HONOR REMEMBER EXPLORE

Arlington National Cemetery Millennium Project Environmental Assessment

Lead Agency:

Arlington National Cemetery

Cooperating Agency:

U.S. National Park Service

December 2012

US Army Corps of Engineers
Norfolk District

EXECUTIVE SUMMARY

This Environmental Assessment (EA) has been prepared to assess the potential impacts of the expansion of Arlington National Cemetery (ANC), known as the Millennium Project. The Millennium Site will be developed to increase burial space at ANC. Building and site element construction shall be suitable for the environment and complementary to the architectural theme and historical considerations of ANC. Most portions of this project are on ANC-administered property. However, there are a few small areas of the project that will be constructed on property administered by the U.S. National Park Service (NPS). ANC is the lead agency for this National Environmental Policy Act (NEPA) document and NPS is a cooperating agency.

The proposed action includes construction of casket burial sections, in-ground sites for ashes of cremated service members, and both columbarium niche courts and niche walls. The site would include two assembly areas for service participants including Committal Service Shelters. Building and site element construction shall be suitable for the environment and complement the architectural theme and historic and cultural considerations of Arlington National Cemetery. Supporting facilities would include restrooms, storage areas, water fountains, waterlines, sanitary sewer, storm drainage, underground electrical and communications/information systems, stream restoration, landscaping, retaining walls, perimeter fencing, vehicle and pedestrian access roads and walks, and security systems. In addition, stormwater management improvements to include underground stormwater storage and a Regenerative Stormwater Conveyance system would be implemented near the NPS Administration Building parking lot.

Short-term impacts associated with the Proposed Action include land use, topography, drainage, and surface water impacts, disturbance of soil and removal of vegetation, air and noise emissions, increased construction traffic, temporary closures or interruptions in the jogging path on Joint Base Myer-Henderson Hall near the construction site, and altered aesthetics from the presence of a construction site. Short-term impacts to utilities such as water and electric service may also be encountered during construction. Short-term impacts would cease with the completion of construction. Long-term impacts to land use, soils, topography and drainage, surface water, vegetation, wildlife, and aesthetics would be expected as a result of the Proposed

Action. The project would result in both positive and negative impacts; however the negative impacts have been minimized and mitigated to the maximum extent practicable.

As part of the project, the existing stream channels, which are currently severely degraded in some areas, would be restored and integrated into the overall project as a natural landscape amenity. Natural Channel Design (NCD) techniques would be utilized to restore the existing channels. By establishing stable channel geometry and reestablishing a floodplain connection, excessive bank and bed erosion can be arrested, in-stream habitat improved, and the downstream transport of pollutants reduced. Although ~890 trees would be removed, this impact was minimized during planning and an additional 600 trees and 500 shrubs will be planted to help mitigate for this impact.

This EA was prepared in compliance with NEPA (40 CFR 1500-1508) and all applicable implementing regulations. A Proposed Alternative and a No-Action Alternative were identified for this project. Five of the Action Alternatives were eliminated from detailed evaluation as they did not meet the goals of the project and/or resulted in unacceptable levels of impact. The direct and indirect impacts of the Proposed Action Alternative and No-Action Alternative were evaluated for temporary, permanent, and cumulative impacts.

The planning and design of this project have been coordinated with multiple organizations including (but not limited to) the NPS, National Capital Planning Commission (NCPC), Joint Base Myer-Henderson Hall (JBMHH), Virginia Department of Historic Resources (VDHR), Virginia Department of Environmental Quality (VDEQ), Virginia Department of Conservation and Recreation (VDCR), and Arlington County. This EA will be available for review and comment for 45 days from the date of posting.

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1 INTRODUCTION AND PROJECT LOCATION

Arlington National Cemetery (ANC) is located in Arlington County, Virginia, at the western terminus of Memorial Drive, directly across the Potomac River from the Lincoln Memorial. ANC is approximately 624 acres. ANC functions as an active historical military shrine, a contemporary military cemetery honoring those who serve in the Armed Forces, and as a popular visitor attraction. ANC has become one of the most important shrines that the United States maintains. In 1861 the United States seized the estate from its owner, Robert E. Lee, and by 1864 it had begun using the grounds as a cemetery. ANC was designated officially as a military cemetery by Secretary of War Edwin M. Stanton on 15 June 1864. Following an 1882 Supreme Court decision, the government officially purchased the estate from Lee's heir. The dead of every war since the American Revolution and distinguished statesmen, including John F. Kennedy, rest in the cemetery. ANC also hosts major memorial events and ceremonies, and has become significant attraction for visitors of the Washington area. In addition to in-ground burial, ANC also has one of the larger columbarium for cremated remains in the country. Eight courts and a niche wall are currently in use, with 53,661 niches. In 2013 another 20,292 niches will be available for use, raising the total available niche capacity to approximately 73,953 niches.

The Millennium Project is an expansion of ANC, designed to provide future interment space in the northwest portion of ANC. The Arlington National Cemetery Millennium Project is located on a 27-acre site consisting of Section 29 of the existing northwest boundary of ANC and the old picnic grounds of Joint Base Myer-Henderson Hall (JBMHH). It is bounded to the west by McNair Road and extends roughly to Humphrey's Drive on the East, Ord & Weitzel Drive on the North, and Ft. Myer Chapel on the South. The proposed project area is primarily on ANC-administered property with a small portion on U.S. National Park Service (NPS)-administered property. The project location is identified in Figure 1.1. Building and site element construction have been designed in order to minimize impacts to the environment and complement the architectural theme and considerations of ANC.

Arlington National Cemetery is the lead Federal agency for this action and this Environmental Assessment (EA). The NPS is a cooperating agency on this EA and as such has provided

support during the formulation of alternatives and plan selection. The U.S. Army Corps of Engineers (USACE), Norfolk District, provides project support to Arlington National Cemetery and prepared this EA.

Figure 1.1 Millennium Site location within Arlington National Cemetery

1.1 PURPOSE AND NEED

More than four million people visit ANC annually, many coming to pay final respects at graveside services. ANC performs 27 to 30 funeral services each weekday and 5 to 8 Saturday services. Cemetery space is limited and ANC is projected to reach full capacity in 2025. A space study conducted by the Center for Army Analysis indicated the average burial frequency at 27 per day, resulting in a total of approximately 7,000 burials per year which would extend capacity out to 2045. Current trends show a distribution of approximately 40% for columbaria burials, 37% for casket in-ground burials, and 23% for cremated in-ground burials. The ANC Millennium Project would provide additional burial space and supporting facilities to support the ongoing mission of ANC:

> *"On behalf of the American people, lay to rest those who have served our nation with dignity and honor, treating their families with respect and compassion, and connecting guests to the rich tapestry of the cemetery's living history, while maintaining these hallowed grounds befitting the sacrifice of all those who rest here in quiet repose."*

1.2 SCOPE OF THE ENVIRONMENTAL ASSESSMENT

Under the requirements of Section 102 of National Environmental Policy Act (NEPA), this proposed project constitutes a major Federal action, and an EA is therefore required. This EA has been prepared pursuant to NEPA and its implementing regulations.

The purpose of this EA is to evaluate the direct and indirect impacts associated with the proposed expansion of ANC's interment space on the Millennium Site. This document identifies and evaluates the potential environmental, cultural resources, and socioeconomic effects associated with the Proposed Action as accomplished by implementing the Preferred Alternative discussed in Section 2.0. Section 3.0 of this EA describes the alternatives considered. Section 4.0 describes the existing environmental, cultural, and socioeconomic conditions that fall within the scope of this EA. Section 5.0 describes the environmental, cultural, and socioeconomic consequences envisioned as a result of implementing the feasible alternatives.

The EA focuses on impacts likely to occur within the proposed area of development. The document analyzes direct effects (those resulting from the alternatives and occurring at the same time and place) and indirect effects (those distant or occurring at a future date). The potential for cumulative impacts as defined by 40 Code of Federal Regulations (CFR) 1508.7 is also addressed.

1.3 PUBLIC AND AGENCY INVOLVEMENT

Early agency coordination was accomplished in accordance with 40 CFR 1501.6, by way of coordination letters to Federal, state, and local organizations in 2005 and 2009. This coordination served to inform the early concepts and design of this project. Comments included a desire to protect the forested areas and the stream as well as the need to maintain the architectural theme and historical considerations of ANC. Given that the planning for this area has spanned over a decade, the current planning team felt it prudent to reassess the situation and validate whether past decisions are still relevant today. In 2011 and 2012, a series of meetings and charrettes were held with internal planning team members as well as external stakeholders to help define the alternatives and determine the best path forward.

In August of 2012, a scoping update meeting was held at ANC and Federal, state, and local organizations were again notified. This meeting served to update all organizations on the Millennium Project planning and allow organizations an opportunity to comment on the project as well as discuss any potential environmental impacts of concern. Some of the concerns mentioned at that meeting which have been considered in the project design as well as in this NEPA document include:

- Access to the site and security issues for JBMHH
- Consideration of historic site conditions
- Consideration of the new perimeter/retaining wall adjacent to JBMHH; specifically on height and line of sight over the wall, and maintaining a consistent appearance to the wall on the exterior (non-ANC) side
- Impacts to jogging path
- Old Post Chapel, gate and security measures addressed at the gate
- Utilities and possible impacts to other users

- Preserve historic nature of the woods behind Arlington House
- Retain as many old-growth trees as possible
- Recommendation for guide maps, kiosks, information areas
- Security at top of boundary wall and understanding that JBMHH security requirements change over time
- Adjacent existing JBMHH Motor Pool and loud noise which may come from that area
- Staging and access routes – to include access to the NPS parking lot stormwater management

In addition to the meeting, information regarding the project was sent to all interested parties via email in September. Comments on this scoping material were received from Arlington County and are included in Appendix A. Arlington County concerns (which are addressed in this EA) included:

- Proper adherence to the NEPA process
- Assurance that all cultural resource issues are identified, documented and coordinated
- Information on a full range of alternatives
- Boundary wall and viewshed considerations
- Consideration for signage
- Stormwater runoff and stream restoration strategy
- Water quality impact assessment

ANC has an on-going coordination effort with the Virginia Department of Historic Resources (VDHR), the National Capital Planning Commission (NCPC), and the Council of Fine Arts (CFA) for the development of the Millennium Site. NCPC and CFA have been both invited to charrettes and had briefings presented to them in order to solicit their comments early and often. In addition, ANC is coordinating with the Virginia Department of Conservation and Recreation (VDCR) and Virginia Department of Environmental Quality (VDEQ) regarding the stream restoration. This effort is described in detail in Sections 4.0 and 5.0.

Consultation regarding cultural resources within the area of the Millennium Project was initiated with VDHR in 2008. Additional surveys and analysis undertaken in 2012 have resulted in recommendations of no adverse effect to archaeological properties, while adverse effects to historic landscapes were identified. A letter, summary of identification and consultations for the Millennium Project, and related reports were submitted to VDHR on 13 November 2012 (with copies provided to NPS, JBMHH, CFA, NCPC, National Trust for Historic Preservation (NTHP), and Arlington County). Avoiding or minimizing adverse effects to historic properties has been an objective of the design process with input from stakeholders, notably the Commission of Fine Arts (CFA) and NPS, influencing results. The adverse effects identified are demolition of the historic Boundary Wall in the project area and impacts to forested areas considered to be contributing to Arlington House. Mitigation of adverse effects has been integrated into the currently preferred design by reconstructing the boundary wall re-using historic stone to face the new niche wall and by preserving most of the historic forested area. Responses to the 13 November 2012 consultation letter shall aid in determining whether adverse effects have been resolved or if further mitigation measures are necessary.

This EA will be provided electronically to interested parties for a 45-day comment period. There will also be a link to it on the ANC (http://www.arlingtoncemetery.mil/) and U.S. Army Corps of Engineers Norfolk District (http://www.nao.usace.army.mil/) websites.

2 PROPOSED ACTION

The Proposed Action is the expansion of ANC by developing the Millennium Project Site to increase interment space at ANC. Construction would include casket burial sections, in-ground sites for ashes of cremated service members, and both columbarium niche courts and niche walls. The site would include two assembly areas for service participants, including Committal Service Shelters. Building and site element construction shall be suitable for the environment and compliment the architectural theme and historical considerations of the National Cemetery at Arlington. Additionally, supporting facilities would include restrooms, storage areas, water fountains, waterlines, sanitary sewer, storm drainage, underground electrical and communications/information systems, stream restoration, landscaping, retaining walls, perimeter

fencing, vehicle and pedestrian access roads and walks, and security systems. The existing site is visually characterized by a dense existing woodland buffer along its southeastern edge, a topographical drop along its western edge, and a stream that runs down its center from west to east. The proposed design includes landscape modifications and architectural features that accommodate in-ground pre-placed crypts for casketed and cremated remains and above grade columbaria and niche walls for cremated remains.

The planning considerations for the project included:

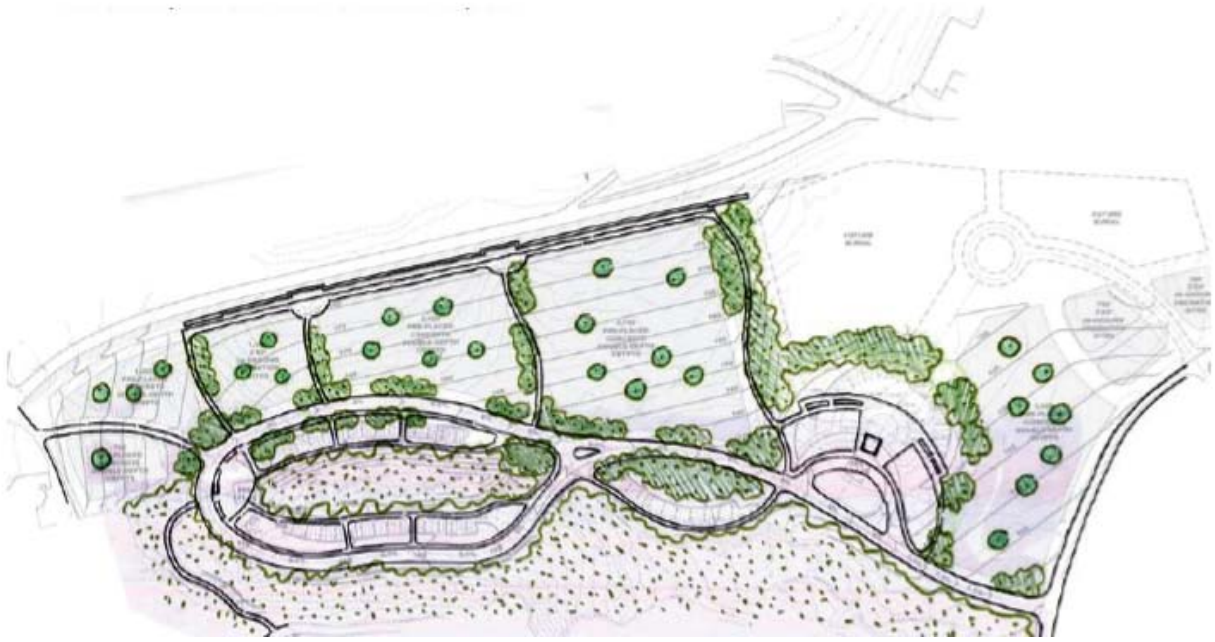
- Extend the longevity of ANC
- Respect the aesthetic integrity of ANC
- Consider environmental and cultural/historic issues
- Ensure that design decisions are based on data and facts
- Decisions are to be supported by facts regarding ANC current conditions and future need
- Consider cost-effectiveness of the options
- Use land wisely
- Incorporate sustainable practices where appropriate
- Involve stakeholders early in the process

The main features of the Millennium Project include:

2.1 LANDSCAPE DESIGN

The landscape design consists of modifications to the existing stream bed, topographical changes to accommodate new subsurface burial crypts, the introduction of a new vehicular road and a series of meandering paths, and the planting of additional trees at selected locations throughout the site. The design intent is to minimize the amount of proposed cut and fill and to preserve as many mature trees as possible surrounding the stream bed while enhancing the contemplative nature of the Millennium Site within the overall aesthetic of ANC.

Figure 2.1 Sketch of the landscape design



2.2 PERIMETER COLUMBARIUM WALL

At the western edge of the Millennium site, along the boundary of Ft. Myer, a perimeter columbarium wall is proposed. This wall would serve two purposes: it would accommodate niches for cremains and also act as a retaining wall, providing a security separation for Ft. Myer. To mitigate the length of the wall and provide visual relief, three slightly curved perimeter walls are proposed and tied together with a post and beam structure that enframes the space immediately surrounding it. The three curved walls break at the intersection points of the meandering paths from the east.

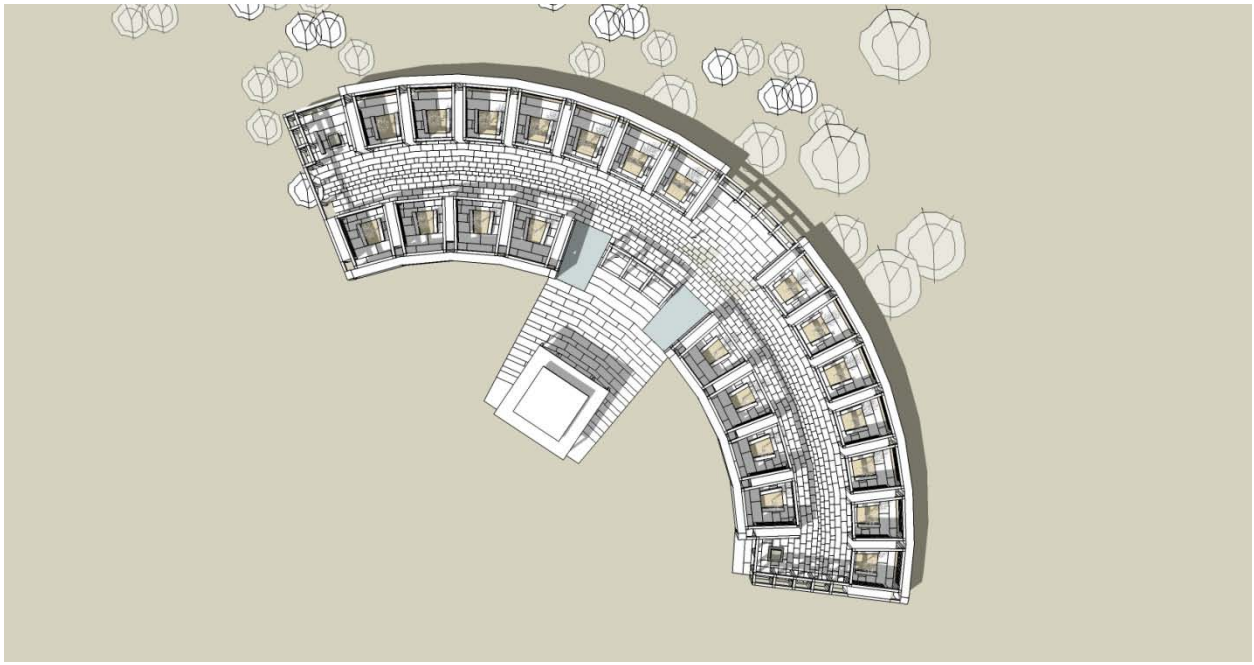
At these junctures, a larger space is created that is approximately double the width of a single structural bay. In these locations, a feature wall is proposed. At regular intervals along the walls, benches and trees are proposed for visitor comfort.

Figure 2.2 Sketch of the perimeter columbarium wall

2.3 COLUMBARIA

A columbarium is a series of compartmentalized niches for cremains. Throughout the Millennium site, the height of the columbarium is limited to five niches, while the configuration and repetition of niches in width varies. There are a series of curved columbarium rooms proposed along the stream and a semicircular columbarium court to the north end of the site. The stream columbaria curve slightly to conform to the existing topography and avoid the 100' stream setback (Chesapeake Bay Preservation Act Resource Protection Area Buffer, see section 5.3 Hydrology for more information) to the maximum extent practicable. The stream columbaria also serve as retaining walls for the surrounding topography. Each columbarium would be unified visually by the post and beam system, similar to the perimeter wall. Within each room, a small tree or vegetative planting and two benches is proposed for visitor comfort. At the north columbarium, a series of rooms are configured in a semicircular pattern around a curved roadway. At the entry point of the columbarium, as well as in between and at the terminus of several rooms, quiet, contemplative areas are proposed for visitor comfort, to be furnished with benches, water features, vegetative plantings, and trees.

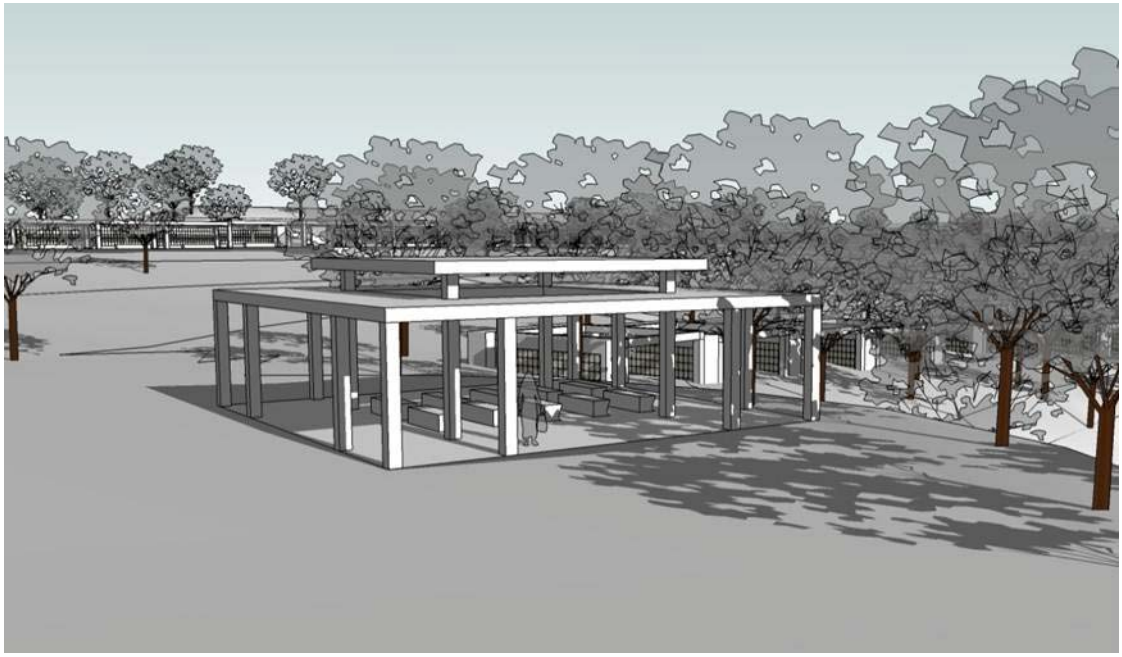
Figure 2.3 Sketch plan view of columbarium



2.4 COMMITTAL SERVICE SHELTER

A Committal Service Shelter serves as a venue for an interment ceremony that is not conducted adjacent to an actual gravesite. There are two committal service shelters proposed at the Millennium Site, one at the southern end and one at the northern end. The size of the shelter is approximately 40’ in width by 40’ in length. Adjacent to each shelter space is provided for the military honor guard. The design of the committal service shelters is based on the post and beam system present in the other architectural features.

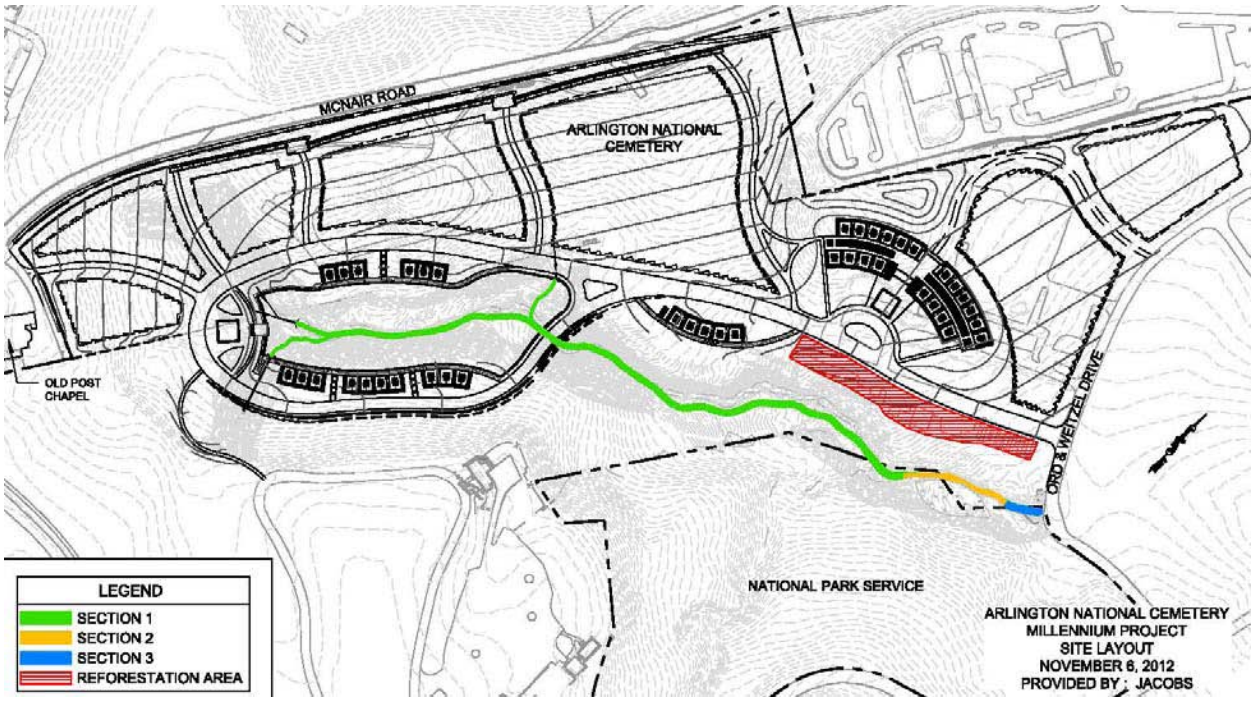
Figure 2.4 Sketch view of committal shelter



2.5 STREAM RESTORATION

The main stream channel would be restored and integrated into the overall project as a natural landscape amenity. Natural Channel Design (NCD) techniques would be utilized to restore the existing degraded stream channels. Unlike conventional engineering practice, the goal of NCD is not simply the abatement of stream bank erosion or the maximization of channel conveyance (typically done with riprap and concrete), but to restore the balance of flow and sediment in the stream system and to reestablish natural hydraulic and ecologic functions. See Figure 2.5 below for the proposed stream restoration feature.

Figure 2.5 Stream Restoration



2.6 NPS PARKING LOT STORMWATER MANAGEMENT

An additional element of the Millennium Project includes an analysis of stormwater management for an existing parking lot on Arlington National Cemetery property that is used daily by the National Park Service and several times per year for various cemetery events. The project team considered means for storing water (to alleviate peak flows and volumes) and also options for securing the steep eroding slope near the parking lot. Although this is not a portion of the main stream that would be restored as a part of the Millennium Project, this stormwater channel does feed into the main stream. The improvements, consisting of an underground storage area as well as improvements to the steep bank, would decrease the sediment load flowing into the restored stream.

The current stormwater outfall at the Arlington National Cemetery-owned parking lot for the National Park Service building has caused severe erosion of the steep slope where the pipe daylights as well as downstream within the existing channel. Prior to construction of the Millennium Project, improvements will be constructed which includes removal of headstones, rock slabs, and concrete currently used for channel stabilization. Subsequent actions to stabilize

the channel will include installation of cross-vane rock structures, biodegradable soil erosion control matting, and native vegetation. The study area drainage shed is 2.38 acres, with 1.53 acres of pavement and 0.85 acres of lawn. The improved channel will be vulnerable to the highly variable flow from the parking area's single outfall pipe; therefore, means to mitigate the amount of flow and improve the outfall condition were explored. Design goals include:

- Decrease the volume of runoff generated by the parking area
- Stabilize the steep slope and mitigate erosion
- Lengthen the overall discharge time for a given storm to create a 'base flow' for the channel
- Limit disturbance to existing trees as much as possible – preserve existing white oak tree within parking area
- Maintain the area available for parking and off-loading
- Improve the quality of runoff
- Avoid impacts to historical resources

The sub-alternatives identified in Section 3.3 to address the NPS Parking Lot Stormwater Management issue were developed, discussed, and reviewed as a collaborative process with the NPS, USACE, and ANC. Any of the sub-alternatives considered could be matched with the primary selected alternative for the Millennium Project. Figure 2.6 below shows the location of the NPS Parking Lot Stormwater Management portion of the project as the orange dotted line around a parking lot. The yellow dotted line is the boundary of the primary portion of the Millennium Project.

Figure 2.6 NPS Parking Lot Stormwater Management

2.7 IMPACT TOPICS ELIMINATED FROM FURTHER ANALYSIS AND CONSIDERATION

The following impact topics were eliminated from further analysis in this EA and a brief rationale for dismissal is provided for each topic. Potential impacts to these resources would be negligible, localized, and most likely immeasurable.

2.7.1 Wild and Scenic Rivers

The Potomac River is not designated as a National Wild and Scenic river; therefore, this impact topic was dismissed from further analysis in this EA.

2.7.2 Geohazards

There are no known geohazards within the project area; therefore, this impact topic was dismissed from further analysis in this EA.

2.7.3 Prime Farmland

Prime farmland is defined as 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 soil qualities, growing season, and moisture supply are those needed for a well-managed soil to produce a sustained high yield of crops in an economic manner. The land can be cropland, pasture, rangeland, or other land, but not urban built-up land or water. Prime farmland is protected under the Farmland Protection Policy Act of 1981 to minimize the extent to which Federal programs contribute to the unnecessary or irreversible conversion of farmland to nonagricultural uses. Arlington National Cemetery is not considered prime farmland; therefore, this impact topic was dismissed as an impact topic in this EA.

2.7.4 Marine or Estuarine Resources

There are no marine or estuarine resources within Arlington National Cemetery, nor would this project impact any marine or estuarine resources; therefore, this impact topic was dismissed from further analysis in this EA.

2.7.5 Floodplains

The project area is located high above the Potomac River and is located in Zone D (Areas with possible but undetermined flood hazards) per the Federal Emergency Management Agency (FEMA). Map panel 515520 0010B. Since the drainage area is significantly less than 1 square mile and the topography is so well defined, the final grading plan would easily confine the 100 year flood events. No significant floodplain impacts are anticipated. This impact topic was dismissed from further analysis in this EA

2.7.6 Air Quality

The 1963 Clean Air Act, as amended, (42 U.S.C. 7401 et seq.) requires Federal land managers to protect park air quality. Arlington National Cemetery is located in the Washington Metropolitan Area marginal non-attainment zone for ozone and non attainment for fine particulate matter (PM 2.5). Particles less than 2.5 micrometers in diameter are called "fine" particles. These particles are so small they can be detected only with an electron microscope. Sources of fine particles

include all types of combustion, including motor vehicles, power plants, residential wood burning, forest fires, agricultural burning, and some industrial processes.

With the Proposed Alternative, temporary increases in air pollution could occur during the project implementation; however, the impacts to air quality are anticipated to be localized and negligible, lasting only as long as construction activities occurred. The area's current level of air quality would not be affected by the proposed project; therefore, this impact topic was dismissed from further analysis.

2.7.7 Land Use

The project area is on Federal property with Federal adjacent uses and would not impact occupancy, property values, ownership, or any type of land use; therefore, this impact topic was dismissed from further analysis in this EA.

2.7.8 Unique Ecosystems, Biosphere Reserves, World Heritage Sites

There are no known biosphere reserves, World Heritage Sites, or unique ecosystems listed within or adjacent to Arlington National Cemetery; therefore, this impact topic was dismissed from further analysis in this EA.

2.7.9 Indian Trust Resources

Secretarial Order 3175 requires that any anticipated impacts to Indian trust resources from a proposed project or action by Department of Interior agencies is explicitly addressed in environmental documents. The Federal Indian Trust responsibility is a legally enforceable fiduciary obligation on the part of the U. S. Government to protect tribal lands, assets, resources, and treaty rights, and it represents a duty to carry out the mandates of Federal law with respect to American Indian tribes and Alaska Native entities. The project area is not held in Trust by the Secretary of the Interior for the benefit of Indians due to their status as Indians. Therefore, this impact topic was dismissed from further analysis in this EA.

2.7.10 Environmental Justice

On February 11, 1994, President Clinton issued Executive Order 12898, "Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations". This order directs agencies to address environmental and human health conditions in minority and low-income communities so as to avoid the disproportionate placement from any adverse effects by Federal policies and actions on these populations. Local residents near the Millennium Project may include low-income populations; however, these populations would not be particularly or disproportionately affected by activities associated with the project. Therefore, this impact topic was dismissed from further analysis in this EA.

