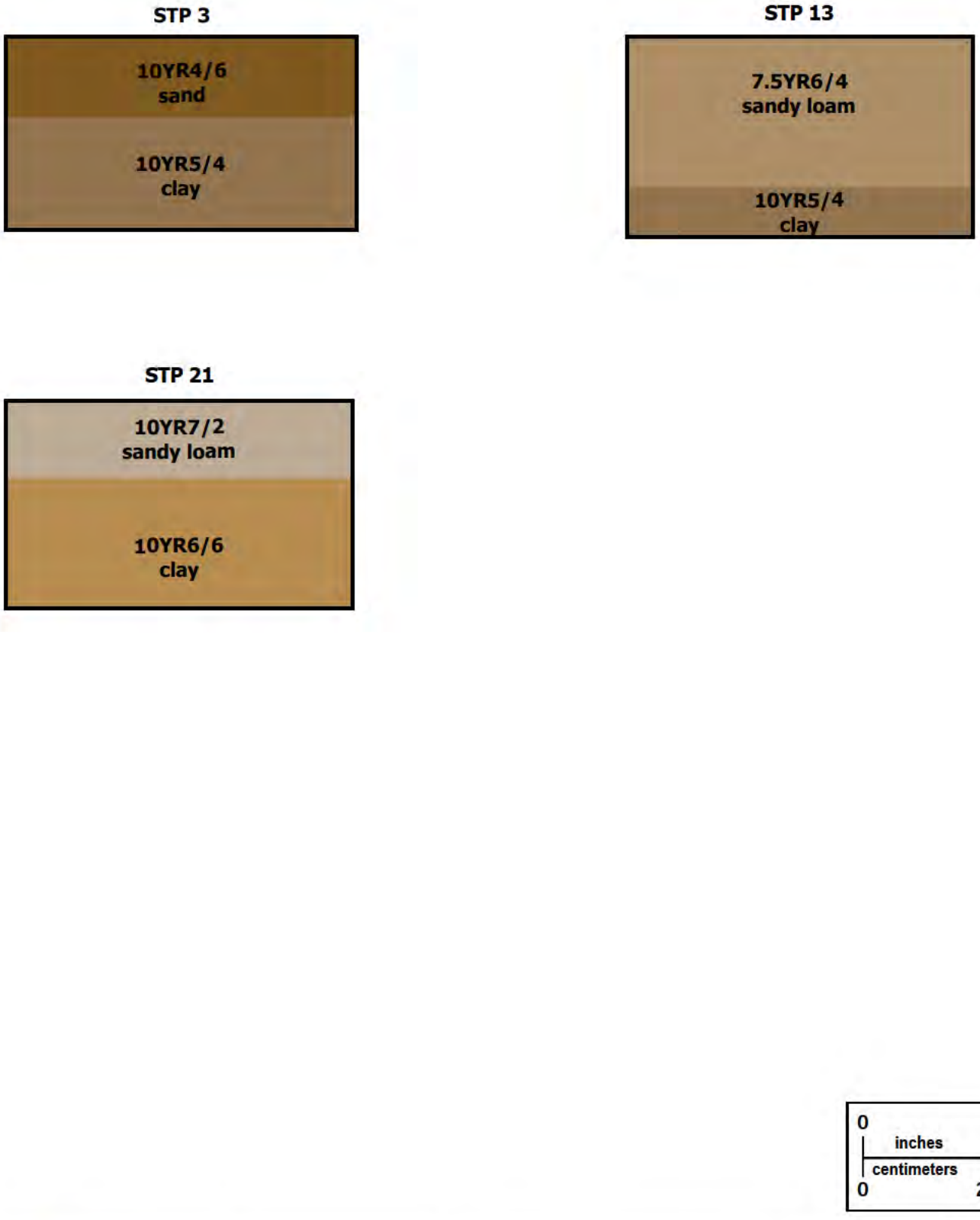

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Figure 4.2
Typical Shovel Test Pit Soil Profiles
Phase I Archaeological Survey
Manassas Regional Airport
City of Manassas, Prince William County, VA

5.0 SUMMARY AND RECOMMENDATIONS

In June 2024, MSG conducted a Phase I archaeological reconnaissance survey for the proposed Air Traffic Control Tower Replacement project at Manassas Regional Airport in the City of Manassas, Prince William County, Virginia. The Project involves the construction of a new air traffic control tower along with an associated support building and parking lot on the west side of Observation Road at its south end. Including a buffer for ancillary work areas, the overall Project Area encompasses 3.9 ac (1.6 ha). A portion of the Project Area overlaps with a Phase I cultural resources survey that was previously completed in 2017; this previous survey did not identify any cultural resources within the boundary of the current Project Area (Harris 2017). Given the recent date of this survey, the area of overlap was not surveyed again. Thus, the Survey Area covered 2.4 ac (1.0 ha).

Background research efforts included a literature review of cultural resources data in the VCRIS database, examination of historic cartographic resources, and secondary-source research on the general environmental, pre-contact and post-contact cultural/historical contexts that have shaped the development of the Manassas Regional Airport. Based on this research, it was anticipated that the archaeological survey was most likely to encounter small pre-contact lithic scatters representing short-term encampments. Although the Bristoe Station and Kettle Run battlefields are located near the Project Area, the results of prior studies (Jacobs et al. 2016, Harris 2017) did not indicate a likelihood that battlefield-related artifacts would be present.

The survey consisted of shovel testing at 15-m (49.2-ft) intervals on a grid pattern within the Survey Area and visual inspection of the entire Project Area. No surface artifact deposits were encountered, and none of the 23 excavated STPs yielded any artifacts or evidence of subsurface cultural features.

In summary, no archaeological resources have been identified within the Project Area for the proposed Air Traffic Control Tower Replacement project. Therefore, the project will not have any impact on NRHP-eligible or listed archaeological resources. No further archaeological investigations are recommended.

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APPENDIX A
HISTORIC MAPS AND AERIAL PHOTOGRAPHS

Mannik Smith GROUP
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Figure A1
1854 Manasses Gap Rail Road Map
(Faul 1854)

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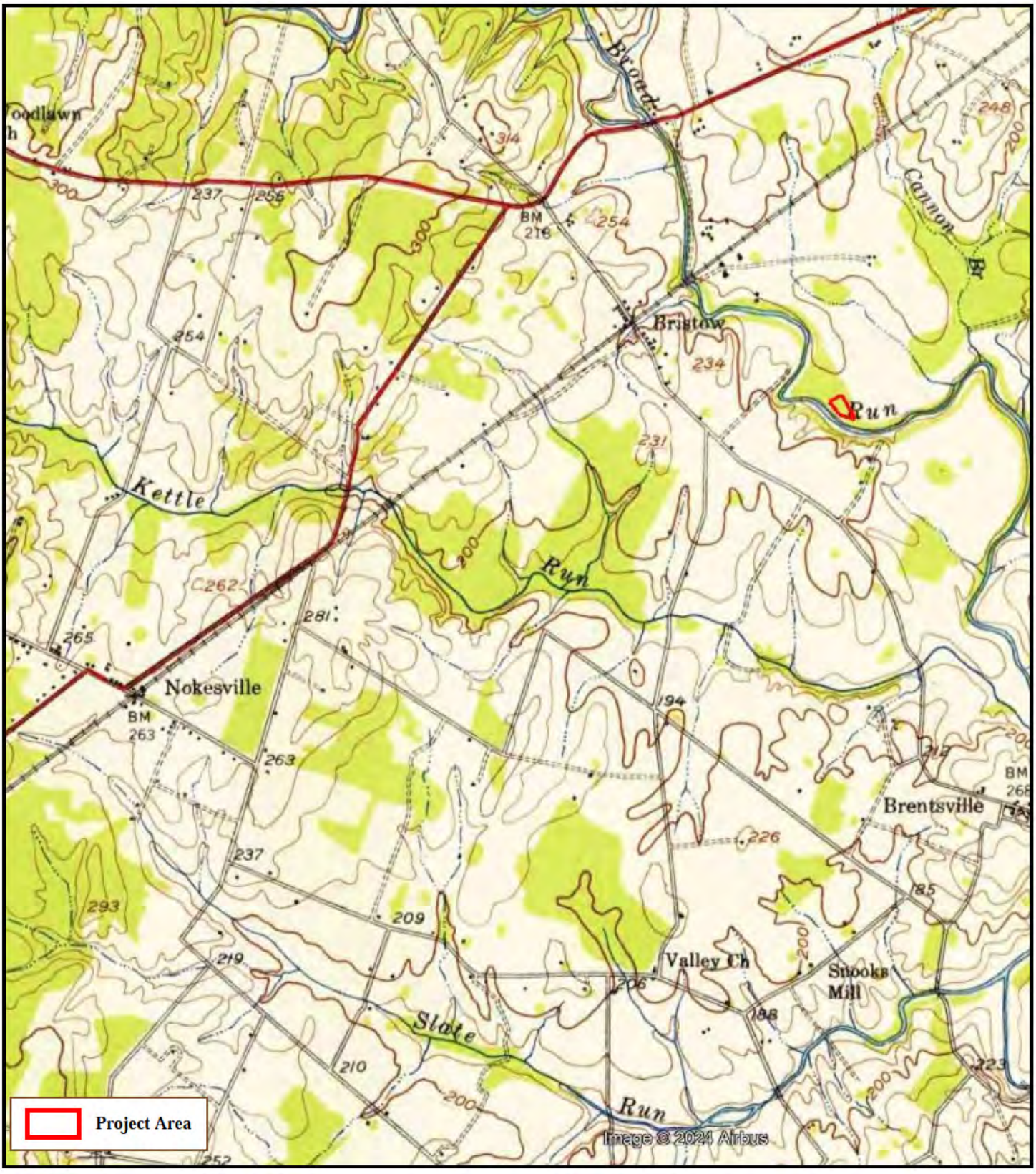

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Figure A2
1943 Topographic Map
15' Catlett, VA Quadrangle
(USGS 2024)

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APPENDIX B
LITERATURE REVIEW RESULTS

Table B1
Architectural Resources

DHR ID	Restricted?	Label Latitude	Label Longitude	Jurisdictions	Property Names	Addresses	Historic District Name	NR Eligibility Status	Primary Resource Type
076-0285	Unrestricted	38.74233569	-77.52197807	Prince William (County)	Thomasson Barn (Historic / Current), W.J. Thomasson House and Barn (Historic)	9935 Discovery Boulevard, Nokesville Road - Alt Route 28	null	DHR Board Det. Eligible	Barn,Dairy
076-0608	null	38.72065819	-77.53864433	Prince William (County)	House & Farm, 10806-10810 Bristow Road (Rt 619) (Function / Location), Rollins Tract, Bristoe Station Battlefield (Descriptive)	10806 Bristow Road - Alt Route 619, 10810 Bristow Road - Alt Route 619	null	DHR Evaluation Committee: Not Eligible	Single Dwelling
076-0149	Unrestricted	38.71785674	-77.48767654	Prince William (County)	Bloom Hill Farm (Historic / Current)	10820 Lucasville Road, Route 692	null	DHR Staff: Eligible	Single Dwelling
076-5399	Unrestricted	38.73867095	-77.50604348	Prince William (County)	Orange and Alexandria Railway section (Descriptive), Train Tracks, South of the Route 28 and 234 Intersection (Function / Location)	Nokesville Road - Alt 28, Prince William Parkway - Alt 234	Bristoe Station Battlefield	DHR Staff: Not Eligible	Rail-Related
076-0314	Unrestricted	38.73773199	-77.53424883	Prince William (County)	Milford Mill Site (Historic)	11204 Nokesville Road, Broad Run	null	DHR Staff: Not Eligible	Archaeological Site
076-0612	Unrestricted	38.73567127	-77.54947757	Prince William (County)	House, 10115 Linton Hall Road (Function / Location)	10115 Linton Hall Road, Route 619	null	DHR Staff: Not Eligible	Single Dwelling
076-0613	Unrestricted	38.73470048	-77.55102275	Prince William (County)	House, 10110 Linton Hall Road (Function / Location), House, 10110 State Road 619 (Function / Location)	10110 Linton Hall Road, 10110 State Road 619	null	DHR Staff: Not Eligible	Single Dwelling
076-0614	Unrestricted	38.7308079	-77.54805557	Prince William (County)	House, 11712 Nokesville Road, Route 28 (Current)	11712 Nokesville Road, Route 28	null	DHR Staff: Not Eligible	Single Dwelling
076-0615	Unrestricted	38.7288447	-77.54971947	Prince William (County)	House, 11812 Nokesville Road, Route 28 (Current)	11812 Nokesville Road, Route 28	null	DHR Staff: Not Eligible	Single Dwelling
076-0616	Unrestricted	38.72621937	-77.55061875	Prince William (County)	Service Station, 11909 Nokesville Road (Function / Location)	11909 Nokesville Road, Route 28	null	DHR Staff: Not Eligible	Service Station
076-0658	Unrestricted	38.7364179	-77.5458301	Prince William (County)	House, 10215 Linton Hall Road (Function / Location)	10215 Linton Hall Road, Route 619	null	DHR Staff: Not Eligible	Single Dwelling
076-5019	Unrestricted	38.74046705	-77.52487694	Prince William (County)	House, Nokesville Road (Descriptive)	Nokesville Road	null	DHR Staff: Not Eligible	Single Dwelling
076-5020	Unrestricted	38.72304109	-77.55594662	Prince William (County)	House, 12104 Nokesville Road (Current)	12104 Nokesville Road	null	DHR Staff: Not Eligible	Single Dwelling
076-5021	Unrestricted	38.72071615	-77.55727646	Prince William (County)	Mary Holmes House (Current)	12120 Nokesville Road	null	DHR Staff: Not Eligible	Single Dwelling
076-5023	Unrestricted	38.71748473	-77.55833852	Prince William (County)	Mark E. Thomas House, 12163 Nokesville Rd (Historic / Location)	12163 Nokesville Road, Route 28	null	DHR Staff: Not Eligible	Single Dwelling
076-5040	Unrestricted	38.74560445	-77.53617521	Prince William (County)	B.G. Sowder Farm (Historic), House, 9604 Hornbaker Road (Function / Location), Land Bay 3 (Descriptive)	9604 Hornbaker Road	null	DHR Staff: Not Eligible	Single Dwelling
076-5043	Unrestricted	38.74588645	-77.51498218	Prince William (County)	House, 9550 Godwin Drive (Function / Location), Land Bay 25 (Descriptive), Prince William LLC House (Descriptive)	9550 Godwin Drive	null	DHR Staff: Not Eligible	Single Dwelling
076-5349	Unrestricted	38.73156356	-77.54649509	Prince William (County)	Commercial Building, 11705 Nokesville Rd (Function / Location)	11705 Nokesville Road, Route 28	null	DHR Staff: Not Eligible	Commercial Building
076-5350	Unrestricted	38.72544755	-77.5538308	Prince William (County)	House, 12004 Nokesville Rd (Function / Location)	12004 Nokesville Road, Route 28	null	DHR Staff: Not Eligible	Single Dwelling
076-5351	Unrestricted	38.72499796	-77.5537966	Prince William (County)	House, 12008 Nokesville Rd (Function / Location)	12008 Nokesville Road, Route 28	null	DHR Staff: Not Eligible	Single Dwelling

Table B1
Architectural Resources

DHR ID	Restricted?	Label Latitude	Label Longitude	Jurisdictions	Property Names	Addresses	Historic District Name	NR Eligibility Status	Primary Resource Type
076-5352	Unrestricted	38.72354865	-77.55549402	Prince William (County)	House, 12050 Nokesville Rd (Function / Location)	12050 Nokesville Road, Route 28	null	DHR Staff: Not Eligible	Single Dwelling
076-5353	Unrestricted	38.71940118	-77.55755569	Prince William (County)	House, 12143 Nokesville Rd (Function / Location)	12143 Nokesville Road, Route 28	null	DHR Staff: Not Eligible	Single Dwelling
076-5354	Unrestricted	38.71910742	-77.55781875	Prince William (County)	House, 12153 Nokesville Rd (Function / Location)	12153 Nokesville Road, Route 28	null	DHR Staff: Not Eligible	Single Dwelling
076-5355	Unrestricted	38.71877056	-77.55814475	Prince William (County)	House, 12159 Nokesville Rd (Function / Location)	12159 Nokesville Road, Route 28	null	DHR Staff: Not Eligible	Single Dwelling
076-5397	Unrestricted	38.72907021	-77.52903853	Manassas (Ind. City), Prince William (County)	Commercial Building, 10236 Residency Road (Function / Location), Hersch House (Historic)	10236 Residency Road	null	DHR Staff: Not Eligible	Single Dwelling
076-5398	Unrestricted	38.71372838	-77.49361053	Prince William (County)	Outbuilding, 9850 Chevalle Road (Function / Location)	9850 Chevalle Road	null	DHR Staff: Not Eligible	Shed
076-5889	null	38.73071791	-77.52780939	Prince William (County)	VDOT, 10228 Residency Road (Function / Location)	10228 Residency Road	null	DHR Staff: Not Eligible	Complex
076-5892	null	38.72631837	-77.5316282	Prince William (County)	Bridge, Piper Lane (Function / Location)	Piper Lane	null	DHR Staff: Not Eligible	Rail-Related
155-5023	Unrestricted	38.74470615	-77.50166883	Manassas (Ind. City)	Single Dwelling, 10060 Dean Dr (Function / Location)	10060 Dean Dr	null	DHR Staff: Not Eligible	Single Dwelling
155-5024	Unrestricted	38.74542601	-77.50536903	Manassas (Ind. City)	Cemetery, 10218 Foster Dr (Function / Location), Rose Hill Cemetery (Current)	10218 Foster Drive	null	DHR Staff: Not Eligible	Cemetery
155-5025	Unrestricted	38.7425865	-77.51231464	Manassas (Ind. City)	Cannon Branch Cemetery (Current), Cemetery, 9756 Godwin Drive (Function / Location)	9756 Godwin Drive	null	DHR Staff: Not Eligible	Cemetery
155-5026	Unrestricted	38.74251661	-77.50300143	Manassas (Ind. City)	Railroad Utility Building, Godwin Drive (Function / Location)	Godwin Drive	null	DHR Staff: Not Eligible	Rail-Related
155-5034	Unrestricted	38.74646047	-77.50540512	Manassas (Ind. City)	Prince William Animal Hospital (Current), Single Dwelling, 10227 Nokesville Road (Function / Location)	10227 Nokesville Road, Route 28	null	DHR Staff: Not Eligible	Single Dwelling
155-5035	null	38.74096141	-77.50379325	Manassas (Ind. City)	Glen-Gery Masonry Supply Center (Current Name), Industrial Complex, 9905 Godwin Drive (Function / Location), Marion Brick Corporation (Historic)	9905 Godwin Drive	null	DHR Staff: Not Eligible	Office / Office Building
155-5049	null	38.74466163	-77.50377132	Manassas (Ind. City)	House, 10216 Foster Drive (Function / Location)	10216 Foster Drive	null	DHR Staff: Not Eligible	Single Dwelling
076-5036	null	38.75884463	-77.51662025	Fairfax (County), Fauquier (County), Manassas (Ind. City), Manassas Park (Ind. City), Prince William (County)	Bristoe Station Battlefield (Historic), Bull Run Bridge (Historic), Kettle Run Battlefield (Historic), Manassas Station Operations Battlefield (Historic), Union Mills (Historic)	Centreville Road - Alt Route 28, John Marshall Highway - Alt Route 55, Linton Hall Road - Alt Route 619, Sudley Road - Alt Route 234	null	DHR Staff: Potentially Eligible	Battle Site
076-0338	Unrestricted	38.68914505	-77.50086138	Prince William (County)	Brentsville Historic District (Historic)	Barbee Street, Bristow Road, Center Street	Brentsville Historic District	NRHP Listing, VLR Listing	Historic District

Table B1
Architectural Resources

DHR ID	Restricted?	Label Latitude	Label Longitude	Jurisdictions	Property Names	Addresses	Historic District Name	NR Eligibility Status	Primary Resource Type
076-0245	Unrestricted	38.72334573	-77.53721891	Prince William (County)	Davis-Beard House, 10726 Bristow Rd (Historic / Location), Glee Hall (Historic), White Elephant Antiques & Bristow Book Nook (Current)	10726 Bristow Road - Alt 619	Bristoe Station Battlefield	NRHP Listing, VLR Listing	Single Dwelling
076-0014	Unrestricted	38.70704813	-77.49682601	Prince William (County)	Moor Green (Historic / Current), Moor House (Historic)	9850 Flint Rock Road, Lucasville Road (Route 692)	null	NRHP Listing, VLR Listing	Single Dwelling
155-5020	R	38.73603886	-77.51626974	Manassas (Ind. City)	Cannon Branch Fort (Current Name), Cannon Branch Fort (NRHP Listing), The Wakeman Site (Historic)	Gateway Boulevard, Norfolk Southern Railroad	null	NRHP Listing, VLR Listing	Fortification / Military Base
076-0273	null	38.68980474	-77.50378698	Prince William (County)	House, 12214 Bristow Road (Function / Location), Nelson House (Historic), Woodyard House (Historic)	12214 Bristow Road - Alt Route 619	Brentsville Historic District	null	Single Dwelling
076-0294	null	38.73090549	-77.54064623	Prince William (County)	Carr Family Cemetery (Historic), Ruins and Graveyard, Route 619 (Descriptive)	11500 New Life Way, Bristow Road (Route 619)	Bristoe Station Battlefield	null	Cemetery
076-0584	Unrestricted	38.72467123	-77.5334406	Prince William (County)	House, 10815 Milford Road (Function / Location)	10815 Milford Road - Alt 660	Bristoe Station Battlefield	null	Single Dwelling
076-0596	Unrestricted	38.72369016	-77.53727098	Prince William (County)	House, 10722 Bristow Road (Function / Location)	10722 Bristow Road - Alt 619	Bristoe Station Battlefield	null	Single Dwelling
076-0597	Unrestricted	38.72366084	-77.53757489	Prince William (County)	Rollins Store (Historic / Current), Store, 10720 Bristow Road (Function / Location)	10720 Bristow Road - Alt 619	Bristoe Station Battlefield	null	Commercial Building
076-0598	Unrestricted	38.72460373	-77.53834167	Prince William (County)	House, 10708 Bristow Road (Function / Location)	10708 Bristow Road - Alt 619	Bristoe Station Battlefield	null	Single Dwelling
076-0599	null	38.72431019	-77.53811261	Prince William (County)	House, 10710 Bristow Road (Function / Location), Layton House (Historic)	10704 Bristow Road - Alt Route 619, 10710 Bristow Road - Alt Route 619	Bristoe Station Battlefield	null	Single Dwelling
076-0600	Unrestricted	38.72421601	-77.53701801	Prince William (County)	House, 10717 Bristow Road (Function / Location)	10717 Bristow Road - Alt 619	Bristoe Station Battlefield	null	Single Dwelling
076-0601	Unrestricted	38.72454709	-77.53644634	Prince William (County)	House, 10721 Milford Road (Function / Location)	10721 Milford Road, Bristow Road - Alt 619	Bristoe Station Battlefield	null	Single Dwelling
076-0602	Unrestricted	38.72340214	-77.53609251	Prince William (County)	Store, 10805 Bristow Road (Rt 619) (Function / Location)	10805 Bristow Road, Route 619	Bristoe Station Battlefield	null	Commercial Building
076-0607	Unrestricted	38.72679752	-77.54205531	Prince William (County)	House and Farm, 10604 Bristow Road (Function / Location)	10604 Bristow Road - Alt 619	Bristoe Station Battlefield	null	Single Dwelling
076-5344	Unrestricted	38.72239938	-77.53667744	Prince William (County)	Village of Bristoe Historic District (Descriptive)	Bristow Road, Milford Road	Bristoe Station Battlefield	null	Historic District
076-5393	Unrestricted	38.72157929	-77.53475954	Prince William (County)	House, 10829 Bristow Rd (Rt 619) (Function / Location)	10829 Bristow Road - Alt Route 619	Bristoe Station Battlefield	null	Single Dwelling
076-5394	Unrestricted	38.7201754	-77.53384331	Prince William (County)	House, 10905 Bristow Rd (Rt 619) (Function / Location)	10905 Bristow Road - Alt Route 619	Bristoe Station Battlefield	null	Single Dwelling
076-0603	Unrestricted	38.72304417	-77.53582686	Prince William (County)	House, 10813 Bristow Road (Rt 619) (Function / Location)	10813 Bristow Road, Route 619	Bristoe Station Battlefield and the Proposed Village of Bristoe Historic District	null	Single Dwelling

Table B1
Architectural Resources

DHR ID	Restricted?	Label Latitude	Label Longitude	Jurisdictions	Property Names	Addresses	Historic District Name	NR Eligibility Status	Primary Resource Type
076-0604	Unrestricted	38.72264217	-77.53554372	Prince William (County)	House, 10823 Bristow Road (Rt 619) (Function / Location)	10823 Bristow Road, Route 619	Bristoe Station Battlefield and the Proposed Village of Bristoe Historic District	null	Single Dwelling
076-0605	null	38.7223219	-77.53528262	Prince William (County)	House, 10825 Bristow Road (Rt 619) (Function / Location)	10825 Bristow Road - Alt Route 619	Bristoe Station Battlefield and the Proposed Village of Bristoe Historic District	null	Single Dwelling
076-0606	Unrestricted	38.72268699	-77.53667393	Prince William (County)	House, 10804 Bristow Road (Rt 619) (Function / Location)	10804 Bristow Road, Route 619	Bristoe Station Battlefield and the Proposed Village of Bristoe Historic District	null	Single Dwelling
076-5392	Unrestricted	38.72205304	-77.53612753	Prince William (County)	House, 10808 Bristow Rd (Rt 619) (Function / Location)	10808 Bristow Road - Alt Route 619	Bristoe Station Battlefield and the Proposed Village of Bristoe Historic District	null	Single Dwelling
076-5073	Unrestricted	38.72317898	-77.53998457	Prince William (County)	Roberston Cemetery, Bristow Rd (Rt 619) (Historic / Current)	Bristow Road, Route 619	Bristoe Station Battlefield Historic District and the Proposed Village of Bristoe Historic District	null	Cemetery
076-0013	Unrestricted	38.70594078	-77.53034062	Prince William (County)	Bristow Manor (Current), Wellfly (Historic)	11506 Valley View Drive	null	null	Single Dwelling
076-0148	Unrestricted	38.71464734	-77.48320864	Prince William (County)	Boardman (Historic), Fostern (Historic)	11003 Lucasville Road, 9500 Fostern Lane	null	null	Single Dwelling
076-0609	Unrestricted	38.73633258	-77.53279478	Prince William (County)	House, 10106 Piper Lane, Route 660 (Current)	10106 Piper Lane, Route 660	null	null	Single Dwelling
076-0610	Unrestricted	38.7364891	-77.5328336	Prince William (County)	House, 10104 Piper Lane, Route 660 (Current)	10104 Piper Lane, Route 660	null	null	Single Dwelling
076-0611	Unrestricted	38.7333473	-77.53213187	Prince William (County)	House, 10204 Piper Lane, Route 660 (Current)	10204 Piper Lane, Route 660	null	null	Single Dwelling
076-0619	Unrestricted	38.73311148	-77.55260413	Prince William (County)	House, 12002 Vint Hill Road, Route 215 (Current)	12002 Vint Hill Road, Route 215	null	null	Single Dwelling
076-0620	Unrestricted	38.73334813	-77.55229036	Prince William (County)	House, 12000 Vint Hill Road (Current)	12000 Vint Hill Road, Route 215	null	null	Single Dwelling
076-5146	Unrestricted	38.71754227	-77.52992228	Prince William (County)	Farm Site, 11009 Bristow Rd (Rt 619) (Function / Location), M. Thomas House (Current)	11009 Bristow Road - Alt Route 619	null	null	Single Dwelling
076-5147	Unrestricted	38.72113547	-77.53367354	Prince William (County)	House, 10833 Bristow Road (Rt 619) (Function / Location)	10833 Bristow Road - Alt Route 619	null	null	Single Dwelling
076-5288	Unrestricted	38.72292959	-77.48257062	Prince William (County)	de Gastyne House (Current)	10608 Lucasville Road	null	null	Single Dwelling
076-5395	Unrestricted	38.7155167	-77.52778485	Prince William (County)	Blue Grass Acres Farm, 11105 Bristow Rd (Rt 619) (Function / Location)	11105 Bristow Road, Route 619	null	null	Single Dwelling
076-5871	null	38.7380585	-77.52899392	Prince William (County)	Commercial Building, 11013 Nokesville Rd (Function / Location)	11013 Nokesville Rd.	null	null	Commercial Building
076-5872	null	38.73782771	-77.52972776	Prince William (County)	Commercial Building, 11017 Nokesville Rd. (Function / Location)	11017 Nokesville Rd.	null	null	Commercial Building
076-6011	null	38.72628717	-77.55261819	Prince William (County)	House, 11916 Nokesville Road (Function / Location)	11916 Nokesville Road	null	null	Single Dwelling