2.7.11 Socioeconomic Resources

NEPA requires an analysis of impacts to the human environment, which includes economic, social, and demographic elements in the affected area. The current conditions in the project area, as represented by the No-Action Alternative, would not have any impacts to the socioeconomic resources of the surrounding area. The Proposed Action would neither change local and regional land use, nor appreciably impact local businesses or other agencies. Implementation of the Proposed Action could provide a negligible beneficial impact to the nearby surrounding economies from short-term minimal increases in employment opportunities for the construction workforce and revenues for local businesses and government generated from construction activities. Since the impacts to the socioeconomic resources associated with the project would be negligible, this impact topic was dismissed as an impact topic in this EA.

2.7.12 Human Health and Safety

No human health and safety risk factors currently exist on the project site, and none would be introduced as a result of this project. Since the impacts to human health and safety associated with the project would be negligible, this impact topic was dismissed as an impact topic in this EA.

3 ALTERNATIVES TO THE PROPOSED ACTION

Under NEPA, an EA must evaluate reasonable alternatives for a project, including the No-Action Alternative. Seven primary alternatives have been identified for this project. With the exception of the No-Action Alternative, all of the plans include construction at the Millennium Site. This location has been determined to be the best and most appropriate use for ANC to extend initial interments beyond 2025. At this time, the Millennium Site is the only parcel of undeveloped/underdeveloped land owned by ANC that is most suitable for the construction of additional gravesites and columbaria.

In 2011, four primary alternatives, known as A, B, C, and D, were evaluated in a charrette with individuals from ANC, Norfolk District USACE, and other stakeholders. The plans were evaluated on the following criteria: increased longevity of ANC, relative cost, impact on operations, impact on environment, compatibility with ANC traditional aesthetics, and implementation timeframe. Alternatives A and B were determined to be least preferred and Alternatives C and D were identified as satisfactory; however, none of the alternatives were suitable for implementation. Instead, Alternatives C and D were used as the basis for the development of two new alternatives, E and F. Alternative E was carried forward as the Proposed Action.

In addition to the primary alternatives, there was also a group of sub-alternatives that were considered in order to address the stormwater drainage issue from the NPS Administration Building parking lot as well as the steep slope that is eroding adjacent to the parking lot. These alternatives were reviewed as sub-alternatives to the proposed action. Any sub-alternative could be matched with any primary alternative.

3.1 THE NO-ACTION ALTERNATIVE

NEPA regulations refer to the No-Action Alternative as the continuation of existing conditions of the affected environment without implementation of, or in the absence of, the Proposed Action. Inclusion of the No-Action Alternative is prescribed by the Council on Environmental Quality (CEQ) regulations as the benchmark against which Federal actions are evaluated. Under

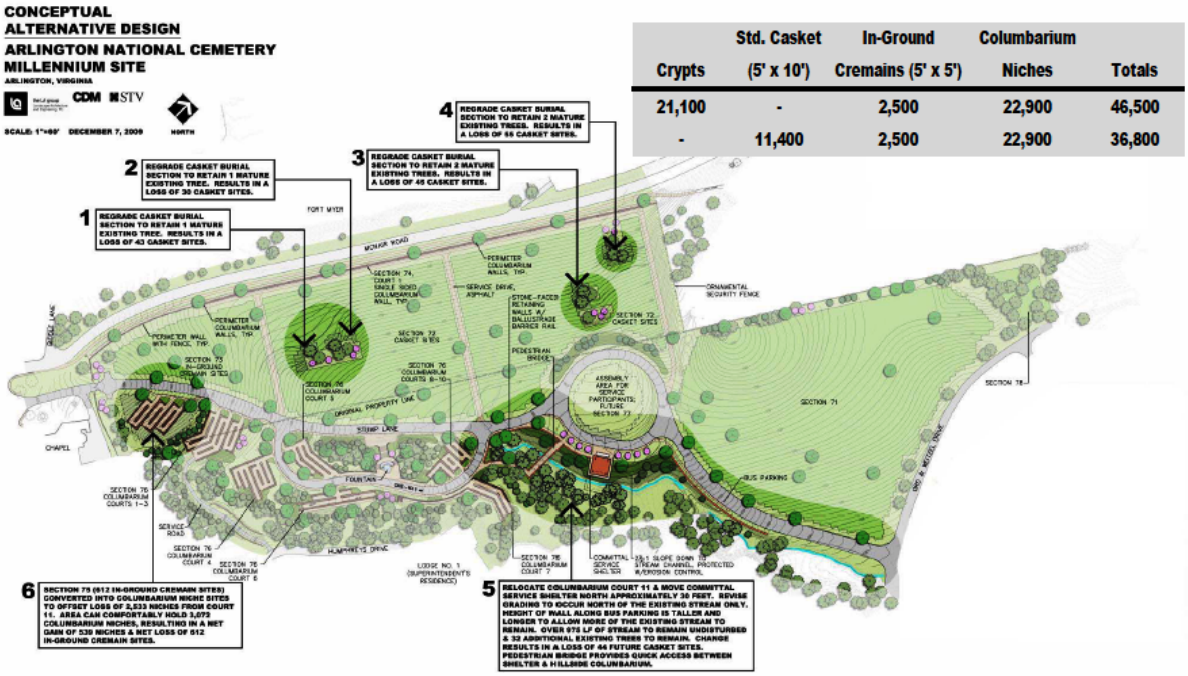
this alternative, the Proposed Action by ANC to create burial and columbarium space would not occur on the Millennium Site, and ANC would reach full capacity in 2025.

3.2 PRIMARY ALTERNATIVES CONSIDERED

3.2.1 Alternative A

Alternative A is based on a recommended plan from earlier project planning studies. The project had a plan in 2002 that evolved into a similar plan in 2009. Alternative A presents the 2009 plan with the only change being that the standard burial plots are replaced with pre-placed crypts in order to determine the potential increase in yield. This plan would provide 42,150 total new burial sites: 14,250 3-foot x 8-foot crypts for casket burials, 4,900 3-foot x 8-foot crypts for inurnment burials, and 21,000 niches for remains. While this alternative provides the highest number of total burial sites, this plan was ranked as the least environmentally sensitive. This Alternative served as the starting point for the more recent planning efforts.

Figure 3.1 Alternative A

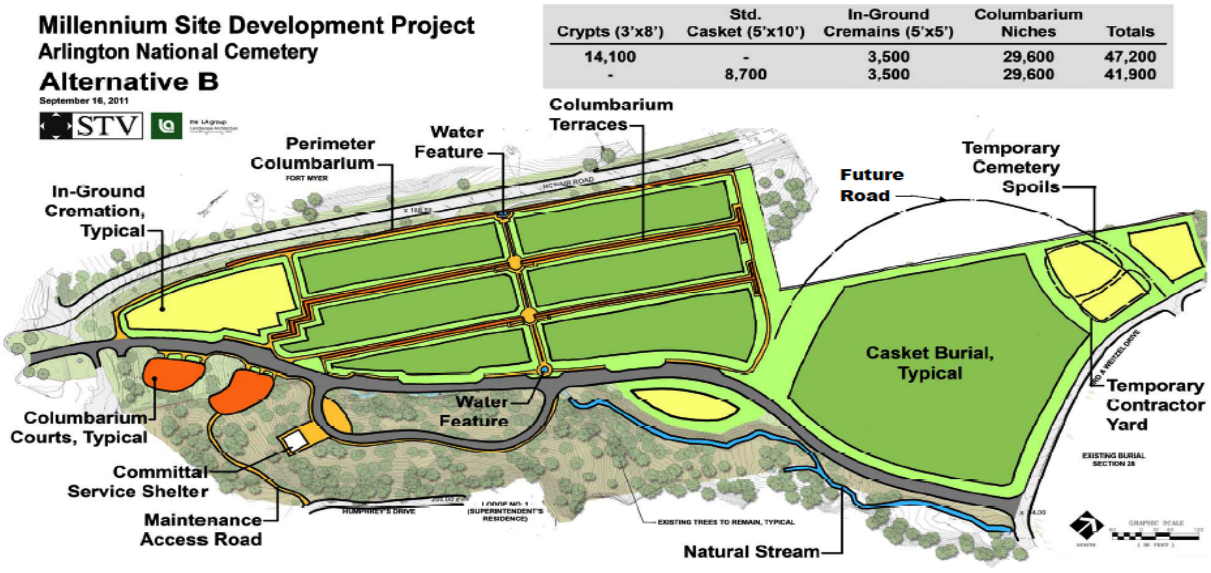


3.2.2 Alternative B

Alternative B would provide 38,700 total new burial sites: 15,600 3-foot x 8-foot crypts for casket burials, 2,500 3-foot x 8-foot crypts for inurnment burials, and 20,600 niches for remains. This plan would provide the second highest number of total burial sites; however, stakeholders expressed concerns that the linear columbarium walls in Alternative B may not match the traditional character of ANC and that the design did not provide a location suitable to view the entire vista. The following design considerations were included:

- A series of terraced columbarium walls were located to best mitigate the grade. These walls run parallel to the wall along McNair Road. One of the primary considerations is that people can see over the wall. It was determined that a wall two niches high facing the higher elevation and five niches high facing the lower elevation would maximize yield while maintaining views throughout the site.
- A water feature is proposed to cascade down the terraces and appear to connect into the natural stream.
- Spaces most suitable for burial were identified. Considerations included suitable slopes and frontage to the road.
- Given the quantity of columbaria accommodated within the northern portion of the site, the courts proposed within the southern section of the site could be kept to a minimum.

Figure 3.2 Alternative B

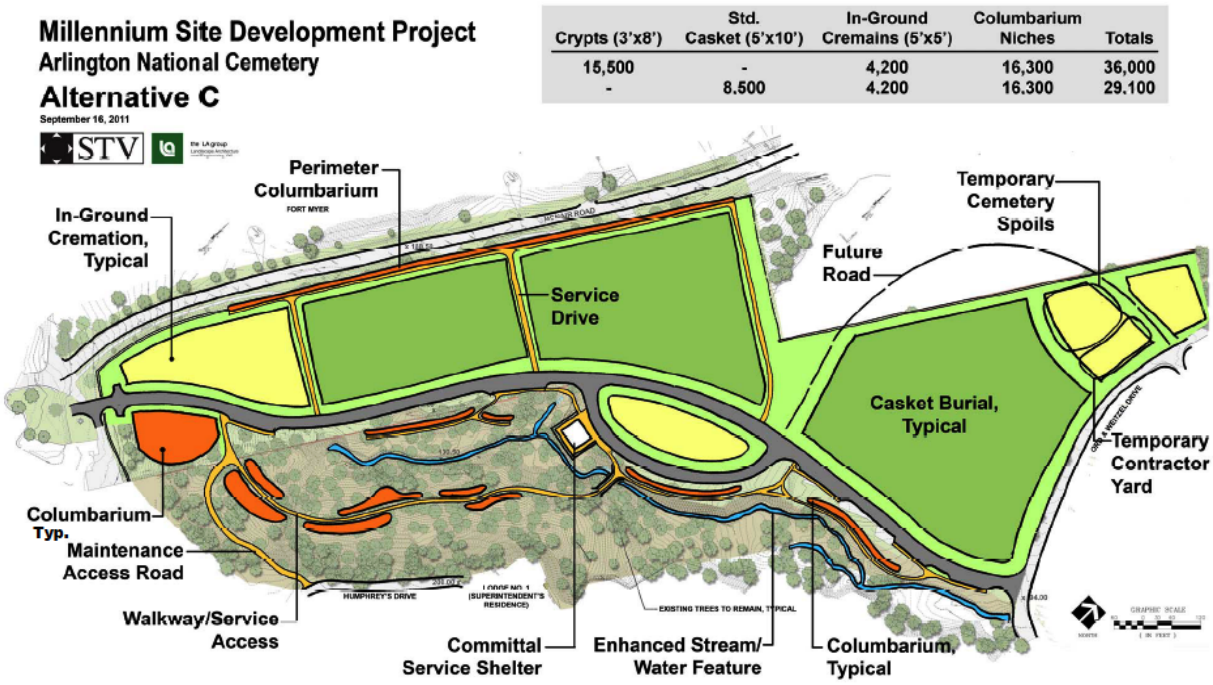


3.2.3 Alternative C

Alternative C would provide 35,620 total new burial sites: 13,700 3-foot x 8-foot crypts for casket burials, 2,550 3-foot x 8-foot crypts for inurnment burials, and 19,370 niches for remains. Although Alternative C is the best alternative when compared against the other three designs, stakeholders were concerned about the placement of the committal shelter and columbarium. In addition, this plan provides the fewest total burial sites. The following design considerations were included in Alternative C:

- In this alternative, the roadway is designed so as not to cross the stream. This allows for greater preservation of the southern slope with its stands of trees, and respects the existing stream.
- Since the stream is preserved, it can be enhanced to serve as a water feature, which is a requirement for columbarium courts.
- Linear columbaria are proposed running parallel to the stream, below the road level.
- The committal service shelter is centrally located among the courts and is positioned to overlook the stream.

Figure 3.3 Alternative C



3.2.4 Alternative D

Alternative D would provide 37,280 total new burial sites: 12,150 3-foot x 8-foot crypts for casket burials, 4,850 3-foot x 8-foot crypts for inurnment burials, and 20,280 niches for remains. This plan was ranked in the middle for the total burial sites, percentage of trees retained, and length of stream retained criteria. Alternative D also tied with Alternative C for best performance in the disturbed areas criteria; however, this plan would result in heavier site impacts than the other alternatives because it requires more roadway and the longest retaining wall of all the plans. In addition, stakeholders expressed a desire for a circle to be added at the end of the road near JBMHH. The following design considerations were included in Alternative D:

- Access points were determined in order to allow for the most efficient flow of traffic through the site.
- A loop road was proposed in lieu of a circle to accommodate vehicular traffic while maximizing contiguous space outside the loop.
- Early development of this alternative showed no physical connection to the chapel. Upon further refinement the plan showed no significant gain in yield or improvement to the overall concept by not having the connection. So a connection to the chapel is proposed in this alternative as it improves circulation and convenience for visitors and ANC operations and maintenance.
- Pedestrian access through the site was developed with consideration of meeting National Cemetery Administration (NCA) guidelines. Spaces most suitable for burial were identified. Considerations included suitable slopes and frontage to the road.
- The steep slope along the southern portion of the site was identified for columbarium courts.
- The committal service shelter is centrally located among the courts.

Figure 3.4 Alternative D

3.2.5 Alternative E

This alternative would minimize impacts to the project area while accomplishing the project purpose of expanding ANC by providing 36,020 total new burial sites: 12,350 3-foot x 8-foot crypts for casket burials, 2,350 3-foot x 8-foot crypts for inurnment burials, and 21,320 niches for remains. Supporting facilities would include restrooms, storage areas, water fountains, waterlines, sanitary sewer, storm drainage, underground electrical and communications/information systems, stream restoration, landscaping, retaining walls, perimeter fencing, vehicle and pedestrian access roads and walks, and security systems.

Figure 3.5 Alternative E

3.2.6 Alternative F

Alternative F was developed with the goal of maintaining the environmental sensitivity of Alternative C while improving the operational circulation. To accomplish this, Alternative F includes a circular loop road on the western side of the site. The committal service shelter was relocated to provide a visual terminus at this location. The "room-like" columbarium spaces would be oriented inward and span the length of the stream corridor. Alternative F would also allow for a through-road to a motor pool area, should it become available for use.

Figure 3.6 Alternative F

3.3 SUB-ALTERNATIVES: NPS PARKING LOT STORMWATER MANAGEMENT

3.3.1 Impervious Area Reduction

One method for reducing the rate of runoff to the outfall is to reduce the impervious area within the drainage shed. A modest section of pavement would be removed from around the existing parking lot trees in order to provide an improved habitat. Ideally this would occur from the base of the trees to the drip line; however, site circulation will not be compromised. Pervious paving can also reduce the impervious area; pervious paving allows water to drain into the base material that consists of open graded aggregate providing 40% void space. This system releases the stormwater at a much slower rate. Pervious paving comes in three basic forms:

- Pervious Asphalt – least expensive

- Pervious Concrete – higher cost than asphalt, more durable
- Pervious Pavers – many options, cost slightly lower than concrete, less durable

3.3.2 Underground Stormwater Storage

In addition to decreasing the impervious area, another technique to reduce the rate of runoff is to store it and release it at a lower rate. An added benefit of this method is that it helps fulfill the goal of providing a base flow for the channel, as storage facilities generally release water over a 48-hour period. Site constraints effect the placement of underground storage, which needs to be at the low end of the parking lot or beyond in the lawn area. Constraints include:

- Archeological findings under the paved area, which limit the amount of excavation to 12" pending further detailed study
- Existing utilities, which include a 14" watermain, a fire hydrant and two electrical lines of unknown configuration
- The steep slope; a system that uses infiltration must be located 50' from a steep slope to avoid excessive surcharge which could lead to collapse of the slope

Several systems are available to store water underground, including:

- Concrete vaults – Highest cost, smallest footprint, very little water quality benefits
- Aggregate drywells – Lowest cost, largest footprint; filtering provides some water quality
- Aggregate enhanced with high density polyethylene (HDPE) pipe – Lower cost than concrete, medium footprint, system has enhanced water quality over vaults and aggregate

3.3.3 Bio-filtration

A bio-filtration facility is an effective option for the lower end of the parking lot to provide additional reduction of harmful pollutants associated with runoff from a paved surface, and to further attenuate stormwater flow to the outfall. Bio-filtration removes larger particulates that migrate across the paved area, provides greater uptake of nutrients through biological functions of the plants, and removes a much greater percentage of petroleum based pollutants through interaction with the mulch layer should a planting area be utilized. The potential use of bio-filtration is somewhat limited due to the presence of existing utilities, the proximity of a

steep slope, and by archeological constraints. The topographic challenge is the proximity of the steep slope; a 50' separation of bio-filtration to the top of a steep slope is recommended, which pushes the facility very close to the parking lot. A portion of asphalt would need to be removed to provide the required filter strip into the facility. Archaeological investigations have recently been conducted in the area of the proposed facility and found evidence of potential historic importance under a portion of the parking lot, but found no evidence in the lawn area. Therefore, because of the need for the parking lot to maintain capacity and its potential archaeological sensitivity, bio-filtration would need to be located almost entirely within the lawn area.

3.3.4 Slope Management

Due to years of inadequate outfall protection, parking lot runoff has caused severe damage to the steep slope where it daylights from the 18" pipe. Damage includes a severely incised channel with vertical drop-offs, exposed rocks, root masses and other debris, creating an unstable condition. Runoff from the parking lot is gravitationally directed to a filtering drainage point that directs flow to the underground storage, from which flow goes to the outfall system. Two methods for conveying the runoff down the slope were considered:

1. **Piping**: This method consists of a pipe placed within the existing channel and anchored to prepared bedding that would be covered with soil stabilized by vegetation. High performance polypropylene pipe would be used due to its high strength and solid joint connection. Two options for the base of the pipe run is a manhole structure to provide an anchor for the pipe, help decrease flow energy, provide maintenance access at a potential clogging point, and to become less visible within the forest setting. The alternative to a manhole would be a manufactured bend. A bend provides similar benefits to the manhole; except that it would need to have a separate anchoring system and it would not provide access to the pipe, posing a possible long-term maintenance issue. At the point where the pipe daylights, two options exist: a headwall or an end section. The headwall is cast in place concrete, with a footing and reinforcement steel generally based on state department of transportation standards. The advantage of the headwall is it allows adequate fill to be placed directly up to the end of the pipe and protects the outfall from erosion. While the structure can be covered in an attractive stone veneer, it is a visible structure

within the forest. The end section is a flattened, truncated cone that slips onto the end of the outfall pipe and spreads to about twice its width. It can be made from the same material as the pipe and is less costly than the headwall. It does not provide a means to bury the pipe near the end and is usually recessed back into the slope, which makes it less intrusive than the headwall. The limits of disturbance (LOD) for the pipe option is estimated as a 10-20 foot wide path within and straddling the streambed. Access by machine to the steep portion of the slope may or may not be necessary since the pipe is moveable by hand. It is possible that debris may be winched out of the channel, with minimal grading and placement of aggregate performed manually. A smaller machine (i.e. skid steer) could possibly reach from below from within the channel or through the woods from the Millennium development.

2. **Regenerative Stormwater Conveyance (RSC)**: This relatively new approach creates a more natural stormwater conveyance system consisting mainly of a series of pools connected by short, relatively steep and armored channels. Generally the channel would be built-up from existing grade approximately 18" and greater depending on level of channel incision; vegetation would be planted within the channel and on the side slopes for stabilization and to help filter the water. Large stones are used to help define the pools and to provide a very stable medium to convey the water between pools. Trucks would dump a mixture of sand, aggregate and organic matter into the incised channel until it becomes navigable by a tracked machine. The filling operation continues until it resembles a haul road; this access is compacted and used by machines to get to the downstream end of the project. Construction starts at that point and material is removed in some instances as the channel is built back up the slope. Access would not be expected to extend beyond the tops of both side of the channel, therefore the footprint of the construction will be held to the minimum dictated by the stream width. The pools are formed by light excavation of the fill material and more so by the placement of boulders and smaller stone that will form weirs designed to pass the design storm. Boulders are placed upon large sheets of geotextile fabric, so that if pockets of settlement occur, the mass of boulders and cobbles settle together which mitigates the extent of the effect on the design.

3.4 PREFERRED ALTERNATIVE – ALTERNATIVE E

The preferred alternative is Alternative E. This plan best meets the criteria and needs identified for the project. The dense existing woodland buffer at the east edge of the site would be retained to allow an appropriate boundary to the NPS property and retain the natural aesthetic character of this portion of the ANC and a small portion of the stream restoration occurs on NPS property. At the west perimeter, the natural change in grade and design of the perimeter columbarium wall closely conforms to the area's topography and the boundary of Ft. Myer to reduce the amount of topographical cut and fill inward toward the stream. This design results in a greater saving of mature trees and larger areas for in-ground crypts. Alternative E would eliminate approximately 50% of the trees on-site. The angle of the road and path system also conform to the natural topography, allowing for the introduction of groves of trees within the in-ground burial area, meandering paths, and a more contemplative environment within the Millennium Site.

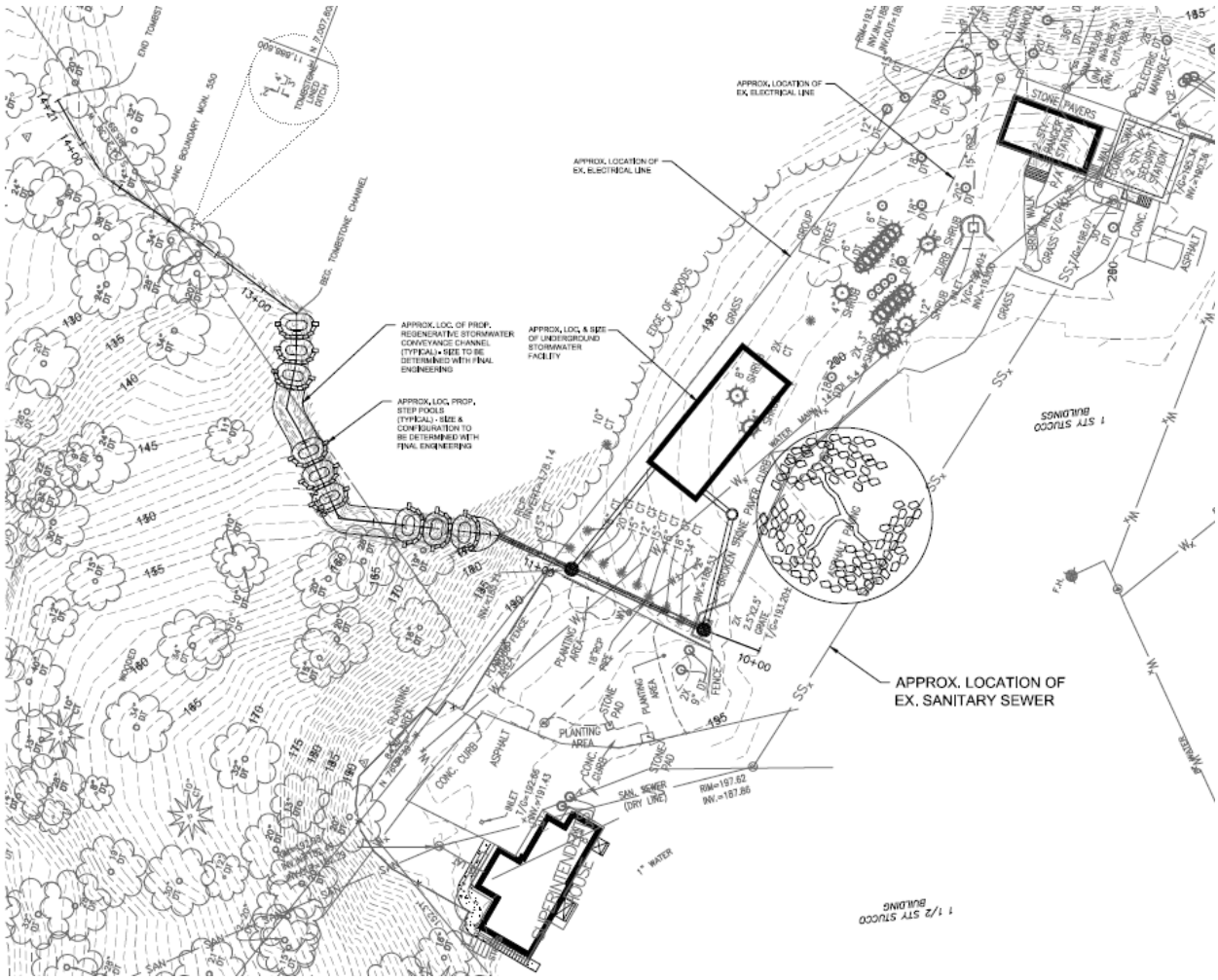
This alternative would minimize impacts to the project area while accomplishing the project purpose of expanding ANC by providing 36,020 total new burial sites: 12,350 3-foot x 8-foot crypts for casket burials 2,350 3-foot x 8-foot crypts for inurnment burials, and 21,320 niches for remains. Based on preliminary analysis by the Center for Army Analysis (CAA), this project would extend the longevity of the cemetery by 7-12 years. With a current projection of 2025 for full capacity in the cemetery, this project would extend it to 2032-2037. This data will be refined by the CAA prior to 65% design.

Access to the site would be provided from the northeast only, connecting to Ord & Weitzel Road and the existing ANC ceremonial route from the Old Post Chapel. A 30-foot wide roadway with mountable curbs would cross the site along the edge of the woodland area and loops around the restored stream area. A bus loop/drop-off area is provided close to Ord & Weitzel Road to accommodate large vehicles and minimize their impact. Pedestrian access from the roadway would be provided by 10-foot-wide tree-lined curved paths. Solitary trees would be provided in the large in-ground areas to recall the iconic image of ANC. The staging and storage area for the project would primarily be in the adjacent existing JBMHH Motor Pool, roadway, and adjacent burial area.

3.4.1 NPS Parking Lot Stormwater Management

The preferred alternative for the NPS parking lot stormwater management effort is underground stormwater storage which would slowly release into a RSC system on the slope. In addition to the stormwater management features, the pavement around all four trees in the NPS Administration Building Parking lot would also be removed to the drip lines (as appropriate) to allow for better long-term habitat for the trees. This is also the preferred alternative of the NPS.

Figure 3.7 NPS Parking Lot Stormwater Management



3.5 MITIGATION MEASURES

Measures used to minimize and mitigate impacts from this project include:

- Stream restoration using NCD techniques
- Designing to specifically avoid larger trees where feasible
- 600 new trees and 500 new shrubs planted to help mitigate for the lost trees
- Enhancing aesthetics
- Interpretive/educational signage to enhance the visitor experience
- NPS will provide tree replacement plan for tree removal on NPS-administered land
- Salamander protections on all NPS property
- RSC construction methods with access limited to the channel

3.6 ALTERNATIVES ELIMINATED FROM DETAILED EVALUATION

During the planning stages of the project, the following action alternatives were evaluated and eliminated from further consideration as described below. The most predominant concern with all of the alternatives eliminated was the impacts to the stream. All of the alternatives below were deemed to have unacceptable impacts to the on-site stream, would have been difficult if not impossible to obtain the appropriate regulatory permits for, and would not meet the requirements of the Chesapeake Bay Preservation Act. A main driver of the concept and design efforts was to minimize impacts to the existing stream, as well as the trees, while retaining as many burial spaces as possible. All alternatives would eliminate approximately 50% of the trees, so this was considered but was not a major factor in differentiating the alternatives.

Table 3.1 Alternatives Eliminated from Detailed Evaluation

Alternative	Reasons Eliminated
Alternative A	Environmental impact – stream
Alternative B	Environmental and visual impact Non-traditional aesthetics – terraced design
Alternative C	Less burial capacity
Alternative D	Significant roadway length Significant quantity of fill
Alternative F	Less burial capacity and vehicle stacking space Columbarium spacing awkward

3.6.1 Alternative A

Alternative A was eliminated from further evaluation due to its high level of environmental impact. This alternative would have had 370 feet of permanent impact to the intermittent streams as well as 748 feet of permanent impact to the perennial stream (i.e. where the stream is eliminated or its habitat is significantly and permanently reduced in function and value). Because of these impacts, it would likely have required an Individual Permit from VDEQ, and would not have been able to meet the requirements of the Chesapeake Bay Preservation Act. Alternative A retained approximately 52% of trees on-site.

3.6.2 Alternative B

Alternative B was eliminated from further evaluation due to its high level of environmental and visual impact. Compared to the others, Alternative B is the least traditional in terms of aesthetics. The design of the terraces presents a unique visual by having the columbarium walls integrated within the rows of headstones. This terracing effect was deemed inappropriate by several of the external coordinating organizations on the project. In addition, this alternative would have resulted in permanent unacceptable impacts to the stream similar to those identified for Alternative A. Alternative B retained approximately 53% of trees on-site.

3.6.3 Alternative C

Although it would result in lesser impacts to natural resources, Alternative C was eliminated from further evaluation due to a desire to balance minimizing natural resource impacts with maximizing the number of burial spaces. Alternative C would eliminate 40% of the trees on-site. Permanent impacts to the stream include 291 linear feet of permanent impact to the intermittent streams and 363 linear feet of permanent impact to the perennial stream. However, Alternative C offered the least number of burial sites, so rather than moving forward with Alternative C, concepts from both Alternatives C and D were used to create Alternatives E and F.

3.6.4 Alternative D

Alternative D was eliminated from further evaluation due to its significant roadway length and significant amount of fill. Alternative D would eliminate 54% of the trees on-site. Impacts to streams were similar to Alternative C. Over 4000 linear foot of road were included in Alternative D, resulting in a concern over the large increase in impervious area as well as the aesthetic impacts of the roadway. In addition, this alternative had a very large amount of fill, estimated at approximately 250,000 cubic yards. Due to these impacts, rather than moving forward with Alternative D, concepts from both Alternatives C and D were used to create Alternatives E and F.

3.6.5 Alternative F

Although this alternative was determined to be the most environmentally sensitive and would improve operational circulation, this design does not provide as much burial capacity and vehicular stacking space as the Proposed Action. In addition, stakeholders were concerned about the columbarium locations being too far away from the committal service shelter. They were also concerned that the walking path could pose an operational challenge for both maintenance work and visitors to the cemetery.

3.6.6 Sub-alternatives for NPS Parking Lot Stormwater Management

Table 3.2 Sub-Alternatives Eliminated From Detailed Evaluation

Sub-Alternatives	Reason Eliminated
Impervious Area Reduction	• Potentially significant historical items found in parking lot • Desire for minimal maintenance
Bio-filtration	• Area needed for bio-filtration would eliminate the staging area for the Cemetery's new plantings • Water quality benefits maximized on the RSC so deemed not as important for the storage
Pipe on slope	• Would require an access road of approximately 10-20 feet wide to construct and anchor • Not NPS' preferred plan • NPS reluctant to include manhole structure and wasn't confident in the durability of a manufactured bed for outfall

The sub-alternatives that were eliminated from detailed evaluation within this document include:

1. **Impervious Area Reduction** – This option (except for around the parking lot trees, which would be implemented) was eliminated due to potentially significant items of historical value found in the NPS parking lot area under consideration for impervious pavement. The project team determined that it was not willing to risk potentially impacting these culturally significant items.
2. **Bio-filtration**– It was determined the bio-filtration was not consistent with other landscape features at ANC and would occupy an area that is currently used for staging of new trees and shrubs. Additionally, the RSC system would be providing water quality benefits; therefore, the treatment feature of the bio-filtration was redundant.
3. **Pipe on slope –** It was determined that the access needed for installing the pipe would cause more disturbance than installation of the RSC system. In addition, the aesthetics of the pipe were not acceptable to the NPS. The NPS did not want a manhole structure on the property, and were concerned with the durability of the bend

at the end of the pipe. In addition, no treatment would occur in a piped system, compared to extensive treatment through the RSC system.

4 AFFECTED ENVIRONMENT

This section describes the affected environment and the existing conditions for the resource categories that may be impacted by the Millennium Project. Each resource category was reviewed for its potential to be impacted. Through this analysis, resource categories clearly not applicable to the alternatives were screened from further evaluation (and were briefly described in Section 2). Only those affected resources applicable to the Proposed Action are discussed further in this section and in Section 5.0, Environmental Consequences.

The Millennium Project is located on a 27-acre site consisting of Section 29 of the existing northwest boundary of Arlington National Cemetery and the old picnic grounds of JBMHH. The proposed project area is primarily on ANC-administered property. The NPS also administers several properties within ANC, including Arlington House and portions of the wooded project area. The project site is bounded to the west by McNair Road and extends roughly to Humphrey's Drive on the East, Ord & Weitzel Drive on the North, and Ft. Myer Chapel on the South. Surrounding the study area are the JBMHH to the west, maintained cemetery to the northeast beyond Ord & Weitzel Drive and the south beyond Ft. Myer Chapel, and deciduous forest to the east. One perennial stream and two intermittent streams convey flow generally north through the study area. The impacts from this project would primarily be found within the project boundaries

4.1 SOILS

The predominant soil unit found within the vicinity of the study area is the Arlington National Cemetery (5) soil unit, according to the *Soil Survey of Arlington County, Virginia* (United States Department of Agriculture-Natural Resources Conservation Service [USDA-NRCS], 2007) and the more recently available digital NRCS Soil Survey Geographic Database (SSURGO) soils data for the county (NRCS Web Soil Survey, 2010). This soil unit is described as having deep, well drained soils on level to moderate slopes within the Upper Coastal Plain landform. Soils within the study area are not classified as sensitive or as "Prime or Unique Farmland" soils.

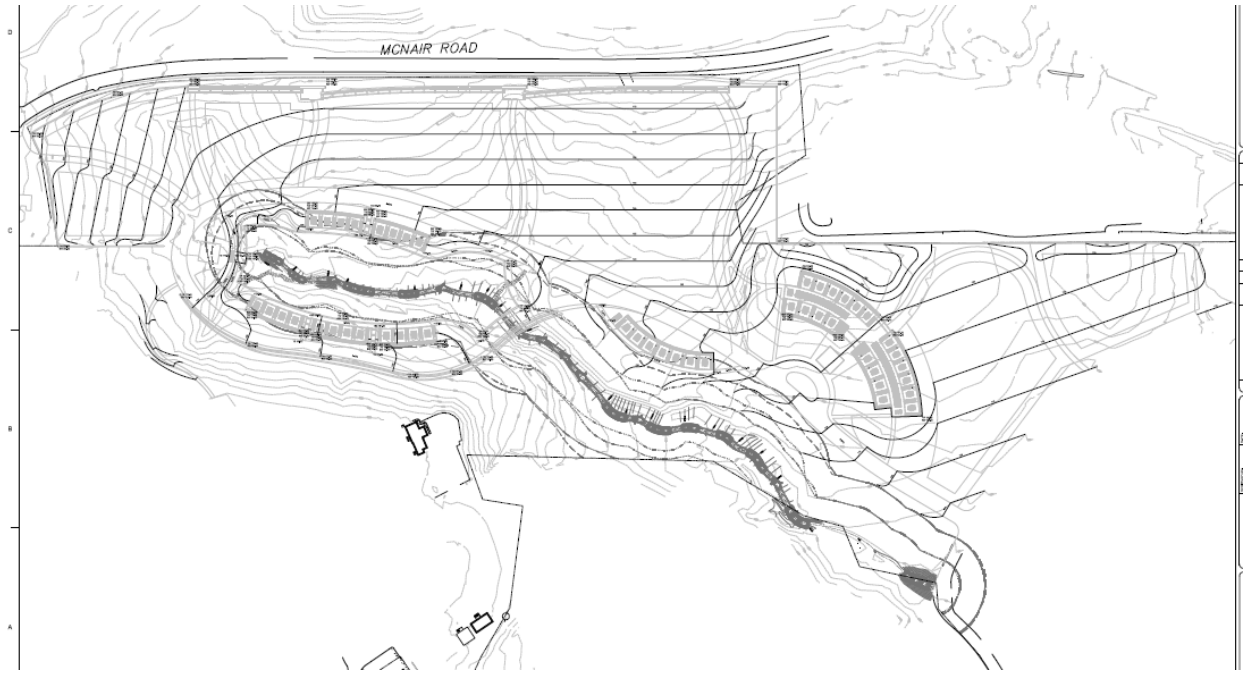
Mapped soil units are classified as primary or secondary hydric soils based upon their listing on the *National Hydric Soils List by State* (USDA-NRCS, 2010). Primary hydric soils are defined as those soils that are saturated, flooded, or ponded long enough during the growing season to develop anaerobic conditions in the upper part of the soil profile. The ANC soil unit is not classified as a primary hydric soil according to the *National Hydric Soils List by State*. Secondary hydric soils are those soils that potentially contain small inclusions of primary hydric soils, typically in drainage ways or depressional areas. The ANC soil unit is not classified as a secondary hydric soil within the Commonwealth of Virginia.

Soil conditions vary throughout the site. In some areas the soils are relatively intact and undisturbed. In other areas, including the incised streambeds and especially the steep slope near the NPS Administration Building parking lot, soils are actively eroding resulting in sedimentation in downstream portions of the watershed.

4.2 TOPOGRAPHY AND FLOODPLAINS

ANC is located within the Northern Coastal Plain Physiographic Province. The general topography at ANC is gently rolling hills dominated by landscaped grass areas used for burial sites. The northeast lobe of the Millennium Site was formerly developed as a warehouse and maintenance complex. Its southeast facing slopes vary between 5 and 20 percent, with plateaus for buildings, parking, and outdoor storage. Approximately 60% of the site has steep slopes (defined as slopes >15%). The design overlay below in Figure 4.1 displays the distinct topography on some portions of the site.

Figure 4.1 Site Topography

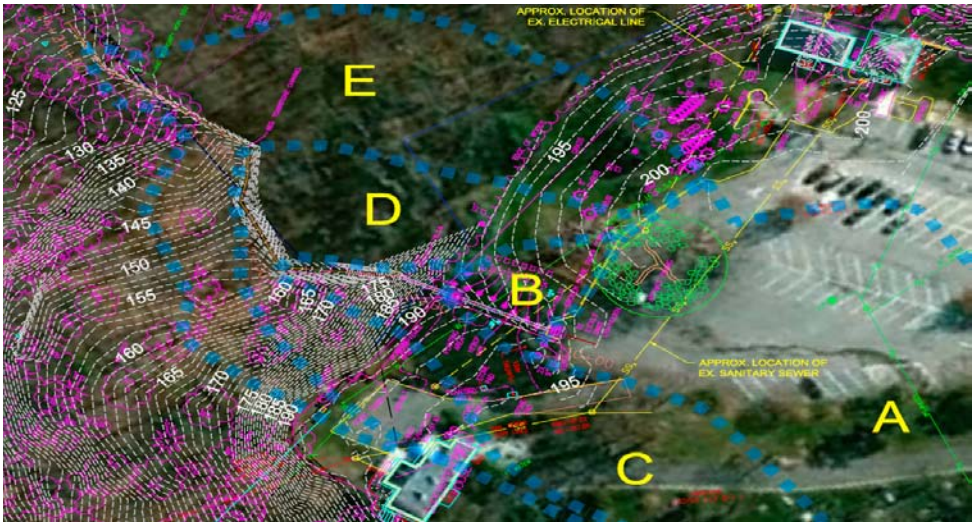


The undeveloped portion of the Millennium Site is characterized by steep slopes, wooded hilltops, and ravines. In the southwestern portion of the site, natural ravines carry surface runoff from the higher elevations of the site into a collector stream which runs southwest to northeast through the center of the site. Drainage in the northeastern portion of the site runs into a collector stream, which runs northeasterly under Ord & Weitzel Drive to an underground storm drainage system.

The wooded area near the NPS Administration Building parking lot is characterized by varying slopes which lead into several tributaries of the main stream. Due to years of inadequate outfall protection, parking lot runoff has caused severe damage to the steep slope from the parking lot where it daylights from the 18" pipe. Damage includes a severely incised channel with vertical drop-offs, exposed rocks, root masses and other debris, creating an unstable condition. The overall length of the system is approximately 170' from the outfall of the existing 18" pipe to the beginning of the headstone removal project. Existing slopes vary from approximately 70% near

the outfall to about 18% nearer the bottom. Topography in this area can be seen in Figure 4.2 below.

Figure 4.2 Topography near the NPS Administration Building Parking Lot

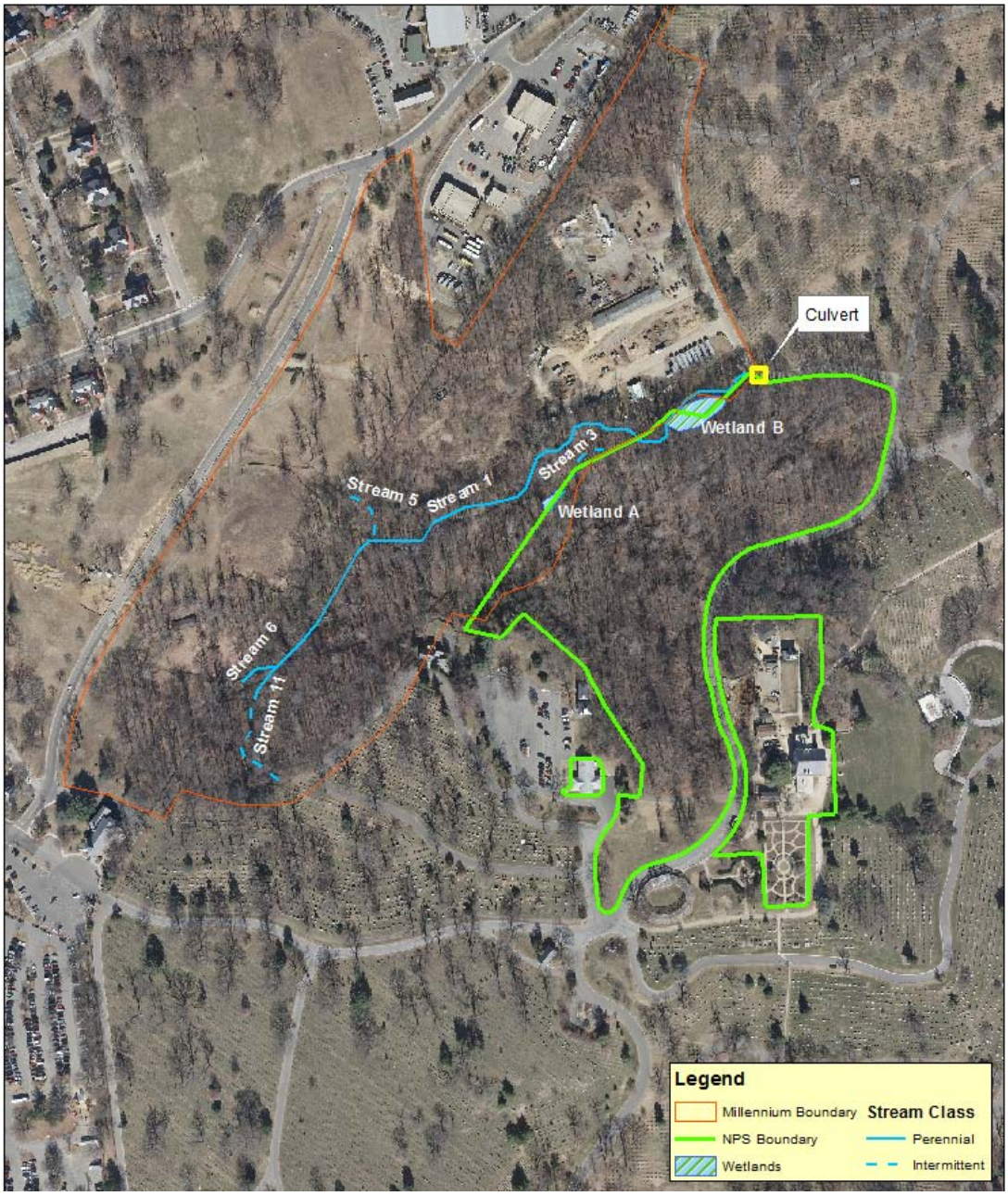


4.3 HYDROLOGY AND WATER QUALITY

Arlington National Cemetery is located within the Middle Potomac-Anacostia-Occoquan watershed (Code 02070010), and is within the larger Middle Potomac Sub-Basin which covers approximately 603,520 acres (943 square miles). ANC is located approximately 1.5 miles west of the Potomac River. An unnamed channel to Long Branch runs along the southwestern boundary of Ft. Myer and ANC. Long Branch, in turn, drains to Four Mile Run, which meets the Potomac just south of Ronald Reagan National Airport.

A wetland delineation performed by KCI, Inc., on December 2, 2010, identified two perennial streams and one intermittent stream that convey flow generally north through the study area. A site visit to confirm the findings was also conducted by USACE Norfolk District Regulatory staff in November 2011 and as a result of this visit an amendment to the wetland delineation was added. Figure 4.3 depicts the streams and wetlands on the project site.

Figure 4.3 Wetlands and waters of US at the Millennium Site



Some portions of the stream located on the Millennium Project Site are deeply incised (preventing storm flows from accessing the floodplain) and have raw, actively eroding banks. In their current state, they are effectively serving as conduits - transporting and providing pollutants (i.e. total nitrogen, total phosphorus, and total suspended solids) to downstream receiving waters.

The main stream, titled the North Branch, is a second order perennial stream that conveys flow northeast through the study area to a culvert beneath Ord & Weitzel Drive and continues beyond the limits of the study area. Approximately 1,879 linear feet of this stream is within the study area. In addition, two small sections of intermittent stream are also identified as tributaries to this stream (see Figure 4.3). Based on the field investigation, the Cowardin Classification for this system is riverine, upper perennial, streambed, cobble-gravel/sand (R3SB3/4).

The southern-most portion of the North Branch contains the most degraded reaches of existing stream and would require the most intensive restoration effort. Currently, the streams in this section are deeply incised (up to 8 feet, preventing storm flows from accessing the floodplain) and have raw, actively eroding banks. The northern sections of the stream are fairly stable with few areas of stream bank erosion. Currently on the northernmost portion of the stream, a headcut is developing as the stream flows into the existing culvert (from a combination of steeper gradient and the culvert's flow concentration) and there is evidence of erosion around the sides and bottom of the culvert. If left unattended, the headcut would progress upstream and threaten the stability of other portions of the stream.

The main water quality concern in the project area is sediment and associated Total Phosphorous (TP) bound to the silt and clays which is currently eroding from the incised banks as well as the steep slope near the NPS Administrative Building parking lot. No water quality contaminants issues have been identified on the project site. However, high velocities of water during storm events are cutting a large gully into the above-mentioned slope, resulting in Total Suspended Solids (TSS) and TP loadings and thus sedimentation in downstream reaches of the watershed.

4.4 GROUNDWATER

According to the Ground Water Atlas of the United States, Delaware, Maryland, New Jersey, North Carolina, Pennsylvania, Virginia, West Virginia, HA 730-L (Trapp and Horn, 1997), the Arlington, VA region is underlain by the Potomac aquifer, which is part of the Northern Atlantic Coastal Plain aquifer system**.** The Potomac aquifer in Virginia consists of the middle and lower Potomac aquifers, which are similar to the Patapsco and the Patuxent aquifers of Maryland and Delaware.

The sediments that comprise the Potomac aquifer are predominately of fluvial and deltaic origin. The maximum thickness of the Potomac aquifer in Virginia is about 4,600 feet, and the average thickness is about 800 feet. General groundwater flow in the area is toward the southeast and groundwater recharge occurs from precipitation or from downward movement through confining beds. Groundwater is not used as a drinking water supply in the Arlington area. No seeps were found present within the project area.

Groundwater readings taken during a subsurface investigation in 2007 (USACE, 2007) reflected a significant variation that generally corresponded to the changes in topography across the Millennium Site. It was observed that the groundwater table typically lies approximately 10 feet to 15 feet below the surface at the lower end of the drainage channel. The groundwater elevation rises but is at a greater depth below the ground surface as the topography rises away from the drainage channel.

4.5 WETLANDS

Wetlands are identified based on characteristics of vegetation, hydrology, and soils. Prior to conducting field activities, readily available primary source materials including U.S. Geological Survey (USGS) maps, National Wetland Inventory (NWI) maps, FEMA floodplain data, and the Arlington soil survey were reviewed to determine the presence or absence of wetlands and streams within the study area.

A field reconnaissance for the entire study area was performed on 2 December 2010, to determine the presence or absence of wetland areas. A site visit to confirm the findings was also conducted by USACE Norfolk District Regulatory staff in November 2011. As a result of this site visit an amendment to the wetland delineation was added. Figure 4.3 reflects the updated wetland delineation. One small wetland area has a total area of 7,140 square feet and an additional wetland area, approximately 1,267 square feet, is found in the wooded area between the Millennium Project and Arlington House. Neither of these wetland areas is within the construction footprint of the Millennium Project.

NOTE: NPS has specific agency requirements for NEPA and wetlands identification. Per Director's Order 12 Handbook, which deals with NPS implementation of NEPA, and NPS Procedural Manual 77-1, which deals with wetlands protection and NPS responsibilities under Executive Order 11990, NPS would use "Classification of Wetlands and Deepwater Habitats of the United States" (FWS/OBS-79/31; Cowardin et al., 1979) as the standard for defining, classifying, and inventorying wetlands and considers the creek in its entirety a riverine wetland. As a small portion (approximately 199 linear feet, or 0.044 acre) of the stream restoration is located on NPS-administered property, NPS considers that portion of the stream a wetland per their implementing regulations. However, it is not a jurisdictional wetland.

4.6 VEGETATION

Vegetation at the Millennium Site varies with location. The eastern portion of the site, formerly a warehouse and maintenance complex, is predominantly vegetated with grass and other typical lawn species, while the remainder of the site is forested or grassy area. The forested areas on the Millennium Site vary from disturbed forested areas near the old warehouse area to roughly 90-year-old white oak and chestnut oak forests to approximately 130-year-old northern red oak and chestnut oak forests to roughly 150-year-old mixed hardwood forest. A small (less than one acre) stand of approximately 220-year-old mixed hardwood forest exists along the southeastern boundary of the site. A survey locating trees 6” diameter and greater was conducted for the Millennium site, with 1,724 trees of this size identified. Oak is the dominant species, with beech, hickory, ash, yellow poplar, and elm comprising the majority of subspecies on hillsides, and maple and black gum scattered along lower-lying areas. Very few evergreens exist. Invasive species include tree of heaven, Norway maple and Princess trees. Tree sizes range from 6” to a 64” Northern Red Oak; therefore tree ages vary greatly. Portions of the forested area generally have older, larger trees; many likely exceed 150 years old. NPS noted that there are two native plant species (*Lonicera sempervirens* and *Prunus virginiana*) found in the Arlington Woods that occur nowhere else in George Washington Memorial Parkway.

4.7 WILDLIFE RESOURCES INCLUDING RARE, THREATENED AND ENDANGERED SPECIES

According to the Animal Welfare League of Arlington (AWLA, 2010), wildlife found in this area is typical for an urban environment. Species generally include squirrel, rabbit, raccoon, opossum, fox, and deer. Songbirds and bats inhabit the area as well as various small reptiles and amphibians. Wildlife is not abundant in the area as it is surrounded by an urban environment. No threatened or endangered species are found on the site, based on data from the USFWS Information, Planning and Conservation System.

The State Threatened Bald Eagle and other migratory birds may pass through and use areas included within the project site; however, no negative impacts are anticipated.

Salamanders and other amphibians are cryptic animals and seek shelter beneath wet stones and woody debris in and along stream corridors. They will likely be encountered during the proposed project. They are non-venomous, and in the fall/winter/spring season, will be very slow-moving and easy to catch and relocate. The Northern Two-lined Salamander is identified by its reddish brown color, two dark lines along its sides from eye to tail and dark spots along the dorsum (top surface).

4.8 CULTURAL RESOURCES

Cultural resources include archaeological sites, structures, cultural landscapes, museum collections, and ethnographic resources. For the purposes of Section 106 of the National Historic Preservation Act, significant cultural resources are identified as historic properties, if they are either considered to be eligible for or listed in the National Register of Historic Places (NRHP). Section 106 of the National Historic Preservation Act mandates that Federal agencies consider the impact of their undertakings on historic properties within the project's Area of Potential Effect (APE). If adverse effects on historic, archaeological, or cultural properties are identified, then agencies must attempt to avoid, minimize, or mitigate these impacts to resources considered important in our nation's history.

4.8.1 Archaeological Resources

The earliest archaeological survey of the Millennium Project APE was in 1991 when a Phase I survey was conducted in the northern half of the Picnic Area of Ft. Myer for BRAC planning (Custer 1991). This survey identified a prehistoric site (44AR0043), and further work (Phase II) was recommended for it. Phase II investigations at 44AR0043 resulted in recommendations that the site is not NRHP eligible (Katz 2010) with which the Virginia Department of Historic Resources (VDHR) concurred (Letter Marc Holma to John C. Metzler, 1 April 2010, DHR file #2008-1022)

A multi-disciplinary cultural resources field investigation (Garrow & Associates, 1998) of NPS property to be returned to ANC consisting of a section of the Arlington Woods associated with Arlington House, the Robert E. Lee Memorial (formerly Section 29 of ANC) identified one large archaeological site consisting of small prehistoric lithic resource extraction activity areas coupled with historic Custis and Lee activity areas associated with Arlington House. Listed as the Arlington Ravine Site (44AR0032), the site is located in the ravine west of Arlington House and encompasses the entire APE of this proposed undertaking. Site 44AR0032 was identified as consisting of six archaeological loci within a site boundary of over 21.33 acres. Miscellaneous archeological materials found outside of these loci were termed non-site finds. The loci include three areas of relatively sparse prehistoric lithic (stone) artifacts, with no diagnostic artifacts (Loci 1, 2, and 3), an area with both historic and prehistoric deposits including historic features related to Arlington House (Locus 4/5 which have the same boundary), and a focused area of prehistoric lithic artifact production containing a hearth feature, Locus 6 (Figure 7). Loci 1, 2, and 3 are on lands ceded back to ANC from NPS, while Loci 4, 5, and 6 remain on NPS property. Spatially discontinuous loci 1, 2, and 3 have been re-designated as separate archaeological sites, 44AR0047, 44AR0048, and 44AR0049 respectively, in the Virginia Department of Historic Resources data base (Data Sharing System). Contiguous Loci 4, 5, and 6 remain as 44AR0032. The ‘non-site’ areas between these four sites are no longer on record as being within the boundaries of an archaeological site. While the remaining area of 44AR0032 contains historic period components determined NRHP eligible it lies outside of the Millennium Project APE. The remaining sites, re-designated 44AR0047, 48, and 49, are within the Millennium Project APE, but have been recommended as not eligible for the NRHP. All three

are prehistoric sites of unidentified culture periods referred to as 'lithic scatters' by regional archaeologists.

Review of existing materials in early 2012 indicated the need for further survey. No Phase I archaeological survey had been conducted on the south half of the Ft. Myer Picnic Area portion of the Millennium APE. Fieldwork in March 2012 identified a historic period site (44AR0046) which was recommended for further work (Haynes 2012b). Phase II at 44AR0046 found these remains to be associated with a 20th century temporary building, probably dating no earlier that the World War I era. The site was recommended as not eligible for the NRHP (Carmody and Blondino 2012).

VDHR Coordination: The Virginia Department of Historic Resources (VDHR), the State Historic Preservation Office, concurred with the Garrow & Associates, 1998, report conclusions and recommendations regarding the cultural resource significance of the forested landscape of the south branch area and need for preservation of that portion of former Section 29 lands in a letter dated September 30, 1999 (letter Cara Metz to Audrey Calhoun 30 September 1999 VDHR file #95-1353-F). The report was submitted for review along with an EA for the proposed division of the former Section 29 lands between the NPS and ANC. The VDHR acknowledged the historic component of Site 44AR0032 as NRHP eligible, as related to the significance of Arlington House; however, they cited a lack of evidence presented to support eligibility for the prehistoric component at Locus 1 (ibid.). The letter does not mention Loci 2 or 3.

Archaeological survey in the APE of the NPS Administration Building parking lot (noted in the consultation package as "drainage improvements at Chaffee Place Parking Lot") identified a brick pavement and scattered building materials. This site was recorded as 44AR0050, and recommended as potentially NRHP eligible (i.e., for Phase II). Project planners developed a plan to avoid this site, and install the facility in an area where no significant archaeological remains were identified.

A consultation letter and summary of survey work and previous consultations with VDHR for the Millennium Project, along with access to copies of a total of all previous archaeological

survey was transmitted to VDHR 13 November 2012 (letter John Haynes to Marc Holma, DHR file #2008-1022). This recommends that there are no NRHP eligible archaeological resources within the Millennium APE.

4.8.2 Buildings and Structures.

The only building within the physical APE of the Millennium Project is an old warehouse in the maintenance yard area of Section 29. This was determined not NRHP eligible by previous survey (letter, Marc Holma to John C. Metzler 29 July 2009, DHR file #2008-1022). A picnic shelter stands in the Ft. Myer Picnic Area portion of the Millennium Project; it is however less than 50 years old.

Buildings contributing to or eligible as contributing to the Fort Myer NRHP listed historic district would be within the visual APE of the Millennium Project. The Old Post Chapel is adjacent to the Millennium Project boundary, and was recommended as eligible as a contributing property to the Ft. Myer historic district (Versar 2011) under Criterion A for its association with military funerals. It is presently bordered on one side by ANC. Other contributing properties of the Ft. Myer historic district in the Millennium Project visual APE are residences along Lee Avenue and Jackson Avenue; however these face away from the Millennium Project area. Arlington House is not within the visual APE.

4.8.3 Cultural Landscape.

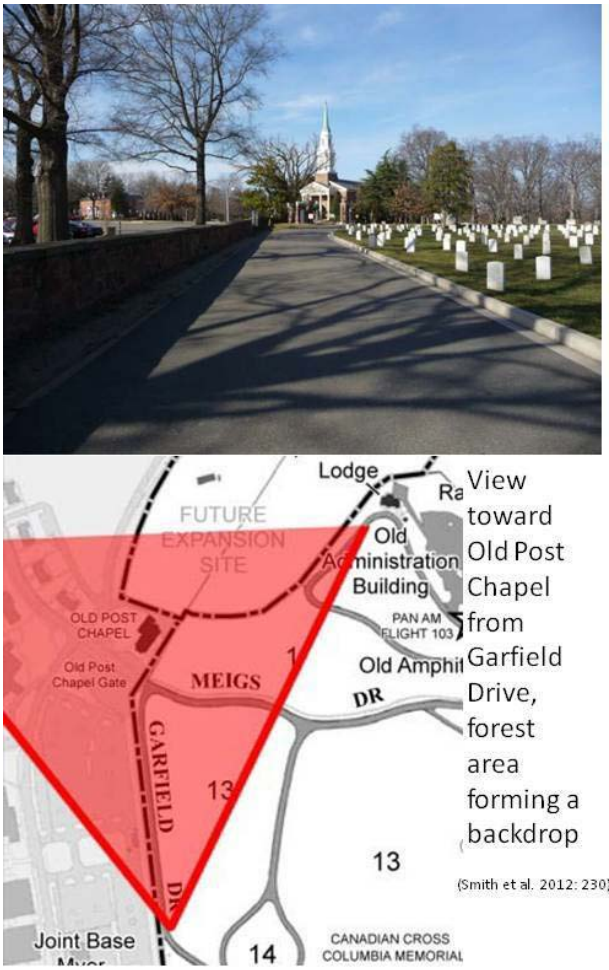
A historic landscape inventory (Garrow & Associates, 1997) identified old growth forest east of the stream in Section 29 (North Branch) as contributing to the historic landscape of Arlington House. Structural features within this area were, however evaluated in that study as not contributing to the historic landscape of Arlington House. The structural features include the footbridges, culvert, and headstones serving as a form of rip-rap. A more recent survey of the NRHP eligible ANC Historic District evaluated the contribution of these features to the historic landscape of ANC (Haynes 2012[a]; Smith, Tooker, and Enscore, 2012). The footbridges and culvert were associated with a path connecting the area of the Old Administration Building and Superintendant's Lodge (Lodge #1) with the former site of the ANC stables (later warehouses and now a maintenance staging yard). Although these landscape features were developed during

the period of significance for the historic landscape design of ANC (1864-1966), due to the ruinous condition of the culvert and footbridges, and the disappearance of the footpath, the features do not contribute to the historic landscape due to a lack of integrity. VDHR concurred with this finding (letter Marc Holma to Col. Victoria Bruzese 12 June 2012, DHR file #2012-0390). The NPS is concurrently updating the NRHP nomination for Arlington House, expanding the documentation efforts, redefining periods of significance, and re-evaluating significance of cultural resource features; however, they have not indicated that these features contribute to Arlington House. The 1998 survey (Garrow & Associates, 1998) indicated that these landscape features of Section 29 did not contribute to Arlington House. The Millennium Area Headstone Removal is a separate project, independent of the Millennium Project.

The forest west of Arlington House the Robert E. Lee Memorial was identified as contributing to Arlington House (Garrow and Associates, 1998). Historic writings, drawings, and photographs, as well as the forest composition in the ravine along what is identified as the South Branch in this publication indicated that this was existing forest at the time Arlington House was built, and was intentionally preserved during the Custis-Lee occupation of Arlington House. Moreover, it was preserved even during the Civil War when most of the forests in what is now Arlington County were cut down to provide fields of fire for the ring of forts around Washington, as well as fuel and building material. This area of old growth, dating back 235 years or more corresponds to the portion of Section 29 retained by NPS. Other portions of Section 29 deforested during the Civil War were also recommended to contribute to Arlington House, the argument being that the forest had regenerated to its appearance during the Custis-Lee period. The NPS completed a Cultural Landscape Report (CLR) in 2001. The significance of the Arlington Woods as part of the cultural landscape is emphasized in the CLR (NPS 2001: 60) by indicating that "… more than an economic rationale lay behind the preservation of the forests at Arlington. Early on in the history of the estate, the forests were considered integral to the success of the home's design. The dark trees provided a beautiful, imposing backdrop to the pale-colored classical architecture of Arlington House – a characteristic of the estate commented on throughout its history…" None of the old growth area (235 year old) is within the Millennium APE. Some of the area reforested after being cut during the Civil War was also recommended as contributing to Arlington House (Garrow & Associates 1998) and is within the Millennium Project APE, but

designs avoid all of the older part (150 year old) of this stand, and over half of the younger portion which dates only about 135 years old. Some portions of the forest in Section 29 also contribute to the ANC historic landscape as a backdrop (Smith et al. 2012). This viewscape is shown in Figure 4.4.

Figure 4.4 Viewscape of ANC historic landscape including Section 29 forest



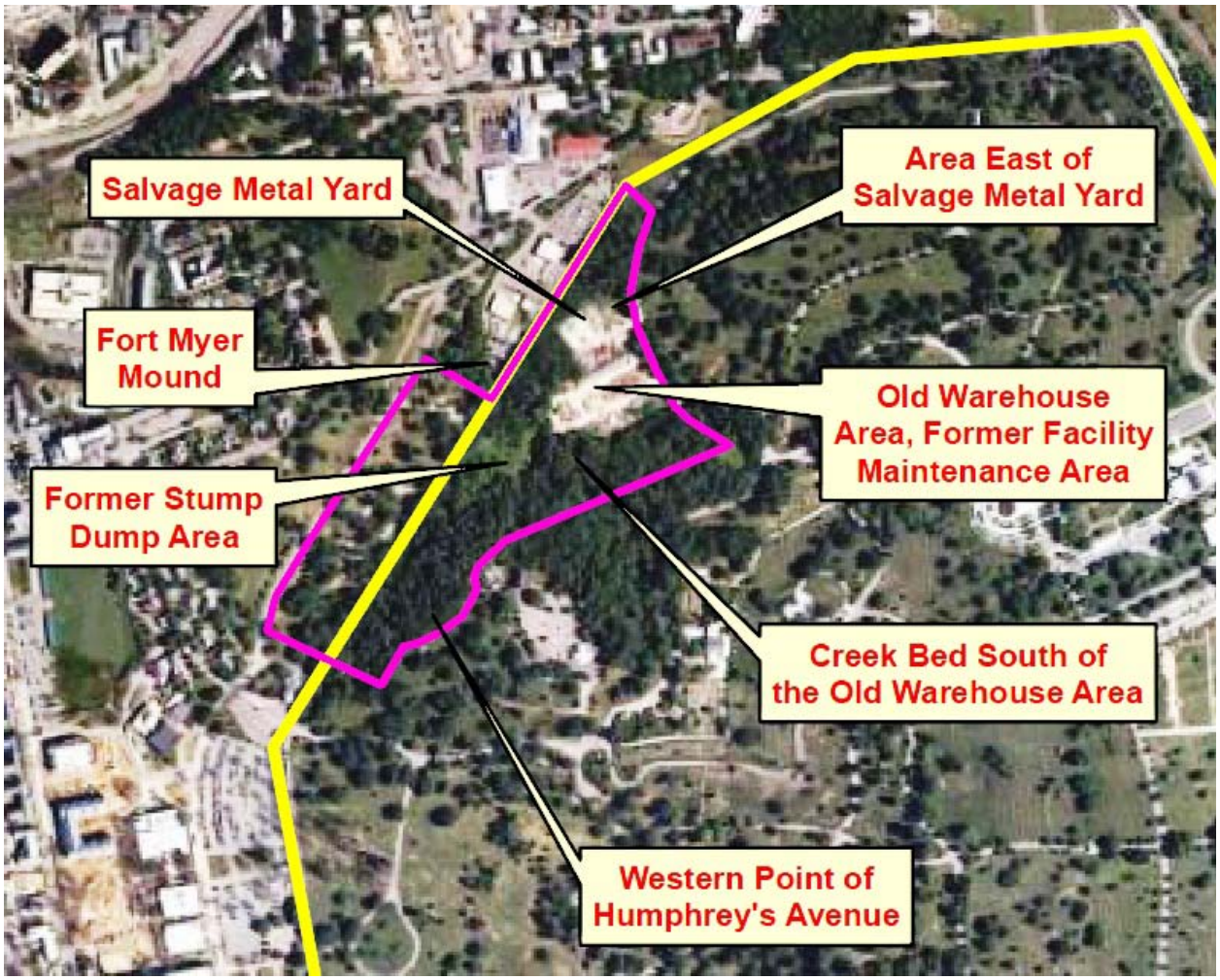
The seneca sandstone boundary wall bisects the Millennium APE running southwest to northeast. Part of the original landscape design, it dates to the first decade of the cemetery, built during the 1870's and contributes to the NRHP eligible historic landscape (Smith et al. 2012). Also within the project area, the Ft. Myer Picnic Area was recommended as a contributing landscape to the Ft. Myer Historic District by a historic landscape survey, although this was never reviewed (Batzli 1998).