Table B1
Architectural Resources

DHR ID	Restricted?	Label Latitude	Label Longitude	Jurisdictions	Property Names	Addresses	Historic District Name	NR Eligibility Status	Primary Resource Type
076-6012	null	38.72629709	-77.55353796	Prince William (County)	House, 11920 Nokesville Road (Function / Location)	11920 Nokesville Road	null	null	Single Dwelling
076-6219	null	38.7154181	-77.55652443	Prince William (County)	Thomas Family Cemetery (Historic)	12127 Nokesville Road	null	null	Cemetery
076-6222	null	38.73682925	-77.54557143	Prince William (County)	House, 10213 Linton Hall Road (Function / Location)	10213 Linton Hall Road	null	null	Single Dwelling
155-5058	null	38.74463226	-77.50238621	Manassas (Ind. City)	House, 10210 Foster Drive (Function / Location)	10210 Foster Drive	null	null	Single Dwelling
155-5060	null	38.74106193	-77.50168298	Manassas (Ind. City)	Thurman Cemetery (Current Name)	9905 Godwin Drive	null	null	Cemetery
076-0024	Unrestricted	38.71593152	-77.54452097	Manassas (Ind. City), Prince William (County)	Bristoe Station Battlefield (Historic / Current)	Bristow Road, Milford Road, Route 28, Route 619, Route 660	null	VLR Listing Removed	Battle Site

Table B2
Archaeological Resources

DHR ID	Archaeology Site Survey ID	Site Name	Site Categories	Site Types	Time Periods	NR Eligibility Status
44PW0011	28804	null	DSS Legacy	Camp	Prehistoric / Unknown (15000 B.C. - 1606 A.D.)	null
44PW0012	28803	null	DSS Legacy	Other	Late Archaic (3000 - 1201 B.C.), Woodland (1200 B.C. - 1606 A.D.), 18th Century (1700 - 1799)	null
44PW0013	2038	null	DSS Legacy	Camp	Middle Archaic (6500 - 3001 B.C.)	null
44PW0014	29633	null	DSS Legacy	Camp	Late Archaic (3000 - 1201 B.C.)	null
44PW0015	29632	null	DSS Legacy	Camp	Late Archaic (3000 - 1201 B.C.), Early Woodland (1200 B.C. - 299 A.D.)	null
44PW0016	4534	Kettle Run	DSS Legacy	Camp	Archaic (8500 - 1201 B.C.), Woodland (1200 B.C. - 1606 A.D.)	null
44PW0227	28625	The Wakeman Site Cannon Branch Fort	Military / Defense	Earthworks	19th Century: 3rd quarter (1850 - 1874)	NRHP Listing, VLR Listing
44PW0431	28362	null	null	null	Prehistoric / Unknown (15000 B.C. - 1606 A.D.), 19th Century (1800 - 1899), 20th Century (1900 - 1999)	null
44PW0432	28361	null	null	null	Early Archaic (8500 - 6501 B.C.)	null

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Archaeological Resources

DHR ID	Archaeology Site Survey ID	Site Name	Site Categories	Site Types	Time Periods	NR Eligibility Status
44PW0433	2724	null	null	null	Prehistoric / Unknown (15000 B.C. - 1606 A.D.)	null
44PW0434	28360	null	null	null	Prehistoric / Unknown (15000 B.C. - 1606 A.D.)	null
44PW0435	28359	null	null	null	Historic / Unknown, Prehistoric / Unknown (15000 B.C. - 1606 A.D.)	null
44PW0436	28358	null	null	null	Prehistoric / Unknown (15000 B.C. - 1606 A.D.)	null
44PW0486	28494	null	Subsistence / Agriculture	Well	20th Century (1900 - 1999)	null
44PW0487	28493	null	Domestic, DSS Legacy	Farmstead, Ice house	19th Century (1800 - 1899), 20th Century (1900 - 1999)	null
44PW0509	28472	null	Domestic	Camp, temporary	Prehistoric / Unknown (15000 B.C. - 1606 A.D.)	null
44PW0510	53364	Site 2	Domestic, DSS Legacy	Camp, temporary, Trash scatter	Woodland (1200 B.C. - 1606 A.D.), 19th Century: 4th quarter (1875 - 1899), 20th Century: 1st half (1900 - 1949)	null

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Archaeological Resources

DHR ID	Archaeology Site Survey ID	Site Name	Site Categories	Site Types	Time Periods	NR Eligibility Status
44PW0511	28471	Site 3	Domestic	Farmstead	19th Century: 2nd half (1850 - 1899), 20th Century: 1st half (1900 - 1949)	null
44PW0600	28266	null	DSS Legacy	Other	Late Archaic (3000 - 1201 B.C.), 18th Century: 2nd half (1750 - 1799)	DHR Staff: Potentially Eligible
44PW0601	28264	null	Domestic	Camp, temporary	Prehistoric / Unknown (15000 B.C. - 1606 A.D.)	null
44PW0602	51946	null	Domestic	Camp, temporary	Prehistoric / Unknown (15000 B.C. - 1606 A.D.)	null
44PW0603	28414	null	Domestic	Camp, temporary	Prehistoric / Unknown (15000 B.C. - 1606 A.D.)	null
44PW0604	4486	null	Domestic	Camp, temporary	Prehistoric / Unknown (15000 B.C. - 1606 A.D.)	null
44PW0729	1348	null	Domestic	Camp	Middle Archaic Period (6500 - 3001 B.C.E), Early Woodland (1200 B.C.E - 299 C.E), Middle Woodland (300 - 999 C.E), Late Woodland (1000 - 1606)	DHR Staff: Potentially Eligible

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Archaeological Resources

DHR ID	Archaeology Site Survey ID	Site Name	Site Categories	Site Types	Time Periods	NR Eligibility Status
44PW0866	28080	null	null	null	Prehistoric / Unknown (15000 B.C. - 1606 A.D.)	null
44PW0867	678	null	null	null	Prehistoric / Unknown (15000 B.C. - 1606 A.D.)	null
44PW0868	28079	null	null	null	Prehistoric / Unknown (15000 B.C. - 1606 A.D.)	null
44PW0869	846	null	null	null	Prehistoric / Unknown (15000 B.C. - 1606 A.D.)	null
44PW0870	28078	null	null	null	Prehistoric / Unknown (15000 B.C. - 1606 A.D.)	null
44PW0969	21516	null	Domestic	Camp, temporary, Dwelling, single	Middle Archaic (6500 - 3001 B.C.), 18th Century: 2nd half (1750 - 1799), 19th Century: 1st half (1800 - 1849)	null
44PW0970	21515	null	Domestic	Camp, temporary, Dwelling, single	Late Woodland (1000 - 1606), 18th Century: 2nd half (1750 - 1799), 19th Century: 1st half (1800 - 1849)	null

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Archaeological Resources

DHR ID	Archaeology Site Survey ID	Site Name	Site Categories	Site Types	Time Periods	NR Eligibility Status
44PW0971	402131	Bristow 18th c. Tenant Site	Domestic, Funerary, Indeterminate, Military / Defense	Artifact scatter, Camp, temporary, Cemetery, Military camp	Late Woodland (1000 - 1606), Contact Period (1607 - 1750), Colony to Nation (1751 - 1789), Early National Period (1790 - 1829), Antebellum Period (1830 - 1860), Civil War (1861 - 1865), Reconstruction and Growth (1866 - 1916)	null
44PW0972	37551	null	Domestic	Camp, temporary, Dwelling, single	Middle Archaic (6500 - 3001 B.C.), 18th Century: 2nd half (1750 - 1799), 19th Century: 1st half (1800 - 1849)	DHR Staff: Eligible
44PW0973	37542	null	Domestic	Camp, temporary, Dwelling, single	Prehistoric / Unknown (15000 B.C. - 1606 A.D.), 19th Century (1800 - 1899), 20th Century (1900 - 1999)	DHR Staff: Eligible
44PW0974	37550	null	Domestic	Camp, temporary	null	DHR Staff: Not Eligible
44PW0975	37549	null	Domestic	Camp, temporary	Prehistoric / Unknown (15000 B.C. - 1606 A.D.)	null

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Archaeological Resources

DHR ID	Archaeology Site Survey ID	Site Name	Site Categories	Site Types	Time Periods	NR Eligibility Status
44PW0976	37548	null	Domestic, DSS Legacy	Camp, temporary, Trash scatter	Prehistoric / Unknown (15000 B.C. - 1606 A.D.), 19th Century (1800 - 1899)	null
44PW0977	37547	null	Domestic	Camp, temporary	Prehistoric / Unknown (15000 B.C. - 1606 A.D.)	null
44PW0978	37546	null	Domestic, DSS Legacy	Camp, temporary, Trash scatter	Prehistoric / Unknown (15000 B.C. - 1606 A.D.), 19th Century (1800 - 1899)	null
44PW0979	37545	null	Domestic, DSS Legacy	Camp, temporary, Trash scatter	Prehistoric / Unknown (15000 B.C. - 1606 A.D.), 19th Century (1800 - 1899)	null
44PW0980	402132	Gaines Tenant House Site	Domestic	Camp, temporary, Dwelling, single	Pre-Contact, Early National Period (1790 - 1829), Antebellum Period (1830 - 1860), Civil War (1861 - 1865), Reconstruction and Growth (1866 - 1916)	null
44PW0981	37543	null	Domestic	Camp, temporary, Dwelling, single	Woodland (1200 B.C. - 1606 A.D.), 19th Century: 2nd half (1850 - 1899), 20th Century (1900 - 1999)	DHR Staff: Not Eligible

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Archaeological Resources

DHR ID	Archaeology Site Survey ID	Site Name	Site Categories	Site Types	Time Periods	NR Eligibility Status
44PW0993	428006	Harris House and Store	Commerce / Trade, Domestic	Farmstead, Store	Reconstruction and Growth (1866 - 1916), World War I to World War II (1917 - 1945)	null
44PW0994	43161	null	DSS Legacy	Trash scatter	18th Century: 2nd half (1750 - 1799), 19th Century: 1st quarter (1800 - 1825)	DHR Staff: Not Eligible
44PW1072	35183	Chapel Springs Rd.	Domestic	Camp, temporary	Late Archaic (3000 - 1201 B.C.)	null
44PW1074	21539	null	null	null	null	null
44PW1107	38832	null	Domestic, Military / Defense	Battlefield, Dwelling, single	19th Century: 4th quarter (1875 - 1899), 20th Century: 1st quarter (1900 - 1924)	DHR Staff: Potentially Eligible
44PW1108	38828	null	Domestic	Dwelling, single	19th Century: 4th quarter (1875 - 1899), 20th Century: 1st quarter (1900 - 1924)	null
44PW1109	38830	null	Military / Defense	Battlefield	19th Century: 3rd quarter (1850 - 1874)	null
44PW1110	38827	null	DSS Legacy	Camp	Middle Archaic (6500 - 3001 B.C.), 19th Century: 3rd quarter (1850 - 1874)	DHR Staff: Potentially Eligible
44PW1111	36969	null	Domestic	Dwelling, single	19th Century: 4th quarter (1875 - 1899)	null

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Archaeological Resources

DHR ID	Archaeology Site Survey ID	Site Name	Site Categories	Site Types	Time Periods	NR Eligibility Status
44PW1112	38835	Robertson Cemetery	Funerary	Cemetery	20th Century: 1st quarter (1900 - 1924)	DHR Staff: Potentially Eligible
44PW1113	38836	null	DSS Legacy	Trash scatter	19th Century: 2nd half (1850 - 1899), 20th Century: 1st quarter (1900 - 1924)	DHR Staff: Potentially Eligible
44PW1114	38833	null	DSS Legacy	Trash scatter	19th Century: 4th quarter (1875 - 1899), 20th Century: 1st quarter (1900 - 1924)	null
44PW1115	38834	null	DSS Legacy	Trash scatter	Prehistoric / Unknown (15000 B.C. - 1606 A.D.), 19th Century: 4th quarter (1875 - 1899), 20th Century: 1st quarter (1900 - 1924)	null
44PW1116	38825	null	DSS Legacy	Camp	null	DHR Staff: Potentially Eligible
44PW1117	38824	null	DSS Legacy	Camp	19th Century: 3rd quarter (1850 - 1874)	DHR Staff: Potentially Eligible
44PW1118	38823	null	DSS Legacy	Trash scatter	19th Century: 2nd half (1850 - 1899)	null
44PW1119	38837	null	DSS Legacy	Trash scatter	19th Century: 4th quarter (1875 - 1899), 20th Century: 1st quarter (1900 - 1924)	null

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Archaeological Resources

DHR ID	Archaeology Site Survey ID	Site Name	Site Categories	Site Types	Time Periods	NR Eligibility Status
44PW1120	38826	null	Funerary	Cemetery	19th Century: 3rd quarter (1850 - 1874)	DHR Staff: Potentially Eligible
44PW1193	35631	null	Industry / Processing / Extraction	Lithic scatter	Middle Archaic (6500 - 3001 B.C.), Late Archaic (3000 - 1201 B.C.)	DHR Staff: Not Eligible
44PW1194	35626	null	Domestic	Farmstead	18th Century: 2nd half (1750 - 1799), 19th Century: 1st half (1800 - 1849)	DHR Staff: Not Eligible
44PW1195	35630	null	Domestic	Farmstead	19th Century (1800 - 1899)	DHR Staff: Not Eligible
44PW1196	35624	null	DSS Legacy	Blacksmith shop	18th Century: 2nd half (1750 - 1799), 19th Century: 1st half (1800 - 1849)	DHR Staff: Eligible
44PW1201	36957	null	DSS Legacy	Camp	Archaic (8500 - 1201 B.C.), Woodland (1200 B.C. - 1606 A.D.)	null
44PW1202	36956	null	Industry / Processing / Extraction	Lithic workshop	Prehistoric / Unknown (15000 B.C. - 1606 A.D.)	DHR Staff: Not Eligible
44PW1203	36955	null	Domestic	Dwelling, single	19th Century: 2nd half (1850 - 1899)	DHR Staff: Not Eligible
44PW1204	36954	null	null	null	19th Century: 2nd half (1850 - 1899)	DHR Staff: Not Eligible
44PW1206	163	null	Domestic	Dwelling, single	20th Century: 1st quarter (1900 - 1924)	DHR Staff: Not Eligible

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Archaeological Resources

DHR ID	Archaeology Site Survey ID	Site Name	Site Categories	Site Types	Time Periods	NR Eligibility Status
44PW1207	36952	null	Domestic	Dwelling, single	20th Century: 1st half (1900 - 1949)	DHR Staff: Not Eligible
44PW1208	36951	null	Industry / Processing / Extraction	Lithic workshop	Prehistoric / Unknown (15000 B.C. - 1606 A.D.)	null
44PW1209	36950	null	null	null	20th Century: 1st quarter (1900 - 1924)	null
44PW1210	428003	Ewell's / Foster's Mill	Industry / Processing / Extraction	Mill, dam, Mill, raceway	Colony to Nation (1751 - 1789), Early National Period (1790 - 1829), Antebellum Period (1830 - 1860), Civil War (1861 - 1865), Reconstruction and Growth (1866 - 1916), World War I to World War II (1917 - 1945), The New Dominion (1946 - 1991)	DHR Staff: Not Eligible
44PW1212	36948	null	Domestic	Trash pit	19th Century: 2nd half (1850 - 1899)	null
44PW1213	36947	null	null	null	19th Century: 1st half (1800 - 1849)	DHR Staff: Not Eligible
44PW1214	36946	null	Industry / Processing / Extraction	Lithic workshop	Archaic (8500 - 1201 B.C.)	null
44PW1217	36943	null	DSS Legacy	Mill	19th Century: 4th quarter (1875 - 1899)	null

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Archaeological Resources

DHR ID	Archaeology Site Survey ID	Site Name	Site Categories	Site Types	Time Periods	NR Eligibility Status
44PW1218	35627	null	Industry / Processing / Extraction	Lithic workshop	Prehistoric / Unknown (15000 B.C. - 1606 A.D.)	null
44PW1219	36942	null	Industry / Processing / Extraction	Lithic workshop	Prehistoric / Unknown (15000 B.C. - 1606 A.D.)	DHR Staff: Not Eligible
44PW1220	35628	null	Industry / Processing / Extraction	Lithic workshop	Prehistoric / Unknown (15000 B.C. - 1606 A.D.)	null
44PW1221	35622	null	Industry / Processing / Extraction	Lithic workshop	Prehistoric / Unknown (15000 B.C. - 1606 A.D.)	null
44PW1234	37817	Bristow Battlefield Cemetery 2	Funerary	Cemetery	19th Century: 3rd quarter (1850 - 1874)	null
44PW1246	38372	Brentsville Historic Center	Commerce / Trade, DSS Legacy, Education, Government / Law / Political	County courthouse, Jail, Other, School, Tavern / Inn	Prehistoric / Unknown (15000 B.C. - 1606 A.D.), 19th Century (1800 - 1899)	null
44PW1247	38369	Brentsville Historic Center 2	null	null	19th Century (1800 - 1899), 20th Century (1900 - 1999)	null
44PW1339	46509	Lucaville 4	Domestic, Subsistence / Agriculture	Dwelling, single, Outbuilding	20th Century (1900 - 1999)	null
44PW1340	39557	Lucaville 5	DSS Legacy	Trash scatter	19th Century (1800 - 1899)	null

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Archaeological Resources

DHR ID	Archaeology Site Survey ID	Site Name	Site Categories	Site Types	Time Periods	NR Eligibility Status
44PW1393	44560	null	Domestic	Dwelling, single	19th Century (1800 - 1899), 20th Century (1900 - 1999)	null
44PW1449	44346	null	DSS Legacy	Trash scatter	19th Century (1800 - 1899), 20th Century (1900 - 1999)	null
44PW1450	42741	null	DSS Legacy	Other, Trash scatter	19th Century (1800 - 1899), 20th Century (1900 - 1999)	null
44PW1547	48352	null	Domestic	Camp, temporary, Farmstead	Prehistoric / Unknown (15000 B.C. - 1606 A.D.), 19th Century (1800 - 1899)	null
44PW1598	47556	Vint Hill I	Domestic	Farmstead	20th Century (1900 - 1999)	DHR Staff: Not Eligible
44PW1623	50618	null	Domestic, Military / Defense	Camp, temporary, Military base / facility	Late Archaic (3000 - 1201 B.C.), 19th Century: 2nd half (1850 - 1899)	null
44PW1624	51044	null	Domestic, Industry / Processing / Extraction	Dwelling, single, Lithic scatter	Late Archaic (3000 - 1201 B.C.), 19th Century: 1st half (1800 - 1849)	null

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Archaeological Resources

DHR ID	Archaeology Site Survey ID	Site Name	Site Categories	Site Types	Time Periods	NR Eligibility Status
44PW1625	49026	null	Domestic, Transportation / Communication	Camp, temporary, Trash scatter	Early Archaic Period (8500 - 6501 B.C.E), Middle Archaic Period (6500 - 3001 B.C.E), Late Archaic Period (3000 - 1201 B.C.E), Colony to Nation (1751 - 1789), Early National Period (1790 - 1829), Antebellum Period (1830 - 1860)	null
44PW1626	48767	null	DSS Legacy	Trash scatter	20th Century (1900 - 1999)	null
44PW1627	43124	null	DSS Legacy	Trash scatter	20th Century: 1st half (1900 - 1949)	null
44PW1629	45376	null	Domestic	Camp, temporary	Prehistoric / Unknown (15000 B.C. - 1606 A.D.)	null
44PW1630	42361	null	DSS Legacy	Trash scatter	19th Century: 2nd half (1850 - 1899)	null
44PW1631	45003	null	DSS Legacy	Trash scatter	19th Century: 4th quarter (1875 - 1899), 20th Century: 1st quarter (1900 - 1924)	null
44PW1632	40976	null	DSS Legacy	Trash scatter	19th Century (1800 - 1899)	null
44PW1633	51712	null	Domestic	Dwelling, single	19th Century: 1st half (1800 - 1849)	null

Table B2
Archaeological Resources

DHR ID	Archaeology Site Survey ID	Site Name	Site Categories	Site Types	Time Periods	NR Eligibility Status
44PW1634	49833	null	DSS Legacy	Trash scatter	19th Century: 4th quarter (1875 - 1899)	null
44PW1635	44566	null	DSS Legacy	Trash scatter	19th Century: 4th quarter (1875 - 1899), 20th Century (1900 - 1999)	null
44PW1643	52761	null	Domestic	Camp, temporary	Early Woodland (1200 B.C. - 299 A.D.)	null
44PW1644	51482	null	Domestic	Farmstead	20th Century: 2nd quarter (1925 - 1949), 20th Century: 2nd half (1950 - 1999)	null
44PW1646	44174	null	Domestic	Farmstead	19th Century: 3rd quarter (1850 - 1874), 20th Century: 1st half (1900 - 1949)	null
44PW1773	428005	Linton Hall Road Cell Tower Archaeological Site A	Transportation / Communication	Trash scatter	World War I to World War II (1917 - 1945), The New Dominion (1946 - 1991), Post Cold War (1992 - Present)	null
44PW1872	428004	null	Transportation / Communication	Trash scatter	The New Dominion (1946 - 1991), Post Cold War (1992 - Present)	null
44PW1873	49156	Will Harris House site	Domestic	Farmstead	20th Century: 1st quarter (1900 - 1924)	null

Table B2
Archaeological Resources

DHR ID	Archaeology Site Survey ID	Site Name	Site Categories	Site Types	Time Periods	NR Eligibility Status
44PW1875	46665	null	Domestic	Dwelling, single	20th Century (1900 - 1999)	null
44PW1876	42540	null	DSS Legacy	Trash scatter	19th Century: 4th quarter (1875 - 1899), 20th Century: 1st quarter (1900 - 1924)	null
44PW1889	45820	null	Domestic	Dwelling, single	Pre-Contact, Contact Period (1607 - 1750), Colony to Nation (1751 - 1789), Early National Period (1790 - 1829), Antebellum Period (1830 - 1860), Civil War (1861 - 1865), Reconstruction and Growth (1866 - 1916)	null
44PW1890	41251	null	Transportation / Communication	Trash scatter	Early National Period (1790 - 1829), Antebellum Period (1830 - 1860), Civil War (1861 - 1865), Reconstruction and Growth (1866 - 1916)	null
44PW1891	41249	null	DSS Legacy	Trash scatter	19th Century: 4th quarter (1875 - 1899), 20th Century (1900 - 1999)	null

Table B2
Archaeological Resources

DHR ID	Archaeology Site Survey ID	Site Name	Site Categories	Site Types	Time Periods	NR Eligibility Status
44PW1925	46705	null	Domestic	Camp, temporary	Prehistoric / Unknown (15000 B.C. - 1606 A.D.)	null
44PW2052	377465	null	Funerary	Cemetery	Civil War (1861 - 1865), Reconstruction and Growth (1866 - 1916)	null
44PW2094	440962	null	Domestic	Farmstead	Reconstruction and Growth (1866 - 1916), World War I to World War II (1917 - 1945)	null
44PW2095	399705	null	Domestic	Camp, temporary	Pre-Contact	null
44PW2124	414014	Bristow Crossing	Domestic	Midden	Reconstruction and Growth (1866 - 1916)	null
44PW2138	417698	Daniel Jasper Tyler House	Domestic, Military / Defense	Farmstead, Other	Civil War (1861 - 1865), Reconstruction and Growth (1866 - 1916), World War I to World War II (1917 - 1945), The New Dominion (1946 - 1991)	null
44PW2139	417699	Thomas Family Site	Military / Defense	Battlefield	Civil War (1861 - 1865)	null
44PW2214	441128	null	Military / Defense	Other	Civil War (1861 - 1865)	null

Table B3
Battlefields

DHR ID	Architecture Property Survey ID	Jurisdictions	Property Names	Addresses	NR Eligibility Status	Primary Resource Type
076-0024	351560	Manassas (Ind. City), Prince William (County)	Bristoe Station Battlefield (Historic / Current)	Bristow Road, Milford Road, Route 28, Route 619, Route 660	VLR Listing Removed	Battle Site
076-5036	437540	Fairfax (County), Fauquier (County), Manassas (Ind. City), Manassas Park (Ind. City), Prince William (County)	Bristoe Station Battlefield (Historic), Bull Run Bridge (Historic), Kettle Run Battlefield (Historic), Manassas Station Operations Battlefield (Historic), Union Mills (Historic)	Centreville Road - Alt Route 28, John Marshall Highway - Alt Route 55, Linton Hall Road - Alt Route 619, Sudley Road - Alt Route 234	DHR Staff: Potentially Eligible	Battle Site

Table B4
Cultural Resource Investigations

DHR Report #	County	Report Title	Report Author	Author Affiliation	Report Year	DHR Project Review Number
PW-002	Prince William	Archaeological Reconnaissance of the Manassas Municipal Airport, Prince William County, Virginia	Douglas C. McLearen	SHSI	1978	null
PW-019	Prince William	A Phase I Evaluation of Three Streams in Prince William County, Virginia: Broad Run, Bull Run, and Quantico Creek	James R. Cromwell, Jr., Robert McIver, Clarence R. Geier	JMU	1985	null
PW-034	Prince William	Phase I Archaeological Reconnaissance Survey, Route 28, Prince William County and City of Manassas, Virginia	J. Cooper Wamsley	VDOT	1985	null
PW-041	Prince William	Phase I Cultural Resources Survey of the Proposed Manassas Bypass, Route 234, Prince William County, Virginia	Douglas C. McLearen, Katharine E. Harbury	VCUARC	1988	1990-0911
PW-067	Prince William	Supplemental Phase I Archaeological Survey of Design Changes in Ramps and Cloverleaf in Four Locations Along Rt. 234 in Manassas	Robin L. Ryder, F.T. Barker	VCUARC	1992	1990-0911
PW-072	Prince William	A Phase I Cultural Resource Survey of the Proposed Broad Run Wetland Mitigation Project, Prince William County, Virginia	Joe B. Jones, Christopher McDaid	WMCAR	1992	1992-1259
PW-103	Prince William	Phase I Archaeological Survey of a Proposed Runway Protection Zone Manassas Regional Airport; Prince William County, Virginia	Douglas C. McLearen, Christopher P. Egghart, Mary Ellen Bushey	VCUARC	1995	1993-0611
PW-104	Prince William	A Phase I Archaeological Survey of the Proposed Helicopter Facilities Manassas Regional Airport, Prince William County, Virginia	Veronica L. Deitrick, Christopher L. McDaid	WMCAR	1994	1993-0611
PW-125	Prince William	Phase I Archeological Resources Reconnaissance of the 99 Acre Golf Academy Tract near Bristow, Prince William County	William Gardner, Kimberly Swears	TAA	1997	1997-1002

Table B4
Cultural Resource Investigations

DHR Report #	County	Report Title	Report Author	Author Affiliation	Report Year	DHR Project Review Number
PW-126	Prince William	Phase I Archeological Investigations at a 155 Acre Parcel near Bristow, Prince William County, Virginia	William M. Gardner, Kimberly A. Snyder, Gwen Hurst, John Mullen	TAA	1998	1998-1794
PW-135	Prince William	Archaeological Investigation of Proposed Route 234 Access Road, Prince William County, Virginia	Charles J. Rinehart	LBG	1999	1990-0911
PW-148	Prince William	Archaeological Survey of the Proposed Improvements to Route 619, Prince William County, Virginia	Eric E. Voigt, Jennifer Schmidt	LBG	1998	1995-0125
PW-158	Prince William	Prince William Innovation: Phase I Archaeological Survey and Architectural History Reconnaissance Survey of the Proposed PWC Innovation Business Park, Prince William County, Virginia	Heather Crowl, David Rotenstein, Susan Travis, Richard Vidutis	URS	2002	2001-1034
PW-165	Prince William	Phase I Archaeological Survey of the Proposed Manassas Municipal Airport Connector Road, Prince William County, Virginia	Clifton A. Huston, Matthew Laird, Justin R. Atkins	CRI	2001	2001-1127
PW-168	Prince William	Historical Research and Archaeological Reconnaissance at the Brentsville Historic Centre, Prince William County, Virginia	Michael J. Klein, Cheryl Shepard, Jessika Reuter, Emily Lindtveit, Josh Duncan	MWC	2001	null
PW-195	Prince William	Phase I Archeological Investigations of New Bristow Village, Prince William County, Virginia	William M. Gardner, Kimberly A. Snyder, Gwen Hurst	TAA	2000	2000-2028
PW-238	Prince William	Phase I Archeological Investigations of a Circa 14 Acre Addition to New Bristow Village, Prince William County, Virginia	Kimberly A. Snyder, Gwen Hurst	TAA	2003	2000-2028