4.8.4 Additional Cultural Resource Considerations. For the purposes of compliance under NHPA Section 110, ANC is currently in the process of drafting a nomination to the NRHP (Smith, Tooker, and Enscore 2012). In addition, NPS is currently updating the Arlington House NRHP nomination. Coordination efforts with regard to cultural resources at ANC are ongoing among USACE, VDHR, NCPC, CFA, and NPS. NPS is concurrently updating the NRHP nomination for Arlington House, expanding the documentation efforts, redefining periods of significance, and re-evaluating significance of cultural resource features.

4.9 HAZARDOUS, TOXIC AND RADIOACTIVE WASTE

Six areas of concern (AOCs) were investigated within the limits of the Millennium Project. The AOCs included the Salvage Metal Yard (SMY), Old Warehouse Area (OWA), Fort Myer Mound (FMM), Western Point of Humphreys Road (WPH), Area East of the SMY (ESMY), and Creek Bed south of the former Stump Dump and OWA. AOC locations are shown in Figure 4.5. Activities and conditions of concern conducted at these areas include storage and mixing of chemicals, storage of petroleum products, stockpiling of soil and debris, storage of equipment and scrap metal, maintenance of equipment, storage of drums and tanks, organic odors, and runoff.

Figure 4.5 Areas of concern locations within the Millennium Site



In 2009, USACE contracted Shaw Environmental, Inc. to review historical data and collect soil, soil gas, sediment, and surface water samples for field and laboratory analysis from the six AOCs. Sampling was limited mainly to the surface. Constituents of potential concern (COPCs) identified at the AOCs included total petroleum hydrocarbons (TPH), volatile organic compounds (VOCs), semi-VOCs (SVOCs), metals, pesticides, and polychlorinated biphenyls (PCBs).

Based on the findings of the investigation, Shaw did not require additional action at the FMM, WPH, and the creek bed south of the former Stump Dump; however, further assessment of soil and groundwater conditions at the SMY, OWA, and ESMY was recommended.

Soil and groundwater samples were collected in October 2012 from the SMY and ESMY in areas identified as potentially impacted by past studies. No evidence of impact was noted during the sampling.

Soil and groundwater samples were also collected from the OWA in areas identified as containing underground storage tanks (UST), old chemical/pesticide/herbicide storage buildings, equipment maintenance buildings, and areas identified as potentially impacted by past studies. Evidence of petroleum impact to soil and groundwater was noted at a former UST location and beneath one of the former structures. The impact associated with the UST extended from the UST location to the stream located downgradient of this location. The estimated extent of impacts is a 50' x 60' area extending to a depth of 8'-10'. Both soil and groundwater have strong gasoline odors and a sheen was noted in the groundwater generated from the well located closest to the stream. The impacts correlate with the data presented in the Site Characterization Report (SCR) completed after the tank was removed and impacted media was identified. The case associated with the UST was closed by the VDEQ based on risk. No floating free product was noted in the wells. An additional area of impact was identified by an unknown chemical odor under a former structure.

Samples from the SMY, ESMY, and OWA are currently being processed. After receiving the results, borings from the SMY, ESMY, and OWA will be taken and further assessed to determine limits of impact and fill in data gaps.

4.10 TRANSPORTATION

ANC is located in the easternmost portion of urban Arlington County, Virginia. It is adjacent to several highways and the Potomac River to the east, highways and residential areas to the north, JBMHH to the west and a U.S. Marine Corps Station, several highways, and commercial businesses to the south. The Arlington National Cemetery Metro stop is regularly served by subway trains. The cemetery is also serviced by several tour bus companies.

The proposed Millennium Site is located within ANC. As such, transportation to and from the site is limited to surface transportation on restricted-access roadways. Parking is available to

visitors, accessible from Memorial Drive and the public may access the site, during public hours, by walking. Persons visiting a specific grave may obtain a vehicle pass to drive to their destination. Access permits may be obtained from ANC depending upon the type and duration of business activities.

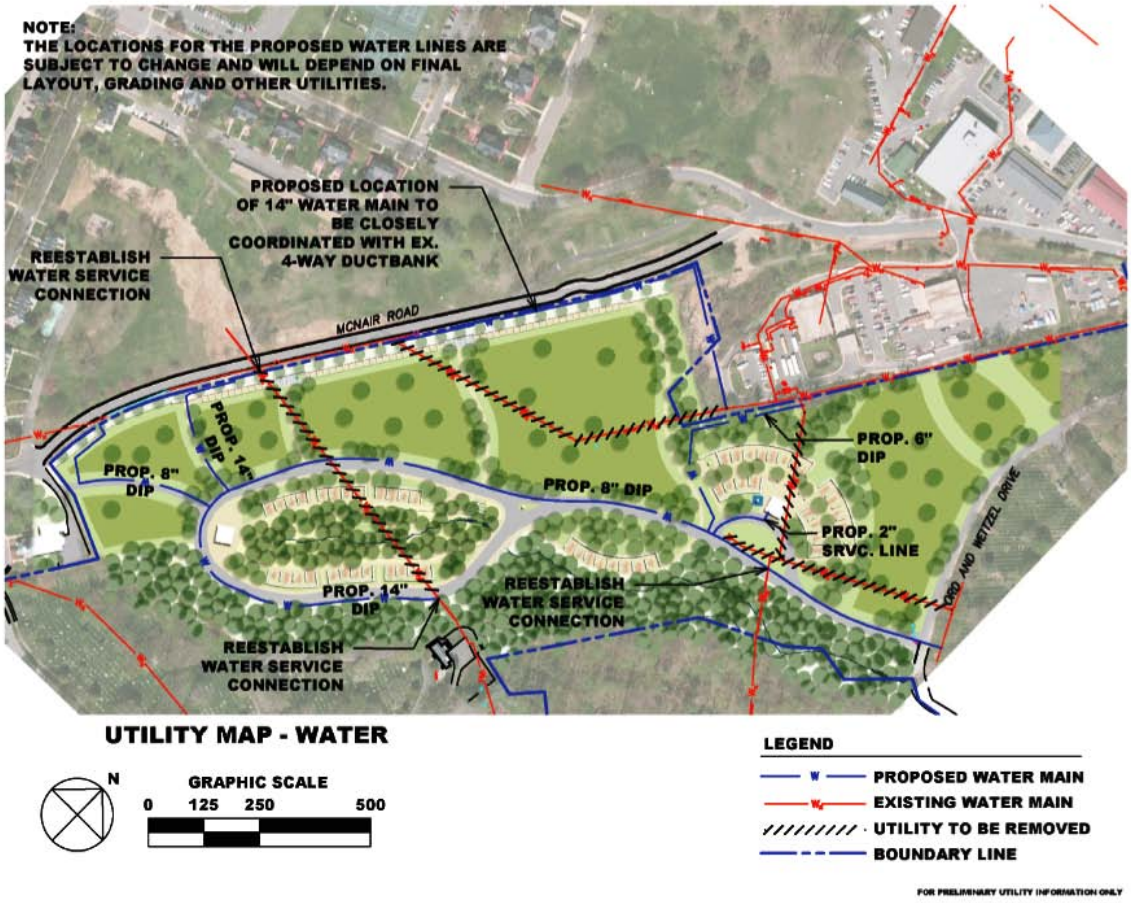
4.11 STORMWATER SYSTEMS

Stormwater management at ANC is achieved through a system of open channels and underground pipes. A stormwater diversion project, built several years ago to assist with stormwater management in anticipation of the Millennium Project, diverts water from JBMHH away from the project area. Water is diverted to a large underground holding tank, JBMHH, and then flows into the existing channels in the Millennium Site to Ord & Weitzel Drive, where it enters the Arlington municipal stormwater system, which discharges to the Potomac River.

4.12 UTILITIES (WATER, SEWER, ELECTRIC, GAS)

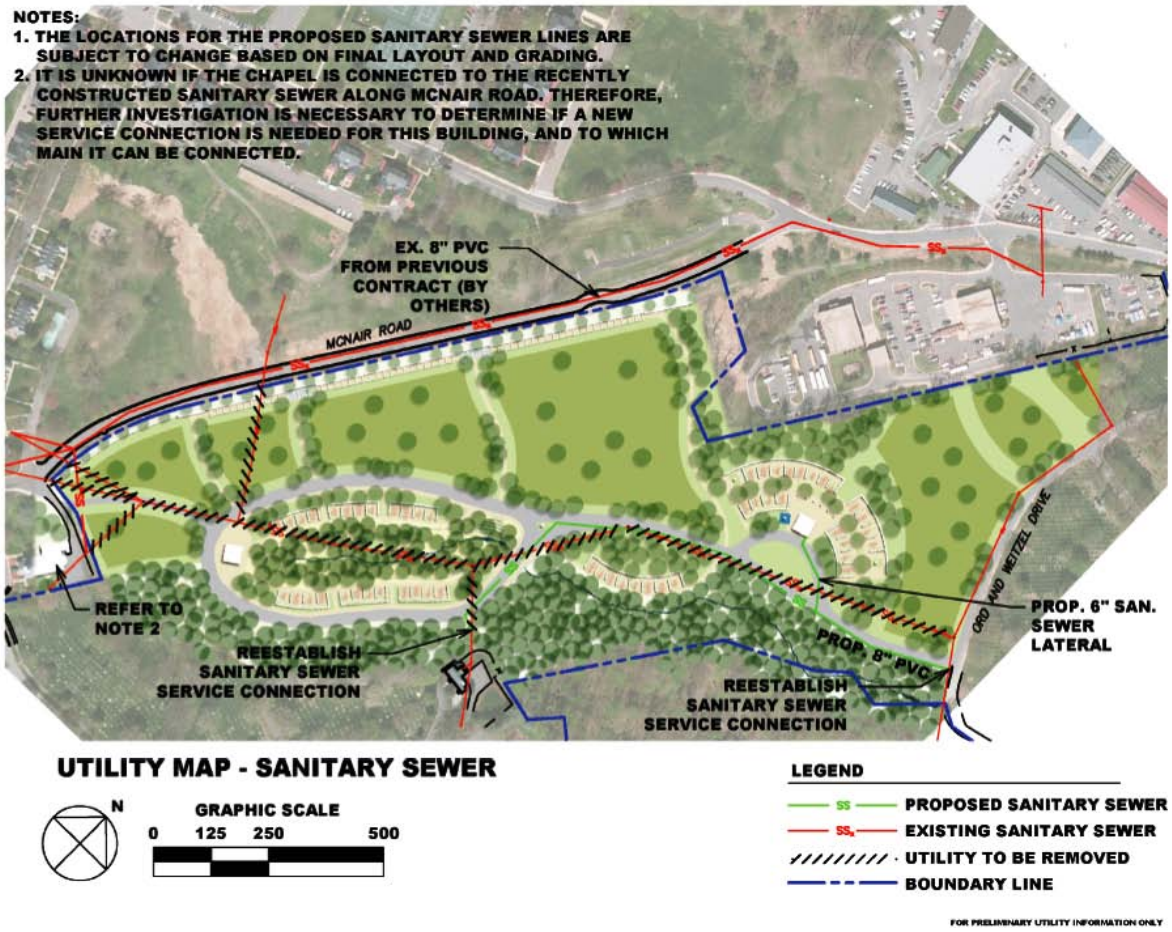
Potable water is supplied to ANC by the USACE Washington Aqueduct Division, which is the municipal source of drinking water for Washington, D.C. and suburban northern Virginia. There are several water lines crossing the proposed project area, including a 14-inch ductile iron pipe which crosses from the Whipple Field area, reduces to a 6-inch line as it crosses the valley at the site, and rises up at the other side to provide fire protection to the Lee Mansion.

Figure 4.6 Utility Map - Water



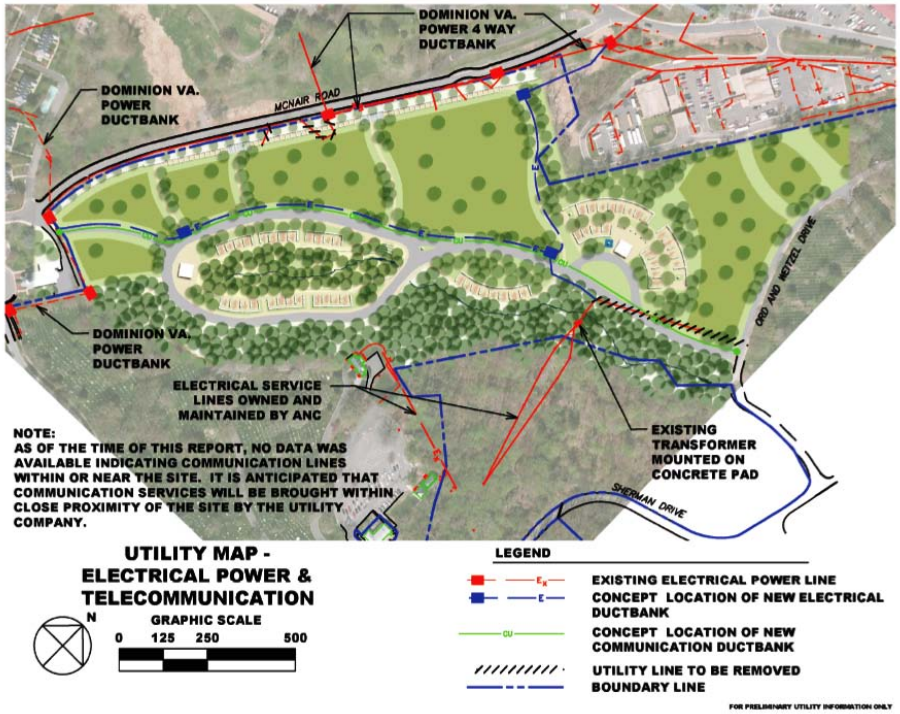
Arlington County provides municipal sewage service to ANC. Several sanitary sewer pipes cross the proposed Millennium Site, ultimately carrying effluent to the Arlington County Water Pollution Control Plant, located approximately two miles south of the Pentagon.

Figure 4.7 Utility Map - Sanitary Sewer



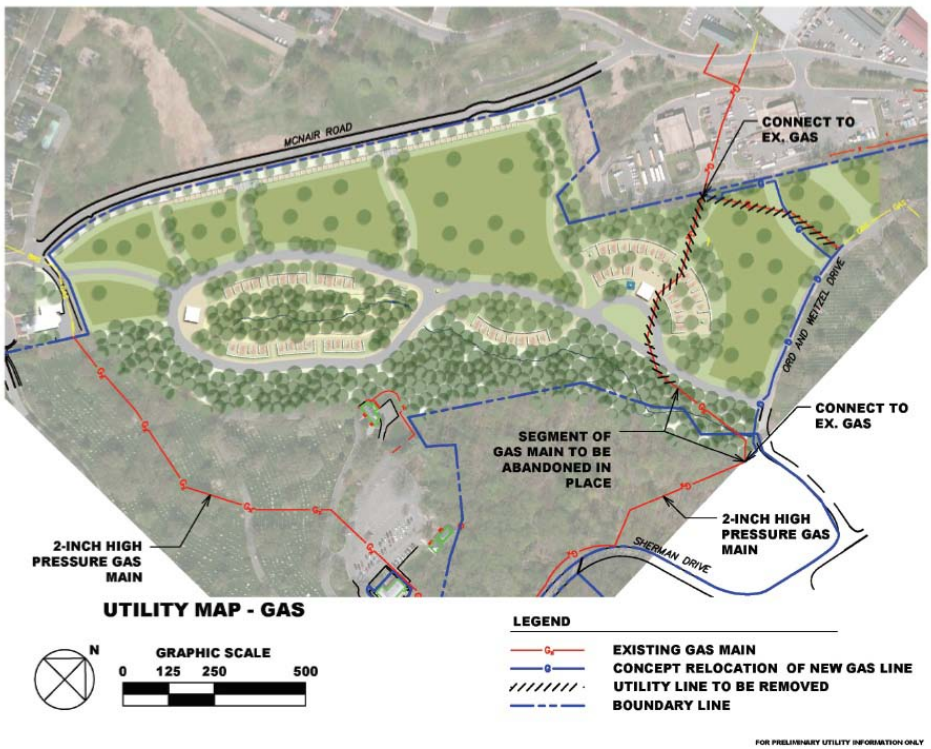
Dominion Power supplies electrical service to ANC from the Ft. Myer substation. An underground cable crosses the southern end of the proposed Millennium Site to the north of the Post Chapel. Additional underground cables carry electricity from Arlington House to the old warehouse area. Along the east side of McNair Road, there are white, fluted street lights, and additional light poles along the jogging path in the picnic area.

Figure 4.8 Utility Map - Electrical Power and Telecommunication



There are several identified existing gas lines within the project area.

Figure 4.9 Utility Map - Gas



4.13 NOISE

The main source of noise at ANC and the surrounding area is vehicular traffic. Other sources of noise come from maintenance operations such as lawn mowers and maintenance shops, and from funeral services such as gun salutes, bugles, and military bands. Noise levels generated by activities from the project would be similar in nature, duration, and intensity as what normally occurs at the ANC.

4.14 AESTHETICS

The proposed Millennium Site has varied visual and aesthetic features. At the north end, the old warehouse is neither aesthetically prominent nor architecturally distinguished. There is a former picnic area on the western side of the site that sits atop a deep ravine and is surrounded by a park-like, woodland setting. The eastern half of the site on the ANC property is heavily forested with dense mature tree growth.

4.15 VISITOR USE AND EXPERIENCE

Although the Millennium Project site is adjacent to areas easily accessible to the public, the site is currently not commonly viewed by visitors. A jogging path running along the edge of JBMHH is near the Millennium Site. Some portions of the site have been used as picnic areas for the military base in the past. The portion of the Millennium Project site that is currently located within the JBMHH boundary wall is not accessible by the general public currently.

5 ENVIRONMENTAL CONSEQUENCES

This section of the EA identifies and evaluates the anticipated environmental consequences or impacts associated with the Proposed Action Alternative and the No-Action Alternative. The terms “impact” and “effect” are used interchangeably in this section. Impacts may be discussed as positive or negative, significant or minor, as appropriate to the resource area. Positive impacts occur when an action results in a beneficial change to the resource, whereas negative impacts occur when an action results in a detrimental change to the resource. Significant impacts occur when an action substantially changes or affects the resource. A minor impact occurs when an

action causes impact, but the resource is not substantially changed. Impacts are also discussed as temporary as well as short-and long-term impacts, and are associated with relative time frames as the direct result of the action. In this case, temporary refers to an impact only during the period of construction. Short-term describes the impact for 1-3 years post construction, whereas long-term describes the permanent impacts that would be expected to remain for many years. This section is organized by resource area following the same sequence as in the preceding Section 4.0. This section also includes a discussion on cumulative impacts and a summary of environmental compliance with applicable environmental laws and regulations. Some resources topics were excluded from further evaluation. A brief discussion of those topics can be found in Section 2.7. NOTE: Access to the construction site will be limited to ANC land. NPS land will not be used for access.

5.1 SOILS

5.1.1 Proposed Action

Short-term and long-term impacts, typical of construction projects, would be expected from the Proposed Action. The Millennium Project includes significant earthwork. The total volume of cut and fill has been estimated at approximately 100,000 cubic yards. The soil would be re-used within the site to the maximum extent practicable per engineering specifications. Soils that are not appropriate for re-use would be trucked off-site. The soils in the proposed project area are previously disturbed soils. No sensitive soils or soils classified as Prime or Unique Farmland soils are present in the proposed project area. The soil on the slope near the NPS Administration Building parking lot would be stabilized through burial under the RSC system, resulting in less erosion of the soil to downstream areas. A small portion of the project will occur on NPS property; work on NPS lands will take measures to avoid impacts to soils (limit excavation and machinery travel) and impacts to trees and other vegetation. In addition, the underground storage near the parking lot will result in some minor temporary impacts to soil as those are constructed.

The Proposed Action would disturb much of the 27-acre site. This activity would require a General Permit for Discharges of Stormwater from Construction Activities issued by VDCR under its Virginia Stormwater Management Program (VSMP). This permit would include the

preparation and approval of a Stormwater Pollution Prevention Plan (SWPPP) which will include an Erosion Control Plan (ECP) component. These permits and approvals would be obtained by ANC prior to the start of construction.

5.1.2 No-Action Alternative

Under the No-Action Alternative the Millennium Project would not occur. The stream channels as well as the steep slope near the NPS Administration Building parking lot would continue to erode.

5.2 TOPOGRAPHY AND FLOODPLAINS

5.2.1 Proposed Action

The Proposed Action would include restoring existing streams and performing earthmoving activities. The result of these actions would be a change in both topography and drainage at the proposed Millennium Site. Short-term and long-term impacts would be expected from the altering of the terrain and drainage.

Short-term minor impacts to the drainage would result from the temporary collection of stormwater to meet approved erosion control practices and the stockpiling of soils during construction. These impacts would cease with the end of construction activities.

Long-term impacts to the topography and drainage at the Millennium Site associated with the large amount of earth movement would result from the Proposed Action. These impacts include the re-grading of the existing steep slope and valley topography of the site through cut and fill operations to achieve an appropriate landscape suitable for public access and burials. The current topography which is largely steep slopes would be converted to more gradual slopes (<15% slope). The restored stream bed area will generally retain its original topography. The existing sheet and channel runoff would be collected and handled within the proposed storm drainage system, providing a long-term beneficial impact by decreasing erosion at the project area. The topography of the steep slope near the NPS Administration Building parking lot would be slightly altered by filling of the incised channel with the RSC system.

5.2.2 No-Action Alternative

Under the No-Action Alternative the Millennium Project would not occur; therefore, there would be no direct impacts to the topography and drainage. However, streambank erosion and channel incision would continue to occur resulting in negative impacts to the area's topography and drainage.

5.3 HYDROLOGY AND WATER QUALITY

5.3.1 Proposed Action

The Proposed Action would include restoration of the stream and stream bank. Temporary minor impacts would occur due to construction activities but long-term beneficial impacts, as described below, would result from the project.

5.3.1.1 Stream and Buffer Restoration

As part of the project, the existing stream channels, where not impacted, would be restored and integrated into the overall project as a natural landscape amenity. NCD techniques would be utilized to restore the existing degraded stream channels. Unlike conventional engineering practice, the goal of NCD is not simply the abatement of stream bank erosion or the maximization of channel conveyance (typically done with riprap and concrete), but to restore the balance of flow and sediment in the stream system and to reestablish natural hydraulic and ecologic functions. This is accomplished by mimicking, as much as possible, the characteristics (channel dimension, planform geometry, slopes) of a stable, "natural" system. Further, a stream's floodplain connection is reestablished, allowing large flow events (those equal to or greater than the ±0.8 to 1.5 year storm event) to access, spread out, and slowdown in the floodplain. The reestablished floodplain connection helps reduce downstream water quality by improving nutrient (nitrogen and phosphorus, etc.) and sediment uptake in the floodplain, increasing evapotranspiration, improving riparian habitat, and raising local ground water tables. By establishing a stable channel geometry and reestablishing a floodplain connection, excessive bank and bed erosion can be arrested, in-stream habitat improved, and the downstream transport of pollutants reduced.

In addition to the stream restoration, a small area (approximately 0.3 acre) of the stream Resource Protection Area (RPA) buffer that is currently a maintenance yard would be restored and reforested, consistent with the planting guidelines presented in Riparian Buffer Modification and Mitigation Guidance Manual prepared by the Virginia Department of Conservation and Recreation Chesapeake Bay Local Assistance, September 2003 – Reprinted 2006.

5.3.1.2 Stream and RPA Impacts

Pursuant to the jurisdictional determination issued by USACE dated November 28, 2011 (#NAO-2011-02220) there are Waters of the U.S. (WOUS) present on the Millennium Site, as well as RPA's along the perennial stream channels. While no wetland impacts are proposed as part of this project, the proposed plan does impact both intermittent and perennial streams and the associated RPA Buffer.

Over the past several years as the development of this project has progressed, reductions in the amount of impacts to these natural resources have been achieved with each subsequent design. The result of these design efforts is a plan that represents the Least Environmentally Damaging Practicable Alternative (LEDPA). A summary of these impact reductions (to both streams and RPA buffers) is provided below in Table 6.1:

Table 5.1 Summary of Stream and RPA Impacts

	Impact Lengths for Specified Streams (linear feet f of stream and buffer width for RPA)				
Resource Type	***Current Condition***	***Alternative A***	***Alternative C***	***Alternative D***	***Alternative E – impacts minimized***
Average RPA Buffer	100	16	40	64	81
Intermittent Stream (R4)	372	370	291	216	148
Perennial Stream (R3)	1,680	758	363	148	140
Total Stream Impact	**0**	**1,128**	**654**	**364**	**288**

A more detailed analysis of the evolution of the Millennium Project from the December 1, 2009 plan to the draft layout dated November 6, 2012, as it relates to stream and RPA buffer impacts, is presented in Appendix B.

To offset the unavoidable proposed impacts to the existing streams and their RPA buffers, the remaining stream channels and buffer would be restored (1,879 linear feet, existing length; 1,754 linear feet, proposed length; and ±0.3 ac of RPA buffer). Additional information on the details of the restoration approach can be found in Appendix B.

5.3.1.3 Permitting

Through the iterative design process, proposed impacts to WOUS have been reduced to the point where they can be permitted using a State Programmatic General Permit (SPGP), or a combination of an SPGP and Nationwide Permit #27. No compensatory mitigation would be required given the minimal proposed impacts (<300 linear feet). Thus coincident with the SPGP issuance, DEQ would issue a General Permit WP1 or WP4. This result was achieved through efforts to comply with the Clean Water Act Section 404(b)(1) Guidelines that require the following three step process be followed in order to achieve a permittable plan: 1) avoid impacts to the maximum extent practicable, 2) minimize unavoidable impacts to the maximum extent practicable, and 3) provide compensatory mitigation for those unavoidable impacts that exceed de minimis thresholds under the Clean Water Act and Virginia Water Protection Permit program.

5.3.1.4 Water Quality

With the exception of Section 2 (described above), the streams located on the Millennium Project Site are deeply incised (preventing storm flows from accessing the floodplain) and have raw, actively eroding banks. In their current state, they are effectively serving as conduits - transporting and providing pollutants (i.e. total nitrogen, total phosphorus, and total suspended solids) to downstream receiving waters. Through the use of NCD techniques, the proposed stream restoration component of this project would restore a stable cross section and planform, resulting in approximately 1,501 linear feet of restored stream channel (this length does not include the 200 linear foot section of spot improvements) of a unnamed tributary to the Potomac River, reconnect it to its floodplain, and reduce the pollutant load. The Chesapeake Bay Program's Chesapeake Bay Phase 5.3.2 Community Watershed Model (CBCWM) presents pollutant removal rates (CBP 2003) achieved through stream restoration.

Since the publication of CBP 2003, the scientific community has performed additional research showing that these removal rates are significantly (i.e. orders of magnitude) underestimated. In August 2011, the Chesapeake Stormwater Network (CSN) published "CSN Technical Bulletin No. 9 Nutrient Accounting Methods to Document Local Stormwater Load Reductions in the Chesapeake Bay Watershed" (CSN 2011) which proposed interim pollutant removal rates. Per CSN 2011, these rates are to be used until the University of Maryland completes the stream restoration research review, and the Best Management Practices (BMP) Expert Panel has an opportunity to review its findings (ongoing). Table 6.2 compares the pollutant load reductions resulting from stream restoration as presented in CBP 2003 and CSN 2011:

Table 5.2 Comparison of CBP 2003 and CSN 2011 Stream Restoration Pollutant Load Reduction Rates

Pollutant	***CBP 2003 Removal Rate***	***CSN 2011 Removal Rate***
Total Nitrogen	0.02 lb/lf-yr	0.2 lb/lf-yr
Total Phosphorus	0.0035 lb/lf-yr	0.068 lb/lf-yr
Total Suspended Solids	2.55 lb/lf-yr	310 lb/lf-yr

Despite the "interim" label, it is justifiable to use the CSN 2011 values in order to determine the pollutant removal benefit of the proposed stream restoration. First, the CSN recommended the use of these rates until a final determination is made by the University of Maryland panel currently reviewing them. Second, when the CSN 2011 TSS load reductions are converted to a streambed and bank erosion rate, they indicate a yearly erosion rate that, anecdotally, is consistent with stream bank erosion witnessed throughout Fairfax County. The CSN 2011 removal rates estimate a reduction of 2.4 inches per year of stream bed and bank erosion in Snakeden Branch while the CBP 2003 removal rates estimate less than 0.2 inches per year of stream bed and bank erosion.

Table 5.3 presents a summary of the total pollutant load reduction resulting from the stream restoration.

Table 5.3 Pollutant Removal Rates (Per 2011 CBWM)

Pollutant	*Removal Rate*	*Restored Stream Length*	*Total Pollutant Load Reduction*	*TSS Load Reduction (by Volume)**
Total Nitrogen	0.2 lb/lf/yr	1,554 lf	311 lb/yr	---
Total Phosphorus	0.068 lb/lf/yr	1,554 lf	106 lb/yr	---
Total Suspended Solids	310 lb/lf/yr	1,554 lf	481,740 lb/yr	198 (cy/yr)
**Based on an assumed soil density of 90 lb/cf*				

To determine the overall effect of the portion of the proposed project related to streams and RPA buffers on water quality, an analysis of the proposed project's effect on the net total phosphorus (the keystone pollutant in the Chesapeake Bay Preservation Act) loading was performed. By comparing the increases in loading from the proposed land use changes in the RPA (both land use change and buffer encroachment) to the decreases in loading from the stream restoration, the project's overall environmental benefit can be determined. Total phosphorus loading rates from the CBCWM were used. As discussed in the previous section, the total phosphorus removal rates for stream restoration from CSN 2011 were used. The Buffer Equivalency calculation from the Chesapeake Bay Local Assistance Department (CBLAD) Information Bulletin 3, dated March 1991 was used to determine the impact of encroachments into the 100 foot RPA buffer.

Table 5.4 is a summary of the net phosphorus loading calculation. A detailed calculation is presented in Appendix B. As summarized by Table 5.4, the proposed project yields a net reduction in total phosphorus loads which would result in improved water quality in the Millennium Project stream and downstream receiving waters, even with the construction of the proposed cemetery expansion.

Table 5.4 Phosphorus Loading Summary (lb of TP/yr)

Phosphorus Load Changes			*Net Phosphorus Load*
From Change in Land Use	*From Buffer Reduction*	*From Stream Restoration*	
1.98	0.29	(106)	**(103.4)**

5.3.1.5 RPA Buffer Impacts: Approval Process

Pursuant to the Coastal Zone Management Act, in 1986, the National Oceanic and Atmospheric Administration (NOAA) approved Virginia's Coastal Zone Management Program (CZM Program). As a result, any proposed federal activity that is likely to affect any coastal land, water or natural resources of Virginia's designated coastal resources management areas, must be consistent, to the maximum extent practicable, with the enforceable policies of Virginia's CZM Program. In Virginia, the Coastal Lands Management program is an enforceable policy administered by Chesapeake Bay Local Assistance Department (CBLAD) through the Bay Act and the Regulations.

NOAA has determined that the Coastal Zone Management Act does not grant states regulatory authority over activities on federal lands, so there are no formal Chesapeake Bay Preservation Areas (CBPAs) designated on federal lands located in Virginia and projects proposed on federal lands are not directly subject to the Bay Act. However, while CBPAs are not locally designated on federal lands, pursuant to the Coastal Zone Management Act of 1972, as amended, federal activities affecting Virginia's coastal resources must be consistent with the Bay Act and the Regulations as one of the enforceable programs of Virginia's CZM Program. Thus, federal agencies have the responsibility to be consistent with the provisions of the Regulations, § 9 VAC 10-20-10 et seq., including adherence to the performance criteria applicable to lands within locally designated CBPAs. As a result, projects on federal lands that include land disturbing activity must adhere to the general performance criteria, especially with respect to minimizing land disturbance (including access and staging areas), retaining indigenous vegetation and minimizing impervious cover.

Through the iterative design process that has been followed for the ANC Millennium Project, these performance criteria are being met. A summary of the extent to which impacts to the RPA buffer have been reduced is contained in this document. Detailed computations demonstrate compliance with the Bay Act through the following steps:

- Preparation of an RPA Plan (using the restored stream alignment as a core RPA component)

- Preparation of an RPA Exception Request (that documents the changes made during design development to comply with the Bay Act Regulations)
- Preparation of an associated Water Quality Impact Assessment (WQIA) prepared in accordance with state regulations

In accordance with the CZM Program, the above documents will be submitted for review, comment, and approval by the appropriate ANC Officer. As demonstrated in the previous section, the WQIA will clearly demonstrate a net improvement of water quality resulting from the proposed actions in the RPA. In addition, a CZM federal consistency determination was submitted to VDEQ on 8 November 12.

In order to avoid impacts to surface water, work would be accomplished in manageable increments to avoid extensive exposed, nude soil areas subject to erosion by a possible rain event. Exposed areas would be stabilized by approved methods on a daily basis and impacts to hydrology and water quality would be short-term and minor. Once the project is complete, there would be no long term impacts to surface water resources. Access to the construction site will be limited to ANC land and will be done in a manner that least impacts the ability of the area to rehabilitate quickly.

5.3.1.6 NPS Administration Building Parking Lot Stormwater Management

The stormwater management features constructed near the NPS Administration Building parking lot would result in a positive impact to both the hydrology in the non-jurisdictional drainage channel as well as the water quality in that channel. By storing the water for a longer period during storm events and slowly releasing the water back into the channel, the velocity and volume (at any one point in time) in the channel would be greatly reduced. In addition, the RSC portion would provide water quality benefits for both nutrient reduction and temperature moderation. This would in turn provide benefits to the downstream areas.

Short-term and long-term beneficial impacts to surface water would occur as a result of the stormwater management improvements to the parking lot of the NPS Administration Building as well as bank erosion control at the parking lot outfall. The improvements would control and slow

the velocity of the water, allowing for less scouring of the channel and ultimately decreased total suspended solids during storm events. It is important to note that most of the channel is a drainage channel resulting from parking lot runoff and therefore, it is not regulated.

5.3.2 No-Action Alternative

Under the No-Action Alternative the Millennium Project would not occur; therefore, there would be no direct impacts to the existing surface water resources. However, streambank erosion and channel incision would continue to occur, which is detrimental to water quality within the area.

5.4 GROUNDWATER

5.4.1 Proposed Action

Short-term, minor impacts to groundwater may result during earthwork operations at the project site. Over-excavations to remove undesirable foundation material in the stump dump area and along the drainage channel may encounter groundwater. Zones of perched water may also be encountered. These areas would require dewatering during work in these areas. Groundwater would return to normal levels upon completion of disturbances in these areas. No long-term impacts to groundwater are anticipated from the Proposed Action.

5.4.2 No-Action Alternative

Under the No-Action Alternative the Millennium Project would not occur; therefore, there would be no direct impacts to the existing groundwater resources.

5.5 WETLANDS

5.5.1 Proposed Action

No wetlands are found within the construction footprint of the Millennium Project. One of the wetlands identified in Section 4.5 is found very near the stream that will be restored, but all construction access will be on the opposite side of the stream and precautions will be taken to avoid impacting the wetlands. Project activities are expected to have only minor, temporary, indirect effects on the wetland areas. In addition, access to the RSC system construction will be from above, and will not impact the wetlands. The function and quality of these wetlands would

not be significantly impacted. An Erosion & Sediment Control plan will be required, and will ensure that appropriate techniques are implemented to minimize erosion during construction.

5.5.2 No-Action Alternative

Under the No-Action Alternative the Millennium Project would not occur; therefore, there would be no direct impacts to the existing wetland resources.

5.6 VEGETATION

5.6.1 Proposed Action

The Proposed Action includes the clearing and filling of the majority of the proposed Millennium Site and calls for a few trees to be left in place at the proposed interment area, and as many trees as possible to be left in place in the proposed columbarium area. The oldest trees on the site, the 220-year-old forest at the northeastern tip of the site, would be avoided entirely.

The 27-acre Millennium Project site is approximately one-half forested and one-half open field with scattered mature trees. Most of the proposed burial sites are located within the open portion, however, the loop road with columbaria and the large circular columbaria are located within the wooded portions of the site. Based upon preliminary grading studies, approximately 890 trees would be removed for construction, with 248 from open areas of the site and 642 from within forested areas. However, the project will also plant approximately 600 new trees and 500 new shrubs. Of course, the new young trees will not immediately provide the same function and value as the mature trees that would be removed.

Short and long term impacts to vegetation, including removal or injury, would be expected from the Proposed Action. Clearing and grading would remove most trees, shrubs, and grasses within the project area. This will be mitigated to some degree by the planting of new trees. Tree protection areas in the vicinity of proposed excavation and proposed stock pile areas would be established to preserve those locations and prevent injury. Disturbed areas would be temporarily seeded following construction, and permanently seeded when growth is more likely to establish itself. The choice of seed mix would depend on the current site conditions.

Long-term minor impacts would result from the existing forest and woodland being transformed into burial areas with scattered trees in a landscape dominated by grasses, throughout most of the site, and woodland (landscape dominated by trees, at a density that allows an open canopy) in the proposed columbarium area. Vegetation within the areas proposed for the road, walkways, and interment shelter would be removed, and those areas permanently "hardened" and therefore made unavailable for vegetation. Landscape planting and preservation measures have been developed to preserve old-growth areas, and to maintain mature tree stands where possible.

Preservation of existing trees is a priority for this project. Tree preservation plans would be prepared with the construction drawings. Retaining walls would be used to quickly transition from proposed to existing grades, thereby shrinking limits of clearing. A large tree save area would be provided in the center of the site associated with setbacks from the small stream. When the layout and grading design is nearing completion, limits of construction would be delineated in the field. A team would assess the trees on each side of the limits and make adjustments to the plans to save as many trees as practicable.

The stormwater management feature adjacent to the NPS Administration Parking Lot would have minor impacts to vegetation. Some of the grassy area next to the parking lot would be temporarily impacted for the construction of the underground storage. The evergreen trees immediately adjacent to the existing drainage yard inlets and storm pipe system may be impacted as it is likely this system would need replacement due to its current poor condition (broken and potentially partially blocked pipes) and their location in the topography. The intent of the construction of the RSC system would be to work within the channel and/or from the bank above the slope, causing only very minimal impact to the wooded area. No access roads from the bottom or the side is anticipated.

5.6.2 No-Action Alternative

Under the No-Action Alternative the Millennium Project would not occur; therefore, there would be no direct impacts to existing vegetation.

5.7 WILDLIFE RESOURCES INCLUDING RARE, THREATENED AND ENDANGERED SPECIES

5.7.1 Proposed Action

Wildlife is not abundant in the project area, as it is surrounded by urban areas. The Proposed Action activities would temporarily disturb any wildlife present. Construction activities would lead to increased human presence and noise, which would most likely cause wildlife to temporarily relocate. Construction personnel would be mindful of all wildlife and take practical measures to avoid impacts to any wildlife in the project area. Long-term impacts to wildlife are not expected from the Proposed Action because disturbed areas would readily regenerate upon completion of the project and the old-growth wooded area would remain forested with little human disturbance. No threatened and endangered species are identified on the site, so no impacts to those species would occur. No negative impacts are expected to occur to the State Threatened Bald Eagle and other migratory birds that may pass through and use areas included within the project site.

The RSC on the steep slope near the parking lot should provide benefits to wildlife by improving the habitat compared to the current deeply incised channel and providing a more consistent base flow for aquatic biota compared to the existing conditions of that channel. NPS has provided special protective measures that will be incorporated to protect the Northern Two-lined Salamanders and any other amphibians that may be encountered in the project area on NPS property.

5.7.2 No-Action Alternative

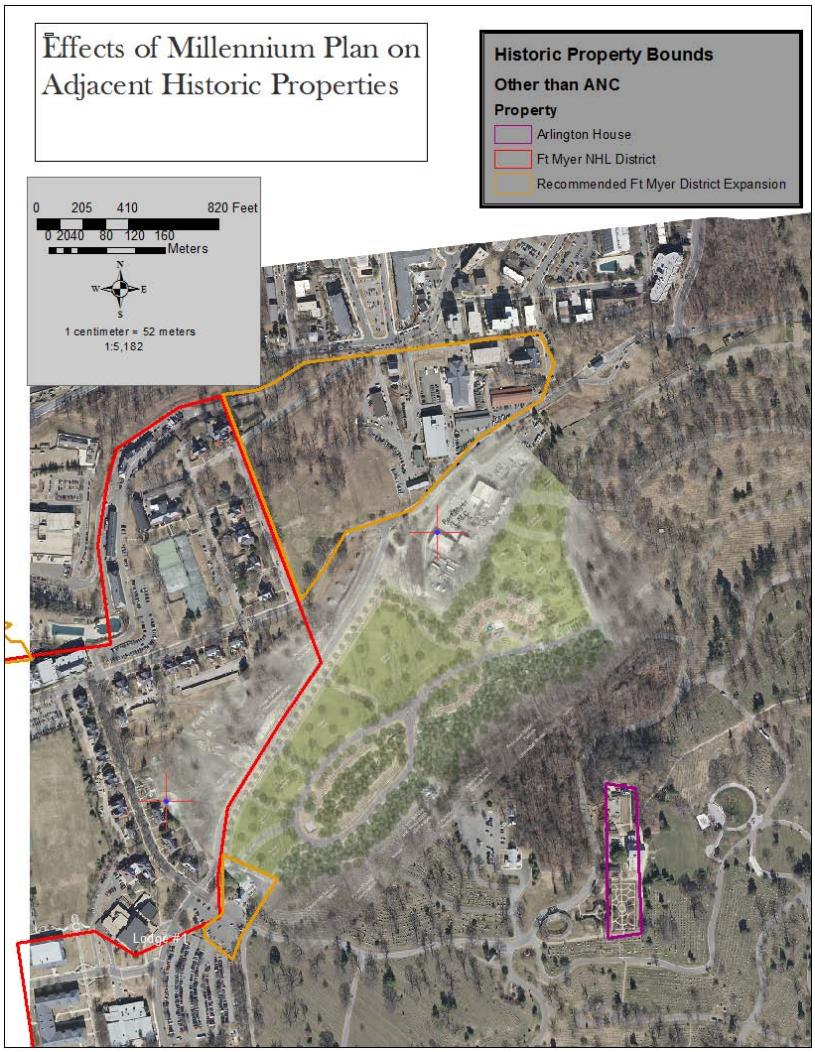
Under the No-Action Alternative the Millennium Project would not occur; therefore, there would be no direct impacts to existing wildlife.

5.8 CULTURAL RESOURCES

There are no NRHP eligible or potentially eligible archeological resources located in the proposed project APE. NRHP eligible historic district contributing cultural landscape elements

are within the physical APE, and contributing buildings are within the visual APE, shown in Figure 5.1.

Figure 5.1 Millennium Project APE



5.8.1 Archeological Resources

5.8.1.1 Proposed Action

Archaeological resources within the physical APE are not NRHP eligible, or have been recommended as not eligible. Site 44AR0043 has been determined not eligible. Sites 44AR0046, 47, 48, and 49 have been recommended as not eligible (Haynes 2012b, Carmody and Blondino 2012). Sites 44AR0032 (eligible) and 44AR0050 (potentially eligible) are outside of

the project APE. The proposed action would cause no adverse effects to NRHP eligible archaeological sites. Cultural resources on NPS administered property will be protected through use of the NPS-approved unanticipated discoveries plan to be provided.

The steep slope adjacent to the NPS Administration Building parking lot is not a concern for archaeological resources. ACHP in their guidance on archaeology does not consider site burial an adverse effect per se, and no NRHP eligible sites are within the APE. The area was visually inspected in the recent and 1998 surveys, though not subsurface tested. Subsurface tests are not generally performed on greater than 15% slopes.

5.8.1.2 No-Action Alternative

Under the No-Action Alternative the Millennium Project would not occur; therefore, there would be no direct impacts to archaeological resources.

5.8.2 Architectural Resources

5.8.2.1 Proposed Action

Implementation of the proposed Millennium Project would have no effect on the historic setting of NRHP listed Arlington House. Visual effects to the Ft. Myer historic district listed contributing properties and recommended contributing Old Post Chapel would not be adverse. The listed contributing residences on Jackson and Lee Avenues face away from the Millennium site and are distant. Cemetery development adjacent to the Old Post Chapel is consistent with its historic and landscape context and would not adversely affect its historic character.

5.8.2.2 No-Action Alternative

Under the No-Action Alternative the Millennium Area Project would not occur; therefore, there would be no direct impacts to existing historic architectural resources.

5.8.3 Cultural Landscape Resources

5.8.3.1 Proposed Action

The proposed action would result in direct physical adverse effects to NRHP eligible historic district landscape components. A section of the historic boundary wall of ANC would be

demolished. A small portion of the forest contributing to Arlington House would be affected, although the house and associated buildings would not be affected. The Picnic Area landscape, recommended as contributing the Fort Myer historic district would be adversely affected, but it is not clear if the recommendation is substantiated.

Mitigation of adverse effects through project design has been a continuing objective of Millennium Project planners. Adverse effects to the seneca sandstone boundary wall element of the ANC historic landscape would be mitigated through the reuse of the materials, or matching material, in the new boundary wall for the Fort Myer side of the Millennium Area. Mitigation of effects to the forested area of Section 29 has been through minimizing the number of trees taken by the preferred design option.

5.8.3.2 No-Action Alternative

Under the No-Action Alternative the Millennium Project would not occur; therefore, there would be no direct impacts to existing cultural landscape resources or historic buildings.

5.8.4 Additional Cultural Resource Considerations

Coordination with regard to cultural resources issues at ANC is ongoing among ANC, VDHR, USACE, Arlington County, CFA, NCPC, JBMHH, and NPS. A memorandum of agreement would be proposed for the implementation of measures to mitigate any determined adverse effects.

5.9 HAZARDOUS, TOXIC AND RADIOACTIVE WASTE

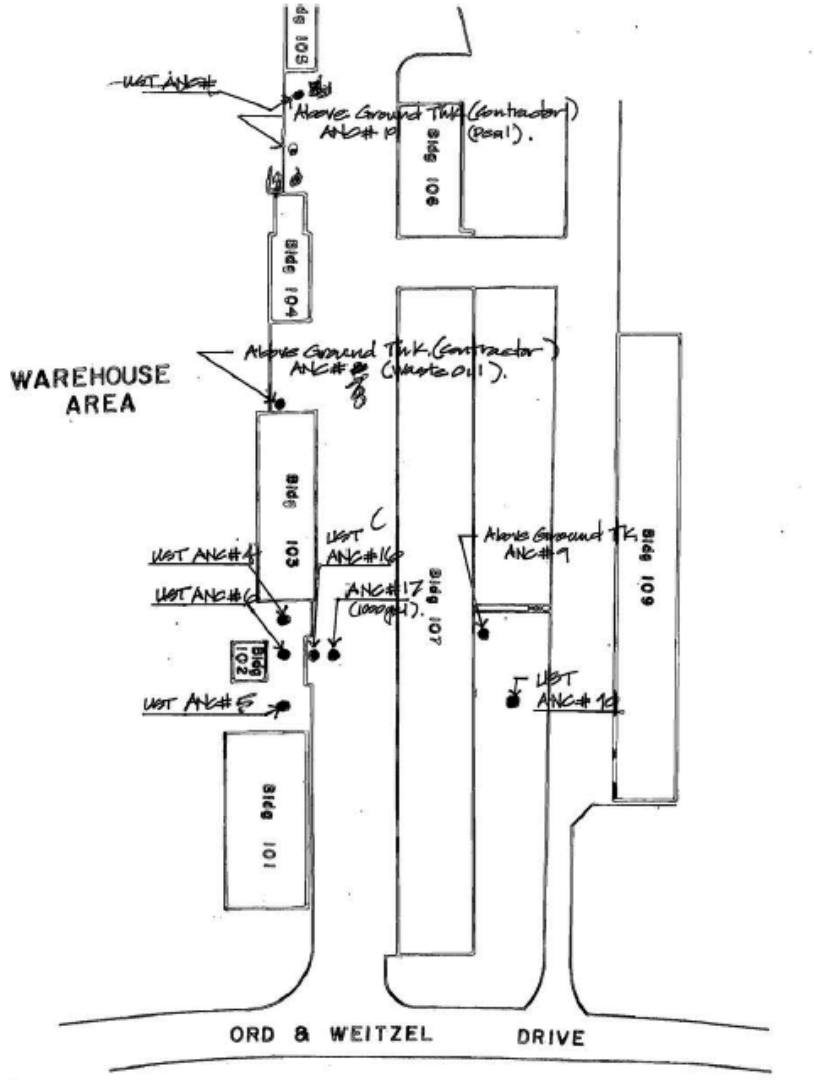
5.9.1 Proposed Action

Based on the findings of the investigation described in Section 4.9, further assessments are being completed in several areas. Soil and groundwater samples were collected in October 2012 from the SMY and ESMY in areas identified as potentially impacted by past studies. No evidence of impact was noted during the sampling.

Soil and groundwater samples were also collected from the OWA in areas identified as containing underground storage tanks (UST), old chemical/pesticide/herbicide storage buildings,

equipment maintenance buildings, and areas identified as potentially impacted by past studies. Figure 5.2 shows the locations of the above ground and underground storage tank locations where additional samples were taken at OWA.

Figure 5.2 Above-ground storage tank and underground storage tank locations at OWA



Evidence of petroleum impact to soil and groundwater was identified in the vicinity of UST no. 6. This material would not meet the requirements for beneficial reuse and would need to be hauled off site. The impact associated with the UST extended from the UST location to the stream located downgradient of this location. The estimated extent of impacts is a 50' x 60' area extending to a depth of 8'-10'. Both soil and groundwater have strong gasoline odors and a

sheen was noted in the groundwater generated from the well located closest to the stream. The impacts correlate with the data presented in the Site Characterization Report (SCR) completed after the tank was removed and impacted media was identified. The case associated with the UST was closed by the VDEQ based on risk. No floating free product was noted in the wells. An additional area of impact was identified by an unknown chemical odor under a former structure.

Samples from the SMY, ESMY, and OWA are currently being processed. After receiving the results, borings from the SMY, ESMY, and OWA will be taken and further assessed to determine limits of impact and fill in data gaps. Any contaminated areas will be coordinated with personnel at VDEQ and appropriately handled per regulations during construction.

5.9.2 No-Action Alternative

The No-Action Alternative would not be expected to result in any changes to the existing conditions.

5.10 TRANSPORTATION

5.10.1 Proposed Action

The development of the Millennium Site would have minor, short-term adverse impacts to traffic in the area. The large number of construction vehicles and truck traffic removing unsuitable soils and bringing in fill and top soils, gravel, and rock could disrupt normal traffic patterns in the area. ANC will coordinate with JBMHH regarding disturbance to its roadways due to increased construction vehicle traffic. Possible state Highway Occupancy and local traffic permits may be required and would be coordinated by the contractor prior to the start of construction.

No long-term significant impact on transportation is anticipated as a result of the Proposed Action. The Proposed Action includes the construction of a roadway through the proposed Millennium Site, which would allow vehicular traffic into this area. This would be a local impact only, however, as the short (less than half-mile) portion of road would not connect with

any public streets or thoroughfares, and is not anticipated to allow a significant increase in traffic to or from ANC.

5.10.2 No-Action Alternative

Under the No-Action Alternative the Millennium Project would not occur; therefore, there would be no direct impacts to existing traffic, roadways or transportation systems.

5.11 STORMWATER SYSTEMS

5.11.1 Proposed Action

The Proposed Action includes restoring the existing stream, and providing a stormwater collection system as part of the development of the Millennium Site. Surface water collection would enter the restored stream channel in various locations along its length. Short-term minor impacts to stormwater management would be expected as this water would be handled through the ECP during construction. The design of the burial areas provides ample mitigation of any deleterious effects of the construction, acting as a very large filter system. It consists of a free draining, 24" topsoil layer with approximately 8' of gravel surrounding and underneath the burial vaults, providing an efficient means of water quality improvement. In areas where storm water does not drain through a burial area, smaller rain garden type facilities would be located to clean and cool the water prior to it entering the outfall channel. Long-term impacts associated with this action are beneficial.

In addition, beneficial impacts are anticipated from the stormwater management features to be constructed adjacent to the NPS Administration Building parking lot. As already discussed, the proposed features would provide both attenuation of flows in the currently eroding channel, water quality benefits from the detention, and stabilization of the steep bank which would decrease erosion.

The proposed burial area topsoil modifications, coupled with their underdrains and the very low level of proposed impervious areas, are expected to allow the project to meet the Stormwater control requirements of Section 502 of Executive Order 13508 and Section 438 of the Energy Independence and Security Act. If final design calculations determine that additional retention is

needed, other Low Impact Design practices will be implemented such as compost amended topsoil, pervious pavements/pavers, vegetated channels, roof disconnections, bioretention facilities, infiltration facilities, and structural soils to the maximum extent practicable.

5.11.2 No-Action Alternative

Under the No-Action Alternative the Millennium Project would not occur; therefore, there would be no direct impacts to existing stormwater drainage and collection systems on the main Millennium site. The stormwater drainage off of the NPS Administration Building parking lot would continue to flow in high volumes and velocities during storm events, eroding the steep bank and providing no water quality benefits to the downstream areas.

5.12 UTILITIES

5.12.1 Proposed Action

The Proposed Action would have minor short-term impacts to utilities within the project area as utility relocation and electrical distribution is provided throughout the Millennium Site. These actions could cause temporary disturbances of potable water, sewer, electric and gas services during the work on these utilities. Any impacts would cease once the construction associated with the utilities has been completed. No long-term impacts are anticipated as all active utilities impacted would be avoided or relocated which would likely result in updated and improved utility infrastructure.

5.12.2 No-Action Alternative

Under the No-Action Alternative the Millennium Project would not occur; therefore, there would be no direct impacts to existing utilities within the project area.

5.13 NOISE

5.13.1 Proposed Action

The Proposed Action would result in minor, short-term, local increases in noise production during the construction period. This noise would result from the use of heavy machinery and equipment for demolition of existing structures, clearing vegetation, landforming, and construction of the proposed Millennium Site features. The construction crews would be

required to comply with all applicable laws regarding noise, including time of day restrictions and maximum decibel levels. Subsequent operation of the proposed Millennium Site is not anticipated to result in the production of any significant amounts of noise; visitors and employees may produce noise including human voices, vehicles, and lawn maintenance equipment.

5.13.2 No-Action Alternative

Under the No-Action Alternative the Millennium Project would not occur; therefore, there would be no noise impacts beyond those associated with daily activities at the facility.

5.14 AESTHETICS

5.14.1 Proposed Action

The proposed project would alter the visual and aesthetic environment of the Millennium Site. The construction of the Millennium Site is required by ANC to fulfill their mission; therefore alteration to the site's current aesthetics is unavoidable. The goal of the proposed modifications to the site and requisite structures has been to blend harmoniously with the overall visual character of both ANC and JBMHH and minimize topographical changes to the landscape. Plantings, walkways, and lighting have all been designed to evoke an aesthetic setting similar to the rest of ANC and create an appropriate final resting place of peaceful permanence befitting for all who are laid to rest in service of this country. Please see Section 5.8.3 for further discussions from the historic landscape perspective. Impacts are anticipated to be noticeable and long-term but would not negatively affect the current aesthetics at ANC. The RSC proposed near the NPS Administration Building parking lot would improve the aesthetics of the wooded area, although few if any visitors to ANC ever visit that area.

5.14.2 No-Action Alternative

Under the No-Action Alternative the Millennium Project would not occur; therefore, there would be no direct impacts to the existing aesthetics within the project area.

5.15 VISITOR USE AND EXPERIENCE

5.15.1 Proposed Action

The Millennium Project Site is adjacent to areas commonly viewed by visitors. Visitors near the Millennium Project Site would experience temporarily altered aesthetics due to the presence of a construction site being adjacent to areas that convey a sense of peaceful permanence. Temporary impacts to air and noise may also be experienced due to increased construction traffic and other activities during the project's construction. In addition, the jogging path that lies adjacent to the Millennium Project Site may undergo temporary closures or detours for visitors' safety. Any impacts would cease once the construction activities have been completed; therefore, impacts to visitors' use and experience at ANC are anticipated to be minor and temporary. Long term beneficial impacts to the visitor use and experience are anticipated, as the longevity of the cemetery as an active burial ground would be extended. In addition, visitor information such as interpretive signage and/or kiosks are planned to be incorporated into the project. This would have beneficial impacts on the overall visitor experience at ANC. The Millennium Project has been very carefully designed with input from multiple agencies in order to maximize the visitor use and experience of the site.

5.15.2 No-Action Alternative

Under the No-Action Alternative the Millennium Project would not occur. There would be no immediate impact to visitors' use and experience of ANC. However, over the long-term, burial space would no longer be available. This would greatly impact the visitor use and experience. The cemetery would eventually move from an active and operating cemetery to a national memorial.

5.16 CUMULATIVE IMPACTS

A cumulative impact is defined as "the impact on the environment which results from the incremental impact of the action when added to other past, present, or reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions" (40 CFR 1508.7). This section also states "such impacts can result from individually minor but collectively significant actions taking place over a period of time."

Evaluations of cumulative impacts include consideration of the Proposed Action with past and present actions, as well as reasonably foreseeable future actions. Compliance with applicable Federal, state and local regulations would assist in ensuring that implementation of the Proposed Action would minimize the incremental impacts of past, present, and future actions.

5.16.1 Proposed Action

This project would have an overall beneficial cumulative impact to ANC and the surrounding area. The Proposed Action provides for development of the Millennium Project Site to support ANC's expansion for increased interment/inurnment capacity, overall aesthetics, and primary mission to serve as a military cemetery and shrine. However, some short-term and long-term cumulative impacts would occur and are described in Table 5.5 below.

There are additional ANC projects that have already occurred and would occur in the near future. The cumulative impact assessment for each resource area would include the following actions as already occurred or reasonably foreseeable to occur in this area:

- Past – JBMHH Stormwater Retention System
- Present – Millennium Area Headstone Removal
- Present – ANC Millennium Project (this project) to include:
    - 27-acre expansion to increase the total number of burial and inurnment spaces available; thereby extending the life of ANC as an active cemetery;
    - Stream restoration;
    - Stormwater management improvements to the parking lot of the NPS Administration Building – underground storage and RSC
    - Bank erosion control at the parking lot outfall
- Future–long–term – Continued usage of ANC as a National Cemetery (Master Plan)

As described in the following table, overall cumulative impacts of these projects are generally beneficial in nature with some minor and temporary negative impacts to some resource areas.

Table 5.5 Cumulative Impact Analysis

Impact Topics	JBMHH stormwater retention	Millennium Area Headstone Removal Project	Millennium Project	Cumulative Impacts Summary
Soils	Beneficial long-term impacts due to reducing cumulative stormwater runoff to project area, lessening soil erosion on the site.	Minor short-term impacts due to removal of soil from streambank due to grading. There would also be long-term beneficial impacts to soils due to decreased sedimentation in stream channel from decreased velocity of water and sediment settling in the cross-vane structures.	Minor local impacts to soils. Soils would be re-used on-site to the maximum extent practicable. Beneficial long-term impacts due to stormwater retention treatments to ANC parking area in front of Old Administration Building. This would include reductions to cumulative stormwater runoff to project area, lessening soil erosion on the site.	There are cumulative impacts to soils as a result of these projects. There are some negative as well as some positive benefits. Overall the net cumulative impact is not significant.
Topography and drainage	Beneficial long-term impacts due to improved management of stormwater and decreased overland drainage.	Long-term beneficial impacts due to decreased velocity in stormwater drainage channel.	Major topography and drainage impacts to be minimized and mitigated by stream restoration. Drainage directly onto Millennium Area Headstone Removal Project site to be beneficial long-term impacts.	Drainage issues addressed in JBMHH project as well as Millennium Project would result in long-term beneficial impacts to area.

Surface water resources	Beneficial long-term impacts due to decreased overland stormwater drainage.	Long-term beneficial impacts due to decreased sedimentation in the project area.	Stream restoration resulting in overall beneficial impacts to surface water resources.	Beneficial impacts to surface water resources as a result of stream restoration techniques.
Groundwater	Insignificant Impact	Insignificant Impact	Insignificant Impact	Insignificant impact
Wetlands	Insignificant Impact	Temporary minor impacts due to project activities within <.1 acre of wetland.	No identified wetlands to be impacted during Millennium construction.	No identified wetlands to be impacted during Millennium construction. Temporary minor and indirect impacts to wetlands.
Vegetation	Insignificant Impact	Temporary minor impacts within the LOD to be mitigated by seeding with native species in disturbed areas and minimizing construction equipment size and frequency of trips to maximum extent possible.	Major impacts to vegetation to be minimized to maximum degree possible with design techniques which minimize loss of large trees. Impacts also mitigated by additional plantings of new trees in final design.	Long-term minor impacts to vegetation to be minimized and mitigated with avoidance and additional tree plantings.
Wildlife Resources	Insignificant Impact	Temporary minor impacts during construction.	Temporary minor impacts during construction.	Minor impacts to wildlife during construction of each project.
Cultural Resources	Negligible impacts to cultural resources.	No adverse effects to historic properties. Cultural resources would not be negatively impacted.	Effects to cultural resources are under evaluation.	No adverse impact as cultural resources would be avoided and/or mitigated for as necessary.

HTRW	No contamination issues.	No contamination issues.	Minor impacts to be mitigated with appropriate remediation techniques.	Insignificant impact as any contaminated sites would be mitigated through appropriate remediation techniques.
Transportation	Short term very minor impacts due to construction equipment.	Short-term very minor impacts due to construction equipment.	Short-term major impacts would be minimized as possible and would only occur during construction of project.	Short-term minor impacts to transportation due to construction projects.
Stormwater Systems	Long term beneficial management of stormwater systems.	Long-term beneficial impacts due to decreased water velocity in channel.	Long-term beneficial management of stormwater.	Long-term beneficial management of stormwater.
Utilities	Insignificant impacts to all utilities except beneficial stormwater management systems.	Insignificant impacts.	Any utilities would be avoided and/or relocated.	Minor and temporary impact due to avoidance and/or relocation.
Noise	Temporary minor impacts due to construction equipment.	Temporary minor impacts due to construction equipment.	Temporary minor impacts due to construction equipment.	Temporary minor impacts due to construction equipment.
Aesthetics	Insignificant impacts.	Beneficial impacts due to removal of retired headstones.	Beneficial impact due to restoration of stream and improved area for burials and internments.	Beneficial long-term impacts due to headstone removal and Millennium Projects.

5.16.2 No-Action Alternative

Implementation of the No-Action Alternative would not result in any additional cumulative significant environmental impacts at the project area.

5.17 COMPLIANCE WITH ENVIRONMENTAL STATUTES

The following table outlines compliance with all applicable environmental laws and regulations. Those statutes marked as "pending" would be in full compliance before initiation of construction activities.

Table 5.6 Compliance of the Proposed Action with Environmental Protection Statutes and Other Environmental Requirements

Federal Statutes	**Level of Compliance**[1]
Anadromous Fish Conservation Act	Full
Archeological and Historic Preservation Act	Pending
Clean Air Act	Full
Clean Water Act	Full
Coastal Barrier Resources Act	N/A
Coastal Zone Management Act	Pending
Comprehensive Environmental Response, Compensation and Liability Act	N/A
Endangered Species Act	Full
Estuary Protection Act	Full
Federal Water Project Recreation Act	N/A
Fish and Wildlife Coordination Act	Full
Land and Water Conservation Fund Act	N/A
Magnuson-Stevens Act	N/A
Marine Mammal Protection Act	N/A
Migratory Bird Act	Full
National Historic Preservation Act	Pending

National Environmental Policy Act	Pending
Resource Conservation and Recovery Act	Full
Rivers and Harbors Act	Full
Watershed Protection and Flood Prevention Act	Full
Wild and Scenic Rivers Act	N/A
Protection and Enhancement of Cultural Environment (EO 11593)	Full
Floodplain Management (EO 11988)	Full
Protection of Wetlands (EO 11990)	Full
Prime and Unique Farmlands (Memorandum, Council on Environmental Quality, 11 August 1980	N/A
Environmental Justice in Minority and Low-Income Populations (EO 12898)	Full
Protection of Children from Health and Safety Risks (EO 13045)	Full
Executive Order 13508 – Protecting and Restoring the Chesapeake Bay Watershed	Pending
Section 438, Energy Independence and Security Act	Pending

6 CONCLUSIONS

The Norfolk District USACE has prepared this NEPA documentation on behalf of ANC, Arlington County, Virginia, for the construction of the Millennium Site Project at ANC, Arlington County, Virginia. NPS is a cooperating agency for this NEPA document. The purpose of the Proposed Action is to support the longevity of ANC, a significant National resource, by increasing the cemetery's total capacity for in-ground burials and inurnment space beyond 2025. The need for the Proposed Action is based on the limited number of vacant burial sites and the current rate of burials.