Table B4
Cultural Resource Investigations

DHR Report #	County	Report Title	Report Author	Author Affiliation	Report Year	DHR Project Review Number
PW-278	Prince William	A Phase I Archeological Survey of Two Segments Totaling 8 Acres within the Youth for Tomorrow Property Located on Linton Hall Road in Prince William County, Virginia	Phillip Hill, Cynthia Pfanstiehl, Michael Roller, Alan Greene, Michaela Blankfeld	ATCI	2002	courtesy
PW-283	Prince William	A Phase I Archaeological Survey of a 3-Acre Property at 11109, 11111, and 1113 Nokesville Road in Prince William County, Virginia	Phillip Hill, Kelly Cooper	ATCI	2005	courtesy
PW-287	Prince William	Results of a Cemetery Investigation Conducted on the University Station Property, Prince William County, Virginia	Kimberly A. Snyder	TAA	2003	courtesy
PW-323	Prince William	Phase I Archaeological Survey for the Proposed Extension of Runway 16L / 34R and Taxiway B, Manassas Regional Airport, City of Manassas, Prince William County, Virginia	Tery Harris	EACA	2009	2008-0919
PW-346	Prince William	A Phase I Archaeological Survey of the Linton Hall Road Cell Tower Study Area Located at 10149 Linton Hall Road in Bristow, Prince William County, Virginia	Ryun Papson	ATCI	2007	2008-0217
PW-347	Prince William	Letter Report, Phase I Archaeological Survey of the Location of Proposed T-Mobile Unmanned Wireless Communication Site, Site Number WAW263B: Youth for Tomorrow 10149 Linton Hall Road Brentsville, Prince William County, Virginia	Aaron Levinthal	AEC	2009	2008-0217
PW-394	Prince William	Cultural Resources Survey for Nokesville and Vint Hill Roads, Bristow, Prince William County, Virginia	Marie B. Morton, Allan Morton, Meg Greene Malvasi	PSA	2011	2011-0285

Table B4
Cultural Resource Investigations

DHR Report #	County	Report Title	Report Author	Author Affiliation	Report Year	DHR Project Review Number
PW-399	Prince William	A Phase I Archaeological Survey of the Vint Hill Assemblage (Avendale): A 125-Acre+ Assemblage of Properties Located on Vint Hill Road (Route 215) in Prince William County, Virginia	Phillip Hill, Kelly Cooper, Mark Tweedie, Michael Roller	ATCI	2005	2012-0003
PW-415	Prince William	Phase I Archaeological and Architectural Survey of the Proposed Cannon Branch to Clover Hill 230kV Transmission Line, Prince William County, Virginia	Arthur Striker, Danielle Worthing	DUTTON	2012	2010-1959
PW-418	Prince William	Phase I Archaeological and Architectural Survey of the Proposed Cannon Branch Substation to Gainesville Junction 230kV Transmission Line, Prince William County, Virginia	David Dutton, Danielle Worthing, Arthur Striker	DUTTON	2013	2012-0198
PW-420	Prince William	A Cultural Resources Survey of the Proposed Virginia Rail Express Broad Run Parking Expansion Project, Prince William County, Virginia	Thomas F. Higgins, Mary Ruffin Hanbury	WMCAR	2013	2012-0391
PW-428	Prince William	Phase I Archeological Investigation Including Military Sites Survey of the ±40.7 acre Youth for Tomorrow Property, Prince William County, Virginia	Boyd Sipe	TAA	2011	courtesy
PW-430	Prince William	Phase I Cultural Resources Survey of Approximately 183 Acres at the Airport Gateway Property, Prince William County, Virginia	Matthew Laird Garrett Fesler	JRIA	2005	courtesy
PW-431	Prince William	Phase I Archeological Investigation Glen-Gery North Property, Prince William County, Virginia	John Mullen, Edward Johnson, Annie McQuillan	TAA	2012	2017-3681

Table B4
Cultural Resource Investigations

DHR Report #	County	Report Title	Report Author	Author Affiliation	Report Year	DHR Project Review Number
PW-447	Prince William	Phase I Archaeological Survey of the Linton Hall Tract, Prince William County, Virginia	Clifton A. Huston, Raymond D. Ezell	ECS	2005	courtesy
PW-552	Prince William	Addendum Phase IB Cultural Resources Survey of the Virginia Railway Express (VRE) Broad Run Expansion Project, Prince William County, Virginia	Mike Klein, D. Brad Hatch, Lenora Wiggs	DOVE	2018	2018-0132
PW-569	Prince William	A Phase I Investigation of a Circa 99.3 Acre Parcel at the Junction of Lucasville and Godwin Roads, Prince William County, Virginia	William M. Gardner, Kimberly A. Snyder, Gwen Hurst	TAA	2002	2004-0569
PW-581	Prince William	A Phase I Investigation of the Circa 24 Acre University Station Property, Prince William County, Virginia	William M. Gardner, Kimberly A Snyder, Gwen J. Hurst	TAA	2002	2006-0209
PW-638	Prince William	Phase I Archaeological Identification Survey, Glen-Gery Wetlands Mitigation Tract	Douglas C. McLearen, Chris Egghart	VCUARC	1997	courtesy
PW-661	Prince William	Phase I Archaeological Study for the Proposed West Corporate Development and East Parcel Development at Manassas Regional Airport, City of Manassas, Prince William County, Virginia	Tery Harris	EACA	2017	2017-0348

APPENDIX C
PHOTOGRAPH LOG

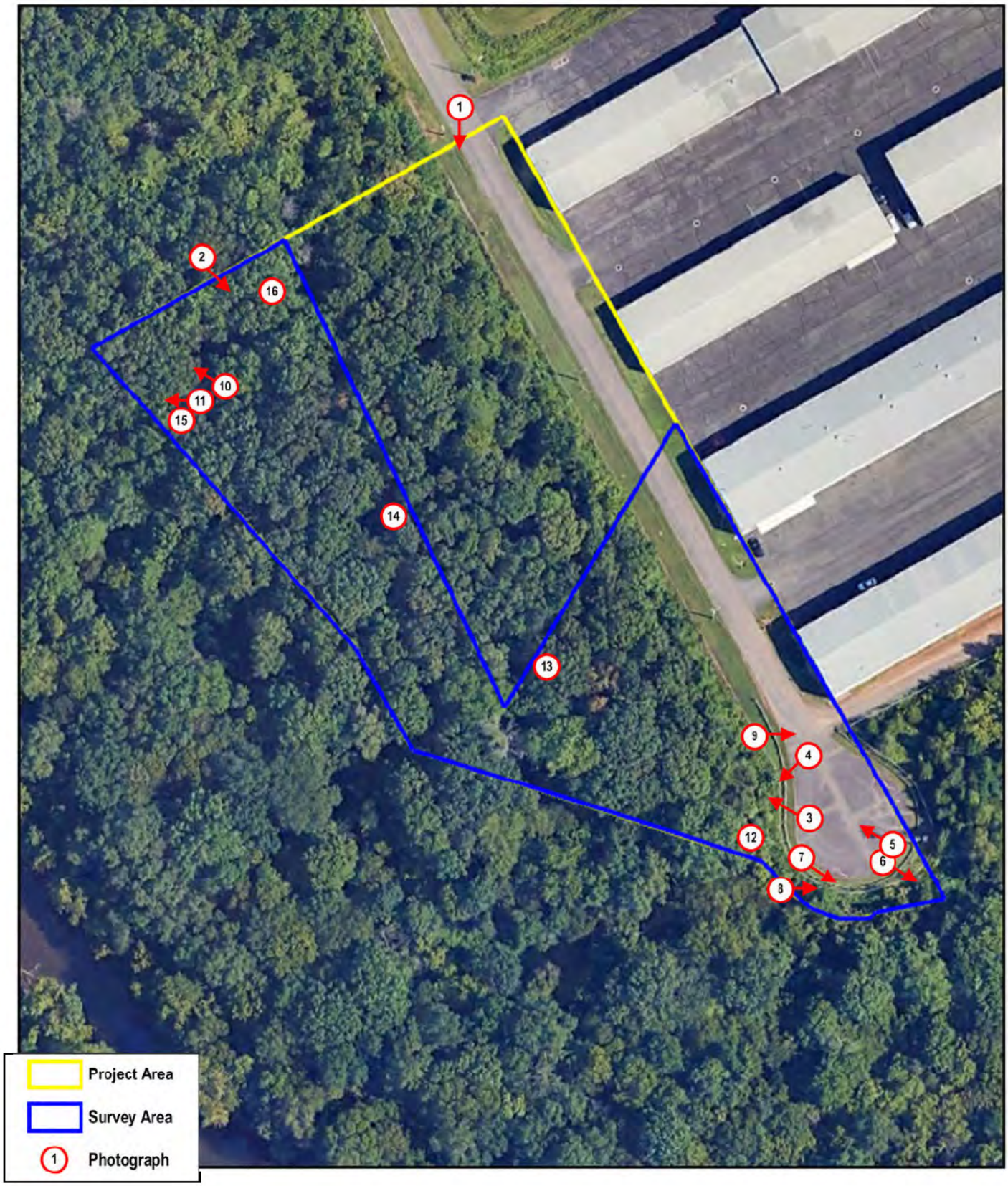

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Figure C1
Photo Key

N

Photo 1: Overview of fenced in portion of Project Area, facing south.

Photo 2: Overview of Survey Area, facing southeast.

Photo 3: Overview of Survey Area, facing northwest.

Photo 4: Overview of Survey Area, facing southwest.

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Photo 5: Top of slope at southeast corner of Survey Area, facing northwest.

Photo 6: Top of slope at southeast corner of Survey Area / fence, facing southeast.

Photo 7: Bottom of slope at southeast corner of Survey area, facing southeast.

Photo 8: Bottom of slope, facing east.

Photo 9: Slope on east side, facing east.

Photo 10: Creek bed, facing northwest.

Photo 11: Dry creek bed, facing west.

Photo 12: STP 2.

Photo 13: STP 8.

Photo 14: STP 14.

Photo 15: STP 20.

Photo 16: STP 23.

APPENDIX D
CURRICULUM VITAE

CURRICULUM VITAE
July 2024

Robert C. Chidester

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1. EDUCATION

Doctor of Philosophy
Doctoral Program in Anthropology and History
University of Michigan, August 2009
Dissertation: "Class, Community, and Materiality in a Blue-Collar Baltimore Neighborhood: An Archaeology of Hampden-Woodberry"
Advisor: Dr. Henry Wright

Master of Applied Anthropology (Historical Archaeology Track)
University of Maryland at College Park, May 2004
Master's Internship: "A Historic Context for the Archaeology of Industrial Labor in the State of Maryland"
Advisors: Dr. Mark Leone (University of Maryland) and Ms. Erika Martin Seibert (National Register of Historic Places)

Bachelor of Arts
Heidelberg College, Tiffin, Ohio, May 2002
Majors: Anthropology and English Literature
Senior Thesis: "Ft. Miamis and Ft. Meigs: A Comparative Analysis of Two Artifactual Assemblages"
Advisor: Dr. G. Michael Pratt

Research and Teaching Interests:

- Historical Archaeology
- Urban Archaeology
- Public/Community Archaeology
- Applied Anthropology
- Cultural Resource Management
- Labor History/Working-Class Studies
- Capitalism and Political Economy
- Great Lakes / Rust Belt Geographic Region

2. RESEARCH ACTIVITIES AND PROFESSIONAL EMPLOYMENT

Cultural Resources Service Director / Group Manager, The Mannik & Smith Group, Inc., Maumee, Ohio (August 2022-present)

- As Group Manager, responsible for managing a staff of cultural resource professionals within a professional services consulting firm. Duties include overseeing staff assignments, time management, business development, staff professional development, and coordination with Marketing, Business Development, and other operational groups within the company. As Senior Project Manager, duties include scoping and budgeting for contract proposals; liaising with current and potential clients, subcontractors, professional advisors, and government agency reviewers; building project teams and executing projects; and managing contracts for a broad range of Cultural Resource services.

Archaeology Team Leader, The Mannik & Smith Group, Inc., Maumee, Ohio (July 2009 - present; Project Manager, May 2012-August 2022)

- Principal Investigator and Project Manager for all phases of archaeological compliance projects. Duties include preparing project proposals, including budgets; liaising with current and potential clients, subcontractors, professional advisors, and government agency reviewers; preparing predictive modeling studies; directing field investigations and laboratory processing and analysis of artifacts; conducting artifact curation activities; archival research; composing historic contexts for National Register nominations; preparing technical reports of investigations; and managing Archaeology Team members.

Staff Historian/Archaeologist, Commonwealth Cultural Resources Group, Inc., Jackson, Michigan (August-December 2009)

- Served as project archaeologist for cultural resource sensitivity studies and a Phase I cell tower survey; conducted archival research and historic artifact analysis; prepared technical reports of investigations.

Co-Director, Hampden Community Archaeology Project, Baltimore, Maryland (2005-2009)

- Duties included organizing and directing archaeological investigations on domestic urban lots; instructing local youth in archaeological excavation methods; conducting ethnographic and archival research; writing grant proposals; and organizing and participating in various public outreach activities.

Faculty Research Assistant, Archaeology in Annapolis [Wye Island Project], University of Maryland at College Park (May-August 2004)

- Duties included initial surveying of site and drafting of site map; conducting a shovel test pit survey; supervising undergraduate field school students during excavations; and communicating research goals and findings to the private landowner.

Intern, Chesapeake and Ohio Canal National Historical Park, Hagerstown, Maryland (June 2003-February 2004)

- Conducted archival research on the Ferry Hill Plantation property, specifically focusing on slavery and changes in landscape use over time.

Cultural Resources Specialist I, The Mannik & Smith Group, Inc., Maumee, Ohio (June-July 2002)

- Archaeological technician on Phase I archaeological reconnaissance surveys.

Fieldwork and Laboratory Staff, Center for Historic and Military Archaeology, Heidelberg College, Tiffin, Ohio (2000-2002)

- Duties included participating in Phase I surveys of historic battlefield sites in Ohio and Michigan; conducting basic artifact curation activities and completing artifact analyses, as well as supervising other work-study students during artifact curation activities; conducting secondary historical research; ordering supplies for the lab; and supervising volunteers both in the field and the lab.

Intern, Department of Sociology, Anthropology and Archaeology and the Aboriginal and Torres Strait Islander Studies Unit [Gooreng Gooreng Cultural Heritage Project], University of Queensland, Brisbane, Australia (January-April 2001)

- Participated in the excavation of a Paleolithic cave shelter in east-central Queensland; conducted basic artifact curation activities on collections from a similar site in southern Queensland.

3. PUBLICATIONS

(* Indicates sole or senior author)

Refereed Journal Articles:

Re-Evaluating Colonization and Cultural Change During the Early Archaic Period in Northwestern Ohio. *Archaeology of Eastern North America* 39:109-130 (2011).

Heritage and "Those People": Representing Working-Class Interests through Hampden's Archaeology. *Historical Archaeology* 45(1):101-113 (with David A. Gadsby; 2011).

§ Reprinted in *Public Archaeology, From Outreach and Education to Critique and Global Justice,* ed. Christopher N. Matthews and Carol McDavid, pp. 379-392. Perspectives in Historical Archaeology. Society for Historical Archaeology, Germantown, MD (2016).

*One Neighborhood, Two Communities: The Public Archaeology of Class in a Gentrifying Urban Neighborhood. In "Labor History as Public History," edited by Thomas Miller Klubock and Paulo Fontes. *International Labor and Working Class History* 76:127-146 (with David A. Gadsby; 2009).

*Critical Landscape Analysis as a Tool for Public Interpretation: Reassessing Slavery at a Western Maryland Plantation. *CRM: The Journal of Heritage Stewardship* 6(1):34-54 (2009).

Book Chapters:

Class, Labour and the Public. In *The Oxford Handbook of Public Archaeology,* edited by John Carman, Carol McDavid and Robin Skeates, pp. 513-533. Oxford University Press, England (with David A. Gadsby; 2012).

What Does Public Engagement in Archaeology Really Mean? Is All Engagement Always Positive? In *The Contemporary Relevance of Archaeology*, edited by Marcy Rockman and Joe Flatman, pp. 65-76. Springer Press, New York (with Joe Flatman and David A. Gadsby; 2012).

*"Movement Archaeology": Promoting the Labor Movement in Maryland. In *Changing the World with Archaeology: Archaeology Activism*, edited by M. Jay Stottman, pp. 80-92. University of Alabama Press, Tuscaloosa (2010).

Heritage in Hampden: A Participatory Research Design for Public Archaeology in a Working-Class Neighborhood, Baltimore, Maryland. In *Archaeology as a Tool of Civic Engagement*, edited by Barbara J. Little and Paul A. Shackel, pp. 223-242. AltaMira Press, Lanham, MD (with David A. Gadsby; 2007).

Other Scholarly Publications:

*Unionism. In *Reforming America: A Thematic Encyclopedia and Document Collection of the Progressive Era*, Volume One, edited by Jeffrey A. Johnson, pp. 332-335. ABC-CLIO, Santa Barbara, CA (2017).

*Reconciling an Interdisciplinary Education and an Academic Career. *Anthropology News* 49(6):7-8 (2008).

Hampden Community Archaeology Project. *CRM: The Journal of Heritage Stewardship* 4(1):57-59 (with David A. Gadsby; 2007).

*Great Railroad Strike (1877). In *Encyclopedia of the Age of the Industrial Revolution, 1700-1920*, Volume One: A-N, edited by Christine Rider, pp. 192-193. Greenwood Press, Westport, CT (2007).

*The Inculcation and Maintenance of British Identity on the North American Frontier: An Example from Fort Miamis in Ohio. *Ohio Valley Historical Archaeology* 20:78-87 (2005).

*The Archaeological Heritage of Labor in Maryland. *Society for Historical Archaeology Newsletter* 37(1):26-27 (2004).

*Ft. Miamis at the Foot of the Rapids: An Analysis of an 18th-century Ceramic Assemblage. In *Minds at Work: The Journal of the Ninth Annual Student Research Conference*, edited by Sarah Fetty and Kristen Snyder, pp. 20-41. Heidelberg College, Tiffin, OH (2002).

Book Reviews:

Review of The Archaeology of American Childhood and Adolescence, by Jane Eva Baxter. *Midcontinental Journal of Archaeology* 47 (2022). Electronic document available at https://www.midwestarchaeology.org/files/2022-BR01-Baxter.pdf.

Review of Industrialization and the Transformation of American Life: A Brief Introduction, by Jonathan Rees. *H-SHGAPE*, October 2013. Electronic document available at https://www.h-net.org/reviews/showpdf.php?id=37630.

Review of The Archaeology of Class War: The Colorado Coalfield Strike of 1913-1914, edited by Karin Larkin and Randall H. McGuire. *Labor History* 54(3):346-348 (2013).

Review of Outdoor Sculpture in Baltimore: A Historical Guide to Public Art in the Monumental City, by Cindy Kelly and Edwin Harlan Remsberg. *Maryland Historical Magazine* 107(3):394-396 (2012).

Review of The Archaeology of American Labor and Working-Class Life, by Paul A. Shackel. *Journal of Middle Atlantic Archaeology* 26:181-182 (2010).

Review of John Smith's Chesapeake Voyages, 1607-1609, by Helen C. Rountree, Wayne E. Clark and Kent Mountford. *Maryland Historical Magazine* 103(3):320-322 (2008).

Review of Culture in Practice: Selected Essays, by Marshall Sahlins. *Pioneer America Society Transactions (PAST)* 31:67-70 (2008).

Review of Fighting Against the Odds: A History of Southern Labor Since World War II, by Timothy Minchin. *Southern Historian* 29:103-104 (2008).

Review of Between Dirt and Discussion: Methods and Methodology in Historical Archaeology, edited by Steven Archer and Kevin Bartoy. *Historical Archaeology* 41(4):216-217. Available at www.sha.org/publications/book_reviews.htm (2007).

Review of A Guide to Patapsco Valley Mill Sites: Our Valley's Contribution to Maryland's Industrial Revolution, by James Walter Peirce. *IA: The Journal of the Society for Industrial Archeology* 30(2):41-42 (2004).

Review of Historic Bridges of Maryland, by Dixie Legler and Carol M. Highsmith. *IA: The Journal of the Society for Industrial Archeology* 29(2):73-74 (2003).

Technical Reports and Unpublished Documents:

*Over 300 single- and co-authored technical reports for cultural resource desktop review / impact studies, predictive modeling studies, Section 106 reviews, archaeological monitoring, Phase I archaeology/cultural resource surveys, and Environmental Assessments for telecommunications, transportation, development, demolition, renewable energy, pipeline, power transmission, flood mitigation, landfill, environmental restoration, military base, and federal, state and municipal projects across 12 states.

Preliminary Archaeological Investigations at the Papermill School (20MR844) in Territorial Park, Raisinville Township, Monroe County, Michigan. Report submitted to the Monroe County Museum System, Monroe, MI by The Mannik & Smith Group, Inc., Maumee, OH (with Julia R. Joblinski, Daniel Hershberger, Kate J. Hayfield, and Athena Zissis; 2023).

**Ground-Penetrating Radar Survey of a Portion of the Irishtown Bend Archaeological District in the City of Cleveland, Cuyahoga County, Ohio*. Report submitted to LAND Studio, Cleveland by The Mannik & Smith Group, Inc., Maumee, OH (with Maeve Marino, Kate J. Hayfield, and Adam R. Darkow; 2023).

**Archaeological Monitoring and Data Recovery for Proposed Visitor Enhancements at the Fort Miamis National Historic Site in the City of Maumee, Lucas County, Ohio.* Report submitted to Metroparks Toledo by The Mannik & Smith Group, Inc., Maumee, OH (with Julia R. Joblinski, Phillip R. Bauschard, and Kate J. Hayfield; 2022).

Phase I Archaeological Survey and Phase II Archaeological Testing for the Mariners Inn Expansion Project in the City of Detroit, Wayne County, Michigan. Report submitted to PM Environmental, Inc., Lansing, MI by The Mannik & Smith Group, Inc., Detroit (with Athena Zissis and Meagan Bell; 2022).

**Phase II Archaeological Evaluations of Five Pre-Contact Archaeological Sites (33ER0086, 33ER0696, 33HU0048, 33HU0678, and 33HU0831) for the Emerson Creek Wind Project, Erie and Huron Counties, Ohio.* Report submitted to Firelands Wind, LLC, Charlottesville, VA by The Mannik & Smith Group, Inc., Maumee, OH (with Athena

Zissis, Kate J. Hayfield, Meagan Bell, and Adam Darkow; 2022).

**Phase II Archaeological Evaluation of the Eagle Creek Site Cluster (33HK1008, 33HK1011, 33HK1012, 33HK1013, and 33HK1014) for the Hancock County Flood Risk Reduction Program, Phase 2: Eagle Creek Flood Basin in Eagle Township (Township 1 South, Range 10 East), Hancock County, Ohio.* Report submitted to Stantec Consulting Services, Inc., Toledo by The Mannik & Smith Group, Inc., Maumee, OH (with Ryan T. Botkin, Athena Zissis, and Kevin C. Nolan; 2022).

Phase II Archaeological Evaluations of Four Pre-Contact Archaeological Sites (33SA0703, 33SE0004, 33SE0894, and 33SE0978) for the Republic Wind Project, Sandusky and Seneca Counties, Ohio. Report submitted to Republic Wind, LLC, Charlottesville, VA by The Mannik & Smith Group, Inc., Maumee, OH (with Athena Zissis, Meagan N. Bell, Kate J. Hayfield, and Adam R. Darkow; 2022).

**A Section 106 (Cultural Resources) Assessment of Effects for the Irishtown Bend Stabilization and Rehabilitation Project in the City of Cleveland, Cuyahoga County, Ohio.* Report submitted to the Cleveland-Cuyahoga County Port Authority by The Mannik & Smith Group, Inc., Shaker Heights, OH (with Christopher B. Owen; 2020).

**Unanticipated Discoveries Plan, 7850 E. Jefferson, Detroit, MI.* Document submitted to GDC-East Jefferson, LLC, Novi, MI by The Mannik & Smith Group, Inc., Detroit (with Jordan Shaffer; 2019).

**Geophysical Archaeological Investigation of Approximately 3 Acres of the Parade Grounds at Historic Fort Wayne in the City of Detroit, Wayne County, Michigan*. Report submitted to the City of Detroit Historic Designation Advisory Board by The Mannik & Smith Group, Inc., Detroit (with Kate Hayfield and Phillip R. Bauschard, with a contribution by Kevin C. Nolan and Matthew Purtill [Ball State University]; 2017).

**Phase I and II Archaeological Investigations of the Woodbridge IX Project Area in the City of Detroit, Wayne County, Michigan*. Report submitted to Woodbridge Estates IX LDHA, LLC, Bingham Farms, MI by The Mannik & Smith Group, Inc., Maumee, OH (with Phillip R. Bauschard, Daniel Hershberger, Colene E. Knaub, Kathryn E. Parker, and Lilian Bodley; 2017).

Documentation Report: Park Place Convention Hall, 300 East State Street, Traverse City, Michigan. Report prepared for Park Place Hotel, Traverse City, MI by The Mannik & Smith Group, Inc., Maumee, OH (with Maura Johnson and Daniel Hershberger; 2017).

Historic Properties Management Plan: Ludington Pumped Storage Project (FERC No. 2680), Mason County, Michigan. Prepared for Consumers Energy, Cadillac, MI by The Mannik & Smith Group, Inc., Maumee, OH (with Maura Johnson, 2017).

**"You Will Do Better in Toledo": Phase III Data Recovery Excavations in the UpTown Neighborhood for the Clinic Consolidation to Improve Access to Care Project, City of Toledo, Lucas County, Ohio.* Report submitted to Neighborhood Health Association, Inc., Toledo, OH and the Health Resources Services Administration, Washington, D.C., by The Mannik & Smith Group, Inc., Maumee, OH (with Phillip R. Bauschard, Maura Johnson, Daniel Hershberger, Kate J. Hayfield, Erin L. Claussen, and Colene E. Knaub; 2016).

**Results of a Phase II Archaeological Evaluation of the Ritter No. 1 Site (33HY0167) for the New Maumee River Crossing Project (PID #22984), Harrison Township, Henry County, Ohio*. Revised version. Report submitted to the Henry County Transportation Improvement District, Napoleon, OH and the Ohio Department of Transportation,

Columbus, OH by The Mannik & Smith Group, Inc., Maumee, OH (with Phillip R. Bauschard, Kate J. Hayfield and Bryan P. Agosti; 2016).

Sunnyside Addition, Madison Township, Lenawee County, Michigan (HALS No. MI-5). Historic American Landscapes Survey Short Report (with Jennifer Ross, Maura Johnson and Ryan Schumaker; 2012).

Marine City Water Works. National Register of Historic Places nomination (with Maura Johnson, Carol Poh, and Amanda D. Davis; 2011).

History from "The Bottom" Up: A Research Design for Participatory Archaeology in Hampden-Woodberry, Baltimore, MD. Center for Heritage Resource Studies, Department of Anthropology, University of Maryland, College Park. Available at http://www.heritage.umd.edu/CHRSWeb/AssociatedProjects/Hampden.htm (with David A. Gadsby; 2005).

**Final Report on Historical Research, Ferry Hill Plantation.* Report submitted to the Chesapeake and Ohio Canal National Historical Park, Hagerstown, MD and Partners in Parks, Paonia, CO (2004).

Articles for Popular or General Audiences:

*St. Helena: The Bygone Days [Industrialization in Southeast Baltimore]. *The St. Helena Red Rocket Review* 5(1):28 (2009).

*Hampden Archaeology Folks Digging Their Work on Falls Road. *Historic Hampden Happenings*, July:9-10 (2007).

*A Short History of Industrialization in Garrett County, Maryland. *Journal of the Alleghenies* 42:73-82 (2006).

*The Potential for a Historical Archaeology of Industrial Labor in Cecil County. *Cecil Historical Journal* 6(1):2-10 (2006).

*The Archaeology of the Working Class in Western Maryland's Industrial Region. *Journal of the Alleghenies* 41:24-41 (2005).

*Industrial and Labor Heritage in Frederick County. *The Journal of the Historical Society of Frederick County, Maryland* Spring:4-49 (2005).

*The History of Industry in Baltimore County. *History Trails of Baltimore County* 37(1-2):1-8 (2004).

4. CONFERENCE PARTICIPATION AND PRESENTATIONS

(* Indicates sole or senior organizer, author, or presenter)

Conference Sessions and Symposiums Organized or Chaired:

*"From the Ground Up: Archaeology and Revitalization in Detroit." Session organized for the Annual Michigan Historic Preservation Network Conference, Detroit (with Krysta Ryzewski; 2016).

*"Archaeologies of Class, Labor and Industrialization on the Middle Ground." Symposium organized for the 45th Annual Conference on Historical and Underwater Archaeology, Baltimore, MD (2012).

*"Reconceptualizing 'Community,' Past and Present: Current Approaches in Historical and Public Archaeology." Symposium organized for the 42nd Annual Conference on Historical and Underwater Archaeology, Toronto (with Jolene L.U. Smith; 2009).

*"Archaeology as Active History: Civic Engagement and Social Activism in Current Archaeological Practice." Symposium organized for the conference, "Active History: History for the Future," Glendon College, York University, Toronto (2008).

*"The Archaeology of Nationalism." Symposium organized for the 51st Annual Meeting of the Midwest Archaeological Conference, Dayton, OH (with Jeremy B. Freeman; 2005).

Conference Papers:

*Private Utilities and Public Resources: 19th-Century Capitalism and Local Governance in Northwest Ohio. Paper presented at the 57th Annual Conference on Historical and Underwater Archaeology, Oakland (2024).

*The Armory Park Gasometer: Documenting Toledo's 19th-Century Utility Infrastructure. Paper presented at the 51st Annual Conference of the Society for Industrial Archeology, Grand Rapids, MI (with Daniel Hershberger and Meagan Bell; 2023).

*British Empire on the North American Frontier: Fort Miamis in the Ohio Territory, 1794-1796. Paper presented at the 56th Annual Conference on Historical and Underwater Archaeology, Lisbon (2023).

*You Will Do Better in Toledo: Urban Archaeology in the Glass City. Paper presented at the Fall Meeting of the Ohio Archaeological Council, Columbus (2022).

*Anthropogenic Environmental Change and Cultural Resources Management: Documenting Landscapes of Environmental Damage. Paper presented at the 55th Annual Conference on Historical and Underwater Archaeology, Philadelphia (2022).

*Mapping a Landscape of Lithic Exploitation: Pipe Creek Chert Quarries and Workshops in North-Central Ohio. Paper presented at the 64th Annual Midwest Archaeological Conference, East Lansing, MI (with Meagan Bell, Ryan Botkin, Adam Darkow, Elizabeth Hickle, Julia Joblinski, Danielle Julien, and Athena Zissis; 2021).

*Landscapes of Economic Liberalism: Archaeological Survey along the Muskingum Improvement in Southeastern Ohio. Paper presented at the 53rd Annual Conference on Historical and Underwater Archaeology, Boston (2020).

*"Dance with me to the Paradise beat": Archaeological Investigations in Detroit's Paradise Valley. Paper presented at the Annual Meeting of the Conference on Michigan Archaeology, Lansing (2019).

*Section 106 Consultation, Public Education, and the Transportation Engineering Process: A Case Study from Henry County, Ohio. Paper presented at the Ohio Transportation Engineering Conference, Columbus (2018).

*"They don't like Negroes, Jews, Catholics, the federal government or the 20th Century": Class, Race and Whiteness in a Post-Industrial Baltimore Neighborhood, ca. 1970-1990. Paper presented at the 23rd Annual Faculty Research Symposium, Heidelberg University, Tiffin, OH (2018).

Local Tradition or Response to Hard Times? 20th-Century Urban Foodways in Toledo, Ohio. Paper presented at the 51st Annual Conference on Historical and Underwater Archaeology, New Orleans (with Colene Knaub; 2018).

*Excavating the Motor City: Structural Racism and the "Archaeological Record" in Detroit. Paper presented at the 51st Annual Conference on Historical and Underwater Archaeology, New Orleans (2018).

*The Deep History of a Modern Phenomenon: An Archaeological Perspective on Corporate Agriculture in Northwest Ohio. Paper presented at the 50th Annual Conference on Historical and Underwater Archaeology, Washington, D.C. (with Maura Johnson; 2017).

*Structural Racism and the Formation of the Archaeological Record in Detroit. Paper presented at the 12th Annual Midwest Historical Archaeology Conference, Detroit (2016).

*Archaeological Investigations of Detroit's Paradise Valley. Paper presented at the Neighborhoods in America's Cities: A Dialogue in Detroit conference, Detroit (2016).

*"Dance with me to the Paradise beat": Archaeological Investigations of Detroit's Paradise Valley. Paper presented at the Annual Michigan Historic Preservation Network Conference, Detroit, MI (2016).

*Structural Racism and Urban Archaeology in the Motor City. Paper presented at the 21st Annual Faculty Research Symposium, Heidelberg University, Tiffin, OH (2016).

*Race and Alienation in Baltimore's Hampden. Paper presented at the 49th Annual Conference on Historical and Underwater Archaeology, Washington, D.C. (with David A. Gadsby; 2016).

*The Sand Creek Sugarbush: Traces of an Extractive Agricultural Industry in Portage County, Ohio. Paper presented at the 48th Annual Conference on Historical and Underwater Archaeology, Seattle, WA (with Colene E. Knaub; 2015).

*Landscapes of Clearance: Urban Sprawl, Land Acquisition and Abandonment in the Toledo Area Metroparks' Swan Creek Preserve. Paper presented at the 59th Annual Meeting of the Midwest Archaeological Conference, Columbus, OH (2013).

*Predictive Modeling as a Planning Tool for the Blanchard River Flood Mitigation Studies in Northwest Ohio. Paper presented at the 79th Annual Meeting of the Eastern States Archaeological Federation, Perrysburg, OH (2012).

*Class, Political Economy, and Material Culture in Baltimore, 1870-1920. Paper presented at the Annual Meeting of the Central States Anthropological Society, Toledo, OH (2012).

Working-Class Community Archaeology in Baltimore's Hampden. Paper presented at the 45th Annual Conference on Historical and Underwater Archaeology, Baltimore, MD (with David A. Gadsby and Jolene L.U. Smith; 2012).

*Archaeologies of Class, Labor and Industrialization in Maryland: An Introduction and Overview. Paper presented at the 45th Annual Conference on Historical and Underwater Archaeology, Baltimore, MD (2012).

*Gentrification as Material Process: The Role of Urban Locality in the Political Economy of Late Capitalism. Paper presented at the 44th Annual Conference on Historical and Underwater Archaeology, Austin, TX (2011).

*Political Economy, Urban Spatiality, and the Evolution of Working-Class Political Strategies from the Gilded Age to the Progressive Area. Paper presented at the 32nd Annual North American Labor History Conference, Detroit, MI (2010).

*Class Consciousness and Materiality in a 19th-Century Textile Mill Village in Maryland. Paper presented at the 43rd Annual Conference on Historical and Underwater Archaeology, Amelia Island Plantation, FL (with David A. Gadsby; 2010).

*From Theories of Culture to Theories of Community. Paper presented at the 42nd Annual Conference on Historical and Underwater Archaeology, Toronto (with Jolene L.U. Smith; 2009).

*Confronting Gentrification through Archaeology: Exploring Economic and Social Change in a Post-Industrial Baltimore Neighborhood. Paper presented at the conference, "Active History: History for the Future," Glendon College, York University, Toronto (2008).

*One Neighborhood, Two Communities: The Public Archeology of Class in a Gentrifying Urban Neighborhood. Paper presented at the conference, "Building Bridges in the City and Beyond: Languages, Communities & Cultures," University of Maryland, Baltimore County, Catonsville, MD (with David A. Gadsby; 2008).

The Taphonomy of Late Capitalism in Baltimore. Paper presented at the 41st Annual Conference on Historical and Underwater Archaeology, Albuquerque, NM (with David A. Gadsby; 2008).

*Archaeology and the Scales of Activism. Paper presented at the 106th Annual Meeting of the American Anthropological Association, Washington, D.C. (2007).

*Freedom for All: Industrial Democracy versus Corporate Capitalism in a Baltimore Textile Community, 1916-1923. Paper presented at the 29th Annual North American Labor History Conference, Detroit, MI (2007).

*Race and Local Citizenship in a Post-Industrial Baltimore Community. Paper presented at the Fourth Annual Conference in Citizenship Studies: Race and Citizenship, Wayne State University, Detroit, MI (2007).

*Activist Archaeology and the Politics of "Insurgent Citizenship": A Case Study from Baltimore. Paper presented at the 40th Annual Conference on Historical and Underwater Archaeology, Williamsburg, VA (with David A. Gadsby; 2007).

*Is the National Register Broken? A Case Study of the Clash of Scholarly Activism and the Conservatism of the Federal Historic Preservation System. Paper presented at the 104th Annual Meeting of the American Anthropological Association, Washington, D.C. (2005)

*A Prospectus for the Archaeology of Nationalism. Paper presented at the 51st Annual Meeting of the Midwest Archaeological Conference, Dayton, OH (with Jeremy B. Freeman; 2005).

*Nationalism and Ceramic Consumption Patterns: A Case Study from Northwest Ohio. Paper presented at the 51st Annual Meeting of the Midwest Archaeological Conference, Dayton, OH (2005).

Heritage in Hampden: Participatory Research Design for Public Archaeology in a Working-Class Neighborhood, Baltimore, MD. Paper presented at the 65th Annual Meeting of the Society for Applied Anthropology, Santa Fe, NM (with David A. Gadsby; 2005).

*The Grad Student and the Union President: Some Words of Caution. Paper presented at the 65th Annual Meeting of the Society for Applied Anthropology, Santa Fe, NM (2005).

*Ceramic Tableware Style and British Identity on the Frontier: The Case from Ft. Miamis. Paper presented at the 23rd Annual Symposium on Ohio Valley Urban and Historic Archaeology, Carter Caves State Resort Park, KY (2005).

*Changes in the Social Organization of Maryland's Industrial Communities: A Preliminary Analysis. Paper presented at the 26th Annual North American Labor History Conference, Detroit, MI (2004).

*Ferry Hill: A Panoptic Plantation in Washington County, Maryland. Paper presented at the 34th Annual Middle Atlantic Archaeological Conference, Rehoboth Beach, DE (2004).

*"A land without memories is a land without liberty": Using Archaeology to Change the Public Perception of Maryland's History. Paper presented at the 37th Annual Conference on Historical and Underwater Archaeology, St. Louis, MO (2004).

*Ft. Miamis at the Foot of the Rapids: An Analysis of an 18th-century Ceramic Assemblage. Paper presented at Minds at Work: The 9th Annual East Central Colleges Student Research Conference, Tiffin, OH (2002).

Conference Posters

The Armory Park Gasometer: An Investigation into Toledo's Early Manufactured Gas Utility. Poster presented at the 65th Annual Midwest Archaeological Conference, LaCrosse, WI (with Meagan N. Bell and Daniel Hershberger; 2022).

Using Electrolytic Cleaning to Assess Iron Artifacts from Two Light Industrial Enterprises in Findlay, OH. Poster presented at the 55th Annual Conference on Historical and Underwater Archaeology, Philadelphia (with Julia R. Joblinski; 2022).

Other Conference Participation

Forum Panelist, "'What catalog system do you use?' Confronting the Philosophies that Prevent Standardization and Consensus in Archaeological Catalogs." Forum at the 52nd Annual Conference on Historical and Underwater Archaeology, St. Charles, MO (2019).

Panelist, "Identification, Evaluation, and Treatment of Lithic Scatters in Ohio: A Roundtable Discussion." Discussion panel at the Ohio Archaeological Council Spring Meeting, Galloway, OH (2014).

Forum Panelist, "Archaeologists as Activists: Moving Forward on a Practice of Activist Archaeology." Forum at the 44th Annual Conference on Historical and Underwater Archaeology, Austin, TX (2011).

Rap Session Leader (Gaining Employment in CRM), Forum of the Student Sub-Committee of the Academic and Professional Training Committee of the Society for Historical Archaeology. Forum at the 44th Annual Conference on Historical and Underwater Archaeology, Austin, TX (2011).

Professional Presentations (Non-Academic)

Co-Presenter, "New MDOT LAP Section 106 Review Process." Continuing Education session at the Michigan Department of Transportation – American Council of Engineering Companies Partnering Workshop, Lansing, MI (with Brian Grennell, Patty Jo Korzeniewski, Chris Owen, and Ryan Schumaker; 2023).

Public Education and Outreach:

*Rust Belt Archaeology: Urban Archaeology in Ohio. Invited Speaker at the Lakeside Chautauqua, Lakeside, OH (August 2023).

*Inscribing Inequality on the Urban Landscape: The Archaeology of Detroit's Paradise Valley. Featured speaker at Michigan Archaeology Day, Lansing (2022).

*Rust Belt Archaeology: Recent Urban Excavations in Toledo, Ohio. Invited Speaker for the annual Donald R. Laing, Jr. Lectureship of the Cleveland Chapter of the Archaeological Institute of America (October 2022).

*Hidden Discoveries of the Fallen Timbers Battlefield. Invited Speaker at the 55th Annual Meeting of the Lucas County Soil & Water Conservation District, Waterville, OH (November 2019).

*"Dance with me to the Paradise beat": Archaeological Investigations in Detroit's Paradise Valley. Presentation to the Detroit Chapter, Michigan Archaeological Society, Detroit, MI (March 2019).

*The Ritter No. 1 Site (33HY0167): A Multi-Component Prehistoric Site in the Maumee River Valley in Henry County, Ohio. Presentation to the River Raisin Chapter, Michigan Archaeological Society, Monroe, MI (March 2019).

*The Ritter No. 1 Site (33HY0167): A Multi-Component Prehistoric Site in the Mid-Maumee River Valley, Henry County, Ohio. Presentation to the Toledo Area Aboriginal Research Society, Toledo, OH (September 2018).

*Tales from the Printer's Privy: An Archaeological Biography from Detroit. Display prepared for Michigan Archaeology Day, Lansing (October 2017).

*Sawing Logs and Saving Lives in the Upper Peninsula: An Archaeological Survey of Muskallonge Lake State Park, Michigan. Presentation to the Toledo Area Aboriginal Research Society, Toledo, OH (May 2017).

*Defiance and the Maumee Valley: Rivers of History. Presentation to the "Ecology and History of the Maumee Valley Watershed" class at Maumee Valley Country Day School, Toledo, OH (May 2017).

*"You Will Do Better in Toledo": Excavating the Glass City. Presentation to the Toledo Area Aboriginal Research Society, Toledo, OH (March 2017).

*Urban Archaeology in the Glass City: Excavations in Toledo's UpTown Neighborhood. Invited lecture for the University of Toledo Anthropological Society and the Black Swamp Chapter of the Archaeological Society of Ohio's Four Fields Lecture Series, Toledo (March 2017).

*Sawing Logs and Saving Lives: The Archaeology of Deer Park, Michigan. Display prepared for Michigan Archaeology Day, Lansing (October 2016).

*Urban Archaeology in the Glass City. Display prepared for Ohio Archaeology Day, Columbus (October 2016).

*The Archaeology of the Recent Past: Artifacts and Everyday Life in 20th Century Michigan. Display prepared for Michigan Archaeology Day, Lansing (October 2015).

*"Dance with me to the Paradise beat": The Archaeology of Detroit's Paradise Valley. Presentation to the Toledo Area Aboriginal Research Society, Toledo, OH (September 2015).

*Saving the Past, Promoting Progress: CRM Archaeology in Detroit. Display prepared for Michigan Archaeology Day, Lansing (with Kate J. Hayfield; October 2014).

*Backyard Archaeology in Mt. Vernon: Excavations at the Cooper-Stamp-Day House. Presentation for the Public Library of Mt. Vernon and Knox County Brown Bag Lunch Series, Mt. Vernon, OH (October 2013).

*The Archaeology of Nationalism: Ft. Miamis as a Case Study. Presentation to the Toledo Area Aboriginal Research Society, Toledo, OH (September 2013).

*Current Approaches to Farmstead Archaeology in the Lower Great Lakes. Presentation to the Toledo Area Aboriginal Research Society, Toledo, OH (February 2013).

*Class, Identity, and Material Culture in a Baltimore Textile Community, 1840-1930. Presentation to the Toledo Area Aboriginal Research Society, Toledo, OH (November 2011).

*Urban, Rural, WET! Results of a Recent Phase I Archaeological Survey in the Blanchard River Watershed, Hancock and Putnam Counties. Presentation to the Toledo Area Aboriginal Research Society, Toledo, OH, and the Blanchard River Archaeology Club, Findlay, OH (September and December 2010).

*Interpreting the "Mildest Form of Slavery" in Western Maryland. Invited lecture at "Sifting Through Slavery: Archaeology and Interpretation of Agricultural and Industrial Slavery in the Mid-Atlantic," the 4th Annual Symposium on African-American History in the Mid-Atlantic, Towson, MD (March 2010).

*Exploring Economic Change in a Deindustrialized Baltimore Neighborhood: The Hampden Community Archaeology Project. Presentation to the Toledo Area Aboriginal Research Society, Toledo, OH (February 2007).

Hampden Dig Revisited. Presentation for Roland Park Place Lunch & Learn #19, Baltimore, MD (with David Gadsby; June 2006).

The History of Hampden. Presentation for Roland Park Place Lunch & Learn #18, Baltimore, MD (with Jean Hare and David Gadsby; June 2005).

*The Archaeological Heritage of Industry and Labor in the Northern Chesapeake. Presentation to the Northern Chesapeake Archeological Society, Bel Air, MD (April 2004).

*The Archaeological Heritage of Industry and Labor in a Portion of Central Maryland. Presentation to the Monocacy Archaeological Society, Walkersville, MD (February 2004).

*Ft. Miamis and Ft. Meigs: A Comparative Analysis of Two Artifactual Assemblages. Presentation to the Toledo Area Aboriginal Research Society, Maumee, OH (May 2002).

*Grinding Groove Cave: Excavations at a Paleolithic Cave Shelter in Queensland, Australia. Presentation for the Public Library of Mt. Vernon and Knox County Brown Bag Lunch Series, Mt. Vernon, OH (July 2001).

5. TEACHING EXPERIENCE

Adjunct Instructor (Spring 2007-Summer 2010, Spring 2013-Spring 2023)
Department of Anthropology, Heidelberg University, Tiffin and Maumee, Ohio
Cultural Anthropology
Physical Anthropology

Adjunct Instructor (Fall 2013)
School of Criminal Justice and Social Sciences, Tiffin University, Tiffin, Ohio
Forensic Anthropology

Adjunct Faculty (Summer 2010 – Spring 2012)
Department of History, Siena Heights University, Adrian, Michigan
Museum Studies and Collections
The Cold War
Urban Influences in History
Labor History

War in History: The Spanish-American War

Adjunct Instructor (Fall 2009)
Science/Mathematics Division, Monroe County Community College, Monroe, Michigan
World Regional Geography (short-term substitute)

Adjunct Lecturer (Fall 2007)
Department of History and Philosophy, Eastern Michigan University, Ypsilanti
The United States, 1877 to the Present

Graduate Student Instructor (Winter 2007)
Department of Anthropology, University of Michigan, Ann Arbor
Frauds and Fantastic Claims in Archaeology

Graduate Student Instructor (Fall 2005-Winter 2006, Fall 2007)
Department of History, University of Michigan, Ann Arbor
The United States, 1865 to the Present
Religion in America
War and American Society in the 20th Century

Teaching Assistant (Fall 2002-Spring 2003)
Department of Anthropology, University of Maryland at College Park
Introduction to Archaeology

Awards and Recognition:

Graduate Teacher Certificate, Center for Research on Learning and Teaching, University of Michigan (2008)

Distinguished Teaching Assistant Award, Department of Anthropology, University of Maryland at College Park (2003)

6. FELLOWSHIPS, GRANTS AND AWARDS

Fellowships

- Rackham One-Term Dissertation Fellowship, University of Michigan (2009).
- Rackham Humanities Research Dissertation Fellowship, University of Michigan (2008-2009).

Grants

- Rackham Graduate Student Research Grant, University of Michigan. Awarded $2,500 for dissertation research (2007).
- Sociological Initiatives Foundation Grant. Awarded $15,000 for the Hampden Community Archaeology Project (2007).
- Arts of Citizenship Program Graduate Student Grant, University of Michigan. Awarded $3,000 for the Hampden Community Archaeology Project (2005).

- Maryland Historical Trust IMPART Maryland Heritage Grant. Awarded $2,500 for the project, "The Archaeological Heritage of Labor in Maryland" (2003).

Awards and Recognition

- Emerging Diversity Scholar Citation, National Center for Institutional Diversity, University of Michigan (2009).

7. PROFESSIONAL AND COMMUNITY SERVICE

Community Service

- **Member and Secretary,** Milan (Michigan) Public Library Board of Trustees (August 2012-present).
- **Secretary/Treasurer,** Milan (Michigan) Cub Scout Pack 491 (February 2017-present).
- **Treasurer,** Milan (Michigan) Boy Scout Troop 449 (October 2019-present).

University and Departmental Service:

- **Graduate Student Administrator,** Rackham Interdisciplinary Workshop Grant for "Trans/Formations of the Disciplines: Evaluating the Project of Anthropology and History." Doctoral Program in Anthropology and History, University of Michigan (2006-2008).
    - Responsibilities included maintaining the grant budget and working with event organizers to disburse funds; writing annual reports for the Rackham School of Graduate Studies; submitting annual renewal applications; and representing the Trans/Formations workshop at Rackham events.

- **Member, Arts of Citizenship Task Force.** University of Michigan (2006).
    - Attended meetings and contributed to formulating a revised mission and defining specific functions regarding graduate student involvement and project funding for the Arts of Citizenship program.

Professional Service:

- **Ad Hoc Committee on Federal Emergency Management Agency / Michigan State Historic Preservation Office Programmatic Agreement.** Conference on Michigan Archaeology (2023).
- **Trustee.** Conference on Michigan Archaeology (2022-present)
- **Awards Committee.** Conference on Michigan Archaeology (2021-present).
- **Grants Committee.** Ohio Archaeological Council (2021-2023).
- **Curation and Collections Committee.** Society for Historical Archaeology (2017-present).
- **Publications Committee.** Ohio Archaeological Council (2016-2018).
- **Committee on Continuing Professional Education.** Register of Professional Archaeologists (2013-2018).
- **Education Committee.** Ohio Archaeological Council (2013-2015; 2020-2021).
- **Professional Advisor.** Toledo Area Aboriginal Research Society (2010-2020).
- **Public Education and Interpretation Committee.** Society for Historical Archaeology (2009).

- **Committee on Labor Landmarks, Public History and Memory.** Labor and Working-Class History Association (2008-2009).
- **Peer Reviewer.** Multiple Academic Journals, including:
  - *Historical Archaeology*
  - *Journal of Field Archaeology*
  - *Southern Historian*
- **Peer Reviewer** for *Robert Poole, 1818-1903: Building Out America in the Golden Age of Iron* by Steven C. Swett, Bragg Hill Press, Hanover, NH (2018).

Editorial Activity:

- **Associate Editor,** *Journal of Ohio Archaeology* (2017-2018).
- **Contributing Book Review Editor** for the H-Urban Network, *H-Net: Humanities and Social Sciences Online* (2008-2013).
  - Responsible for assigning and editing book reviews in the fields of urban anthropology and archaeology and U.S. urban history.
- **Associate Editor/Senior Associate Editor** for Volumes 28-29, *Southern Historian* (2007-2008).
- **Copyeditor,** *Society for Industrial Archeology Newsletter* (2004-2008).

Current Professional Memberships and Affiliations:

- Center for Heritage Resource Studies, University of Maryland
- Conference on Michigan Archaeology
- Ohio Archaeological Council
- Register of Professional Archaeologists
- Society for Historical Archaeology

8. TRAINING AND CERTIFICATIONS

- Prequalified in Archaeology with the Indiana Department of Transportation, Michigan Department of Transportation, Ohio Department of Transportation, and West Virginia Department of Highways.
- Certificate of Completion, "Adult First Aid/CPR/AED," American Red Cross Training Services (March 2021).
- Certificate of Completion, "GIS for Historical Archaeologists Workshop," Society for Historical Archaeology (January 2019).
- Certificate of Completion, Ohio Department of Transportation Section 106 Training (September 2015).
- Certificate of Completion, Occupation Safety and Health Administration 40-hour Hazardous Materials Worksite Training (March 2014; 8-hour refresher course most recently completed May 2020).
- Certificate of Training, "Call Before You Dig: Ohio Utilities Protection Service," Ohio Archaeological Council (May 2013).
- Certificate of Completion, Ohio Department of Transportation Section 4F/6F Training (April 2013).

Curriculum Vitae

Timothy J. Maze
(734) 775-8466
Timothy. J. Maze@gmail.com

EDUCATION

- 2024: M.S. Industrial Heritage and Archaeology, Michigan Technological University. Thesis: The Implications of Waste Streams at Camp Au Train. Advisor: LouAnn Wurst
- 2018: B.S. Anthropology, Eastern Michigan University.
- 2013-2018: Washtenaw Community College.

FIELD AND LAB EXPERIENCE

- 2024: **Field Director** for Chronicle Heritage. Dr. Emily Epstein (PI). Phase I Survey, Sterling Heights, MI. April
- 2023-2024: **Archaeological Lab Technician** for Mannik & Smith Group.
- 2023: **Field Archaeologist** for Mannik & Smith Group. Dr. Robert Chidester (PI). Phase I Survey. Grand Ledge, MI. August-September.
- 2023: **Field Archaeologist** for Mannik & Smith Group. Dr. Robert Chidester (PI). Phase I Survey. Bellevue, OH. July
- 2023: **Field Archaeologist** for Mannik & Smith Group. Dr. Robert Chidester (PI). Phase III; Hillside Stabilization, Irish Town Bend, Cleveland, OH. June-July.
- 2022-2023: **Oral History Interpreter** for Keweenaw Bay Indian Community, Keweenaw National Historical Park. Jo Holt, Carol Maclennan (Supervisors)
- 2022: **Field Archaeologist** for Gwynedd Archaeological Trust, Welsh Slate World Heritage Site, UNESCO. Bangor, U.K. Jane Kenney (PI). August
- 2019-2022: **Curation Assistant** for Hiawatha National Forest. Dr. LouAnn Wurst (Supervisor), Dr. Eric Drake (Supervisor). Houghton, MI.
- 2021: **Field Supervisor, Teaching Assistant** Hiawatha National Forest Passport In Time Program, MTU Archaeological Field School. Dr. LouAnn Wurst (PI), Dr. Eric Drake (NFS Supervisor). Au Train, MI.
- 2020-2021: **Field Supervisor** at Keweenaw National Historical Park, Copper Strike National Guard Encampment. Dr. LouAnn Wurst (PI), Jo Holt (Supervisor). National Park Service, Calumet, MI.
- 2021: **Lab Teaching Assistant** at Michigan Technological University. Houghton, MI. Dr. LouAnn Wurst (PI).
- 2020: **Field Archaeologist** for Mannik & Smith Group. Dr. Rober Chidester (PI). Phase 1; reconnaissance and pedestrian survey. Pebble County, IN. August.