Construction would include casket burial sections, in-ground sites for ashes of cremated service members, and both columbarium niche courts and niche walls. The site would include two assembly areas for service participants including Committal Service Shelters. Building and site

element construction shall be suitable for the environment and compliment the architectural theme and considerations of ANC. Supporting facilities would include water fountains, waterlines, sanitary sewer, storm drainage, underground electrical information systems, stream restoration, landscaping, retaining walls, perimeter fencing, vehicle and pedestrian access roads and walks, and security systems. In addition, underground stormwater storage and RSC would be constructed adjacent to the NPS Administration Building parking lot.

The project would result in beneficial impacts to water quality and surface water from the stream restoration and RSC system.

Short-term impacts associated with the Proposed Action include land use, topography, drainage, and surface water impacts, disturbance of soil and removal of vegetation, air and noise emissions, increased construction traffic, temporary closures or interruptions in the jogging path near the construction site, and altered aesthetics from the presence of a construction site. Short-term impacts to utilities such as water and electric service may also be encountered during construction. Short-term impacts would cease with the completion of construction.

Long-term impacts to land use, soils, topography and drainage, surface water, wetlands, vegetation, wildlife, and aesthetics would be expected as a result of the Proposed Action. However, the negative impacts of the proposed action have been greatly minimized through much iteration of conceptual planning and design. Although many trees will be removed, this was minimized to the extent practicable during planning and will be mitigated through the planting of an additional 600 trees and 500 shrubs during construction. The stream impacts were likewise greatly minimized during planning stages, and the site will actually benefit from the stream restoration techniquest implemented. The visual continuity of this section with the remainder of ANC has been maximized.

The Proposed Action would require coordination for federal, state, and local permits and/or approvals prior to the start of construction, including, but not limited to:

- General Permit for Discharges of Stormwater from Construction Activities issued by VDCR under its Virginia Stormwater Management Program (VSMP). Said VSMP Permit will include the preparation of a Stormwater Pollution Prevention Plan (SWPPP) and an Erosion and Sediment Control Plan (ESC) component;
- State Programmatic General Permit (SPGP) from Corps, issued by DEQ, or a combination of an SPGP and Nationwide Permit #27 from the Corps. No compensatory mitigation will be required given the minimal proposed impacts (<300 lf). Thus coincident with the SPGP issuance, DEQ would issue also a General Permit WP1 or WP4 for said impacts.

These permits and approvals would be obtained by the contractor prior to the start of construction. The Section 106 compliance process is ongoing among the appropriate consulting parties. A memorandum of agreement including these parties will need to be reached for the implementation of measures to mitigate any determined adverse effects prior to construction. The Hazardous, Toxic, and Radioactive Substance investigation within the Millennium Site must be completed prior to the start of construction and any contamination identified will be mitigated during construction through appropriate remediation techniques. In addition, coordination is required with the utility companies prior to and during construction.

This Environmental Assessment was prepared by USACE, ANC, and NPS in compliance with the NEPA and all applicable implementing regulations. Based on the evaluation of environmental impacts described in Section 5 and summarized in Table 5.5, no significant impacts would be expected from the Proposed Action; therefore, an Environmental Impact Statement will not be prepared and a Finding of No Significant Impact will be prepared and signed.

7 CONTACT INFORMATION

If you have any questions or wish to provide comments, please contact Mrs. Susan Conner of the U.S. Army Corps of Engineers, Norfolk District, at Susan.L.Conner@usace.army.mil or 757-201-7390.

8 REFERENCES

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APPENDIX A:

Resource Agency Coordination

COMMONWEALTH of VIRGINIA

Douglas W. Domenech
Secretary of Natural Resources

Department of Game and Inland Fisheries

Robert W. Duncan
Executive Director

September 21, 2012

Susan L. Conner
U.S. Army Corps of Engineers - Norfolk District
803 Front Street
Norfolk, VA 23510
susan.l.conner@usace.army.mil

Re: Millennium Expansion Project

Dear Ms. Conner:

We appreciate your interest in submitting your project(s) for review by VDGIF to ensure the protection of sensitive wildlife resources during project development. Unfortunately, due to staffing limitations, our Fish and Wildlife Information Services Section (FWIS) is unable to review or provide an assessment of any projects submitted to them for review.

No response from VDGIF does not constitute "no comment" nor does it imply support of the project or associated activities. It simply means VDGIF has not been able to respond.

If you should have further questions or need additional information, please visit:
http://www.dgif.virginia.gov/environmental-programs/

Please feel free to attach a copy of this letter/email with your project paper work.

Thank You and Kindest Regards,

Mrs. Gladys D. Cason

Mrs. Gladys D. Cason
Environmental Services Division
Phone: (804) 367-0909 Fax: (804) 367-2427
gladys.cason@dgif.virginia.gov

ARLINGTON
VIRGINIA

HISTORIC PRESERVATION SECTION
DEPARTMENT OF COMMUNITY PLANNING, HOUSING & DEVELOPMENT
ARLINGTON COUNTY, VIRGINIA

TO: Susan Conner, Chief, Environmental Analysis Section
U.S. Army Corps of Engineers, Norfolk District

FROM: Michael Leventhal, Historic Preservation Coordinator, Arlington County Government
Rebeccah Ballo, Historic Preservation Planner, Arlington County Government

DATE: October 22, 2012

SUBJECT: HISTORIC PRESERVATION COMMENTS ON NEPA SCOPING FOR ANC MILLENNIUM PROJECT

This document contains the Arlington County Government, Historic Preservation Section's comments on the NEPA Scoping and other relevant documents made available for review as part of the study of the Millennium Project and proposed cemetery expansion at the Arlington National Cemetery. If there are any comments or clarifications needed about our comments, please contact Michael Leventhal at mleventhal@arlingtonva.us or 703-228-3813. We thank you for the opportunity to comment on this nationally significant project.

1. In order to properly comment on the scoping and further 106 and NEPA requirements, it is necessary to understand the universe of cultural resources existing on the property. US Army Corps should compile and make available the archaeological reports, maps overlaid with the identified cultural resources and landscape elements, soil studies, tree surveys, and other documentation done to date in the project area.

2. From the concepts presented, the Preferred Alternative was chosen from among the alternatives dated September 2009. However, information was not presented as part of the scoping meeting about the specific impacts those alternatives would have on the landscape delineated as part of the undertaking. More information about the range of alternatives would help generate comments on the impacts on the cultural resources of the area. This analysis will likely be presented as part of a Draft EA, and would be beneficial in helping us inform the scoping and development of analysis of the adverse impacts of the project.

3. Please provide information on any concurrent Section 106 reviews and consulting parties meetings and how those meetings, if they have occurred, have helped to inform the selection of a Preferred Alternative at this phase of the review.

4. A portion of the original 1870s boundary wall will be removed and the adjacent landscape altered as part of the undertaking. This adverse impact may require mitigation. Mitigation measures have not been clearly documented at this stage and need to be better defined so we can adequately comment. It is important that this original boundary be respected and maintained even though the landscape itself will be greatly altered. If possible, the wall should be salvaged and rebuilt in the same location. If that is not possible, further documentation of the wall, salvage measures, and other interpretive mitigation should be considered.

5. Please make available the most recent (2011-2012) Phase I and II archaeological reports, in addition to previous relevant reports, so that we can better comment on potential adverse impacts and mitigation.

6. The Preferred Alternative will entail the removal of stands of trees, the streambed and other landscape features. This work will presumably cause an adverse impact to the viewshed, both from Arlington House and from other areas within the ANC, and potentially areas outside the ANC (apartment buildings, public right-of-ways, etc.) Please provide viewshed studies for comment and review so we can better analyze the impacts of the undertaking.

7. It is our understanding that the project area contains the last remaining stand of old-growth forest in Arlington County. It appears from the available information that the preferred alternative will remove most if not all of these trees. This would be a significant adverse impact to the historic landscape of the cemetery and the County, and should be avoided, if possible. Better maps and information related to the trees proposed for removal will help to clarify our comments and help determine appropriate mitigation, if necessary.

8. Signage, both interpretive and directional, should be considered as part of the planning process. Some mitigation for disrupting historic landscaping features could be incorporated into the signage, for example.

9. The treatment of the boundary wall/columbarium between the ANC and Fort Myer should be studied further. More information including proposed heights, materials, grading, lighting, security features and other relevant design information (related to both sides of the wall) should be prepared so that we may comment further.

ARLINGTON
VIRGINIA

DEPARTMENT OF ENVIRONMENTAL SERVICES
Office of Sustainability and Environmental Management

2100 Clarendon Boulevard, Suite 705, Arlington, VA 22201
TEL 703-228-4488 FAX 703-228-7134 TTY 703-228-4611 www.arlingtonva.us

TO: Susan Conner, Chief, Environmental Analysis Section
U.S. Army Corps of Engineers, Norfolk District

FROM: Jeff Harn, Chief, Office of Sustainability and Environmental Management

DATE: October 22, 2012

SUBJECT: OFFICE OF SUSTAINABILITY AND ENVIRONMENTAL MANAGEMENT COMMENTS ON NEPA SCOPING FOR ANC MILLENNIUM PROJECT

Thank you for the opportunity to provide comments on the NEPA Scoping and other relevant documents made available for review as part of the study of the Millennium Project and proposed cemetery expansion at the Arlington National Cemetery.

As you know, Corps staff and consultants met with Jason Papacosma of my staff at the project site on September 28, 2012. We found this site visit and discussion very helpful to gain an understanding of existing conditions in the stream valley as well as the Corps' overall stream restoration approach. In general, we are supportive of the stream restoration strategy discussed at the site visit to address existing stream instability and erosion as well as in-stream habitat.

Regarding the Commonwealth's Chesapeake Bay Preservation Act and Arlington's local Chesapeake Bay Preservation Ordinance, we are in general agreement with the framework outlined in your October 9, 2012, memorandum provided to Jason Papacosma as well as Joan Salvati with the Virginia Department of Conservation and Recreation.

We note in particular:
Projects that include land disturbing activity must adhere to the general performance criteria, especially with respect to minimizing land disturbance (including access and staging areas), retaining indigenous vegetation and minimizing impervious cover.

At this time, we do not have enough information to comment in detail about the stormwater runoff and stream impacts of and mitigation strategies for the proposed Millennium Project .

Therefore, we look forward to your submission of the detailed Water Quality Impact Assessment (WQIA) information for the proposed project. The features and factors of particular interest to Arlington County include:

- Existing tree and habitat conditions, including identification of high quality habitat, stands of mature/old growth trees, and an overall tree inventory, as well as areas of significant invasive plants;

- Impacts to these areas based upon the proposed limits of disturbance;
- Tree protection strategies;
- Proposed re-planting and invasive plant management program;
- Areas of existing slope instability and proposed stabilization measures;
- Cut/fill documentation and post-construction slope details and stabilization strategies where areas of fill tie into the new floodplain elevations of the restored stream;
- Details on the proposed stream restoration; and,
- Overall stormwater runoff impacts and mitigation strategies.

Overall, we recognize and acknowledge that Arlington County does not have formal jurisdiction over Arlington Cemetery under the Chesapeake Bay Preservation Act and our local ordinance.

However, our local ordinance provides a sound framework for evaluating the stormwater runoff and stream impacts of and mitigation strategies for the proposed Millennium Project at the current NEPA Scoping phase and as the project moves into the Environmental Assessment phase.

More broadly, Arlington has a strong commitment to urban watershed protection and restoration, as well as stringent regulatory obligations under our Municipal Separate Storm Sewer System Permit to protect water quality in our local streams, the Potomac River, and Chesapeake Bay.

The Millennium Project, while we understand its strong need and national significance, has the potential for significant impacts to a forested stream valley with areas of mature, high-value, and scenic tree canopy.

It is from these perspectives that Arlington is particularly interested and engaged in this project, and we are appreciative of the opportunity to provide direct feedback at this early scoping phase and as the project moves into all phases of design to encourage the minimization of environmental impacts and maximization of environmental benefits.

If there are any comments or clarifications needed about our comments, please contact me directly at jharn@arlingtonva.us or 703-228-3612.

ARLINGTON
VIRGINIA

OFFICE OF THE COUNTY MANAGER

2100 Clarendon Boulevard, Suite 302, Arlington, VA 22201
TEL 703-228-3120 FAX 703-228-3218 TTY 703-228-4611 www.arlingtonva.us

October 24, 2012

Ms. Susan L. Conner
Acting Chief, Planning and Policy Branch
U.S. Army Corps of Engineers, Norfolk District
803 Front Street
Norfolk, VA 23510

Dear Ms. Conner:

Thank you for the opportunity to provide comments on the Scoping of the Millennium Project at Arlington National Cemetery. We look forward to working with you on this important project.

As part of Arlington County's responsibility as a Cooperating Agency under NEPA for this project, the attached memos outline, from the County's perspective, the potential impacts of the proposed project on environmental, historical and cultural resources. While it is our desire to be complete and thorough in this initial response, Arlington County is not able to comment fully at this point in time due to the lack of baseline data and information about the resources on the property that has been provided to us.

I am particularly concerned about the apparent lack of adherence to standard NEPA procedures related to open scoping under 40 CFR 1501.7. and NEPA process under 40 CFR 1501.2. Given the lack of information presented, the short timeframe for comment and agency review, and, in particular, the choice of a Preferred Alternative prior to completion of the scoping, it does not appear as if the NEPA process is being properly followed.

Arlington National Cemetery is one of our local and national treasures and we fully understand the importance of their efforts to extend their closure date several decades. Particularly given the unique historic and cultural resources in this area, we believe it is of the utmost importance to weigh all alternatives, thoroughly examine all potential impacts. We firmly believe the goals of maximizing available burial space and protecting the Cemetery's goals for the project that will also result in the least impact on these important resources.

Thank you again for the opportunity to comment. We look forward to continuing to work diligently with you to aid in the NEPA undertaking.

Sincerely,

Brian Stout
Federal Liaison

Enclosure

Donofrio, Kristen L. NAO

From: Conner, Susan L. NAO
Sent: Monday, November 05, 2012 1:01 AM
To: 'Brian Stout'
Cc: 'Rebeccah Ballo'; Hegge, Greg E NAO
Subject: RE: Arlington County Comments - NEPA Scoping for ANC Millenium Project (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

Brian -
Thanks so much for submitting comments on the Millennium Project at Arlington National Cemetery. Your comments have been shared with the study team and will be considered and addressed as we move forward through the NEPA process.

I did want to address one of your concerns, regarding the "lack of adherence to NEPA procedures." Just to clarify, scoping for the Millennium project began in 2005. Early agency coordination was accomplished in accordance with 40 CFR 1501, by way of a Public Notice dated December 28, 2005 which was issued to Federal, state, and local agencies. Responses to the Public Notice were received from the U.S. Fish and Wildlife Service (USFWS), the Virginia Marine Resources Commission (VMRC), Virginia Department of Conservation and Recreation (VDCR), and the Virginia Department of Game and Inland Fisheries (VDGIF). In April 2009, follow-up coordination letters were sent to the USFWS, VDCR, and VDGIF. Response letters were received from VDCR and VDGIF. The alternatives for the project were then developed and reviewed, with consideration to the comments received prior to that time.

There was a delay in project planning for a period of time, so once the project was again initiated, we felt it prudent to do another "round" of NEPA scoping to ensure that no new issues had developed since the previous scoping. Also, as a few years had elapsed, we wanted to ensure that everyone was informed and had a chance to participate in the process. I apologize if that was not all adequately explained or understood when you reviewed the scoping materials - it is my fault for not clarifying the situation. Generally, we seek to ensure early and ongoing scoping at every major decision point.

We greatly appreciate the time and effort of your staff to review the materials and submit comments. Please feel free to call or write with any additional questions or comments, and I hope that this email helps to better explain the NEPA process to date on the project, and our intention, with new staff and several years elapsed, to ensure that we had given all potentially interested parties a chance to comment on the project.

Sincerely - Susan Conner

Susan L. Conner
Acting Chief, Planning and Policy Branch
U.S. Army Corps of Engineers, Norfolk District
803 Front Street
Norfolk, VA 23510
757-201-7390

-----Original Message-----
From: Brian Stout [mailto:Bstout@arlingtonva.us]

Sent: Wednesday, October 24, 2012 12:32 PM
To: Conner, Susan L. NAO
Cc: Rebeccah Ballo
Subject: Arlington County Comments - NEPA Scoping for ANC Millenium Project

Susan,

Attached please find Arlington County's comments on the NEPA Scoping for the Millenium Project at Arlington National Cemetery. I appreciate your understanding over the last few days as we prepared the attached information.

We look forward to working with you and to providing input through the NEPA process that will result in the best outcome for the project.

Sincerely,

Brian Stout

Brian Stout

Federal Liaison

Arlington County

2100 Clarendon Boulevard

Suite 302

Arlington, VA 22201

p: (703) 228-0577

f: (703) 228-3295

bstout@arlingtonva.us <mailto:bstout@arlingtonva.us>

Classification: UNCLASSIFIED
Caveats: NONE

DEPARTMENT OF THE ARMY
ARMY NATIONAL MILITARY CEMETERIES
ARLINGTON NATIONAL CEMETERY
ARLINGTON, VIRGINIA 22211-5003

NOV 7 2012

Office of the Executive Director

Mr. Jon G. James
Acting Superintendent, George Washington Memorial Parkway
700 George Washington Memorial Parkway
c/o Turkey Run Park
McLean, Virginia 22101

Dear Mr. James:

In accordance with regulations pertaining to the National Environmental Policy Act (Title 40 of the Code of Federal Regulations, part 1501.6), I would like to invite the National Park Service to participate as a cooperating agency in the environmental assessment processes concerning the Millennium Expansion project.

The Millennium Expansion project under development will provide approximately 32,000 additional interment and inurnment spaces to increase the operational life of the cemetery. The approximate 31 acre project site on Arlington National Cemetery's northwest boundary includes Section 29, the Joint Base Myer-Henderson Hall picnic area and old warehouse area.

Through designation as a cooperating agency, the National Park Service will be able to play an integral role in shaping the issues related to these proposed actions. We look forward to continuing to partner with your agency on this project. We request you indicate your interest in becoming a cooperating agency within 15 days of receipt of this letter.

The point of contact for this action is Mr. Daniel Delahaye at (703) 614-4306 or e-mail: daniel.b.delahaye.civ@mail.mil, if you have any further questions or require additional assistance.

Thank you for your continued interest in and partnership with Arlington National Cemetery. Honor – Remember – Explore.

Sincerely,

Kathryn A. Condon

Kathryn A. Condon
Executive Director

United States Department of the Interior

NATIONAL PARK SERVICE
George Washington Memorial Parkway
c/o Turkey Run Park
McLean, Virginia 22101

IN REPLY REFER TO:
H2217A (GWMP)

November 21, 2012

Ms. Kathryn A. Condon
Executive Director, Army National Military Cemeteries
Arlington National Cemetery
Arlington, VA 22211-5003

Dear Ms. Condon:

On behalf of the National Park Service (NPS) at George Washington Memorial Parkway (GWMP), I accept your invitation to participate as a cooperating agency in the environmental assessment process concerning the Millennium Expansion project at Arlington National Cemetery (ANC), located in ANC Section 29 and including Arlington Woods and the parking lot behind the NPS Old Administration Building.

We look forward to working with you and ANC to develop a mutually beneficial Millennium Expansion project plan on our adjoined lands that best protects natural and cultural resources. As specifically pertains to NPS interests, we are committed to helping ANC find the best alternative to control stormwater runoff from the parking lot behind the NPS Old Administration Building and restore and enhance the ecological functions and values of the stream and associated wetland habitat within the entirety of Section 29.

Please feel free to contact me at 703-289-2500 if you have any additional questions.

Sincerely,

Jon G. James
Acting Superintendent

cc:

Mr. Kent Carson
Deputy Engineer, Army National Cemeteries Program
Arlington National Cemetery
Arlington, VA 22211-5003

Ms. Susan L. Conner
Chief, Environmental Analysis Section
U.S. Army Corps of Engineers, Norfolk District
803 Front Street
Norfolk, VA 23510

Mr. Daniel Delahaye
Master Planner, Army National Cemeteries Program
1 Memorial Drive, AD Building
Arlington, VA 22211-5003

Mr. Greg Hegge
Chief, Projects Branch
U.S. Army Corps of Engineers, Norfolk District
803 Front Street
Norfolk, VA 23510

bcc:

GWMP Files
NCR Peter May
NCR Joel Gorder
GWMP ARHO Bies
GWMP IRRM Virta
GWMP IRRM Anderson
GWMP IRRM Steury
GWMP IRRM O'Connell
GWMP LAPP Helwig
GWMP LAPP McCallum
GWMP LAPP Sheffer

MO'Connell:11-20-2012:703-289-2540

Virginia Department of Game and Inland Fisheries

11/20/2012 10:35:39 AM

Fish and Wildlife Information Service

VaFWIS Search Report Compiled on 11/20/2012, 10:35:39 AM

Help

Known or likely to occur within a **3 mile radius around point Arlington National Cemetery (Cemetery) Arlington**
(at 38,52,45.4 -77,04,24.9)
in **013 Arlington County, 510 Alexandria City, VA**

View Map of Site Location

523 Known or Likely Species ordered by Status Concern for Conservation
(displaying first 22) (22 species with Status* or Tier I** or Tier II**)

BOVA Code	Status*	Tier**	Common Name	Scientific Name
010032	FE	II	Sturgeon, Atlantic	Acipenser oxyrinchus
060006	SE	II	Floater, brook	Alasmidonta varicosa
030062	ST	I	Turtle, wood	Glyptemys insculpta
040129	ST	I	Sandpiper, upland	Bartramia longicauda
040293	ST	I	Shrike, loggerhead	Lanius ludovicianus
100155	FSST	I	Skipper, Appalachian grizzled	Pyrgus wyandot
040093	FSST	II	Eagle, bald	Haliaeetus leucocephalus
040292	ST		Shrike, migrant loggerhead	Lanius ludovicianus migrans
100248	FS	I	Fritillary, regal	Speyeria idalia idalia
100154	FS	II	Butterfly, Persius duskywing	Erynnis persius persius
030063	CC	III	Turtle, spotted	Clemmys guttata
030012	CC	IV	Rattlesnake, timber	Crotalus horridus
040225		I	Sapsucker, yellow-bellied	Sphyrapicus varius
040319		I	Warbler, black-throated green	Dendroica virens
040038		II	Bittern, American	Botaurus lentiginosus
040052		II	Duck, American black	Anas rubripes
040213		II	Owl, northern saw-whet	Aegolius acadicus
040105		II	Rail, king	Rallus elegans
040320		II	Warbler, cerulean	Dendroica cerulea
040304		II	Warbler, Swainson's	Limnothlypis swainsonii
040266		II	Wren, winter	Troglodytes troglodytes
070020		II	Amphipod, Pizzini's	Stygobromus pizzinii

To view **All 523 species** View 523

* FE=Federal Endangered; FT=Federal Threatened; SE=State Endangered; ST=State Threatened; FP=Federal Proposed; FC=Federal Candidate; FS=Federal Species of Concern; 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

Anadromous Fish Use Streams (2 records)

View Map of All Anadromous Fish Use Streams

Stream ID	Stream Name	Reach Status	Anadromous Fish Species			View Map
			Different Species	Highest TE*	Highest Tier**	
C25	Fourmile run	Confirmed	2			Yes
C64	Potomac river	Confirmed	6		IV	Yes

Impediments to Fish Passage

N/A

Threatened and Endangered Waters

N/A

Managed Trout Streams

N/A

Bald Eagle Concentration Areas and Roosts

N/A

Bald Eagle Nests (2 records)

View Map of All Query Results Bald Eagle Nests

Nest	N Obs	Latest Date	N Species			View Map
			Different Species	Highest TE*	Highest Tier**	
AC9401	1	Mar 20 2011	1		II	Yes
AR0801	6	Feb 28 2010	1		II	Yes

Displayed 2 Bald Eagle Nests

Habitat Predicted for Aquatic WAP Tier I & II Species

N/A

Habitat Predicted for Terrestrial WAP Tier I & II Species (2 Species)

View Map of Combined Terrestrial Habitat Predicted for 2 WAP Tier I & II Species Listed Below

ordered by Status Concern for Conservation

BOVA Code	Status*	Tier**	Common Name	Scientific Name	View Map
040038		II	Bittern, American	Botaurus lentiginosus	Yes
040105		II	Rail, king	Rallus elegans	Yes

Virginia Breeding Bird Atlas Blocks (6 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**	
54192	Alexandria, NE	32		II	Yes
54191	Alexandria, NW	58	FSST	II	Yes
53192	Annandale, NE	49		IV	Yes
53206	Falls Church, SE	60		IV	Yes
54203	Washington West, CW	28		IV	Yes
54205	Washington West, SW	65		IV	Yes

Public Holdings: (5 names)

Name	Agency	Level
Arlington House National Historical Site	National Park Service	Federal
George Washington Memorial National Parkway	National Park Service	Federal
Arlington National Cemetary	U.S. Dept. of Army	Federal
Fort Myer Military Reservation	U.S. Dept. of Army	Federal
The Pentagon	U.S. Dept. of Army	Federal

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
013	Arlington	458	FEST	I
510	Alexandria City	475	FESE	I

USGS 7.5' Quadrangles:
Annandale
Falls Church
Alexandria
Washington West

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
PL24	Potomac River-Pimmit Run	64	FSST	I
PL25	Potomac River-Fourmile Run	63	FSST	I

Compiled on 11/20/2012, 10:35:39 AM V436267.0 report=V searchType= R dist= 4828.032 poi= 38,52,45.4 -77,04,24.9

audit no. 436267 11/20/2012 10:35:39 AM Virginia Fish and Wildlife Information Service

U.S. Fish and Wildlife Service

Natural Resources of Concern

This resource list is to be used for planning purposes only — it is not an official species list.

Endangered Species Act species list information for your project is available online and listed below for the following FWS Field Offices:

VIRGINIA ECOLOGICAL SERVICES FIELD OFFICE
6669 SHORT LANE
GLOUCESTER, VA 23061
(804) 693-6694
http://www.fws.gov/northeast/virginiafield/

Project Name:

USFWS List

Project Counties:

Arlington, VA

Project Type:

** Other **

Endangered Species Act Species List (USFWS Endangered Species Program).

There are a total of **1** threatened, endangered, or candidate species, and/or designated critical habitat on your species list. Species on this list are the species that may be affected by your project and could include species that exist in another geographic area. For example, certain fishes may appear on the species list because a project could cause downstream effects on the species. Please contact the designated FWS office if you have questions.

Species that may be affected by your project:

Flowering Plants	Status	Species Profile	Contact

U.S. Fish and Wildlife Service

Natural Resources of Concern

Sensitive joint-vetch (*Aeschynomene virginica*)	Threatened	species info		Virginia Ecological Services Field Office

FWS National Wildlife Refuges (USFWS National Wildlife Refuges Program).

There are no refuges found within the vicinity of your project.

FWS Migratory Birds (USFWS Migratory Bird Program).

Most species of birds, including eagles and other raptors, are protected under the Migratory Bird Treaty Act (16 U.S.C. 703). Bald eagles and golden eagles receive additional protection under the Bald and Golden Eagle Protection Act (16 U.S.C. 668). The Service's Birds of Conservation Concern (2008) report identifies species, subspecies, and populations of all migratory nongame birds that, without additional conservation actions, are likely to become listed under the Endangered Species Act as amended (16 U.S.C 1531 et seq.).

NWI Wetlands (USFWS National Wetlands Inventory).

The U.S. Fish and Wildlife Service is the principal Federal agency that provides information on the extent and status of wetlands in the U.S., via the National Wetlands Inventory Program (NWI). In addition to impacts to wetlands within your immediate project area, wetlands outside of your project area may need to be considered in any evaluation of project impacts, due to the hydrologic nature of wetlands (for example, project activities may affect local hydrology within, and outside of, your immediate project area). It may be helpful to refer to the USFWS National Wetland Inventory website. The designated FWS office can also assist you. Impacts to wetlands and other aquatic habitats from your project may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal Statutes. Project Proponents should discuss the relationship of these requirements to their project with the Regulatory Program of the appropriate U.S. Army Corps of Engineers District.

U.S. Fish and Wildlife Service

Natural Resources of Concern

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Endangered Species Act species list information for your project is available online and listed below for the following FWS Field Offices:

VIRGINIA ECOLOGICAL SERVICES FIELD OFFICE
6669 SHORT LANE
GLOUCESTER, VA 23061
(804) 693-6694
http://www.fws.gov/northeast/virginiafield/

Project Name:

USFWS List

Project Counties:

Arlington, VA

Project Type:

** Other **

Endangered Species Act Species List (USFWS Endangered Species Program).

There are a total of **1** threatened, endangered, or candidate species, and/or designated critical habitat on your species list. Species on this list are the species that may be affected by your project and could include species that exist in another geographic area. For example, certain fishes may appear on the species list because a project could cause downstream effects on the species. Please contact the designated FWS office if you have questions.

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U.S. Fish and Wildlife Service

Natural Resources of Concern

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APPENDIX B:

Cultural Resources

Summary of Information and Consultations for National Historic Preservation Act Section 106 Compliance, ANC Millennium Project, 2012

Identification of Historic Properties

The reports and consultations listed under the "Chronology of Millennium Project Section 106 Surveys and Consultations" result in the following properties in the Area of Potential Effects (APE) of the Arlington National Cemetery (ANC) Millennium Project:

Physical Destruction APE:

Archaeological Resources – No historic properties in the APE: 44AR0043, 46, 47, and 49 are within the APE, but not eligible for listing in the NRHP (Haynes 2012b, Blondino 2012 [draft Phase II 44AR0046 report in progress, Management Summary suggests finds do not support eligibility of this site]).

Architectural Resources – No historic properties in the APE, the Old Warehouse (Maintenance Yard), Section 29 Footbridges, and Headstone Drainage Features have been determined not eligible (DHR File #2012-0390) for listing in the NRHP (Haynes 2012a, Smith et al. 2012)

Landscape Resources –

Historic Properties

- **Forested Areas in Section 29** regenerated since the Custis-Lee period (Millis et al. 1998), we disagree that these contribute to Arlington House (they are not in its viewshed, and vary with what the forest composition would have been during the Custis-Lee period); however they contribute to the ANC historic landscape having regenerated through the period of significance for the ANC historic district (Smith et al. 2012).
- **Boundary Wall** – This is a contributing element of the ANC historic district landscape, dating to the first decades of the cemetery (Smith et al. 2012).

Non-Historic Properties

- **Fort Myer Picnic Area** – This is not contributing to the ANC historic district landscape (Smith et al. 2012) under Criterion C and was not identified as contributing to the Fort Myer historic district in a recent survey (Versar 2011), and Batzli's (1998:62) recommendation for its inclusion in the Fort Myer historic district gives inadequate justification.