- 2020: **Cultural Resource Specialist** for American Conservation Experience internship through the Keweenaw National Historical Park. Jo Holt (Supervisor). Field survey and research report of narratives of indigenous copper mining in the Keweenaw Peninsula. Houghton, MI. June-September.
- 2020: **Field Archaeologist** for Mannik & Smith Group, Dr. Rober Chidester (PI). Phase 1; reconnaissance and pedestrian survey. Norwalk, OH. June.
- 2020: **Field Archaeologist** for Mannik & Smith Group, Dr. Rober Chidester (PI). Phase 1; reconnaissance and pedestrian survey. Bellevue, OH. January.
- 2019: **Crew Supervisor** for Hiawatha National Forest Passport In Time. LouAnn Wurst (PI). Phase 2 test excavations. August.
- 2019: **Field Archaeologist** for Mannik & Smith Group, Dr. Rober Chidester (PI). Phase 1; reconnaissance and pedestrian survey. Sandusky, OH. July
- 2019: **CRM-oriented volunteer Field Technician** for the Eastern Michigan University Archaeology Field School, Dr. Bradley E. Ensor (PI). Oakwoods Metropark, MI. Phase III excavations. June.
- 2019: **Field Archaeologist** for Mannik & Smith Group, Dr. Rober Chidester (PI). Phase 2; test excavations. Detroit, MI. April-July.
- 2018: **Field Archaeologist** for Mannik & Smith Group, Dr. Robert Chidester (PI). Phase I; reconnaissance and pedestrian survey. Ravenna, OH. October-November.
- 2018: **CRM-oriented volunteer Field Technician** for the Eastern Michigan University Archaeology Field School, Dr. Bradley E. Ensor (PI). Oakwoods Metropark, MI. Phase I; site survey. August.
- 2018: **CRM-oriented volunteer Field Technician** for the Eastern Michigan University Archaeology Field School, Dr. Bradley E. Ensor (PI). Oakwoods Metropark, MI. Phase III excavations. June.
- 2017: Volunteer lab work and analysis for the Castle Museum of Saginaw County History, Jeffrey Sommer (PI). Saginaw, MI. December.
- 2016: Artifact analysis and processing. Eastern Michigan University, Dr. Bradley Ensor (PI). Ypsilanti, MI. July.
- 2016: Advanced CRM-oriented field school. Eastern Michigan University Archaeology Field School, Dr. Bradley E. Ensor (PI). Willow and Oakwoods Metroparks, MI. Phase I, II, & III; reconnaissance and site survey, test unit excavations, and broad horizontal block excavations. June.
- 2014: Introductory CRM-oriented field school. Eastern Michigan University Archaeology Field School, Dr. Bradley E. Ensor (PI). Willow and Oakwoods Metroparks, MI. Phase I & II; reconnaissance and site survey, test unit excavations. June.

OTHER WORK EXPERIENCE

- 2019-2022: **Graduate Teaching Assistant/ Lecturer.** Michigan Technological University. Social Sciences Department.
- 2017-2023: **GSRP Teacher**. Dorothy's Discovery Daycare Center. 7265 Merritt Rd., Ypsilanti, MI 48197
- 2014-2021: **Assistant Site Coordinator**. Eastern Michigan University Bright Futures. 203 Boone Hall, Ypsilanti, MI 48197
- 2002-2012: **Peer Educator/ Assistant Substance Abuse Prevention Counselor**. Oakwood Taylor Teen Health Center. 26650 Eureka Rd. Taylor, MI 48180

AWARDS, GRANTS AND HONORS

- 2020: Travel Grant Award from the Michigan Technological University Graduate School Government. Society for Historical Archaeology Annual Conference, Boston, MA. Amount: $150.00.

- 2020: Travel Grant Award from the Michigan Technological University Social Sciences department. Society for Industrial Archaeology Annual Conference, Bethlehem, PA. Amount: $500.00

PUBLICATIONS

- 2024: *The Implications of Waste Streams Camp Au Train.* Graduate Thesis. Michigan Technological University
- 2023: *Penrhyn Quarry Railroad at Tyn Y Clwt.* Archaeological Report for the Gwynedd Archaeological Trust.
- 2024: (Pending) National Register of Historic Places nomination for Fiborn Quarry.
- 2020: *Echoes of Copper: Speaking Truth to The Power of Prehistoric Indigenous Copper Use on Lake Superior.* Research project for the Keweenaw National Park Service ACE internship. USNPS.

PRESENTATIONS AND INVITED LECTURES

- 2022: *Scalar Sustainability in UNESCO's Industrial Heritage.* Collaborative Research Project presented at The International Committee for the Conservation of Industrial Heritage (TICCIH). Montreal, Quebec. September.
- 2020: *Implications of Waste Streams at Camp Au Train.* Master's Thesis methodology project. Presented at the Students of Upper Michigan Anthropology Conference(SUMAC). Virtual conference due to Covid-19. April
- 2018: *Ceramics as Commodities: Market Access in Rural Southeastern Michigan.* Independent research and analysis project presented at Undergraduate Symposium 38 at Eastern Michigan University. Ypsilanti, MI. March.

REFERENCES

Dr. Robert Chidester
Principal Investigator at Mannik and Smith
rchidester@manniksmithgroup.com

Dr. Bradley E. Ensor
Professor of Anthropology at Eastern Michigan University
(734) 487-0012
bensor@emich.edu

Jo Urion Holt
Historian, Keweenaw National Historical Park
(906) 483-3038
jo_holt@nps.gov

Lynn Malinoff
Director of Eastern Michigan University Bright Futures
(734) 487-0372
lmalinoff@emich.edu

Dr. LouAnn Wurst
Professor of Industrial Heritage and Archaeology
Michigan Technological University
Lawurst@mtu.edu

From:	Stafford, Susan (FAA)
To:	Alberts, David
Subject:	[External] FW: Manassas Regional Airport Replacement Air Traffic Control Tower (ATCT) (DHR File No. 2025-3557) | e-Mail #03357
Date:	Wednesday, April 16, 2025 8:20:41 AM

External Sender: Please use caution with links and attachments.

Dave,

Please see the DHR response below regarding the HEF ATCT Replacement project.

Thank you,

Susan B. Stafford
Beckley Airports Field Office
176 Airport Circle, Rm 101
Beaver, WV 25813
609-916-5793

From: Adrienne Birge-wilson <Adrienne.Birge-Wilson@dhr.virginia.gov>
Sent: Wednesday, April 16, 2025 8:09 AM
To: Stafford, Susan (FAA) <Susan.Stafford@faa.gov>
Subject: Manassas Regional Airport Replacement Air Traffic Control Tower (ATCT) (DHR File No. 2025-3557) | e-Mail #03357

Dear Susan Stafford,

Thank you for requesting comments from the Department of Historic Resources (DHR) on the referenced project. Based upon the documentation provided, it is our opinion that the historic properties within the Area of Potential Effects will not be adversely affected by the proposed undertaking.

The investigations and report generally meet applicable standards and guidelines and DHR accepts the report as a reasonable and good faith effort to identify historic properties. The Phase I archaeological survey of the 2.4 acres of the project Area of Potential Effects (APE) (dated October 2024) did not identify any archaeological sites; the remainder of the APE was surveyed in 2017 under DHR File No. 2017-0348) and no sites were identified during that investigation. The consultant recommends no further archaeological investigations for this undertaking and DHR concurs with this recommendation.

Implementation of the undertaking in accordance with the finding of *No Adverse Effect* as documented fulfills the Federal agency's responsibilities under Section 106 of the National Historic Preservation Act. If the scope of the undertaking changes or if the undertaking cannot be completed as proposed in the application submitted and reviewed by DHR, please contact our office for guidance on reinitiating consultation under Section 106.

If you have any questions or require any further assistance, please contact me.

Sincerely,

Adrienne Birge-Wilson, Architectural Historian
Department of Historic Resources
Review and Compliance Division
Phone: (804) 482-6092
Adrienne.Birge-Wilson@dhr.virginia.gov

Project Review Application Form

This application must be completed for all projects that will be federally funded, licensed, or permitted, or that are subject to state review. Please allow 30 days from receipt for the review of a project. All information must be completed before review of a project can begin and incomplete forms will be returned for completion.

I. GENERAL PROJECT INFORMATION

1. Has this project been previously reviewed by DHR? **YES** X **NO** ___ **DHR File #** 2024-3226

2. Project Name Environmental Assessment for a Replacement Air Traffic Control Tower (ATCT)

3. Project Location Manassas (**City**) Prince William (**County**)

4. Specify Federal and State agencies involved in project (providing funding, assistance, license or permit). Refer to the list of agencies and abbreviations in the instructions.

Lead Federal Agency Federal Aviation Administration

Other Federal Agency

State Agency

5. Lead Agency Contact Information

Contact Person Susan Stafford

Mailing Address FAA Beckley Airports Office 176 Airport Circle, Room 101, Beaver, WV 25813

Phone Number 304-252-6216 **Fax Number** 304-253-8028

Email Address susan.stafford@faa.gov

6. Applicant Contact Information

Contact Person Juan Rivera, C.M., ACE, Airport Director

Mailing Address 10600 Harry J Parrish Blvd, Manassas, VA 20110

Phone Number 703-361-1882 **Fax Number**

Email Address jrivera@manasssva.gov

II. PROJECT LOCATION AND DESCRIPTION

7. USGS Quadrangle Name Nokesville

8. Number of acres included in the project 0.3-acre

MAIL COMPLETED FORM AND ATTACHMENTS TO:
Virginia Department of Historic Resources
Attention: Project Review
2801 Kensington Avenue, Richmond, VA 23221
www.dhr.virginia.gov

9. Have any architectural or archaeological surveys of the area been conducted? YES X NO ___

If yes, list author, title, and date of report here. Indicate if a copy is on file at DHR.
See previous submittal

10. Are any structures 50 years old or older within or adjacent to the project area? YES ___ NO X

If yes, give date(s) of construction and provide photographs.

11. Does the project involve the rehabilitation, alteration, removal, or demolition of any structure, building, designed site (e.g. park, cemetery), or district that is 50 years or older? If *yes*, this must be explained fully in the project description. YES ___ NO X

12. Does the project involve any ground disturbance (e.g. excavating for footings, installing sewer or water lines or utilities, grading roads, etc.)? If *yes*, this must be explained fully in the project description. YES X NO ___

13. DESCRIPTION: Attach a complete description of the project. Refer to the instructions for the required information. See FAA to VDHR letter, attached

To the best of my knowledge, I have accurately described the proposed project and its likely impacts.

Signature of Applicant/Agent _____ Date _____

The following information must be attached to this form:

X* Completed DHR Archives search *(see previous submittal)
X USGS map with APE shown
X Complete project description
X Any required photographs and plans

____ No historic properties affected _____ No adverse effect
____ Additional information is needed in order to complete our review.
____ We have previously reviewed this project. A copy of our correspondence is attached.
Comments: _____

Signature _____ Date _____

Phone number _____ DHR File # _____
This Space For Department Of Historic Resources Use Only

MAIL COMPLETED FORM AND ATTACHMENTS TO:
Virginia Department of Historic Resources
Attention: Project Review
2801 Kensington Avenue, Richmond, VA 23221
www.dhr.virginia.gov

U.S. Department of Transportation

Federal Aviation Administration

Beckley Airports Field Office
176 Airport Circle, Room 101
Beaver, West Virginia 25813
Telephone: (609) 916-5790

January 08, 2026

Adrienne Birge-Wilson
Division of Review and Compliance
Virginia Department of Historic Resources
2801 Kensington Avenue
Richmond, VA 23221

RE: Section 106 Coordination and FAA Determination: Environmental Assessment for a Replacement Air Traffic Control Tower (ATCT), Manassas Regional Airport, Manassas, VA
DHR File No. 2024-3226

Dear Ms. Birge Wilson,

On April 16, 2025, the Virginia Department of Historic Resources (VDHR) submitted an email to the Federal Aviation Administration (FAA) regarding the Manassas Regional Airport Environmental Assessment (EA) for a Replacement ATCT (i.e., Undertaking).[1] The letter described a finding of ***No Adverse Effect*** for the proposed replacement ATCT.

Since that correspondence, the scope of the Proposed Undertaking has changed. The FAA Remote Transmitter/Receiver (RTR) that was initially to be atop the proposed replacement ATCT is now planned to be located on the ground within the Airport's property. ***Attachment 1*** shows an example of an FAA RTR facility, with towers approximately 70 feet tall. ***Attachment 2*** shows the location of the Proposed RTR towers (small yellow squares; approximately 9 feet x 9 feet) and an electrical support building (yellow rectangle; approximately 12 feet x 36 feet) on the north side of the Airport property.

FAA RTR Tower Direct APE

The Proposed RTR Tower site constitutes a 0.3-acre area located on Airport property, north of Runway 16R/34L and the existing access road and south of Observation Road (see ***Attachment 3***). Fill material was used in the APE during the Airport's initial construction in the mid-1960s. This area was then graded during the construction of Observation Road in the mid-1980s and the north interior airport access road in 2008-2010, which included stormwater ditches and fencing.

Potential Direct Effects

The FAA RTR Tower 0.3-acre Direct APE, where the RTR Tower's and support building will result in direct impacts include soil and terrain that have been substantially disturbed by the construction of the Airport, Observation Road (a public road), the north interior airport access road, and the

[1] Manassas Regional Airport Replacement Air Traffic Control Tower (ATCT) (DHR File No. 2025-3557) | e-Mail #03357

stormwater conveyance network. During the construction of the north interior airport access road, completed in 2010, fill material for the roads was graded and leveled. A large man-made drainage feature runs northeast-southwest through the direct APE. Existing elevations and surface conditions, as well as historical aerial photographs, indicate that this area was disturbed during construction before 1977.

The most recent archaeological survey adjacent to the FAA RTR Tower APE was the 2013 William and Mary Center for Archaeological Research (WMCAR) survey for the proposed Virginia Rail Express Broad Run Parking Expansion (Higgins and Hanbury 2013). This survey examined approximately 4 acres of the larger 13-acre APE, most of which was covered by existing paving. The survey included both subsurface testing and a metal detector survey. WMCAR identified four archaeological locations, no archaeological sites, and extensive disturbance of the survey area associated with the 1991 construction of the existing facilities. No further archaeological study was recommended.

The nearby Manassas Battlefield Park is already a significant archaeological site, but its boundaries do not include surrounding sites that may have directly or indirectly contributed to the battle itself, or the events that occurred before and after (Galke 2009; Martin et al.1997). Despite the direct APE's proximity to the Bristoe Station Battlefield and associated resources, there is no specific evidence of military activity within the APE during the Civil War.

Archival research indicates that extensive previous archaeological testing had been conducted within the Airport and that it was determined to be free of potentially eligible archaeological resources. Additional areas were exempted from testing based on the sequence of historic aerial photographs of the area, available for review online or through the USGS, or on surface evidence of soil disturbance.

Alternative RTR Locations

Alternative RTR site locations were identified based on the following criteria for the current EA:

- Geographic: The site must be limited to existing Airport property.
- Line of Sight: Each potential location must ensure an unobstructed line of sight to the proposed replacement ATCT site.

Using this criterion, the Proposed Action RTR site and five alternative RTR sites (Sites 1-5) were identified and included in the EA (see ***Attachment 4)***.

Alternative RTR Evaluation Criteria

The following evaluation criteria were applied to each proposed site selection evaluation criteria:

- Safety: The site must be safely situated away from aircraft operations; specifically, it must be located beyond potential jet engine blast areas.
- Compliance with ALP and Future Growth: The site must align with the current Airport Layout Plan (ALP) (i.e., not located in Federal Aviation Regulation Part 77 imaginary surfaces) and must not impede or restrict planned future airport development.
- Avoids 100-year Floodplain: The site must avoid development within the 100-year floodplain to comply with environmental regulations (i.e., Executive Order 11988, Floodplain Management).

Proposed Action (Proposed Undertaking)– The Proposed RTR site location meets all site selection criteria, including a clear line of sight to the proposed replacement ATCT, is fully compatible with the ALP, and avoids the 100-year floodplain. From a safety perspective, the site is appropriately situated away from jet blast.

Site 1 - Site 1 avoids the 100-year floodplain. However, it presents operational and long-term challenges: it is incompatible with the ALP because it restricts future development, and it poses safety risks from jet-engine blast. Compared to the Proposed Action, Site 1 was not considered further.

Site 2 - Site 2 is compatible with future development, as shown on the ALP. Additionally, the location is not near a jet engine blast area. However, Site 2 does not avoid the 100-year floodplain. Compared to the Proposed Action, Site 2 was not considered further.

Site 3 - While Site 3 is favorable by providing ALP compliance and jet blast avoidance, it does not avoid the 100-year floodplain. Compared to the Proposed Action, Site 3 was not considered further.

Site 4 - While Site 4 presents a conflict with long-term planning. The location successfully avoids 100-year floodplain effects; however, it is ultimately incompatible with future development on the ALP and is near a jet-engine blast area. Compared to the Proposed Action, Site 4 was not considered further.

Site 5 - Although Site 5 avoids the 100-year floodplain, it presents safety and planning concerns. The location is not safely situated for aircraft operations due to jet blast generated by aircraft turning north and south from Taxilanes C and D. Furthermore, Site 5 is incompatible with the ALP because its placement could restrict future airport development. Compared to the Proposed Action, Site 5 was not considered further.

Indirect APE (Visual, Atmospheric, and Auditory Effects)

A preliminary viewshed analysis using Google Earth was conducted to evaluate the potential visibility of the Proposed Undertaking RTR site from surrounding areas. As shown in **Attachment 5**, the green-shaded area is where the Proposed Action's RTR could be visible.

A refined visual effects analysis was then conducted to improve accuracy and to provide a secondary visual effects analysis. A 3D scene was set up with LiDAR data, terrain, matched cameras, and the previous model set up in 3Ds Max software. The RTR's dimensions (footprint and height) were used to determine whether it would be visible from the previously rendered views/locations (see **Attachment 6**). Due to the small scale of the RTR Tower, the terrain, and the height of trees in view, the Proposed Action RTR Tower Location would not be visible from Views 1-4.

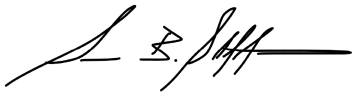
- View 1 – Bristoe Station Battlefield
- View 2 – Bristow Rd / Meadow Ln
- View 3 – Split Oak Ln
- View 4 – Bristow Rd / Centerville Sod

FAA Determination

Based on the results of the visual effects analysis, in accordance with 36 CFR 800.4(d)(1), it is the FAA's determination that no historic properties will be affected by the proposed RTR relocation.

The FAA respectfully requests your staff's review of this letter, Attachments 1 – 5, and concurrence with the FAA's determination. If you have any questions or need additional information regarding the Proposed Undertaking, please do not hesitate to contact me at susan.stafford@faa.gov or (609) 916-5793.

Sincerely,



Susan Stafford
Environmental Protection Specialist
Beckley Airports Field Office

Attachments

cc:
Juan Rivera, Manassas Regional Airport
Jolene Berry, Manassas Regional Airport
David Alberts, RS&H, Inc.

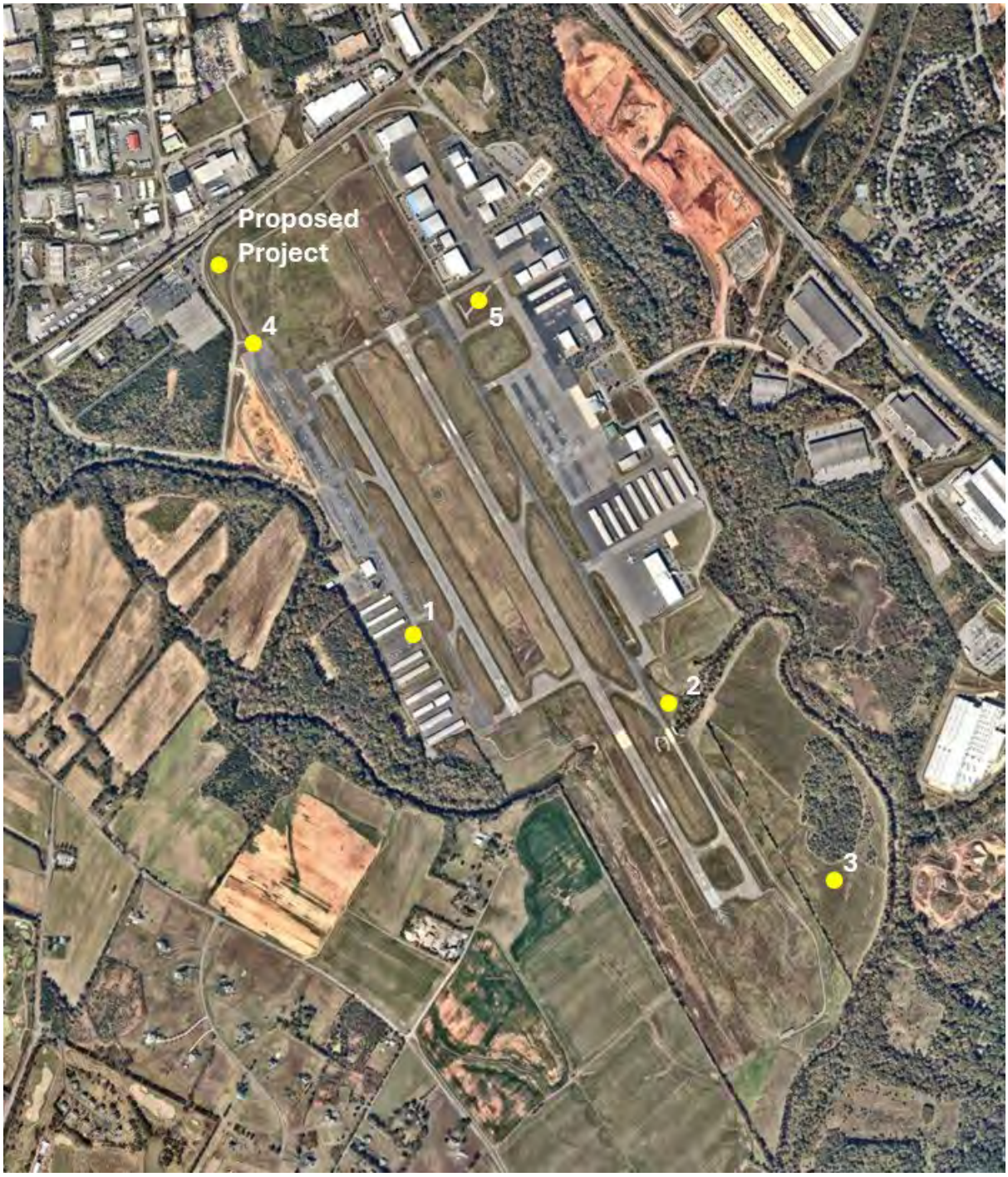
Attachment 1: Example FAA RTR Towers

Attachment 2: Proposed Action with FAA RTR Tower Location

Figure 3: FAA RTR Tower APE Located on a USGS Map (7.5' Nokesville, VA, July 2024)

Proposed Action's FAA RTR Tower APE is shown as a blue triangle.

Attachment 4: Proposed Action RTR and Alternative RTR Locations

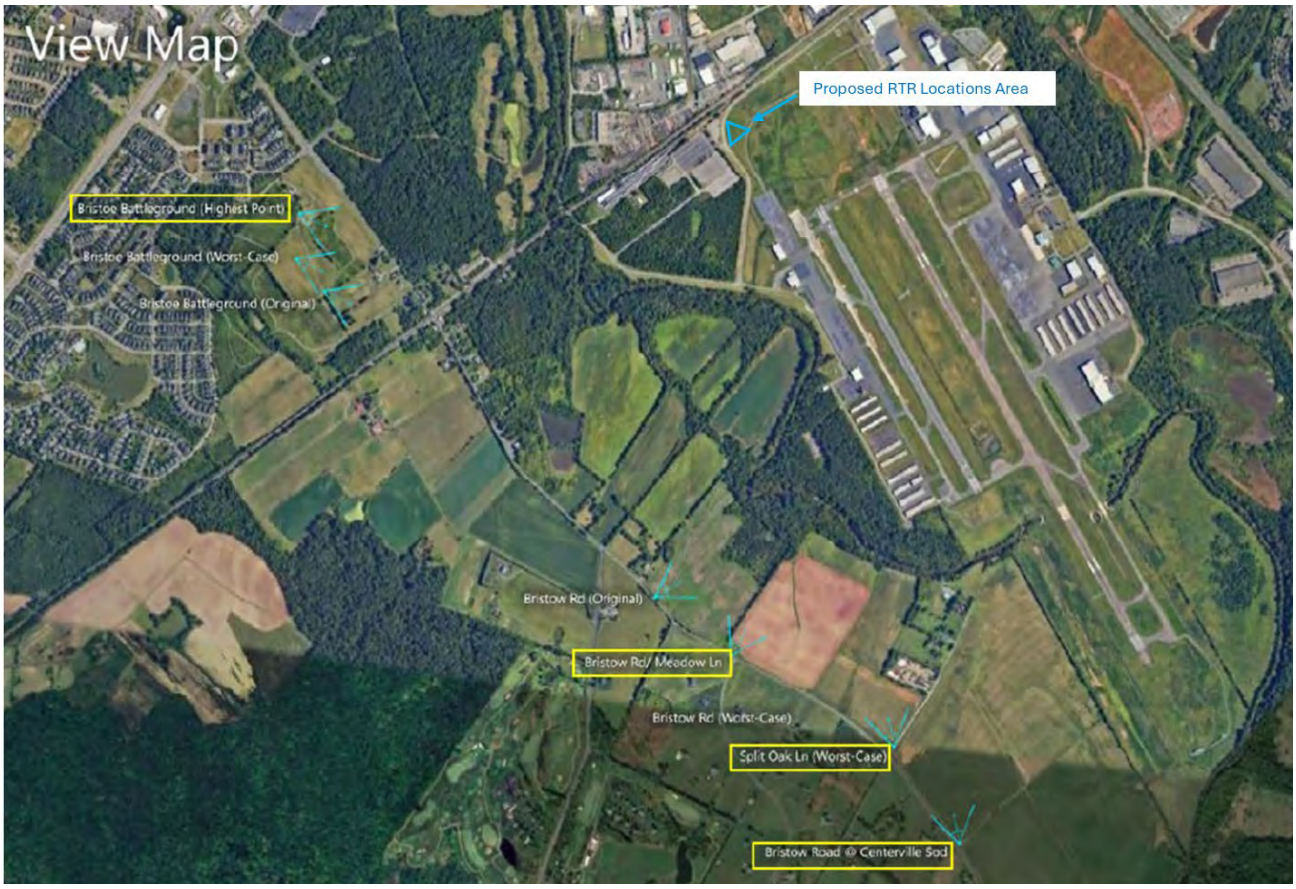


The yellow dot shows the proposed RTR tower alternative locations.

Attachment 5: Proposed Action's RTR Tower Preliminary Viewshed Analysis with Google Earth

Areas shaded green indicate where the Proposed Action RTR tower may be visible from the ground.

Attachment 6: Proposed Action's RTR Tower Viewshed Analysis with LiDAR Data



Not visible from Views 1-4:

- View 1 – Bristoe Station Battlefield
- View 2 – Bristow Rd / Meadow Ln
- View 3 – Split Oak Ln
- View 4 – Bristow Rd / Centerville Sod

Outlook

[External] FW: Manassas Regional Airport (HEF) Replacement Air Traffic Control Tower (ATCT) (DHR File No. 2024-3226) | e-Mail #03364

From Stafford, Susan (FAA) <Susan.Stafford@faa.gov>
Date Fri 1/30/2026 10:23 AM
To Alberts, David <David.Alberts@rsandh.com>

External Sender: Please use caution with links and attachments.

Dave,

Below is the response from VDHR for the HEF ATCT RTR Relocation.

Thank you,

Susan B. Stafford
Beckley Airports Field Office
176 Airport Circle, Rm 101
Beaver, WV 25813
609-916-5793

From: Adrienne Birge-wilson <Adrienne.Birge-Wilson@dhr.virginia.gov>
Sent: Friday, January 30, 2026 10:00 AM
To: Stafford, Susan (FAA) <Susan.Stafford@faa.gov>
Subject: Manassas Regional Airport (HEF) Replacement Air Traffic Control Tower (ATCT) (DHR File No. 2024-3226) | e-Mail #03364

Susan

Thank you for requesting comments from the Department of Historic Resources (DHR) 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 the scope of the undertaking changes or if the undertaking cannot be completed as proposed in the application submitted and reviewed by DHR, please contact our office for guidance on reinitiating consultation under Section 106.

If you have any questions or require any further assistance at this time, please contact me.

Sincerely,

Adrienne Birge-Wilson, Architectural Historian
Department of Historic Resources

Review and Compliance Division
Phone: (804) 482-6092
Adrienne.Birge-Wilson@dhr.virginia.gov

APPENDIX E
VISUAL EFFECTS STUDY

RS&H

Visual Effects Study
for the
Proposed Replacement Air Traffic Control Tower (ATCT)
at
Manassas Regional Airport

February 2025

Table of Contents

List of Figures

1 Introduction

Visual simulations were conducted for the Manassas Regional Airport Replacement Air Traffic Control Tower (ATCT) Environmental Assessment. Daytime and nighttime ATCT photo simulations were developed west of the Airport, looking at the project from multiple locations. Viewpoints, primarily along Bristow Road, were coordinated with the RS&H Visualization team, Airport management, and the Federal Aviation Administration (FAA). For this visual effects study, a proposed replacement ATCT is shown in **Figure 1**.

Figure 1: Conceptual Replacement ATCT

Source: RS&H, 2024

This report describes the following:

- FAA Visual Effects Significance Threshold,
- Viewpoint Locations,
- Creating an Accurate Visual Representation Process, and
- Simulations.

2 FAA Visual Effects Significance Threshold

According to the FAA Order 1050.1F, Desk Reference, "visual effects deal broadly with the extent to which the proposed action or alternative(s) would either: 1) produce light emissions that create annoyance or interfere with activities; or 2) contrast with, or detract from, the visual resources and/or the visual character of the existing environment. Visual effects can be difficult to define and assess because they involve subjectivity."

As described in FAA Order 1050.1F, Desk Reference, Section 13.3.3, The FAA has not established a significance threshold for visual effects in FAA Order 1050.1F; however, the FAA has identified factors to consider when evaluating the context and intensity of potential environmental impacts for visual effects include, but are not limited to.

- Light Emission Effects
  - The degree to which the action would have the potential to create annoyance or interfere with normal activities from light emissions; and
  - The degree to which the action would have the potential to affect the visual character of the area due to the light emissions, including the importance, uniqueness, and aesthetic value of the affected visual resources.

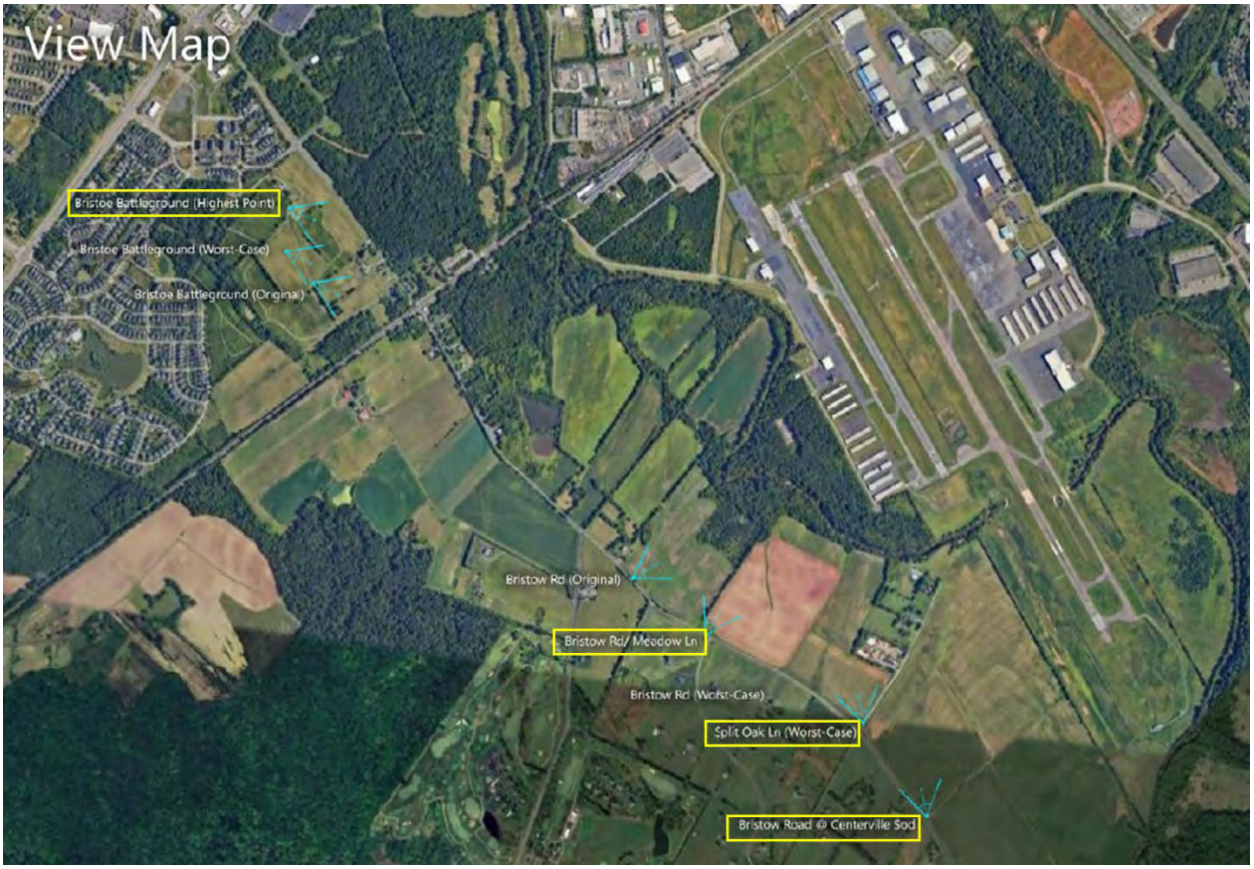
- Visual Resources and Visual Character Effects
  - The degree to which the action would have the potential to affect the nature of the visual character of the area, including the importance, uniqueness, and aesthetic value of the affected visual resources;
  - The degree to which the action would have the potential to contrast with the visual resources and/or visual character in the study area; and
  - The degree to which the action would have the potential to block or obstruct the views of visual resources, including whether these resources would still be viewable from other locations.

3 Viewpoint Locations

Multiple viewpoint locations were proposed early in the development of this study and coordinated among the RS&H Visualization team, Airport management, and the FAA. Preliminary viewpoint locations are shown in **Figure 2** and labeled:

- Bristoe Station Battlefield Heritage Park (original)
- Bristoe Station Battlefield Heritage Park (worst-case)
- Bristoe Station Battlefield Heritage Park (highest point)
- Bristow Rd (original)
- Bristow Road (worst-case)
- Bristow Road/Meadow Lane
- Split Oak Lane (worst-case)
- Bristow Road/Centerville Sod

Figure 2: Preliminary Viewshed Locations and Selected Locations (yellow polygons)



Source: Google Earth, RS&H, 2024.

The RS&H Visualization team then acquired and overlaid 2012 LiDAR data (the most recent available) onto a Google Earth aerial photo. **Figure 3** shows the aerial photo west of the Airport with a green overlay representing where the expected visibility of the proposed replacement ATCT could occur from the ground.

RS&H coordinated the preliminary viewpoints with the FAA regarding the ground-level camera position. Based on their national experience, the FAA recommended approximately 20 feet from ground level to capture views from a maximum pedestrian visibility height on a second floor of a residential home to showcase the potential visual effect of the proposed 120-foot tower on the surrounding areas.

The preliminary view locations were then refined to be located within the green overlay area at an elevation of 20 feet, resulting in the best visibility (i.e., worst-case) views. Therefore, the following four locations were selected for the visual effects analysis of the proposed replacement ATCT (see **Figure 2**):

1. Bristoe Station Battlefield Heritage Park (highest point)
2. Bristow Rd/Meadow Lane
3. Split Oak Lane (worst case)
4. Bristow Road/Centerville Sod

Figure 3: Potential Areas Where the Replacement ATCT Could Be Seen from the Ground Level (Green)

Source: Google Earth Viewsheds, 2024.

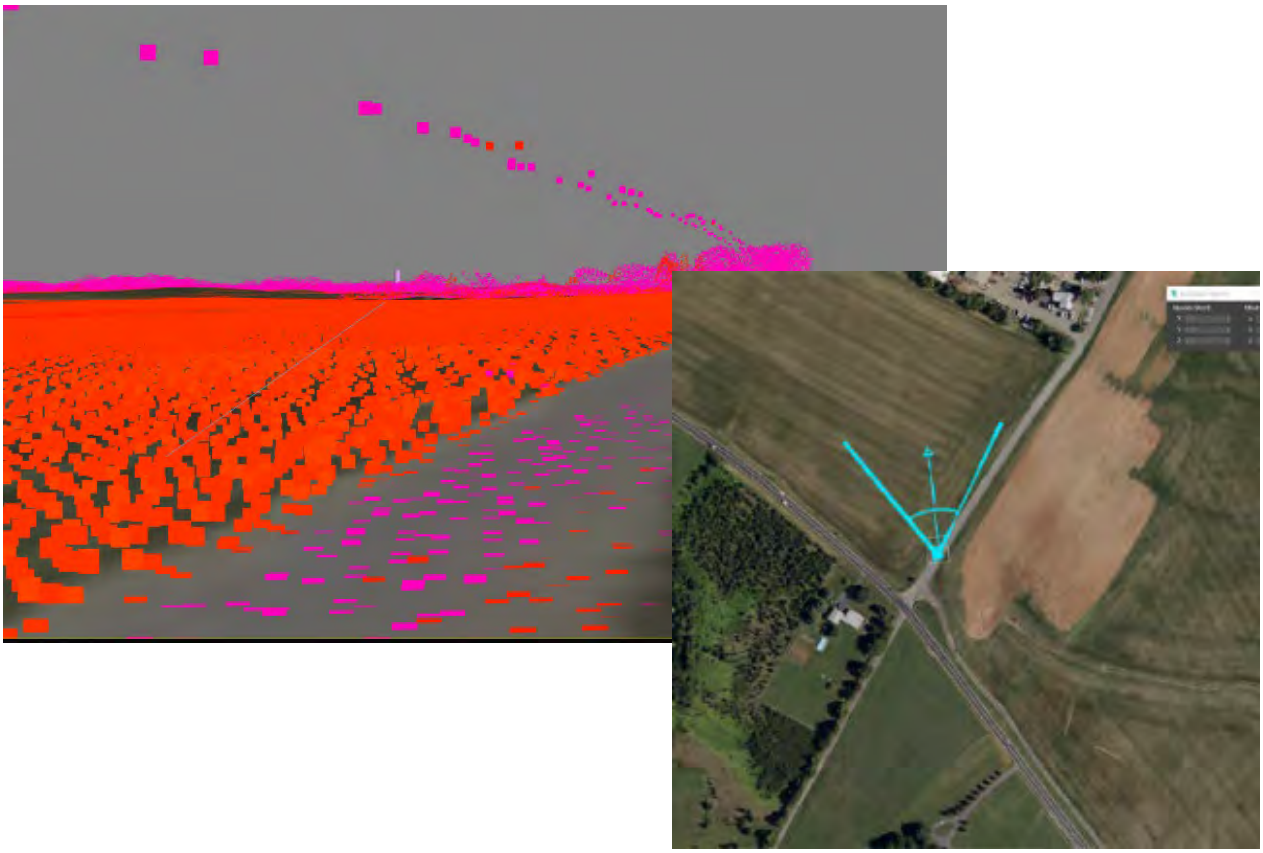
4 Creating an Accurate Visual Representation Process

Creating a Photo Simulation using 3D models and accurate lighting Data can be broken down into several stages, as described below.

4.1 Photo Locations Through Previz Software

Upon receiving initial information regarding potential camera locations and proposed design sites, the RS&H Visualization team first delivered Pre-Visualization drafts to preview visuals from each view. To achieve this, aerial data is obtained and imported into 3DS Max to create an accurate visual representation of the views. This involves configuring accurate camera settings and positions to mirror those of a real physical camera and ensuring the camera is at the desired height for capture. **Figure 4** shows LiDAR data[1] from a selected view location.

Figure 4: Example of LiDAR Data from a Selected View Location



Source: RS&H, 2024

[1] Light Detection and Ranging (LiDAR) is a remote sensing method that uses light as a pulsed laser to measure ranges (variable distances) to the Earth.

4.2 Photography

The RS&H Visualization team captured views from the viewpoint locations (see **Section 3**) during winter months (Feb 2024) to maximize visibility and show the worst-case visual effects the proposed replacement ATCT could have on the surrounding area, both during the day and at night. The approach involved capturing two images for each view: one during daylight hours and another after nightfall at each location. This allowed the RS&H Visualization team to visualize the potential environmental impact of the proposed replacement ATCT at night with existing area lighting.

Figure 5 shows the camera position at approximately twenty feet from ground level to capture views that simulate the view of local residents from a second-floor window, where the view location was adjacent to a residential area.

Figure 5: Daytime and Nighttime Photos at a Selected View Location

Source: RS&H, 2024.

4.3 3DS Max to align photo with Lidar (Camera Match)

The RS&H Visualization team used LiDAR data to accurately geo-locate the virtual camera in 3D space relative to the Proposed Project's location (see **Figure 6**).

Figure 6: RS&H Viewpoint Location Photo with LiDAR Data Overlay (Day and Night)

Source: RS&H, 2024.

4.4 3D Tower Model

A 3D model of a proposed replacement ATCT (see **Figure 1**) is positioned on a 2D Plan of the project, which is Geo-located relative to other references used to Verify 3D Camera Positions (i.e., LiDAR data). The proposed replacement ATCT is modeled at 120 feet above ground level to the parapet (see **Figure 7**).

Figure 7: Replacement ATCT Shown at a Selected View Location

Source: RS&H, 2024.

4.5 Lighting

The RS&H Visualization team utilized accurate sun-sky simulations to match the lighting conditions for the time of day and date the photograph was taken. In addition, for the Nighttime Views, real-world lighting units were used to simulate artificial lighting on the proposed replacement ATCT. While this can be a little more challenging for night views, the team evaluated the surrounding lights in the photo and inferred the appropriate light intensity based on the size of the light, distance from the camera, and other visible light sources in the photo, to emulate light spill from the surrounding area to produce a visual representation with a reasonable level of accuracy (see **Figure 8**).

Figure 8: Sun-Sky Simulations Example

Source: RS&H, 2024

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4.6 Postproduction

After rendering the views with VRay, the team utilized Photoshop to integrate the 3D render into the original photo. Masking is applied to remove any features (e.g., ATCT support building) not seen from the viewpoint location (see **Figure 9**).

Figure 9: 3D Render of Original Photo

Source: RS&H, 2024.

5 Simulations

The RS&H Visualization team repeated the accurate visual representation process for the four selected viewpoint locations. As shown in **Figure 10**, the Bristow Road / Meadow Lane viewpoint location during the daytime No Action and with the Proposed Project.

Figure 10: Bristow Road / Meadow Lane Visualization Simulation

No Action (Existing)

Proposed Project

Source: RS&H, 2024

Appendix A includes daytime and nighttime visual representations for the analyzed four viewpoint locations.

6 Conclusion

As a result of the visual simulations, the Manassas Regional Airport's proposed replacement ATCT would result in light emission effects to the degree to which the action would not:

- have the potential to create annoyance or interfere with normal activities from light emissions; or
- have the potential to affect the visual character of the area due to the light emissions, including the importance, uniqueness, and aesthetic value of the affected visual resources.

The proposed replacement ATCT would be designed to minimize light emissions to not cause annoyance or disrupt normal activities in the surrounding area. Additionally, the ATCT's lighting system would not compromise the character of the Bristoe Station Battlefield Heritage Park. The park's value and aesthetic appeal would not significantly be affected by the proposed replacement ATCT's light emissions.

The Manassas Airport's proposed replacement ATCT would result in visual resources and visual character effects to:

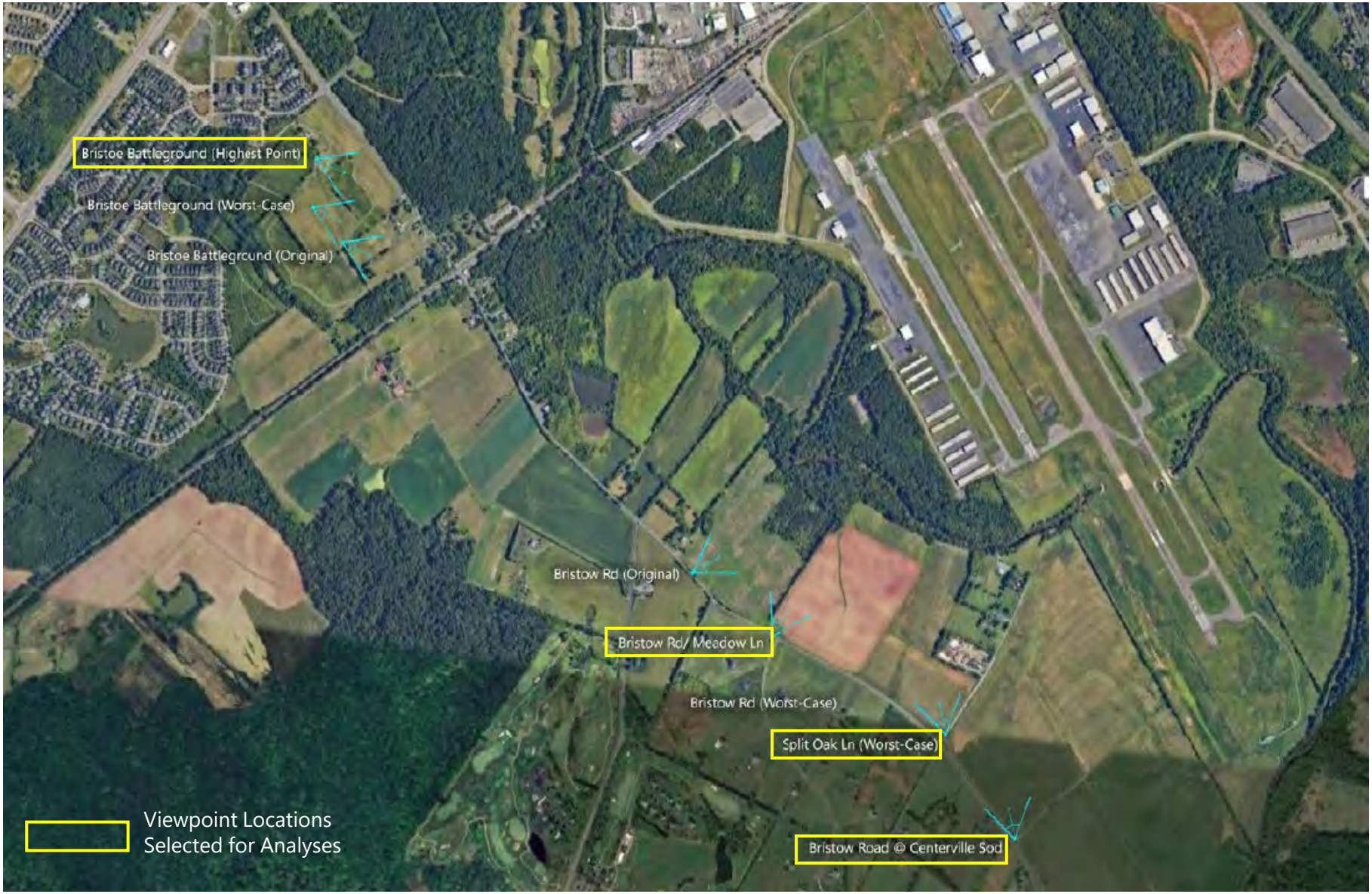
- change the viewshed but not affect the nature of the visual character of the area, including the importance, uniqueness, and aesthetic value of the affected visual resources.
- a degree of contrast with the visual resources and/or visual character of areas west of the Airport.
- not block or obstruct the views of visual resources.

While the proposed replacement ATCT would not be seen from the Bristoe Station Battlefield Heritage Park, it could introduce a new visual element that may not seamlessly blend with the existing visual character of the surrounding areas, particularly those west of the Airport. A degree of contrast with visual resources and/or visual character of the areas west of the Airport would arise from factors such as the tower's height, design, and lighting, which might stand out against the backdrop of the surrounding landscape when compared to a No Action Alternative.

However, the proposed replacement ATCT would be designed to be visually compatible with the existing Airport facilities and the surrounding environment. Additionally, the lighting system would be designed to meet FAA standards but avoid excessive light pollution and minimize any potential subjective negative impact on the visual character of the area. Lighting designs could include shielding outdoor lighting fixtures to focus light emission on specific areas, using light-colored exteriors to reduce the amount of artificial light needed outdoors, or using light-emitting diode (LED) lights or lower color temperature interior lighting (i.e., warmer light). Overall, while the proposed replacement ATCT may introduce some degree of visual change, the efforts to design and implement the project would consider the surrounding visual environment to minimize any negative impacts.

Appendix A: Daytime and Nighttime Simulations

Viewpoint Locations



Daytime Views

Bristoe Station Battlefield Heritage Park (highest point) - Existing

Bristoe Station Battlefield Heritage Park (highest point) – Proposed Project

Bristow Road / Meadow Lane – Existing

Bristow Road / Meadow Lane – Proposed Project

Split Oak Lane (worst-case) – Existing

Split Oak Lane (worst case) – Proposed Project

Bristow Road / Centerville Sod – Existing

Bristow Road / Centerville Sod – Proposed Project

Nighttime Views

Bristoe Station Battlefield Heritage Park (highest point) - Existing

Bristoe Station Battlefield Heritage Park (highest point) – Proposed Project

Bristow Road / Meadow Lane – Existing

Bristow Road / Meadow Lane – Proposed Project

Split Oak Lane (worst-case) – Existing

Split Oak Lane (worst case) – Proposed Project

Bristow Road / Centerville Sod – Existing

Bristow Road / Centerville Sod – Proposed Project

APPENDIX F
FLOODPLAINS ANALYSIS

MANASSAS REGIONAL AIRPORT

FLOODPLAIN FINDINGS AND ASSESSMENT

FOR

HEF REPLACEMENT AIRPORT TRAFFIC CONTROL TOWER ENVIRONMENTAL ASSESSMENT

NOVEMBER 2024

RS&H

FLOODPLAIN FINDINGS AND ASSESSMENT FOR HEF REPLACEMENT AIRPORT AIR TRAFFIC CONTROL TOWER ENVIRONMENTAL ASSESSMENT

November 2024

City of Manassas,
Prince William County,
Virginia

City of Manassas
P.O. # 240180

RS&H No.:
1054-1886-006

Prepared by RS&H, Inc. at the direction of City of Manassas

RS&H

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1.1 PROPOSED PROJECT

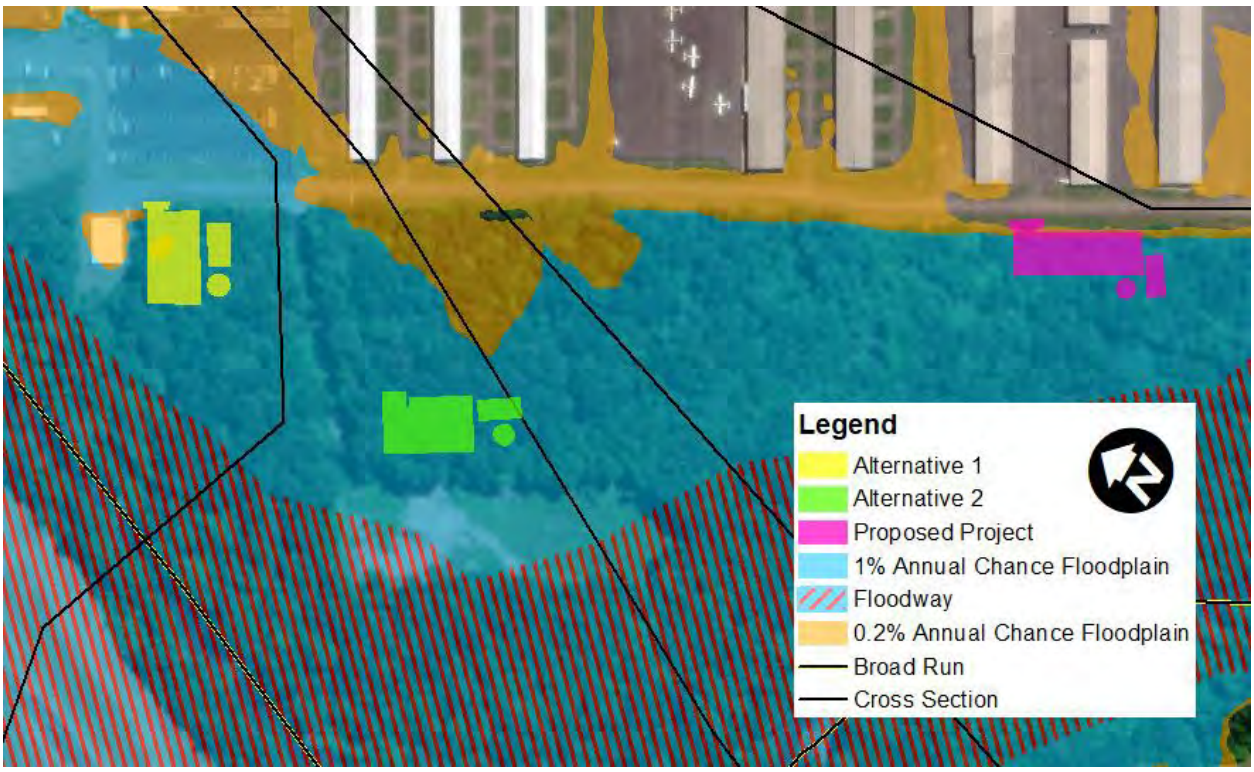
The City of Manassas (City) proposes a replacement Air Traffic Control Tower (ATCT) at Manassas Regional Airport (HEF) including a support facility and employee parking lot. The City is seeking approval from the Federal Aviation Administration (FAA) to construct and operate the replacement ATCT at HEF (Proposed Project) within the surveyed area of the previous FAA-approved *Final EA for West Corporate Development and East Parcel Development*. The City has retained Reynolds, Smith and Hills, Inc. (RS&H, Inc.) to perform an Environmental Assessment (EA) in accordance with *FAA Order 1050.1F, Environmental Impacts: Policies and Procedures* and *FAA Order 5050.4B, National Environmental Policy Act (NEPA) Implementing Instructions for Airport Actions*. HEF, the surrounding area, and area of potential effects (APE) are shown in **Figure 1**.

FIGURE 1:
AIRPORT LOCATION MAP

1.2 ALTERNATIVES

The EA will evaluate the proposed action and two alternative sites on the west side of HEF. Part or all of each site is located partially within the 1% annual chance Special Flood Hazard Area (SFHA), Zone AE. The siting of the Proposed Project and two alternatives took into consideration clearing an FAA recommended 2-acre site and avoiding the floodway, wetlands, and an archaeological site to the extent practicable. The Proposed Project and two alternative locations with SFHA boundaries are presented in **Figure 2**.

FIGURE 2: PROPOSED PROJECT ALTERNATIVES AND SFHA BOUNDARIES



1.3 PREVIOUS STUDIES

The City of Manassas and Prince William County have jurisdiction over the floodplain in the vicinity of HEF. FEMA has published Flood Insurance Study (FIS) report and FIRMS for Broad Run. FIRM Panels 0157D and 0159D cover the floodplain and floodway boundaries for Broad Run in the vicinity of HEF. FEMA developed the effective hydraulic model for Broad Run using the United States Army Corps of Engineers (USACE) HEC-RAS computer model. This model establishes the water surface elevations for 10-, 50-, 100-, 500-year floods and floodway.

The most recent Letter of Map Revision (LOMR) issued by FEMA is Case No. 18-03-1933P, effective April 25, 2019, reflecting the effects of placement of fill and excavation along Broad Run from the East Corporate Development at Manassas Regional Airport. The subject area is located just downstream of the Taxiway B bridge structure at the airport. This LOMR reflects widening and narrowing of the 1% and 0.2% annual chance floodplains and floodway on FIRM Panel 0157D.

A Conditional Letter of Map Revision (CLOMR) was issued recently by FEMA for the Observation Road Relocation just upstream and adjacent to the Proposed Project at HEF. FEMA Case No. 20-03-1427R, issued March 17, 2021, reflects the effects of placement of fill and excavation along Broad Run from the roadway relocation. The subject area is located from a point approximately 6,690 to a point approximately 2,940 feet downstream of the Norfolk Southern Railroad. This LOMR reflects decreases in 1 % annual chance water-surface elevations and widening and narrowing of the 1% and 0.2% annual chance floodplains on FIRM Panel 0157D.