Viewshed and Indirect Effects APE

Architectural Resources

- **Old Post Chapel**, Fort Myer, recommended contributing under Criterion A as a property of Fort Myer NRHP historic district expansion (Versar 2011)

- **Fort Myer Historic District** – Residences on Moore Lane and Lee Avenue (listed as contributing)

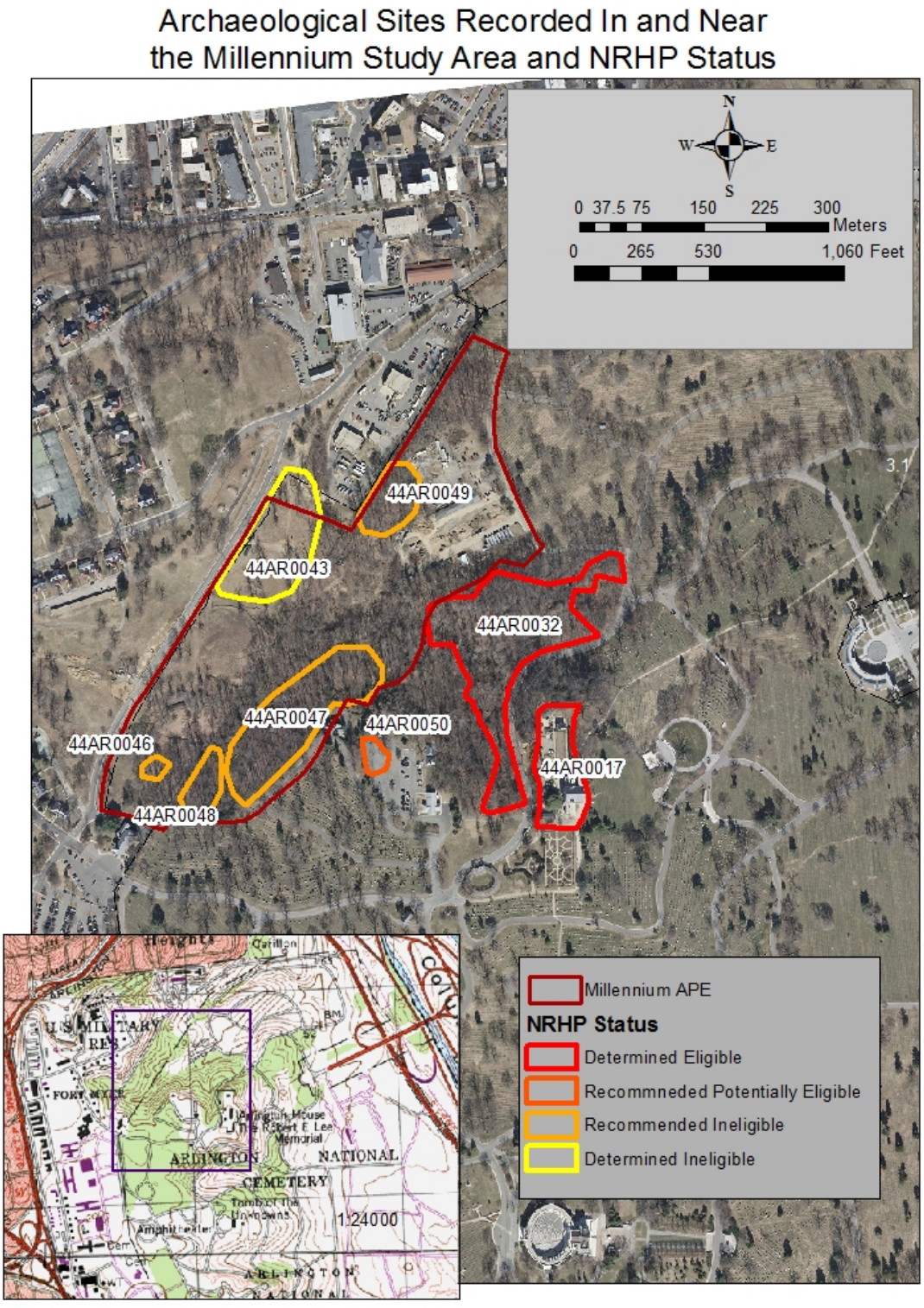


Figure 1 - Archaeological Sites in and Near the Millennium Project Area

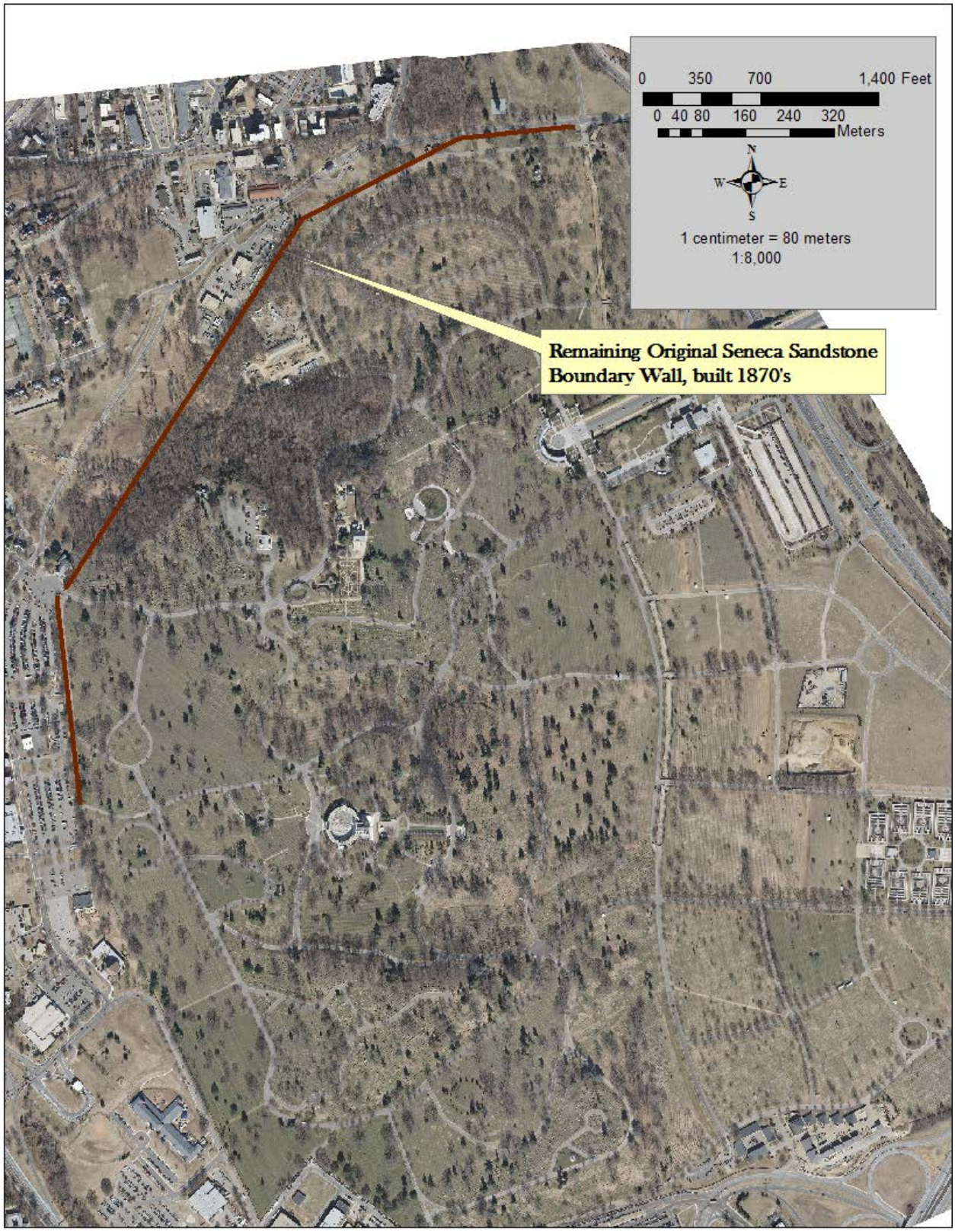
- 

Figure 2 Location of 5653 ft. ANC Boundary Wall

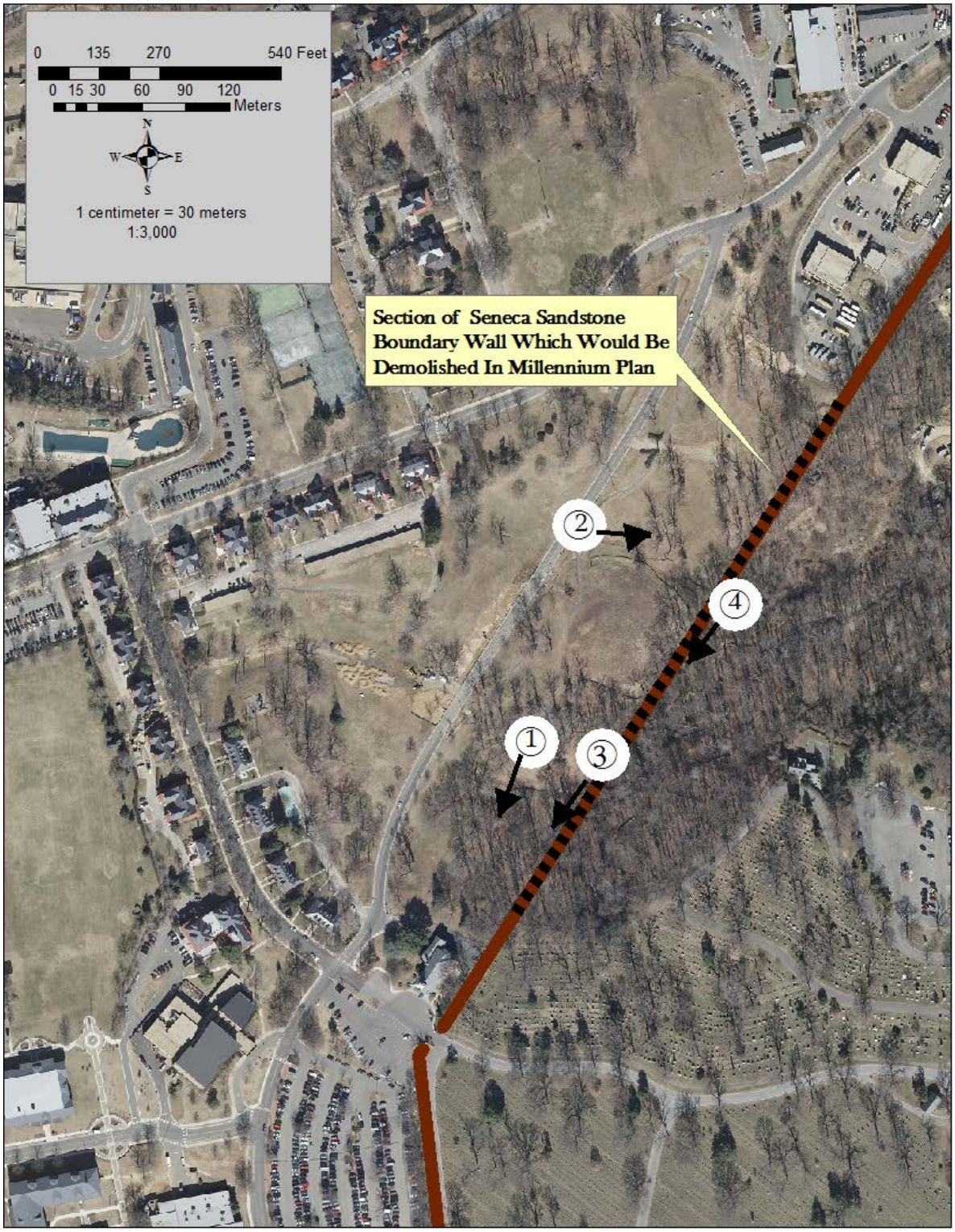


Figure 3 Section of ANC Boundary Wall Affected by the Millennium Project, and Locations and Orientations of Photos in Figure 3

Figure 4 Images of the ANC Boundary Wall in the Millennium APE

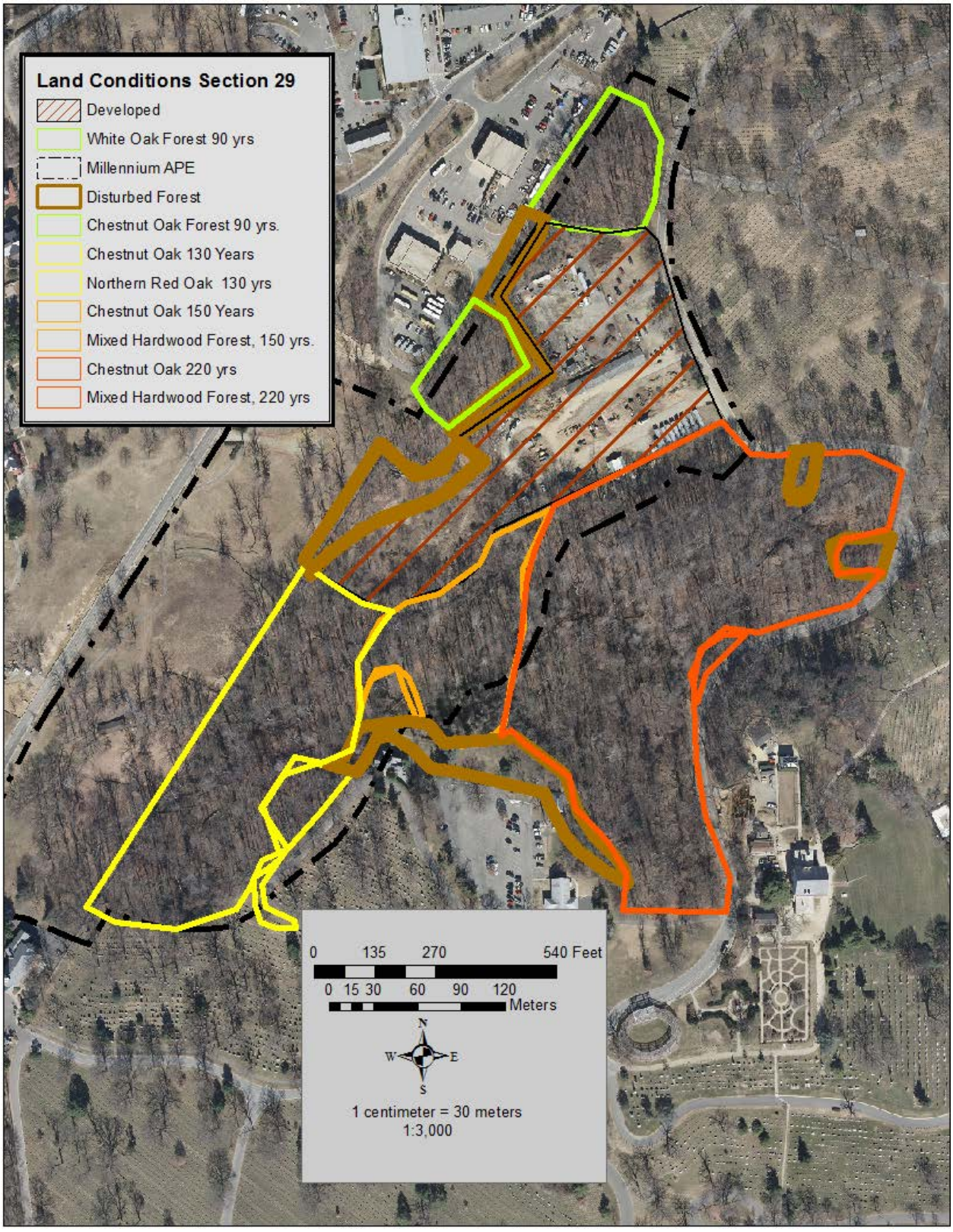


Figure 5 Forest Areas in Section 29 - Disturbed and 90 year old stands were not recommended as contributing to the landscape.

Landscapes

- **ANC historic district landscape** (Smith et al. 2012)
- **Arlington House landscape** (Millis et al. 1998)
- **Fort Myer historic district landscape** (Batzli 1998, Versar 2011)

Assessment of Adverse Effects to Historic Properties

Adverse Effects:

- **ANC historic district**, adverse effects to the contributing landscape element **Seneca Sandstone Boundary Wall**, 1357 feet of out of approximately 5820 feet of the remaining original Boundary Wall would be demolished. Other portions of Seneca Sandstone boundary wall have been reconstructed as the cemetery expanded in the late 19th and into the mid-20th centuries. About 10% of the Boundary Wall which would be demolished has fallen down. Other sections have been partially buried by sedimentation.
- **ANC historic district/Arlington House**, adverse effects to landscape element **Section 29 forests**, which would be partially cleared. Of the old growth forests categorized as 90, 130, 150, and 220 year old stands in the 1998 forestry survey (Millis et al. 1998), the 90 year old stands and part of a 130 year old stands would be cleared. The older growth stands would not be affected.

Non-Adverse Effects:

- **ANC historic district, general landscape design and contributing monuments**, no adverse effects, the proposed project design has been developed to be compatible with the ANC landscape, and a buffer of trees has been retained on the southeastern side of the APE protecting the viewshed of Section 1.
- **Fort Myer Old Post Chapel**, no adverse effects, the proposed project design is compatible with the historic setting of the Old Post Chapel
- **Fort Myer historic district residences**, no adverse effects, the proposed project design is not intrusive on the viewshed due to distance, topography, and boundary wall design
- **Fort Myer historic district contributing landscapes**, no adverse effects, the proposed project design is not intrusive on the viewshed due to distance, topography, and boundary wall design
- **Arlington House landscape**, no adverse effects, the retention of a woodland buffer not affect the historic character of the Arlington House setting.

Resolution of Adverse Effects

Adverse effects to the ANC historic district landscape were identified. These were to the Boundary Wall in Section 29, and forest in Section 29. Mitigation measures to resolve the adverse effects have been incorporated into the proposed project design, as follows:

- **Boundary Wall:** The Millennium Project design includes a new boundary wall which will incorporate salvaged material from the existing boundary wall and materials stockpiled from previously demolished parts of the boundary wall.
- **Section 29 forests**: The proposed project design preserves most of the forest in Section 29 with the exception of areas immediately adjacent and west of Wampakin Creek. Plantings have been

added to the revised design in the areas where the Section 29 forest would be cleared to further mitigate impacts to the ANC historic district landscape.

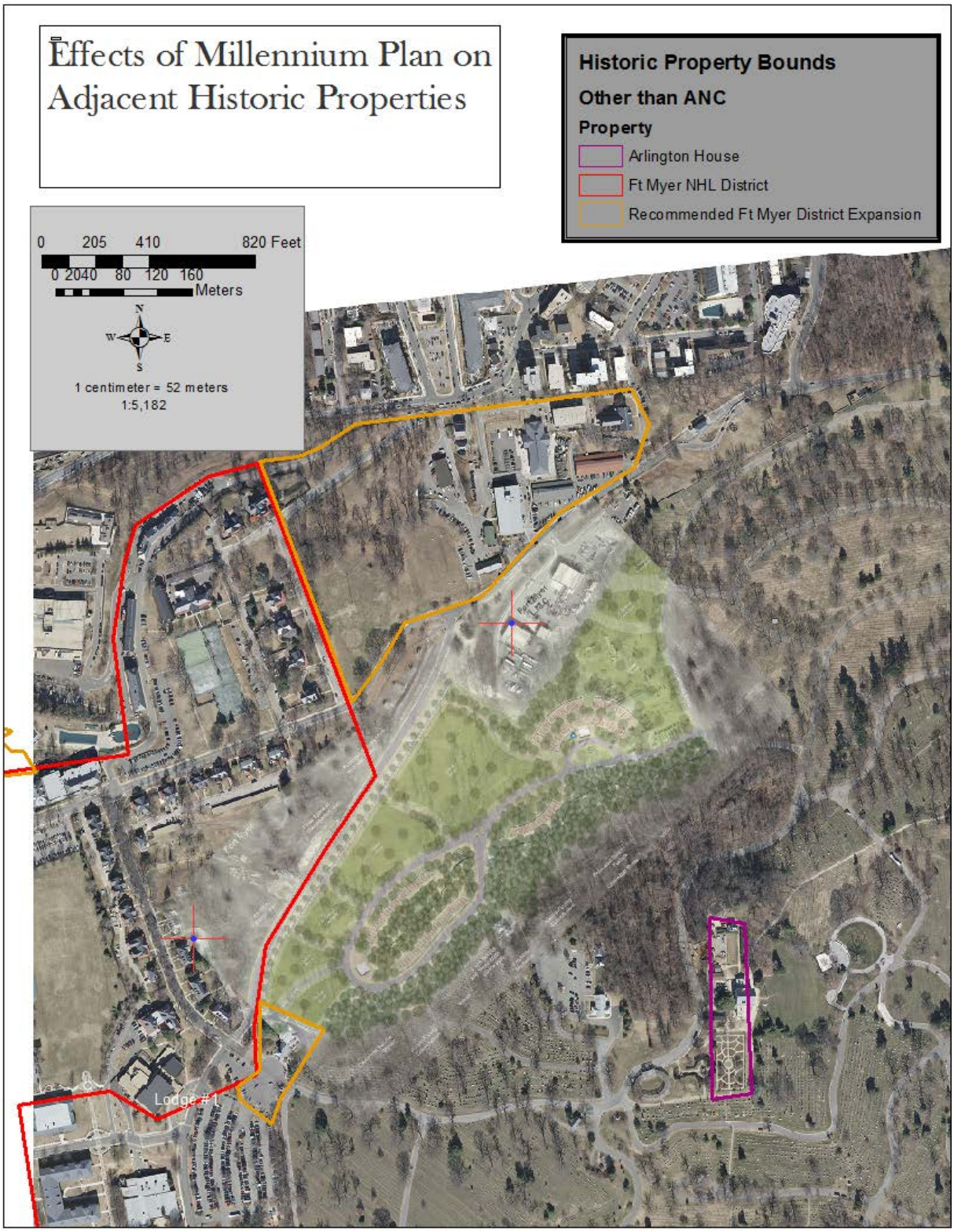


Figure 6 - Historic Property Boundaries Near the Millennium Project (other than ANC)

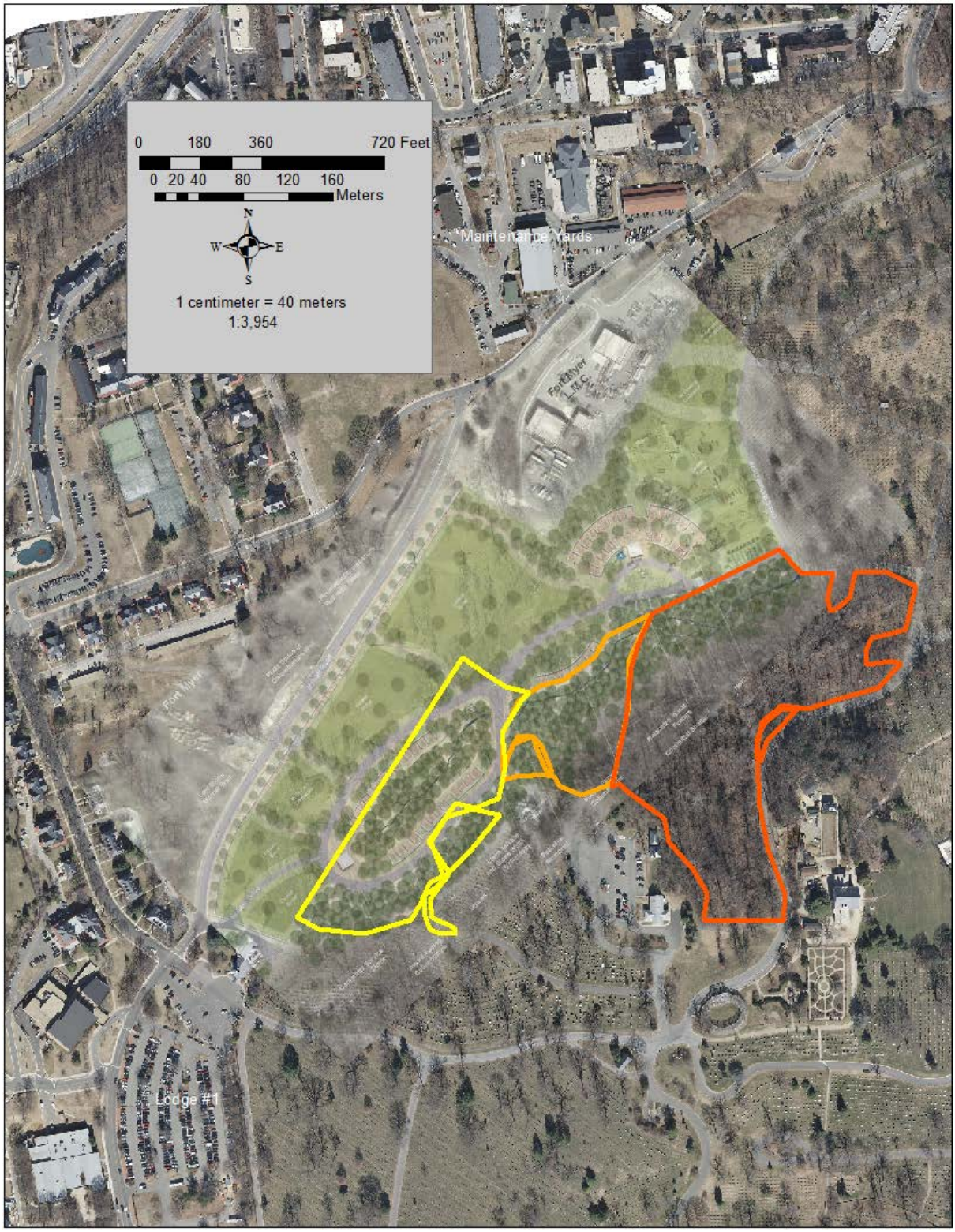


Figure 7 - Millennium Project and Contributing Forest Areas (Yellow = 145 year old, Orange = 150 year old, Red = 235 year old)

•

Chronology of Millennium National Historic Preservation Act, Section 106 Surveys and Consultations

1991 November– Custer (KFS) Phase I archaeology survey on BRAC areas in Fort Myer, includes north half of Fort Myer Annex in Millennium Project area, prehistoric site there recommended for further work, but site is not recorded; no review on file.

1998 June– Batzli, (USACE ERDC-CERL) historic landscape survey of Fort Myer, recommends the Old Post Chapel and Picnic Area as landscapes contributing to the Fort Myer Historic District. Very little justification is given for the inclusion of the Picnic Area other than that McNair Road follows the route of the late 19th-early 20th century electric railway. The Fort Myer NRHP nomination is not updated and there is no boundary increase of the district, and no review of the report known.

1998 September - Millis et al. (Garrow and Associates) Archaeological, architectural, and historic landscape surveys of Section 29.

- The archaeological survey records all of Section 29 except disturbed areas in and near the Maintenance Yard as one large site, 44AR0032 consisting of six loci, 5 prehistoric and 1 historic. They recommend the entire site as NRHP eligible.
- Architectural survey of buildings and structures in Section 29 finds these to not be eligible or contributing to Arlington House.
- The landscape survey evaluates the forest in Section 29 for age and composition, identifying an area of old growth forest maintained since the establishment of Arlington House and forming an aesthetically recognized back drop to the mansion. This area falls within the current NPS property lines. Other areas are evaluated as having been cut over during the Civil War or more recently. Those growing since the Civil War are recommended as eligible along with the old growth area near Arlington House. The areas grown since the Civil War are not visible from Arlington House, but are recommended as contributing to Arlington House in the report.

The Virginia Department of Historic Resources reviews the report and supports the recommendations except for the prehistoric components of 44AR0032 (Letter Cara Metz VDHR to Audrey F. Calhoun NPS, 30 September 1999). Neither Arlington National Cemetery nor USACE are copied on this letter, a copy of which was recently furnished by the NPS.

2005 November 25– ANC sends initial consultation letter to VDHR (letter John C. Metzler ANC to Kathleen S. Kilpatrick VDHR, 25 November 2005, includes preliminary historic properties assessment by USACE Baltimore District based on previous surveys listed above).

2009 June 23 – ANC sends letter to consulting parties indicating that the identification of historic properties on the Millennium Project area of potential effect has been identified, requests response by 8 July 2009 if parties wish to participate in Section 106. (letter dated 23 June 2009, John C. Metzler to Michael Leventhal, Arlington County; Audrey F. Calhoun, NPS; Donald Klima, ACHP; Nancy Witherall, NCPC; Frederick J. Lindstrom, CFA; Kathleen S. Kilpatrick VDHR; Deanna Beacham, Virginia Council on Indians;

2009 July 21 – Michael Leventhal, Arlington County Historic Preservation Coordinator sends comments on draft Memorandum of Agreement to USACE Baltimore District (letter 21 July 2009, Michael Leventhal to Scott Watson, USACE).

2009 July 23 Letter from ACHP to ANC indicating they do not elect to participate in Section 106 for the Millennium Project (Letter, 23 July 2009 Raymond Wallace, ACHP to John C. Metzler, ANC)

2009 July 29 Letter from Marc Holma VDHR to John C. Metzler ANC responding to consultation letter and "Arlington National Cemetery Millennium Project Initial Historic Properties Summary" makes the following recommendations, noting that SHPO has 30 days to respond per 36 C.F.R. § 800

- Invite non-resident federal Indian tribes with "ancestral connects" to participate
- Requests two bound archival copies of 1998 (Batzli) Fort Myer historic landscape survey to evaluate the recommendation that the Picnic Area contributes to the Ft. Myer historic district
- Concurs with Millis et al. (1998) that the forest in Section 29 dating to the Custis-Lee period of occupation contributes to Arlington House
- States that DHR has reviewed Whipple Field (Ft. Myer) and the Old Warehouse Area (ANC) for previous projects and concluded that neither was eligible for the National Register
- Requests copies of the Phase II report for the site in the Fort Myer Pasture/Picnic Area (later recorded as 44AR0043)
- Questions whether there has been Phase I survey in the southwestern portion of the Fort Myer Picnic Area, and recommends Phase I survey if it has not been.

2010 April 1 Letter from Marc Holma VDHR to John C. Metzler, review of Phase II archaeological report on 44AR0043 concurs with recommendation that the site is not eligible.

2010 October – Katz (Louis Berger Group, Inc.) Final Phase II archaeological survey report on 44AR0043 – this project records the site identified in the (Custer) 1991 survey in the north half of the Fort Myer Annex, and conducts further archaeological investigations. Very little archaeological materials were found and the site is recommended as not NRHP eligible. VDHR concurred that 44AR0043 is not NRHP eligible (letter Marc Holma VDHR to John C. Metzler ANC 1 April 2010).

2011 – Versar, Inc. Joint Base Myer-Henderson Hall and Fort McNair Integrated Cultural Resource Management Plan – This document includes a detailed historic context and historic resources

inventory of Fort Myer, which recommends expansion of the National Historic Landmark Historic District (NHL) and beyond that expansion of a historic district eligible for the NRHP, if not at the NHL level. Recommendations include the expansion of the NHL historic district to include the 'Lower Post' near Wright Gate, and the inclusion of the Old Post Chapel as contributing the NRHP district. They do not include the Fort Myer Picnic Area, by this time transferred to ANC, as contributing to the Fort Myer District.

2011 September – Millennium Project, 1st Design Charrett

2011 November - Louis Berger Group/USACE Baltimore District draft ANC Integrated Cultural Resources Plan (ICRMP).

2012 January USACE Norfolk District assumes support role for Arlington National Cemetery cultural resource issues

2012 -February USACE Engineer Research and Development Center, Construction Engineering Research Laboratory begins survey ANC NRHP nomination and revised ICRMP.

2012 March – Invitation to consult on cultural resources issues including ICRMP, PA, and expansion projects is sent from Army National Cemeteries Program to:

Government Agencies:
*Advisory Council on Historic Preservation
**National Park Service
**Commission on Fine Arts
**National Capital Planning Commission
* Virginia Department of Historic Resources
**Arlington County Planning

Federally Recognized Indian Tribes:
Absentee-Shawnee Tribe of Indians of Oklahoma
Cayuga Nation
Delaware Tribe of Indians
Eastern Shawnee Tribe of Oklahoma
Oneida Indian Nation
*[x]Oneida Tribe of Indians of Wisconsin
Onondaga Indian Nation
Saint Regis Mohawk Tribe
Seneca-Cayuga Tribe of Oklahoma
Seneca Nation of New York
Shawnee Tribe
Tonawanda Band of Seneca Indians of New York
Tuscarora Nation
Cherokee Nation
[+]Eastern Band of Cherokee Indians
United Keetoowah Band of Cherokee Indians
Catawba Indian Tribe

Non-Governmental Organizations:
*[x]Virginia Council on Indians
Preserve Virginia
Arlington County Historical Society
*National Trust for Historic Preservation
*[x]Historical Society of Washington D.C.

*Responded and consultations continue
**Participated in design charrettes for Millennium
*[x]Sent ICRMP draft, no comments returned, no enquiries made on expansion projects
[+]Notification of no interest

2012 March – Phase I archaeological field survey for unsurveyed areas and supplemental survey for Millennium Project by USACE Norfolk District (report: Haynes 2012b).

2012 April – Reconnaissance of headstone features in Section 29, determination of not eligible (report: Haynes 2012a)

2012 May – Millennium Project, 2nd Design Charrett

2012 September – ANC historic district NRHP nomination submitted to VDHR, Arlington County, and the National Trust for Historic Preservation

2012 September – Phase II archaeological evaluation of site 44AR0046 by Dovetail Cultural Resource Group (report: Carmody and Blondino 2012)

2012 October - Phase I archaeological survey of Chaffee Place parking lot, site of storm water management measures associated with the Millennium project by USACE (report: Appendix B in Haynes 2012b).

Reports

The following reports, cited above, are available in electronic format. Contact John Haynes, USACE Norfolk District, at john.h.haynes@usace.army.mil for an electronic transfer.

Batzli, Samuel A.
1998 *Fort Myer, Virginia: Historic Landscape Inventory*. US Army Corps of Engineers, Construction Engineering Research Laboratories. Champaign, Illinois.

Carmody, Michael and Joseph R. Blondino
2012 *Phase II Archaeological Testing and Assessment of Site 4AR0046, Arlington County, Virginia*. Dovetail Cultural Resource Group I, Inc., Fredericksburg, Virginia.

Custer, Jay F.
1991 Draft *Phase I Archeological Investigations, BRAC Project Areas, Fort Myer, Arlington County,Virginia*. Prepared for the Baltimore District, U.S. Army Corps of Engineers, by KFS Historic Preservation Group and Kise, Franks and Straw, Philadelphia.

1992 *Phase I Archeological Investigations, BRAC Project Areas, Fort Myer, Arlington County,Virginia*. Prepared for the Baltimore District, U.S. Army Corps of Engineers, by KFS Historic Preservation Group and Kise, Franks and Straw, Philadelphia.

Haynes, John H.
2012a *Reconnaissance of Headstone Drains and Footbridges in Section 29 of Arlington National Cemetery/Arlington House.* US Army Corps of Engineers, Norfolk District, Norfolk, Virginia.

2012b *Additional Archaeological Survey and Evaluations for the Arlington National Cemetery Millennium Project, Arlington County, Virginia*. US Army Corps of Engineers, Norfolk District, Norfolk, Virginia.