1.4 HYDROLOGIC METHODOLOGY

No changes to the hydrologic methods from the effective study were performed during this analysis.

1.5 HYDRAULIC METHODOLOGY

1.5.1 Vertical Datum

Elevations for the project are based on the North American Vertical Datum of 1988 (NAVD88). The FEMA Flood Insurance Study for Prince William County, Virginia, the FEMA FIRM Map elevations, FEMA regulatory model and flood hazard comparison tables are based on the NGVD29 datum. The proposed project topographic data are based on the NAVD88 datum. In order to maintain vertical datum correlation, all proposed ground elevations incorporated into the modeling data have been adjusted by a correlation factor of +0.83 feet to obtain the corresponding NGVD29 datum elevation for modeling purposes. All results from the modeling software should therefore be adjusted by a factor of -0.83 feet to revert elevations to NAVD88 datum.

1.5.2 Effective and Existing Model

RS&H obtained a copy of the Broad Run HEC-RAS hydraulic model used for CLOMR Case No. 20-03-1427R, This model uses the hydraulic model, effective April 25, 2019, used as the basis for the issuance of LOMR 18-03-1933P. This effective HEC-RAS hydraulic model was created using USACE HEC-RAS version 5.0.5, dated June 2018. The model included data for the multiple profiles and floodway encroachment analyses. The effective model was updated to the latest USACE HEC-RAS software version 5.0.7, dated March 2019. A comparison of results from the FEMA model and updated model found that there were no differences in water surface elevation (WSELs).

The proposed condition model from CLOMR Case No. 20-03-1427R was used as the existing conditions for the HEF Replacement ATCT EA. The Observation Road Relocation project is currently under construction and will be completed prior to the construction of the Replacement ATCT. This model incorporates the floodplain compensation area from the Observation Road Relocation adjacent to ATCT Site Alternative 2. Cross Sections were added through each ATCT site location to determine the impacts of fill.

1.5.3 Proposed Project Model

The existing conditions HEC-RAS model was updated to reflect proposed conditions for each ATCT location alternative. Cross sections were updated with the preliminary grading for each site location and ineffective flow areas were placed as necessary. All remaining parameters in the HEC-RAS model computation remain the same as the existing model. No changes were made to the regulatory floodway stations.

1.6 ANALYSIS

1.6.1 Alternatives

As shown in **Table 1**, the Proposed Action and Alternatives have varying impact on the floodplain fringe area and base flood elevation (BFE) without mitigation. Based on the following analysis, it is anticipated that flood compensation can be achieved without utilizing the compensation area adjacent to Alternative 2.

TABLE 1:
ALTERNATIVES FLOODPLAIN IMPACT COMPARISON

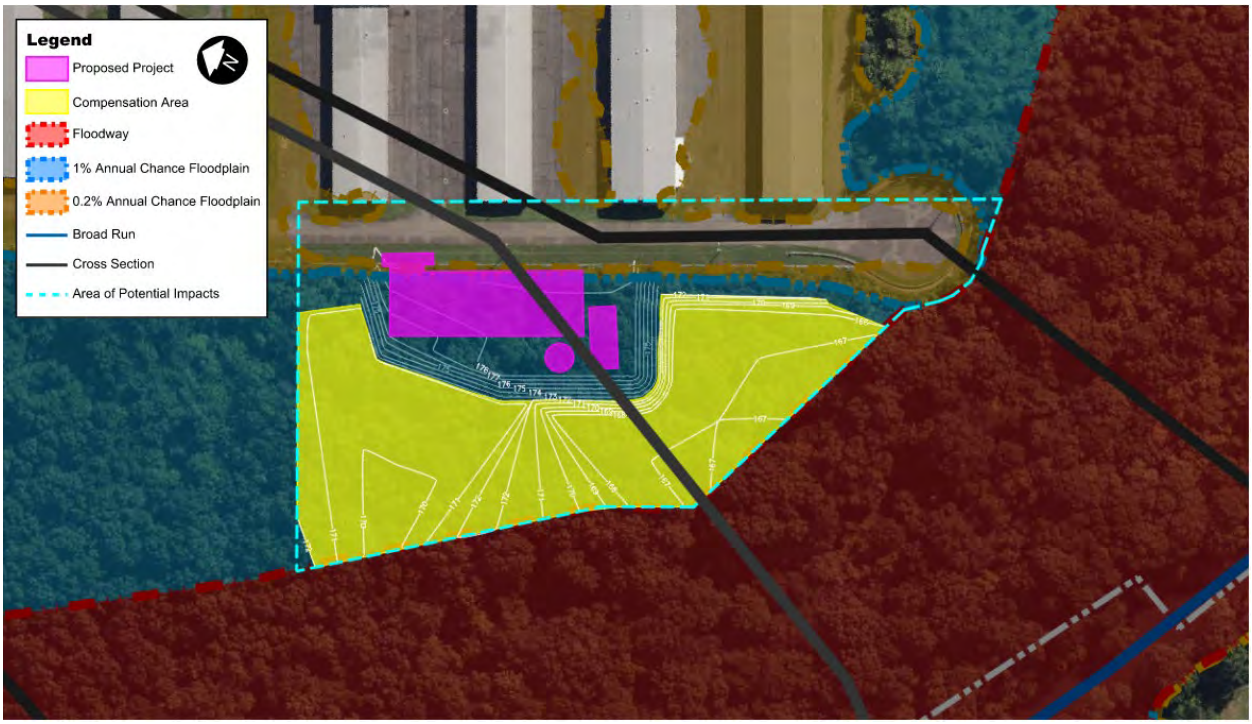
Location	BFE (FT NAVD88)	DFE (FT NAVD88)	Disturbed Floodplain Area (AC)	Fill Volume* (CY)	BFE Increase (FT)
Proposed Action	175.61	178.61	0.71	3,900	0.04
Alternative 1	178.31	181.31	1.04	3,400	0.00
Alternative 2	177.25	180.25	0.98	1,500	0.01

*Volume of fill (cubic yard) below the BFE

1.6.2 Floodplain Compensation

Floodplain compensation was evaluated within the APE boundary for the Proposed Action to determine if a no-rise condition could be achieved. The area between the proposed action fill platform and APE boundary was graded at approximately 0.5% to promote drainage while maximizing cut volume to the extent practical. The analysis resulted in approximately 4,600 cubic yards of floodplain compensation, exceeding the 3,900 cubic yards of fill placed for the Preferred ATCT site. Additionally, Cross Section 273.9 in the revised HEC-RAS model was updated with the compensation area elevations. The model results showed no increases in BFE and a maximum decrease of 0.02 feet from existing conditions meeting the requirements of no-rise condition. **Figure 3** shows the approximate limits of the flood compensation area within the APE.

FIGURE 3: FLOODPLAIN COMPENSATION AREA



1.7 REFERENCES

44 Code of Federal Regulations (CFR) Subchapter B – Insurance and Hazard Mitigation Parts 60, 65, 70, and 72

City of Manassas, Article 8 Storm Drainage System, Section 8-600 Flood Plain Policy

Federal Emergency Management Agency, Letter of Map Revision Determination Document Case NO. 18-03-1933P, City of Manassas, Prince William County, Virginia, December 10, 2018

Federal Emergency Management Agency, Flood Insurance Study, Prince William County, Virginia, August 3, 2015

Prince William County Sections 730 "Floodplain Management – Policy" and 731 "Floodplain Management – Planning and Design"

The US Army Corps of Engineers, Hydrologic Engineering Center, HEC-RAS River Analysis System, Version 5.0.7, March 2019

The US Department of Commerce, National Geodetic survey, Vertcon 2.1 program, Version 2.1, September 2003

HEF ATCT Replacement EA NAVD = NGVD - 0.827

		1% Annual Chance BFE		Non-Critical	Critical	0.2% Annual Chance 500-Year		Design Non-Critical	Critical		Ex to PR Fill	EX to FP cut	FP to PR fill	Floodplain Fill	Surface Area	Surface Area
	Alternative	NGVD	NAVD	BFE + 2'	BFE + 3'	NGVD	NAVD				CY	CY	CY	CY	SF	AC
20231211	1	179.14	178.31	180.31	181.31	181.83	181.00	180.31	181.31		3196.3	24.3	2007.1	1213.5	31142.98	0.71
	2	178.08	177.25	179.25	180.25	180.88	180.05	179.25	180.25		3170.2	0.0	1701.3	1468.9	42821.27	0.98
	Prop	176.44	175.61	177.61	178.61	179.11	178.28	177.61	178.61		6174.5	888.9	3165.1	3898.3	30821.83	0.71
20231220	1	179.14	178.31	180.31	181.31	181.83	181.00	180.31	181.31		5792.5	0.0	2394.5	3398.0	45409.84	1.04
										Comp	7.9	4654.2				

	BFE	
XS	NGVD	NAVD
314.4	179.37	178.54
300	179.14	178.31
285	178.08	177.25
280.55	177.90	177.07
270	176.44	175.61
264	175.88	175.05

APPENDIX G
AGENCY COORDINATION

10748 Deerwood Park Boulevard S
Jacksonville, Florida 32256

O 904-256-2500
F 904-256-2501
rsandh.com

[DATE]

<CONTACT NAME>
1234 Your Street, Suite ABC
City, State 12345

RE: Early Agency Coordination
Environmental Assessment for a Replacement Air Traffic Control Tower (ATCT)
Manassas Regional Airport
Manassas, VA

Dear <Mr./Ms. CONTACT LAST NAME>,

The City of Manassas (City) proposes the construction and operation of a replacement Air Traffic Control Tower (ATCT) at Manassas Regional Airport (HEF or Airport) (see **Figure 1**). The City proposes to construct a replacement ATCT at the Airport to improve the functional and operational capabilities of the service provided by the FAA ATCT personnel. The need to replace the ATCT is a combination of safety, operational, and infrastructure deficiencies.

The City will request the Federal Aviation Administration's (FAA) unconditional approval of the project as shown on the Airport's Airport Layout Plan as well as federal funding for the proposed replacement ATCT. This request is a Federal action, subject to the requirements of the National Environmental Policy Act (NEPA). In compliance with NEPA and under the direction of the FAA, the City through their consultant (RS&H, Inc.) is initiating preparation of an Environmental Assessment (EA). The EA will assess the potential environmental impacts of the replacement ATCT components at each site:

- Clearing and grading activities and construction staging areas;
- Construction of a replacement ATCT with support building;
- Construction of ATCT employee parking lot; and
- Demolition and disposal of the existing ATCT.

The Proposed Action, Alternative 1, Alternative 2, and the direct study area are within City of Manassas limits (see **Figure 2**). The EA will evaluate each of the three site locations (see **Figure 2**). The siting of the Proposed Action and two alternatives took into consideration clearing an FAA recommended 2-acre site and avoiding an existing floodway, wetlands, and an archaeological site.

In accordance with the NEPA and FAA Orders 1050.1F, *Policies and Procedures for Considering Environmental Impacts* and 5050.4B, *National Environmental Policy Act (NEPA) Implementing Instructions of Airport Actions*, the EA will analyze the potential environmental effects of the Proposed Action. As part of the EA process, various field surveys will be conducted. These include a threatened and endangered species survey, floodplain analysis, and wetland delineation (including a jurisdictional determination).

On behalf of the City, we are sending you this early notification letter to:

1. Advise your agency of the preparation of the EA;
2. Request any relevant information that your agency may have regarding the project site or environs; and
3. Solicit early comments regarding potential environmental, social, and economic issues for consideration during the preparation of the EA.

You may send any information and comments to me via email at David.Alberts@rsandh.com or to the address provided at the top of this letter. We would appreciate your prompt response within 30 days.

On behalf of the City, we would like to thank you for your interest in this project and look forward to working with you as we prepare the EA. If you have any questions or need additional information regarding Proposed Action or EA, please do not hesitate to contact me at (904) 256-2469.

Sincerely,

David Alberts
Project Manager
RS&H, Inc.

Attachments

cc: Juan Rivera, Manassas Regional Airport
Jolene Berry, Manassas Regional Airport
Susan Stafford, Federal Aviation Administration
Scott Denny, Virginia Department of Aviation
Project File

Figure 1
Airport Location

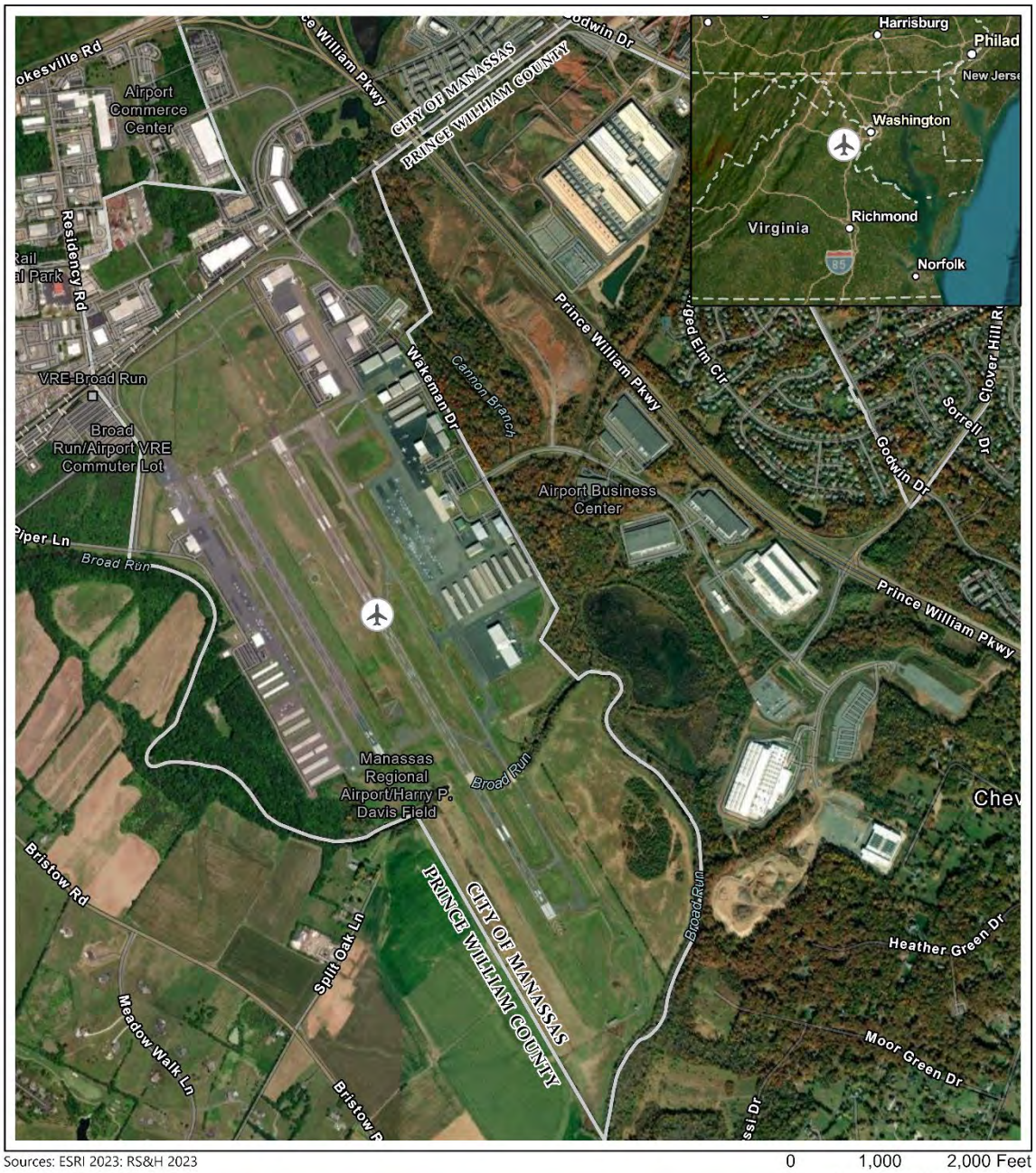


Figure 2
Proposed Action & Alternatives

From:	dgif-ESS Projects (DWR)
To:	Hamblin, Monica
Subject:	RE: Early Agency Coordination-HEF Airport Air Traffic Control Tower Replacement Environmental Assessment
Date:	Friday, December 22, 2023 9:13:45 AM
Attachments:	image001.gif image002.gif image003.jpg USFWS-tower-recommendations (1).pdf

Ms. Hamblin,

Thank you for contacting us about your project in Manassas. Due to staffing limitations, we are unable to review and provide comments on projects that are not currently involved in one of the regulatory review processes for which we are a formal consulting agency (see https://www.DWR.virginia.gov/environmental-programs/). If your project becomes involved in one of these review processes, we will review the project at that time and provide our comments to the requesting agency.

We can, however, provide USFWS general recommendations to avoid adverse impacts on federally listed species, migratory birds, and other wildlife from communication tower development. You can access them via this link: https://dwr.virginia.gov/wp-content/uploads/USFWS-tower-recommendations.pdf. A copy of the document is also attached to this email.

In advance of your project entering regulatory review processes for which we area a formal consulting agency, we recommend that you conduct a preliminary desktop analysis to evaluate your project's potential impacts upon the Commonwealth's wildlife resources by accessing our online information system, the Virginia Fish and Wildlife Information Service (VAFWIS) and using the **Geographic Search** function to generate an **Initial Project Assessment** (IPA) report.

We recommend the following steps:

A. Access VAFWIS at this link: https://vafwis.DWR.virginia.gov/fwis/
If you are not already a VAFWIS subscriber, you should request to become one by emailing a request to VAFWIS_support@DWR.virginia.gov. VAFWIS Subscriptions are free of charge. As a subscriber, one is able to generate an IPA for the project area (project site plus a minimum 2-mile buffer) which generates a list of imperiled wildlife and designated wildlife resources known from the project area. You may also access VAFWIS as a visitor, but access to data and mapping at this user level is restricted.

Alternatively, you may contact our Geographic Information Systems (GIS) Coordinator, Jay Kapalczynski, at Jay.Kapalczynski@DWR.virginia.gov to request access to the Wildlife Mapping and Environmental Review Map Service (WERMS) which allows you to download GIS data into your own system.

B. Access information about the location of bat hibernacula and roosts from the following locations:

Northern Long-Eared Bats: https://www.dwr.virginia.gov/wildlife/bats/northern-long-eared-bat-

application/

Little Brown Bats and Tricolored Bats: https://www.dwr.virginia.gov/wildlife/bats/little-brown-bat-tri-colored-bat-winter-habitat-roosts-application/

C. Access up to date information about the location and status of bald eagle nests in Virginia by accessing the Center for Conservation Biology's Eagle Nest Locator at https://ccbbirds.org/what-we-do/research/species-of-concern/virginia-eagles/nest-locator/

D. Review the DWR information, guidance, and protocols available on our website at the bottom of this page in the "Additional Resources" section and implement, as appropriate.

E. Include the results of your desktop analysis with your project documents, applications, etc.

Thank you,
Nicole

From: Hamblin, Monica <Monica.Hamblin@rsandh.com>
Sent: Thursday, December 21, 2023 2:01 PM
To: dgif-ESS Projects (DWR) <ESSProjects@dwr.virginia.gov>
Subject: Early Agency Coordination-HEF Airport Air Traffic Control Tower Replacement Environmental Assessment

On behalf of the City of Manassas (City), I am pleased to provide the Early Agency Coordination Letter for the Environmental Assessment for a Replacement Air Traffic Control Tower (ATCT) at Manassas Regional Airport in Manassas, Viginia. Any comments and input you have regarding the attached and the Proposed Project is greatly appreciated.

If you have any questions, please let me know.

Best Regards,
Monica Hamblin

Monica Hamblin

Aviation Environmental Specialist
10748 Deerwood Park Blvd South, Jacksonville, FL 32256
904-256-2394
Monica.Hamblin@rsandh.com
rsandh.com | Facebook | Twitter | LinkedIn | Blog

Stay up-to-date with our latest news and insights.

RECOMMENDATIONS TO AVOID ADVERSE IMPACTS TO MIGRATORY BIRDS, FEDERALLY LISTED SPECIES, AND OTHER WILDLIFE FROM COMMUNICATION TOWERS AND ANTENNAE

Guidance prepared by the U.S. Fish and Wildlife Service

Wireless communication towers and antennae have greatly increased in number in recent years. Cumulatively, communication towers have a potentially significant impact on wildlife, especially migratory birds. All communication towers and antennae requiring authorization from the Federal Communications Commission (FCC) are subject to the environmental review procedures required by Section 7 of the Endangered Species Act (ESA) of 1973 (87 Stat. 884, as amended; 16 U.S.C. 1531 *et seq.*) and by the National Environmental Policy Act (NEPA) of 1969 (83 Stat. 852; 42 U.S.C. 4321 *et seq.*). The U.S. Fish and Wildlife Service (Service) routinely reviews proposed communication projects and provides recommendations to project proponents and the FCC to avoid adverse impacts to federally listed or proposed endangered and threatened species, migratory birds, and other wildlife.

All native migratory birds (e.g., waterfowl, shorebirds, songbirds, hawks, owls, vultures, falcons) are afforded protection under the Migratory Bird Treaty Act (MBTA) of 1918 (40 Stat. 755; 16 U.S.C. 703-712). Migratory birds are a federal trust resource responsibility, and the Service considers migratory bird concentration areas environmentally significant. Bird concentration areas include traditional migratory flight corridors (e.g., ridges, shorelines, river valleys); rookeries and other bird breeding areas; stopover, staging, or resting areas (e.g., land bounding large bodies of water, wetlands, forests, and natural grasslands); wildlife preserves (e.g., National Wildlife Refuges; State Parks, Forests, Wildlife Management Areas, and Natural Areas; private sanctuaries); and seasonal flight paths (e.g., between feeding and nesting or roosting areas).

Communication towers pose a collision hazard to birds in flight, especially some 350 species of night-migrating birds. Cumulatively, communication towers kill an estimated four to five million birds per year nationwide (Manville 2000). The risk of bird collisions is related to tower height, design, lighting, and location relative to migratory bird concentration areas. Most documented bird kills at communication towers involve tall, lighted structures, and birds migrating at night during inclement weather. During these events, birds attracted by the lights congregate and circle around the tower, with mortality resulting from collisions with guy wires, other birds, and the ground, or from exhaustion. However, occurrences of bird collision mortality at communication towers have also been documented during daytime and fair-weather conditions.

The Service recommends the following steps to avoid or minimize adverse impacts to migratory birds, federally listed or proposed endangered and threatened species, and other wildlife from communication towers and antennae:

1. Collocate communication antennae and other equipment on existing structures whenever possible to avoid new tower construction. Antennae have been mounted on rooftops; flagpoles; bell, cross, and clock towers; road signs; silos; and water and power line towers. Where attachment to an existing non-tower structure is not feasible, collocate antennae on existing communication towers. Depending on tower load factors, multiple (6-10) providers may collocate on a single communication tower. Although usually a preferred option, collocation on certain structures may be

restricted, such as historic sites, or silos on farms under State or county deed restriction for farm preservation, which may prohibit non-agricultural activities.

2. Construct new towers only if collocation is not feasible. Design new towers to allow for multiple transmitters to be collocated on a single new tower, no more than 199 feet above ground level (AGL), without lights or guy wires. (Towers taller than 199 feet are normally required by the Federal Aviation Administration [FAA] to employ aircraft warning lights.)

3. Consider the impacts of new towers to migratory birds, federally listed species, and other wildlife, cumulatively as well as individually when siting and designing networks of towers and antennae.

4. Site towers away from wetlands; areas with a known high incidence of fog, mist, and low cloud ceilings; and habitats supporting threatened or endangered species.

5. Construct taller (>200 feet AGL) towers only if collocation and shorter towers are not viable options. Use the minimum amount of pilot warning and obstruction avoidance lighting required by the FAA. Use only white (preferable) or red strobe lights at night unless otherwise required by the FAA, and employ the minimum number, minimum intensity, and minimum number of flashes per minute (longest duration between flashes) permitted by the FAA. Avoid solid red or pulsating red warning lights at night. (Current research indicates that solid or pulsating (beacon) red lights attract night-migrating birds at a much higher rate than white strobe lights. Red strobe lights have not yet been studied.

6. Construct guyed towers only if other tower designs (e.g., monopoles, lattice towers) are not viable options. Locate guyed towers away from known raptor and waterbird concentration areas and daily movement routes, and away from major diurnal migratory bird movement routes and stopover sites. If a guyed tower must be located in or near such an area, employ daytime visual markers on the wires. Do not use artificial lighting to increase visibility of the structure or guy wires; instead use reflective paint or materials, large balls, or other available technology. (For guidance on markers, see Avian Power Line Interaction Committee 1994 and 1996.)

7. Avoid or minimize habitat loss within and adjacent to the "footprint" of new towers and associated facilities. (However, a larger tower footprint is preferable to the use of guy wires.) Minimize road access and fencing to reduce or prevent habitat fragmentation and disturbance, and to reduce above-ground obstacles to birds in flight.

8. Avoid siting towers in or near known bird concentration areas (discussed on page 1); known bird migration or daily movement flyways; and areas known to be used habitually by significant numbers of breeding, feeding, or roosting birds. If such areas cannot be avoided, avoid construction during seasons of high bird activity.

9. Design new towers structurally and electrically to accommodate the applicant's antennas and comparable antennas for at least two additional providers, for a

minimum of three providers for each tower, to reduce the number of towers needed in the future (unless such a design would require the addition of lights or guy wires to an otherwise unlighted and/or unguyed tower).

10. Down-shield security lighting for on-ground facilities and equipment to keep light within the boundaries of the site.

11. Allow Service personnel and affiliated researchers access to proposed and existing tower sites upon request to evaluate bird use; conduct dead-bird searches; place net catchments below the towers but above the ground; and place radar, Global Positioning System, infrared, thermal imagery, and acoustical monitoring equipment as necessary to assess and verify bird movements and to gain information on the impacts of various tower sizes, configurations, and lighting systems.

12. Provide for tower decommissioning, including removal, in any license application submitted to the FCC. Remove towers no longer in use or determined to be obsolete within 12 months of cessation of use.

LITERATURE CITED

Avian Power Line Interaction Committee. 1994. Mitigating bird collisions with power lines: The state of the art in 1994. Edison Electric Institute, Washington, D.C. 78 pp.

_____. 1996. Suggested practices for raptor protection on power lines. Edison Electric Institute/Raptor Research Foundation, Washington, D.C. 128 pp.

Manville, A.M. II. 2000. The ABCs of avoiding bird collisions at communication towers: the next steps. Proceedings of the Avian Interactions Workshop. Electric Power Research Institute. 15 pp.

FURTHER INFORMATION

Bibiliography of bird kills: http://migratorybirds.fws.gov/issues/towers/review

Federal Communications Commission, Wireless Telecommunication Branch - Siting Issues http://www.fcc.gov/wtb/siting

Federal Communications Commission Telecommunications Act of 1996 http://www.fcc.gov/telecom.html

General Information: http://migratorybirds.fws.gov/issues/towers/abcs.html

Ogden, LJ.E. 1996. Collision Course: The hazards of lighted structures and windows to migrating birds. World Wildlife Fund Canada and the Fatal Light Awareness Program. Toronto, Ontario, Canada. 46 pp.

Towerkill.com. http://www.towerkill.com

U.S. Fish and Wildlife Service Endangered Species Home Page. http://endangered.fws.gov

U.S. Fish and Wildlife Service, Division of Migratory Bird Management, Bird Issues. http://migratorybirds.fws.gov/issues/tblconthtml

U.S. Fish and Wildlife Service, Division of Migratory Bird Management, Service Guidelines. http://migratorybirds.fws.gov/issues/towers/comtow.html

From: Denny, S. Scott (DOAV)
To: Alberts, David
Subject: Re: HEF ATC EA
Date: Friday, December 22, 2023 9:05:29 AM

David

Sorry for the confusion. We would like the EA to disclose the need and identify the potential costs.

Scott

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From: Alberts, David <David.Alberts@rsandh.com>
Sent: Friday, December 22, 2023 8:59:18 AM
To: Denny, S. Scott (DOAV) <Scott.Denny@doav.virginia.gov>
Subject: RE: HEF ATC EA

Mr. Denny,

Thank you for your email. The EA will disclose the potential floodplain impacts and will engage the state and local floodplain coordinators.

I am not sure I understand the comment though. Would the VDOA like the EA to disclose the need for a CLOMAR and the estimated cost to change the CLOMAR? Or does the VDOA want the EA to discuss the need for the project? Any clarification would be appreciated.

Thank you and Happy Holidays,

Dave A

David E. Alberts
Aviation Senior Environmental Manager
10748 Deerwood Park Blvd South, Jacksonville, FL 32256
O 904-256-2469 | M 904-307-7049
David.Alberts@rsandh.com
rsandh.com | Facebook | Twitter | LinkedIn | Blog

RS&H

From: Denny, S. Scott (DOAV) <Scott.Denny@doav.virginia.gov>
Sent: Friday, December 22, 2023 8:47 AM
To: Alberts, David <David.Alberts@rsandh.com>
Subject: HEF ATC EA

Mr Alberts:

The Department of Aviation is in receipt of your December 21, 2023 early coordination letter regarding the Manassas Regional Airport's environmental assessment (EA) to replace the air traffic control tower. Following our review our only comment pertains to ensure the EA includes discussion on the need and estimated costs of the anticipated Conditional Letter of Map Revision (CLOMAR).

Please feel free to contact me if you have any additional questions or would like to discuss this matter further.

Sincerely
S. Scott Denny
Senior Aviation Planner
Virginia Department of Aviation

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Commonwealth of Virginia

VIRGINIA DEPARTMENT OF ENVIRONMENTAL QUALITY

1111 E. Main Street, Suite 1400, Richmond, Virginia 23219
P.O. Box 1105, Richmond, Virginia 23218
(800) 592-5482 FAX (804) 698-4178
www.deq.virginia.gov

Travis A. Voyles
Acting Secretary of Natural and Historic Resources

Michael S. Rolband, PE, PWD, PWS Emeritus
Director
(804) 698-4020

December 22, 2023

Monica Hamblin
Aviation Environmental Specialist
RS&H, Inc.
Via email: Monica.Hamblin@rsandh.com

RE: NEPA Scoping Response – Environmental Assessment for a Replacement Air Traffic Control Tower (ATCT), Manassas Regional Airport, Manassas, VA

Dear Ms. Hamblin:

This letter is in response to the scoping request for the above-referenced project.

As you may know, the Department of Environmental Quality, through its Office of Environmental Impact Review (DEQ-OEIR), is responsible for coordinating Virginia's review of federal environmental documents prepared pursuant to the National Environmental Policy Act (NEPA) and responding to appropriate federal officials on behalf of the Commonwealth. Please note, DEQ does not serve as the state clearinghouse under E.O. 12372 and federal agency financial assistance programs to state or local governments are not listed in our federally approved Virginia Coastal Zone Management Program. Therefore, coordination under E.O. 12372 or Subpart F of the federal consistency regulations is not required.

DOCUMENT SUBMISSIONS

In order to ensure an effective coordinated review of the NEPA document, notification of the NEPA document documentation should be sent directly to OEIR. We request that you submit one electronic to eir@deq.virginia.gov (25 MB maximum) or make the documents available for download at a website, file transfer protocol (ftp) site or the VITA LFT file share system (Requires an "invitation" for access. An invitation request should be sent to eir@deq.virginia.gov.).

The NEPA document should include U.S. Geological Survey topographic. We strongly encourage you to issue shape files with the NEPA document. In addition, project details should be adequately described for the benefit of the reviewers.

ENVIRONMENTAL REVIEW UNDER THE NATIONAL ENVIRONMENTAL POLICY ACT: PROJECT SCOPING AND AGENCY INVOLVEMENT

As you may know, NEPA (PL 91-190, 1969) and its implementing regulations (Title 40, *Code of Federal Regulations*, Parts 1500-1508) requires a draft and final Environmental Impact Statement (EIS) for federal activities or undertakings that are federally licensed or federally funded which will or may give rise to significant impacts upon the human environment. An EIS carries more stringent public participation requirements than an Environmental Assessment (EA) and provides more time and detail for comments and public decision-making. The possibility that an EIS may be required for the proposed project should not be overlooked in your planning for this project. Accordingly, we refer to "NEPA document" in the remainder of this letter.

While this Office does not participate in scoping efforts beyond the advice given herein, other agencies are free to provide scoping comments concerning the preparation of the NEPA document. Accordingly, we are providing notice of your scoping request to several state agencies and those localities and Planning District Commissions, including but not limited to:

Department of Environmental Quality:
- DEQ Regional Office
- Air Division
- Office of Wetlands and Stream Protection
- Office of Local Government Programs
- Division of Land Protection and Revitalization
- Office of Stormwater Management

Department of Conservation and Recreation
Department of Health
Department of Agriculture and Consumer Services
Department of Wildlife Resources
Virginia Marine Resources Commission
Department of Historic Resources
Department of Mines, Minerals, and Energy (soon to be Virginia Energy)
Department of Forestry
Department of Transportation

DATA BASE ASSISTANCE

Below is a list of databases that may assist you in the preparation of a NEPA document:

- DEQ Online Database: Virginia Environmental Geographic Information Systems
  Information on Permitted Solid Waste Management Facilities, Impaired Waters, Petroleum Releases, Registered Petroleum Facilities, Permitted Discharge (Virginia Pollution Discharge Elimination System Permits) Facilities, Resource Conservation and Recovery Act (RCRA) Sites, Water Monitoring Stations, National Wetlands Inventory:
  - www.deq.virginia.gov/ConnectWithDEQ/VEGIS.aspx

- DEQ Virginia Coastal Geospatial and Educational Mapping System (GEMS)
  Virginia's coastal resource data and maps; coastal laws and policies; facts on coastal resource values; and direct links to collaborating agencies responsible for current data:
  - https://www.deq.virginia.gov/?splash=https%3a%2f%2fgaia.vcu.edu%2fportal%2fapps%2fsites%2f%23%2fgemsmaps&___isexternal=true

- MARCO Mid-Atlantic Ocean Data Portal
  The Mid-Atlantic Ocean Data Portal is a publicly available online toolkit and resource center that consolidates available data and enables users to visualize and analyze ocean resources and human use information such as fishing grounds, recreational areas, shipping lanes, habitat areas, and energy sites, among others.
  - http://portal.midatlanticocean.org/visualize/#x=-73.24&y=38.93&z=7&logo=true&controls=true&basemap=Ocean&tab=data&legends=false&layers=true

- DHR Data Sharing System.
  Survey records in the DHR inventory:
  - www.dhr.virginia.gov/archives/data_sharing_sys.htm

- DCR Natural Heritage Search
  Produces lists of resources that occur in specific counties, watersheds or physiographic regions:
  - www.dcr.virginia.gov/natural_heritage/dbsearchtool.shtml

- Wetland Condition Assessment Tool (WetCAT)
  - https://www.deq.virginia.gov/our-programs/water/wetlands-streams/wetcat

- DWR Fish and Wildlife Information Service
  Information about Virginia's Wildlife resources:
  - http://vafwis.org/fwis/
- Total Maximum Daily Loads Approved Reports
  - https://www.deq.virginia.gov/programs/water/waterqualityinformationtmdls/tmdl/tmdldevelopment/approvedtmdlreports.aspx

- Virginia Outdoors Foundation: Identify VOF-protected land
  - http://vof.maps.arcgis.com/home/index.html

- Environmental Protection Agency (EPA) Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLIS) Database: Superfund Information Systems
  Information on hazardous waste sites, potentially hazardous waste sites and remedial activities across the nation, including sites that are on the National Priorities List (NPL) or being considered for the NPL:
  - www.epa.gov/superfund/sites/cursites/index.htm

- EPA RCRAInfo Search
  Information on hazardous waste facilities:
  - www.epa.gov/enviro/facts/rcrainfo/search.html

- Total Maximum Daily Loads Approved Reports
  - https://www.deq.virginia.gov/our-programs/water/water-quality/tmdl-development/approved-tmdls

- EPA Envirofacts Database
  EPA Environmental Information, including EPA-Regulated Facilities and Toxics Release Inventory Reports:
  - www.epa.gov/enviro/index.html

- EPA NEPAssist Database
  Facilitates the environmental review process and project planning:
  http://nepaassisttool.epa.gov/nepaassist/entry.aspx

If you have questions about the environmental review process, please feel free to contact me (telephone (804) 659-1915 or e-mail bettina.rayfield@deq.virginia.gov).

I hope this information is helpful to you.

Sincerely,

Bettina Rayfield, Program Manager
Environmental Impact Review and
Long-Range Priorities

From:	Harper, John - FPAC-NRCS, VA
To:	Alberts, David
Cc:	Hamblin, Monica
Subject:	Early Agency Coordination-HEF Airport Air Traffic Control Tower Replacement Environmental Assessment
Date:	Wednesday, December 27, 2023 7:20:27 AM
Attachments:	USDA_HEF ATCT Replacement EA Early Coordination Letter.pdf

David and Monica,

This project is being developed in the City of Manassas which is considered Urban. This exempts it from Farmland Protection Policy Act (FPPA).
Farmland Protection Policy Act | Natural Resources Conservation Service (usda.gov)
Please follow local and state erosion control and sediment control ordinances during construction.

J. David Harper

State Soil Scientist
State Resource Inventory Coordinator
State Climate Smart POC
Farmland Protection Policy Act Coordinator
1606 Santa Rosa Road, Suite 209
Richmond, Virginia 23229
804-287-1647

From:	Davis, Jamie
To:	Alberts, David; Hamblin, Monica
Cc:	Witman, Timothy
Subject:	EPA comments on Replacement Air Traffic Control Tower (ATCT) at Manassas Regional Airport
Date:	Tuesday, January 23, 2024 12:13:18 PM

Hello Mr. Alberts and Ms. Hamblin,

Thank you for providing the Early Agency Coordination Letter for the Environmental Assessment (EA) for a Replacement Air Traffic Control Tower (ATCT) at Manassas Regional Airport in Manassas, Virginia. The notice indicates that each of the three alternatives for the project will include the construction of the Air Traffic Control Tower, a support building, and associated parking.

Stormwater, Low Impact Development (LID), and Green Infrastructure:
EPA encourages examination of opportunities to add and enhance green infrastructure to reduce stormwater runoff where possible. Stormwater runoff is one of the leading sources of water pollution in the United States and high percentages of impervious surfaces are linked to aquatic resource degradation and impairment. The addition of green infrastructure or LID components could be beneficial for water quality in the watershed as well as provide a more aesthetically pleasing site. Where possible, we recommend reducing environmental footprint and improving building efficiently through consideration of opportunities to: protect or enhance native vegetation, avoid constructing additional impervious cover, preserve natural drainage patterns, avoid direct or indirect impacts to streams or wetlands, and/or mitigate existing impacts.

We recommend evaluating parking, sidewalks, and roadways for opportunities to incorporate green infrastructure enhancement and stormwater best management practices (BMPs) to reduce runoff volume and improve water quality. Guidance and resources for implementing green infrastructure practices and LID can be found at the following sites:

- www.epa.gov/greeninfrastructure
- www.epa.gov/nps/lid
- http://www.bmpdatabase.org

Sustainability/Energy Efficiency:
We recommend incorporating sustainability practices into the EA and looking for ways to reduce energy, water consumption and implement efficiency and recycling measures at the project site. The following resources may be useful for incorporating environmentally sustainable practices and energy efficiency:

- EPA Comparison Tool for Green Building Standards: EPA provides this list of model codes or rating systems that can be used to develop green building programs: https://www.epa.gov/smartgrowth/green-building-standards.

- Leadership in Energy and Environmental Design (LEED): The U.S. Green Building Council's rating systems to increase the environmental and health performance for the design, construction, and operation of buildings, sites, structures, and neighborhoods: http://www.usgbc.org/leed.

- The Sustainable SITES Initiative (SITES®): The Sustainable SITES Initiative provides a set of comprehensive, voluntary guidelines and rating system to assess the sustainable design, construction, and maintenance of landscapes: http://www.sustainablesites.org.

Climate Change

We recommend that potential impacts of climate change on the proposed facilities be identified, along with planning for adaptation and/or resiliency measures.

On January 9, 2023, Council on Environmental Quality (CEQ) published interim guidance to assist federal agencies in assessing and disclosing climate change impacts during environmental reviews. https://www.federalregister.gov/documents/2023/01/09/2023-00158/national-environmental-policy-act-guidance-on-consideration-of-greenhouse-gas-emissions-and-climate
CEQ developed this guidance in response to EO 13990, Protecting Public Health and the Environment and Restoring Science to Tackle the Climate Crisis. CEQ indicated that agencies should use this interim guidance to inform the NEPA review for all new proposed actions and may use it for evaluations in process, as agencies deem appropriate, such as informing the consideration of alternatives or helping address comments raised through the public comment process. EPA recommends the NEPA documentation apply the interim guidance as appropriate, to ensure robust consideration of potential climate impacts, mitigation, and adaptation issues.

Environmental Justice:

We recommend that an assessment be conducted to identify whether areas of potential environmental justice (EJ) concern exist in the study area and whether communities with EJ concerns may be disproportionately impacted by any proposed activities including noise and traffic during construction and operation. EPA recommends the use of the EJSCREEN tool, a publicly accessible online mapping system that combines environmental and demographic data to enable analyses of populations who may experience adverse environmental impacts. In addition to data concerning communities of color and low-income populations, the tool provides demographic data regarding linguistic isolation, education, and age, all of which may enhance EJ-related analyses and outreach. EJSCREEN is available at: https://www.epa.gov/ejscreen.

EPA encourages community outreach for meaningful public engagement and participation. EPA encourages you to provide notices of public meetings, notices of informational events, and/or other related resources at frequently visited community locations.

EPA appreciates the opportunity to provide these scoping comments on the Replacement Air Traffic Control Tower (ATCT) at Manassas Regional Airport. We request that you share an electronic copy of the Environmental Assessment with EPA when it becomes available.
Please feel free to contact me if you have any questions regarding any of these comments.
We look forward to working with you as this project moves forward.

Sincerely,

Jamie Davis

Jamie Davis
Office of Communities, Tribes & Environmental Assessment
National Environmental Policy Act (NEPA)
U.S. EPA Region III
4 Penn Center
Philadelphia, PA 19103
570-351-7192

Map

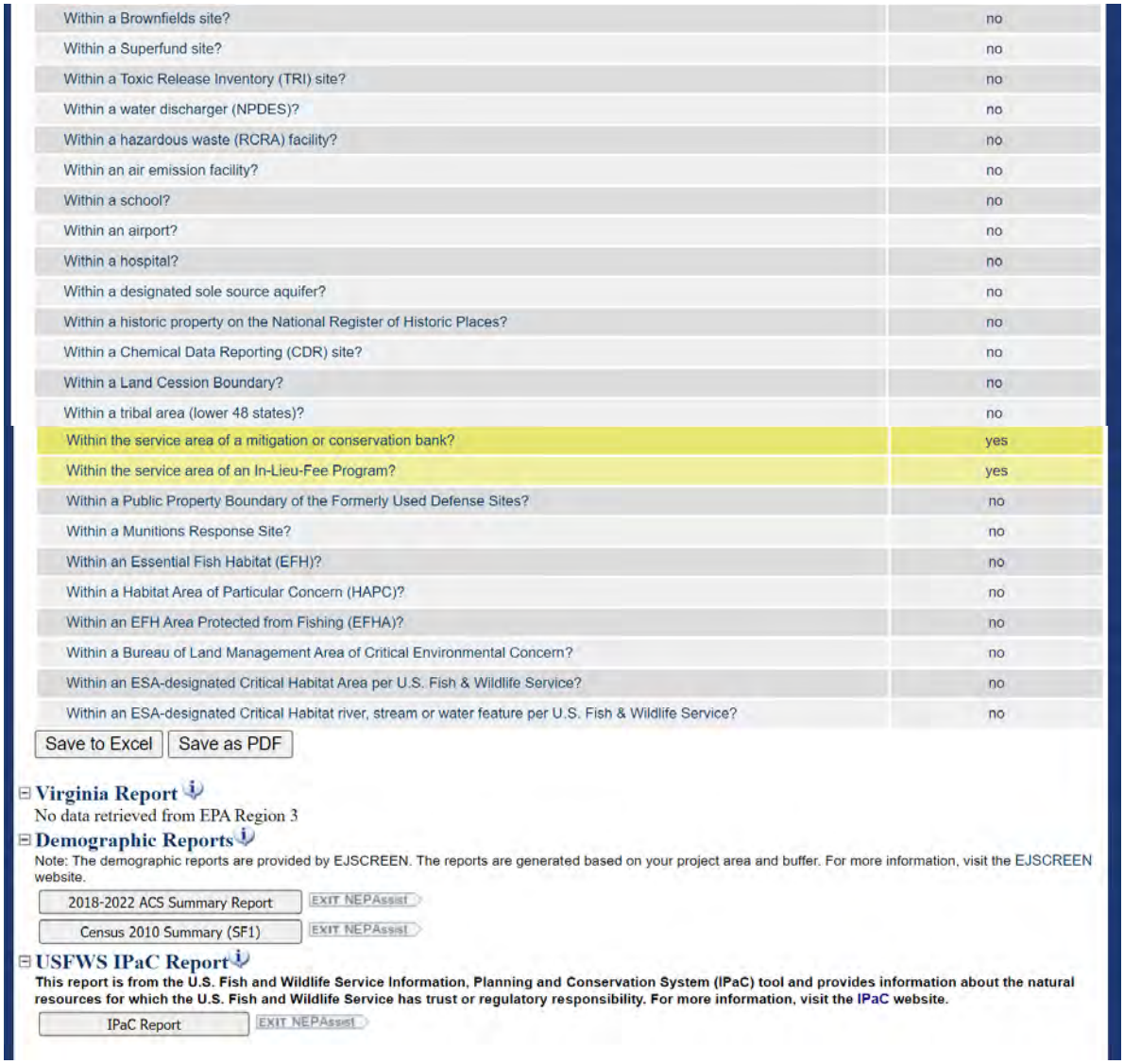
Geographic coordinates:

POLYGON
(38.718235,-77.518410,38.716607,-77.517149,38.716531,-77.517417,38.716632,-77.517680,38.716782,-77.518506,38.717025,-77.518689,38.717703,-77.519531,38.718235,-77.518410)
with buffer 0 miles

Note: The information in the following reports is based on publicly available databases and web services. The National Report uses nationally available datasets and the State Reports use datasets available through the EPA Regions. Click on the hyperlinked question to view the data source and associated metadata.

National Report

Project Area	0.01 sq mi
Within an Ozone 1-hr (1979 standard) Non-Attainment/Maintenance Area?	yes
Within an Ozone 8-hr (1997 standard) Non-Attainment/Maintenance Area?	yes
Within an Ozone 8-hr (2008 standard) Non-Attainment/Maintenance Area?	yes
Within an Ozone 8-hr (2015 standard) Non-Attainment/Maintenance Area?	yes
Within a Lead (2008 standard) Non-Attainment/Maintenance Area?	no
Within a SO2 1-hr (2010 standard) Non-Attainment/Maintenance Area?	no
Within a PM2.5 24hr (2006 standard) Non-Attainment/Maintenance Area?	no
Within a PM2.5 Annual (1997 standard) Non-Attainment/Maintenance Area?	yes
Within a PM2.5 Annual (2012 standard) Non-Attainment/Maintenance Area?	no
Within a PM10 (1987 standard) Non-Attainment/Maintenance Area?	no
Within a CO Annual (1971 standard) Non-Attainment/Maintenance Area?	no
Within a NO2 Annual (1971 standard) Non-Attainment/Maintenance Area?	no
Within a Federal Land?	no
Within an impaired stream?	no
Within an impaired waterbody?	no
Within a waterbody?	no
Within a stream?	no
Within an NWI wetland?	click here ***May take several minutes***



Within a Brownfields site?	no
Within a Superfund site?	no
Within a Toxic Release Inventory (TRI) site?	no
Within a water discharger (NPDES)?	no
Within a hazardous waste (RCRA) facility?	no
Within an air emission facility?	no
Within a school?	no
Within an airport?	no
Within a hospital?	no
Within a designated sole source aquifer?	no
Within a historic property on the National Register of Historic Places?	no
Within a Chemical Data Reporting (CDR) site?	no
Within a Land Cession Boundary?	no
Within a tribal area (lower 48 states)?	no
Within the service area of a mitigation or conservation bank?	yes
Within the service area of an In-Lieu-Fee Program?	yes
Within a Public Property Boundary of the Formerly Used Defense Sites?	no
Within a Munitions Response Site?	no
Within an Essential Fish Habitat (EFH)?	no
Within a Habitat Area of Particular Concern (HAPC)?	no
Within an EFH Area Protected from Fishing (EFHA)?	no
Within a Bureau of Land Management Area of Critical Environmental Concern?	no
Within an ESA-designated Critical Habitat Area per U.S. Fish & Wildlife Service?	no
Within an ESA-designated Critical Habitat river, stream or water feature per U.S. Fish & Wildlife Service?	no

Save to Excel Save as PDF

Virginia Report

No data retrieved from EPA Region 3

Demographic Reports

Note: The demographic reports are provided by EJSCREEN. The reports are generated based on your project area and buffer. For more information, visit the EJSCREEN website.

2018-2022 ACS Summary Report EXIT NEPAssist

Census 2010 Summary (SF1) EXIT NEPAssist

USFWS IPaC Report

This report is from the U.S. Fish and Wildlife Service Information, Planning and Conservation System (IPaC) tool and provides information about the natural resources for which the U.S. Fish and Wildlife Service has trust or regulatory responsibility. For more information, visit the IPaC website.

IPaC Report EXIT NEPAssist

Source:USEPA, NEPAssist, https://nepassisttool.epa.gov/nepassist/analysis.aspx, 2024

PRINCE WILLIAM COUNTY

Planning Office
Tanya M. Washington, AICP
Director of Planning

April 30, 2024

David Alberts
Project Manager
RS&H, Inc.
10748 Deenwood Park Boulevard S
Jacksonville, Florida 32256

RE: Environmental Assessment (EA) for the replacement of the Air Traffic Control Tower (ATCT) at Manassas Regional Airport.

Dear Mr. Alberts:

Thank you for providing Prince William County the opportunity to provide early comments regarding the City of Manassas plan to construct a replacement Air Traffic Control Tower (ATCT) at the Manassas Regional Airport, located within the city limits. We understand you have contacted us to (1) advise the County on the future preparation of an Environmental Assessment (EA) as part of this project, (2) request information regarding the project site and environs, and (3) solicit early comments regarding potential environmental, social, and economic issues for consideration. The current tower is located adjacent to a parking lot accessed from Observation Road. We understand the planned location of the Proposed Action Alternative and Alternatives 1 and 2 are within the wooded area along the southwest side of Observation Road. Broad Run flows through the western and southern ends of the wooded area. Our comments provided below are intended to be both informative and analyze what we feel are the potential impacts to transportation, land use, environmental resources, and cultural resources.

Transportation

The locations of the Proposed Action Alternative and Alternatives 1 and 2 should have little to negligible impact upon traffic. Observation Road, a two-lane road which accommodates traffic around the western portion of the airport, provides access to the current ATCT. This road can also be used to access all three alternative sites. Because Observation Road has sufficient capacity to access the current ATCT, it should maintain sufficient capacity to accommodate any of the alternatives. We assume that the new ATCT will not generate significant new traffic. Should this not be the case, a traffic analysis should be conducted.

Land Use

Long Range County land use adjacent to the north, west, and south sides of the portion of Broad Run in the vicinity of the direct study area shown on Figure 2 in your letter is classified

as Industrial (Tech/flex). Typical Industrial (Tech/Flex) uses would be compatible with the proposed ATCT.

Environmental

The planned locations of Proposed Action Alternative and Alternatives 1 and 2 will have negligible to little impact to air quality and climate. The City of Manassas is undertaking the construction of a new ACTC to improve functional and operational capabilities for ATCT personnel. It is unlikely to result in significantly increased air traffic or air pollution. The alternatives are all located within the Environmental Protection Overlay District for Broad Run. Broad Run is considered a major watershed in Prince William County. Impact analysis should understand any effects of storm water runoff. While the location and proposed extent of parking facilities associated with the alternatives all appear buffered from the watershed by natural forestation, the size and scope of these parking facilities is a fraction of the size of the parking lot that accommodates the current ATCT located east of Observation Road. The reasons for a smaller parking facility should be justified in future planning. If a parking lot of the comparable size of the current parking lot is needed, there is a potential for impervious surface storm water runoff into Broad Run from Alternative 1, which is the closest alternative to Broad Run.

Cultural Resources

We believe that the proposed alternatives may have direct and indirect impacts on cultural resources. Although you state the siting of the Proposed Action and the two alternatives took into consideration avoiding archaeology sites, the location of Alternative 1 will directly impact archaeology site (44PW0729) (See Figure 1). The presence of Site 44PW0729, a prehistoric archaeology site, confirms the prehistoric potential of the Broad Run watershed, which is classified as a prehistoric archaeology sensitivity area. Because of the proximity of the locations of the Proposed Action Alternative and Alternatives 1 and 2 to Broad Run, there is a potential for direct impacts to potential archaeological resources within the vicinity of Broad Run.

The Proposed Action Alternative and Alternatives 1 and 2 will have indirect impacts to the Bristoe Station Battlefield. American Battlefield Protection Program (ABPP) surveys have identified undeveloped portions of the battlefield with intact integrity located within county lands immediately west of Broad Run. The locations of the proposed alternatives will all be closer to battlefield areas than the original ACTC. Although the proposed height of the ACTC was not disclosed in your request for comment letter, even a modest height of 50 feet may have indirect visual impacts upon the battlefield.

We thank you again for affording Prince William County the opportunity to provide early comments regarding the ATCT project. Given our preliminary comments above, we

encourage you to more broadly define the area of potential effect (APE) to provide an analysis of indirect impacts to include an analysis of viewshed impacts to the Bristoe Station Battlefield. We also encourage you to provide more information on the height of the ATCT, parking capacity needs, and location of construction staging areas that will all further the understanding of potential impacts caused by the project. We look forward to providing further review and comments as part of the formal NEPA process once the planning project for the EA is initiated. If you have any questions, please contact Eric Griffitts by phone at 703-792-4544 or via email at egriffitts@pwcgov.org.

Sincerely,

Tanya Washington

Tanya M. Washington, AICP
Director of Planning

PRML - 0307

cc. Christopher Shorter, County Executive
Wade Hugh, Deputy County Executive
David McGettigan, AICP, Deputy Planning Director
Justin S. Patton, County Archaeologist/ Acting Long Range Planning Director
Eric Griffitts, Heritage Resources Specialist

COMMONWEALTH of VIRGINIA

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Molly Joseph Ward
Secretary of Natural Resources

David K. Paylor
Director

(804) 698-4020
1-800-592-5482

MEMORANDUM

TO: Janine Howard, DEQ Environmental Program Planner

FROM: Daniel Moore, DEQ Principal Environmental Planner

DATE: June 14, 2017

SUBJECT: DEQ #17-061F: Manassas Regional Airport Development, City of Manassas and Prince William County

We have reviewed the Consistency Certification application for the proposed Manassas Regional Airport West Corporate Development and East Parcel Development project in the City of Manassas and Prince William County and offer the following comments regarding consistency with the provisions of the *Chesapeake Bay Preservation Area Designation and Management Regulations* (Regulations):

The City of Manassas is not subject to the Chesapeake Bay Preservation Act or the Regulations. Our review of the submitted documentation shows that the proposed West Corporate Development project will occur solely within the confines of the city-owned airport property, and as such, the project is not subject to review for Bay Act compliance.

In Prince William County, the areas protected by the Chesapeake Bay Preservation Act, as locally implemented, require conformance with performance criteria. These areas include Resource Protection Areas (RPAs) and Resource Management Areas (RMAs) as designated by the local government. RPAs include tidal wetlands, certain non-tidal wetlands and tidal shores. RPAs also include a 100-foot vegetated buffer area located adjacent to and landward of these features and along both sides of any water body with perennial flow. RMAs, which require less stringent performance criteria, include all areas of the County not designated as RPA.

The proposed East Parcel Development project will occur on approximately 20 acres of land within Prince William County. The project calls for on-site roadway improvements and taxi lane extensions, construction of three surface parking lots and several airplane hangar buildings, stormwater drainage improvements and the installation of additional security fencing. The