Katz, Gregory
2010 *Phase II Evaluation of Site 44AR0043 at the Former Fort Myer Picnic Area, Arlington National Cemetery, Virginia*. Prepared by Louis Berger Group, Washington D.C., for the Baltimore District, U.S. Army Corps of Engineers.

Millis, Heather, Jeff Holland, Todd Cleveland, and Bill Nethery
1998 *Cultural Investigations at Section 29 at Arlington House, the Robert E. Lee Memorial, Arlington County, Virginia.* Garrow & Associates, Inc., Chapel Hill, North Carolina.

Smith, Adam, Meagan W. Tooker, and Susan I. Enscore
2012 *Historic Resources Inventory for Arlington National Cemetery, Arlington, Virginia.* US Army Corps of Engineers, Engineer Research and Development Center, Champaign, Illinois.

Versar, Inc.
2011 *Integrated Cultural Resources Management Plan for Fort Myer Henderson Hall, Virginia and Fort McNair, District of Columbia, 2011-2015.* Versar, Inc., Springfield, Virginia.

For more information regarding the on-going consultation or full length reports from this summary, please contact John Haynes at 757-201-7008 or John.H.Haynes@usace.army.mil.

APPENDIX C:

Stream Restoration

I. Stream and Resource Protection Area (RPA) Impacts

Pursuant to the jurisdictional determination issued by the U.S. Army Corps of Engineers (COE) dated November 28, 2011 (#NAO-2011-02220), there are Waters of the U.S. (WOUS) present on the Millennium site, as well as RPA's along the perennial stream channels. While no wetland impacts are proposed as part of this project, the proposed plan (dated October 23, 2012) does impact both intermittent and perennial streams and the associated RPA Buffer.

Over the past several years as the development of this project has progressed, reductions in the amount of impacts to these natural resources have been achieved with each subsequent design. The result of these design efforts is a plan that represents the Least Environmentally Damaging Practicable Alternative (LEDPA). A summary of these impact reductions (to both streams and RPA buffers) is provided below in Table 1:

Table 1. Summary of Stream and RPA Impacts

Resource Type	*Impact Lengths for Specified Streams (lf of stream and buffer width for RPA)*				
	Current Condition	*12/01/09*	*07/12*	*09/25/12*	*11/06/12 (Proposed)*
Average RPA Buffer	100	16	40	64	81
Intermittent Stream (R4)	372	370	291	216	148
Perennial Stream (R3)	1,680	758	363	148	140
Total Stream Impact	**0**	**1,128**	**654**	**364**	**288**

A more detailed analysis of the evolution of the Millennium project from the December 1, 2009 plan to the draft layout dated November 6, 2012, as it relates to stream and RPA buffer impacts, is presented in Appendix 1.

To offset the unavoidable proposed impacts to the existing streams and their RPA buffers, the remaining stream channels and buffer will be restored (1,879 linear feet, existing length; 1,754 linear feet, proposed length; and ±0.3 ac of RPA buffer)[1]. The restoration approach is described in detail in the following section.

II. Stream and Buffer Restoration: On Site

As part of the Arlington National Cemetery (ANC) Millennium project the existing stream channels, where not impacted, will be restored and integrated into the overall project as a natural landscape amenity (as shown on the most recent design layout, dated November 6, 2012, Figure 1) where they are severely degraded. Natural Channel Design (NCD) Techniques will be utilized to restore the existing degraded stream channels. Unlike conventional engineering practice, the goal of NCD is not simply the abatement of stream bank erosion or the maximization of channel conveyance (typically done with riprap and concrete), but to restore the balance of flow and sediment in the stream system and to reestablish natural hydraulic and ecologic functions. This is accomplished by mimicking, as much as possible, the characteristics (channel dimension, planform geometry, slopes) of a stable, "natural" system. Further, a stream's floodplain connection is reestablished, allowing large flow events (those

[1] *Given the site constraints and the dimensions needed to achieve a stable stream pattern, the proposed stream length is shorter than the existing stream length.*

equal to or greater than the ±0.8 to 1.5 year storm event) to access, spread out, and slowdown in the floodplain. The reestablished floodplain connection helps reduce downstream water quality by improving nutrient (nitrogen and phosphorus, etc.) and sediment uptake in the floodplain, increasing evapotranspiration, improving riparian habitat, and raising local ground water tables. By establishing a stable channel geometry and reestablishing a floodplain connection, excessive bank and bed erosion can be arrested, in-stream habitat improved, and the downstream transport of pollutants reduced.

In addition to the stream restoration, a small area (approximately 0.3 acre) of the stream RPA buffer that is currently a maintenance yard will be restored and reforested, consistent with the planting guidelines presented in *Riparian Buffer Modification and Mitigation Guidance Manual* prepared by the Virginia Department of Conservation and Recreation Chesapeake Bay Local Assistance, September 2003 – Reprinted 2006.

Based on the existing stream condition and the proposed Millennium project site plan (dated November 6, 2012), the stream restoration can be broken down into the three sections shown in Figure 1. The streams in each section will be restored to varying degrees dependent upon their existing degree of degradation, flow rate, and the proposed adjacent land use.

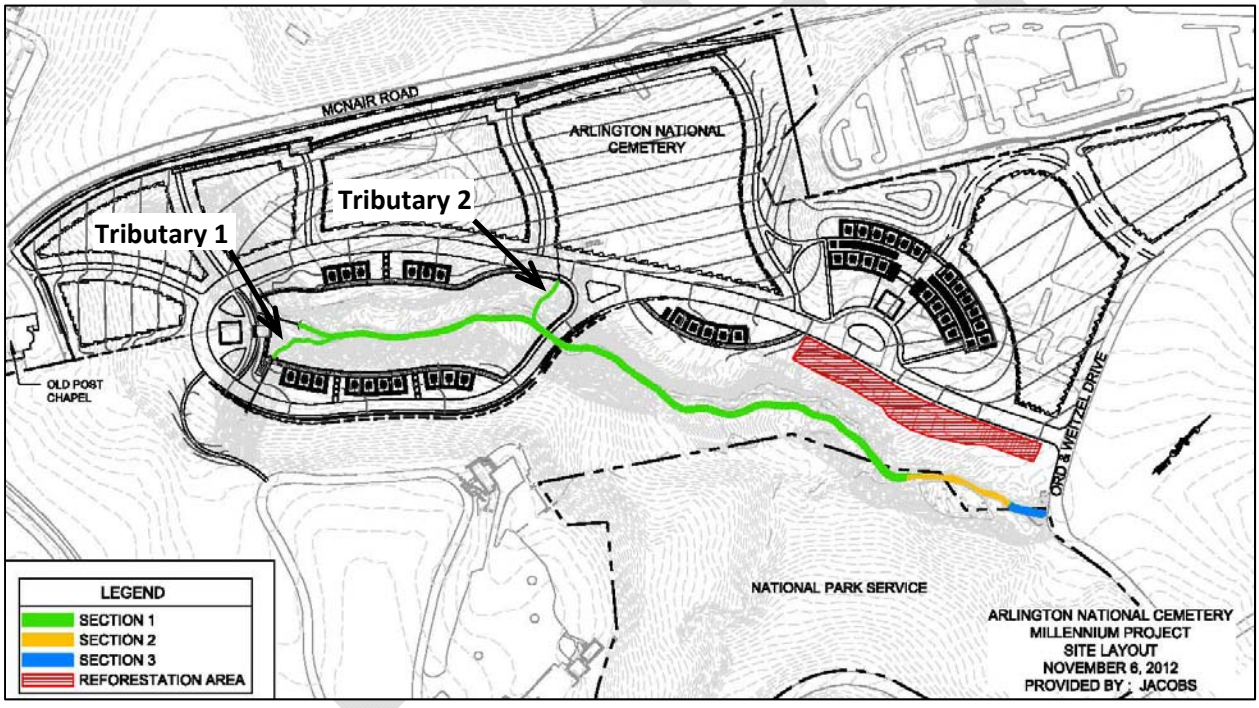


Figure 1. Proposed stream restoration sections and reforestation area in relation to the overall Millennium Project.

A. Section 1 (± 1,477 l.f.)

Section 1 contains the most degraded reaches of existing stream and will require the most intensive restoration effort. Currently, the streams in this section are deeply incised (up to 8 feet, preventing storm flows from accessing the floodplain) and have raw, actively, eroding banks. This section includes the restoration of the main stream, from the point where the stream will flow from a proposed pipe on

the southeast end of the loop road and will continue to where it ties into a relatively stable section of stream located on National Park Service property. In addition to the restoration of the main stream, this section also includes two tributary streams. Tributary 1 is located at the upstream end of the project and flows from south to north into Reach 1. Tributary 2 is located just upstream of the loop road crossing and flows from northwest to southeast into Section 1.

The reaches in this section will be restored by establishing a stable cross section sized to convey the post-cemetery construction 1.5-year flow rates within its banks. In addition, the restored stream invert will be reconnected to the floodplain. The proposed riffle cross sectional dimensions for Section 1 range from 6.5 feet wide by 0.7 feet deep at the upstream end to 11.0 feet wide by 1.2 feet deep at the downstream end. Tributaries 1 and 2 will be 5 feet wide by 0.6 feet deep. Photos 1 and 2 (below) compare the existing condition to the proposed conditions where the stable stream cross section is raised and reconnected to its floodplain.

Photo 1. Existing stream channel with approximate cross section superimposed

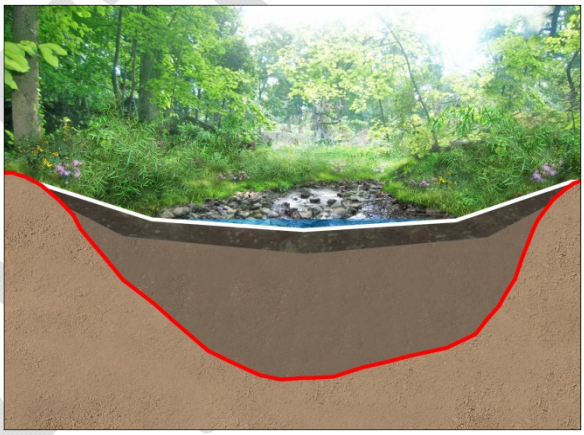


Photo 2. Rendering of proposed condition superimposed on the existing stream channel.

The proposed stream restoration area is located on a headwater stream that begins at the outlets of pipes, the contributing watershed is fully developed, and there is little to no sediment input into the system. In addition, the in-situ stream bed sediment is not of sufficient size to withstand the erosive flows resulting from this urban watershed. As such, the proposed restoration will be designed as a threshold channel to prevent future erosion and ensure long term stability. To achieve the threshold condition, 2 feet (or two times the necessary mean diameter, or D_{50}, of the cobble size, whichever is greater) of reinforced bed material (a mixture of larger cobble, small cobble, gravel, sand, and topsoil) will be placed in the stream channel. The larger cobble component of the material is sized to withstand the sheer stress of the storm flows in the restored stream channel. The smaller material provides added stability by helping to "lock" the larger cobble together and provide filtration, infiltration, and hyporheic flow capacity. In addition, the smaller material is redistributed within the channel by the stream flows, creating a naturally defined thalweg (the deepest part of the channel) and point bars (areas of deposition on the inside of meanders). The cobbles and gravels used in the reinforced bed material will be rounded river washed stone that is brownish/tan in color. When initially installed this material will be "clean" (and thus "whiter" due to quartzite), but will stain over time. In addition to the reinforced bed material, in-stream structures such as step pools, s-vanes, boulder riffles, boulder pools, and modified cross vanes will be utilized to provide energy dissipation, grade control, and reduce the shear stress on the stream banks. Rock used to construct the in-stream structures can similarly be selected

from local quarries (diabase), or selected from other sources to obtain colors more compatible with the project architecture and landscape.

Where the stream flows under the loop road, either a bottomless culvert or a depressed box culvert will be utilized for the road crossing to minimize aquatic resource impacts.

Following the restoration of the channel, the area will be replanted with either native riparian plantings (for a forested condition), or with native herbaceous material (for a more manicured condition). The final plant palette will depend on the final overall design plan for the Millennium project, and the specific species will be selected from the published list of recommended plantings provided by Arlington County[2], and consistent with the planting guidelines presented in *Riparian Buffer Modification and Mitigation Guidance Manual* prepared by the Virginia Department of Conservation and Recreation Chesapeake Bay Local Assistance, September 2003 – Reprinted 2006.

B. Section 2 – (± 200 l.f.)

This section of stream is fairly stable with a few areas of stream bank erosion. Section 2, is located from just beyond where the stream flows onto NPS property to just upstream of Ord and Weitzel Drive. Photos 3 and 4 (below) document the existing condition of Reach 2.

Photo 3. Looking downstream at the existing stream channel (maintenance yard off picture to left).

Photo 4. Looking downstream at the existing stream channel (approx. 30 feet downstream of Photo 3).

The restoration concept for this section would be to provide "spot stabilization" improvements of the existing areas of stream bank erosion. Following the restoration of this section, the disturbed areas will be replanted with native riparian plantings. As with Section 1, the final plant palette for this section will be selected from the published list of recommended plantings provided by Arlington County, and consistent with the planting guidelines presented in Riparian Buffer Modification and Mitigation Guidance Manual prepared by the Virginia Department of Conservation and Recreation Chesapeake By Local Assistance, September 2003 – Reprinted 2006.

[2] *Simmons, Rod and Zell, Greg. Keeping It Natural: A Local Guide to the Use of Native Plants For Natural Land Restorations and Post-Disturbance Project Plantings Within Natural Woodland Sites, Riparian Buffers and Forest-Edge Ecotones in Arlington County and the City of Alexandria in Virginia. November 24, 2009.*

C. Section 3 (± 77 l.f.)

Section 3 is located in the area just upstream of the culvert under Ord and Weitzel Drive. Currently, a headcut is developing as the stream flows into the existing culvert (from a combination of steeper gradient and the culvert's flow concentration) and there is evidence of erosion around the sides and bottom of the culvert. If left unattended, the headcut will progress upstream and threaten the stability of Section 2.

This section will be restored using a series of step pools to stop the head cut and provide a stable and attractive transition between Section 2 and the culvert under Ord and Weitzel Drive. Step pools are series of cascades and pools that provide grade control and energy dissipation. The rock used to construct these structures will be large (Class III size) rock. A naturalized brownish/tan color landscaping quality rock that blends into the landscape could be used as opposed to grey/blue "blocky" diabase rock that is typically seen in many local stream restoration projects[3]. Photo 5 shows the existing condition of the stream channel. Photos 6 and 7 are examples of a step pool system using diabase rock immediately after construction and 3-years post-construction, respectively.

Photo 5. Looking downstream at the culvert under Ord and Weitzel Drive.

[3] *Quarried diabase rock typically used in stream restoration projects in this region tends to be rectangular with sharp edges versus rounded in shape, and is not weathered. Due to its rectangular shape and stark color contrast between the blue/grey rock and the surrounding landscape, it can take several years for the natural appearance of a restoration project to fully develop (i.e. the rock to weather and the surrounding vegetation to mature). By utilizing a more weathered rock with a brown/tan coloring, the natural appearance could be achieved immediately following the completion of construction if project budget restrictions can be met.*

Photo 6. Step pool example (after construction).

Photo 7. Step pool system (same as Photo 6), 3-Years post-construction.

III. Stream Impacts: Permitting

Through the iterative design process, proposed impacts to WOUS have been reduced to the point where they can be permitted using a State Programmatic General Permit (SPGP), or a combination of an SPGP and Nationwide Permit #27. No compensatory mitigation will be required given the minimal proposed impacts (<300 lf). This result was achieved through the Design Team's efforts to comply with the Clean Water Act Section 404(b)(1) Guidelines that require the following three step process be followed in order to achieve a permittable plan: 1) avoid impacts to the maximum extent practicable[4], 2) minimize unavoidable impacts to the maximum extent practicable, and 3) provide compensatory mitigation for those unavoidable impacts that exceed de minimis thresholds under the Clean Water Act and Virginia Water Protection Permit program. By following this procedure and achieving significant reductions in proposed impacts to WOUS for the project, representatives of the Corp of Engineers (COE) and Virginia Department of Environmental Quality (DEQ) stated at a pre-application meeting held to present the proposed plan that it is reasonable to assume it can be permitted as currently proposed.

IV. Stream Restoration: Water Quality Benefits

A. Estimate of Pollution Reduction from Stream Restoration

With the exception of Section 2 (described above), the streams located on the Millenium project site are deeply incised (preventing storm flows from accessing the floodplain) and have raw, actively, eroding banks. In their current state, they are effectively serving as conduits - transporting and providing pollutants (i.e. total nitrogen, total phosphorus, and total suspended solids) to downstream receiving waters. Through the use of NCD techniques, the proposed stream restoration component of this project will restore a stable cross section and planform, resulting in approximately 1,501 linear feet of restored stream channel (this length does not include the 200 linear foot section of spot improvements) of a

[4] *The term "practicable" is defined in EPA's Section 404(b)(1) Guidelines (40 CFR §§ 230.1-230.80) as "available and capable of being done after taking into consideration cost, existing technology, and logistics in light of overall project purposes".*

unnamed tributary to the Potomac River, reconnect it to its floodplain, and reduce the pollutant load. The Chesapeake Bay Program's Chesapeake Bay Phase 5.3.2 Community Watershed Model (CBCWM)[5] presents pollutant removal rates (CBP 2003)[6] achieved through stream restoration.

Since the publication of CBP 2003, the scientific community has performed additional research showing that these removal rates are significantly (i.e. orders of magnitude) underestimated. In August 2011, the Chesapeake Stormwater Network (CSN) published "CSN Technical Bulletin No. 9 Nutrient Accounting Methods to Document Local Stormwater Load Reductions in the Chesapeake Bay Watershed" (CSN 2011) which proposed interim pollutant removal rates.[7] Per CSN 2011, these rates are to be used until the University of Maryland completes the stream restoration research review, and the BMP Expert Panel has an opportunity to review its findings (ongoing). Table 1 compares the pollutant load reductions resulting from stream restoration as presented in CBP 2003 and CSN 2011:

Table 2. Comparison of CBP 2003 and CSN 2011 Stream Restoration Pollutant Load Reduction Rates

Pollutant	***CBP 2003 Removal Rate***	***CSN 2011 Removal Rate***
Total Nitrogen	0.02 lb/lf-yr	0.2 lb/lf-yr
Total Phosphorus	0.0035 lb/lf-yr	0.068 lb/lf-yr
Total Suspended Solids	2.55 lb/lf-yr	310 lb/lf-yr

Despite the "interim" label, it is justifiable to use the CSN 2011 values in order to determine the pollutant removal benefit of the proposed stream restoration. First, the CSN recommended the use of these rates until a final determination is made by the University of Maryland panel currently reviewing them[8]. Second, when the CSN 2011 TSS load reductions are converted to a stream bed and bank erosion rate, they indicate a yearly erosion rate that, anecdotally, is consistent with stream bank erosion witnessed throughout Fairfax County.[9] The CSN 2011 removal rates estimate a reduction of 2.4 inches per year of stream bed and bank erosion in Snakeden Branch while the CBP 2003 removal rates estimate less than 0.2 inches per year of stream bed and bank erosion.

[5] *U.S. EPA, 2010. Chesapeake Bay Phase 5 Community Watershed Model In preparation EPA XXX-X-XX-010 Chesapeake Bay Program Office, Annapolis, Maryland. December 2010.*

[6] *Urban Stormwater Workgroup. "Stream Restoration in Urban Areas Crediting Jurisdictions for Pollutant Load Reductions." Chesapeake Bay Program. 26 June 2009. Available at: http://archive.chesapeakebay.net/pubs/subcommittee/nsc/uswg/BMP_Stream_Restoration_and_Pollutant_Load_Reductions.PDF.*

[7] *Chesapeake Stormwater Network. "CSN Technical Bulletin No. 9: Nutrient Load Accounting Methods to Document Local Stormwater Load Reductions in the Chesapeake Bay Watershed. 15 August 2011. Available at: http://www.chesapeakestormwater.net/whatsnew/new-release-technical-bulletin-no-9.html.*

[8] *Per email correspondence (dated November 7, 2012) between Scott Petrey (WSSI) and William P. Stack (CWP), the stream restoration panel expects to complete their review in mid-2013.*

[9] *Staley, Nathan. Wetland Studies and Solution, Inc. Memorandum – Chesapeake Bay Watershed Model – Update on Pollutant Reductions for Stream Restoration. January 24, 2012.*

Table 3 presents a summary of the total pollutant load reduction resulting from the stream restoration.

Table 3. Pollutant Removal Rates (Per 2011 CBWM)

Pollutant	*Removal Rate*	*Restored Stream Length*	*Total Pollutant Load Reduction*	*TSS Load Reduction (by Volume)**
Total Nitrogen	0.2 lb/lf/yr	1,554 lf	311 lb/yr	---
Total Phosphorus	0.068 lb/lf/yr	1,554 lf	106 lb/yr	---
Total Suspended Solids	310 lb/lf/yr	1,554 lf	481,740 lb/yr	198 (cy/yr)
**Based on an assumed soil density of 90 lb/cf*				

B. Phosphorus Loading Analysis – The Keystone Pollutant in the Chesapeake Bay Preservation Act

To determine the overall effect of the portion of the proposed project related to streams and RPA buffers on water quality, an analysis of the proposed project's effect on the net total phosphorus (the keystone pollutant in the Chesapeake Bay Preservation Act) loading was performed. By comparing the increases in loading from the proposed land use changes in the RPA (both land use change and buffer encroachment) to the decreases in loading fom the stream restoration, the project's overall environmental benefit can be determined. Enclosures 1 and 2 depict the existing and proposed land uses, respectively, within the 100 foot RPA Buffer on the Arlington National Cemetery Millennium Project site. Total phosphorus loading rates from the CBCWM were used. As discussed in the previous section, the total phosphorus removal rates for stream restoration from CSN 2011 were used. The Buffer Equivalency calculation from the Chesapeake Bay Local Assistance Department (CBLAD) Information Bulletin 3, dated March 1991 was used to determine the impact of encroachments into the 100 foot RPA buffer.

Table 4 is a summary of the net phosphorus loading calculation. A detailed calculation is presented in Appendix 2. **As summarized by Table 4, the proposed project yields a net reduction in total phosphorus loads which will result in improved water quality in the Millennium project stream and downstream receiving waters, even with the construction of the proposed cemetery expansion.**

Table 4. Phosphorus Loading Summary (lb of TP/yr)

Phosphorus Load Changes			*Net Phosphorus Load*
From Change in Land Use	*From Buffer Reduction*	*From Stream Restoration*	
1.98	0.29	(106)	**(103.4)**

V. RPA Buffer Impacts: Approval Process

Pursuant to the Coastal Zone Management Act, in 1986, the National Oceanic and Atmospheric Administration (NOAA) approved Virginia's Coastal Zone Management Program (CZM Program). As a result, any proposed federal activity that is likely to affect any coastal land, water or natural resources of Virginia's designated coastal resources management areas, must be consistent, to the maximum extent practicable, with the enforceable policies of Virginia's CZM Program. In Virginia, the Coastal Lands

Management program is an enforceable policy administered by CBLA through the Bay Act and the Regulations.

NOAA has determined that the Coastal Zone Management Act does not grant states regulatory authority over activities on federal lands, so there are no Chesapeake Bay Preservation Areas (CBPAs) designated on federal lands located in Virginia and projects proposed on federal lands are not directly subject to the Bay Act. However, while CBPAs are not locally designated on federal lands, pursuant to the Coastal Zone Management Act of 1972, as amended, federal activities affecting Virginia's coastal resources must be consistent with the Bay Act and the Regulations as one of the enforceable programs of Virginia's CZM Program. Thus, federal agencies have the responsibility to be consistent with the provisions of the Regulations, § 9 VAC 10-20-10 et seq., including adherence to the performance criteria applicable to lands within locally designated CBPAs. As a result, projects on federal lands that include land disturbing activity must adhere to the general performance criteria, especially with respect to minimizing land disturbance (including access and staging areas), retaining indigenous vegetation and minimizing impervious cover.

Through the iterative design process that has been followed for the ANC Millennium Project, these performance criteria are being met. A summary of the extent to which impacts to the RPA buffer have been reduced is contained in this document. Detailed computations demonstrating compliance with the Bay Act through the following steps:

- Preparation of an RPA Plan (using the restored stream alignment as a core RPA component),
- Preparation of an RPA Exception Request (that documents the changes made during design development to comply with the Bay Act Regulations),
- And preparation of an associated Water Quality Impact Assessment (WQIA) prepared in accordance with state regulations.

In accordance with CZM Program, the above documents will be submitted for review, comment, and approval by the appropriate ANC Officer. Arlington County will serve as a coordinating and commenting agency, but will not have regulatory authority over the approval of these documents related to ANC Compliance with the Bay Act.

As demonstrated in the previous section, the WQIA will clearly demonstrate a net improvement of water quality resulting from the proposed actions in the RPA.

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APPENDIX 2: NET PHOSPHORUS LOADING CALCULATIONS

Step 1: Determine the Change in Pollutant Load based on the pollutant loading rates found in the Chesapeake Bay Phase 5.3.2 Community Watershed Model (CBCWM), page 10-7, Table 10-2.

Table A-1. Phosphorus loading analysis using the CBCWM

Proposed Conditions				Existing Conditions				Change In Pollutant Load
Land Use	**Area**	**Pollutant Loading Rate**	**Total Pollutant Load**	**Land Use**	**Area**	**Pollutant Loading Rate**	**Total Pollutant Load**	
Forested[1]	5.08 ac	0.13 lb/ac-yr	0.66 lb/yr	Forested[1]	4.98 ac	0.13 lb/ac-yr	0.65 lb/yr	
---	---	---	---	Impervious[3]	0.1 ac	2.49 lb/ac-yr	0.25 lb/yr	
Subtotal	**5.08 ac**		**0.66 lb/yr**		**5.08 ac**		**0.90 lb/yr**	**(0.24) lb/yr**
Turf[2]	0.21 ac	0.89 lb/ac-yr	0.19 lb/yr	Forested[1]	0.21 ac	0.13 lb/ac-yr	0.03 lb/yr	0.16 lb/yr
Impervious[3]	0.87 ac	2.49 lb/ac-yr	2.17 lb/yr	Forested[1]	0.87 ac	0.13 lb/ac-yr	0.11 lb/yr	2.06 lb/yr
Totals	**6.16 ac**		**3.02 lb/yr**		**6.16 ac**		**1.04 lb/yr**	**1.98 lb/yr**

[1] Pollutant loading rate from Chesapeake Bay Phase 5.3 Community Watershed Model, Page 10-7, Table 10-2, "Forest, woodlots, and wooded".

[2] Pollutant loading rate from Chesapeake Bay Phase 5.3 Community Watershed Model, Page 10-7, Table 10-2, "high intensity pervious urban".

[3] Pollutant loading rate from Chesapeake Bay Phase 5.3 Community Watershed Model, Page 10-7, Table 10-2, "high intensity impervious urban".

Step 2: Use the Buffer Equivalency Calculation[1] to determine the effect of the buffer encroachment (i.e. proposed cemetery infrastructure) on the reduction of total phosphorus.

Determine pollutant load (L) generated by the buffer (pre-development):

L = 0.000047 (lb/in-ft) x annual rainfall (in) x lot width (ft)
L = 0.000047 lb/in-ft x 40 in x 3,125 ft^2
L = 5.88 lb

Determine the maximum load (R_{MAX}) capable of being removed by the full buffer:

R_{MAX} = L x 0.4
R_{MAX} = 5.88 x 0.4
R_{MAX} = 2.35 lb

Determine the actual load (R_{ACT}) removed by the remaining buffer (in this case 20' encroachment):

R_{ACT} = L x EFF
R_{ACT} = 5.88 x .35
R_{ACT} = 2.06 lb

[1] Chesapeake Bay Local Assistance Department. "Information Bulletin #3: Draft Buffer Equivalency". March 1991.
[2] Computed as a baseline length along the stream channel and multiplied by 2 (buffer exists on each side).

Where,

EFF = Removal efficiency of the remaining buffer

Determine the net effect on the load (RR) by the proposed buffer encroachment:

$RR = R_{MAX} - R_{ACT}$
RR = 2.35 lb - 2.06 lb
RR = 0.29 lb

Step 3: Determine the total change in pollutant load (TL) from the proposed project.

TL = Change in Pollutant Load (From Step 1,Table A-1) + RR (From Step 2)
TL = 1.98 lb/yr + 0.29 lb/yr
TL = 2.27 lb/yr

Step 4: Determine total phosphorus load reduction ($TP_{REMOVED}$) the pollutant load reduction rates for stream restoration from CSN 2011.

Table A-2. Pollutant Removal From Proposed Stream Restoration

Parameter	Quantity	TSS Load Reduction (by Volume)*
Stream Rest. Length (ft)	1,554	---
TN (lb/yr)	311	---
TP (lb/yr)	106	---
TSS (lb/yr)	481,740	198 (cy/yr)
*Based on an assumed soil density of 90 lb/cf		

Step 5: Determine net effect of the proposed project on the total phosphorus load (NP).

$NP = TL - TP_{REMOVED}$
NP = 2.27 lb/yr - 105.67 lb/yr
NP = (103.40) lb/yr

APPENDIX D:

LIST OF PREPARERS

LIST OF PREPARERS

Name	Organization	Specialty	Years of Experience
Susan Conner	U.S. Army Corps of Engineers, Norfolk District	Environmental Protection Specialist	11
Kristen Donofrio	U.S. Army Corps of Engineers, Norfolk District	Biological Scientist	3
John Haynes R.P.A.	U.S. Army Corps of Engineers, Norfolk District	Archaeologist	33
Robert Huntoon P.E.	U.S. Army Corps of Engineers, Norfolk District	Geotechnical Engineer	8
Martin Underwood	U.S. Army Corps of Engineers, Norfolk District	Biologist	17
Daniel Deible	Senior Landscape Architect	Jacobs	25
Harold Rodriguez, P.E.	Senior Civil Engineer	Jacobs	15
Michael S. Rolband P.E., P.W.S., P.W.D., LEED® AP	Wetland Studies and Solutions, Inc.	President	29
Frank R. Graziano P.E.	Wetland Studies and Solutions, Inc.	Vice President-Engineering	26
Scott R. Petrey	Wetland Studies and Solutions, Inc.	Associate Environmental Scientist	13

APPENDIX E:
Coastal Zone Management Act
Consistency Determination

DEPARTMENT OF THE ARMY
NORFOLK DISTRICT, CORPS OF ENGINEERS
FORT NORFOLK, 803 FRONT STREET
NORFOLK, VIRGINIA 23510-1096

REPLY TO
ATTENTION OF:

November 8, 2012

Planning and Policy Branch

Ms. Ellie L. Irons
EIR Manager
Office of Environmental Impact Review
Virginia Department of Environmental Quality
629 East Main Street
Richmond, VA 23219

Dear Ms. Irons:

I have enclosed the U.S. Army Corps of Engineers, Norfolk District's Coastal Consistency Determination (CCD) for the expansion of the Arlington National Cemetery (ANC), known as the Millennium Project. The Millennium Site will be developed to increase burial space at ANC. Building and site element construction shall be suitable for the environment and complimentary with the architectural theme and considerations of the National Cemetery at Arlington.

The Norfolk District has determined that the proposed Federal agency action has reasonably foreseeable effects on Virginia's coastal uses and resources and is consistent to the maximum extent practicable with the enforceable policies of Virginia's Coastal Resource Management Program.

Should you have any questions regarding this CCD, please contact Ms. Kristen Donofrio at (757) 201-7843.

Sincerely,

Michelle L. Hamer

for Susan L. Conner
Acting Chief, Planning and Policy Branch

Coastal Zone Management Act (CZMA) Consistency Determination For the Arlington National Cemetery Millennium Project at the Arlington National Cemetery located in Arlington, VA

This document provides the Commonwealth of Virginia with the U.S. Army Corps of Engineers, Norfolk District's (Corps), on behalf of Arlington National Cemetery, Coastal Consistency Determination (CCD) under CZMA section 307(c)(1) and 15 CFR Part 930, sub-part C, for the Millennium Project at the Arlington National Cemetery located in Arlington, Virginia. The information in this CCD is provided pursuant to 15 CFR Section 930.39.

Proposed Federal Agency Activity

The proposed federal action is the expansion of the Arlington National Cemetery (ANC), known as the Millennium Project. The Millennium Site will be developed to increase burial space at ANC. Building and site element construction shall be suitable for the environment and complimentary with the architectural theme and considerations of the National Cemetery at Arlington.

The Millennium project is located on a 27-acre site consisting of Section 29 of the existing ANC and the old picnic grounds of Joint Base Ft. Myer/Henderson Hall (JBM-HH). The location is a sensitive site, both in terms of its history and its environment. The site contains a significant portion of Arlington Woods, an area long associated with the Custis-Lee Mansion and Arlington House. The project will preserve and protect the Woods to the greatest extent possible. There is also an existing stone wall dating to the 1870's that crosses the site marking the location of the historic and current boundary of ANC. The wall has been identified as a contributing element of the ANC historic landscape. Plans provide that portions of this historic wall would be deconstructed and relocated along McNair Road. The restored wall will be part of the Perimeter Columbarium Wall. In addition, an existing stream flows across the site, ranging from a slight trickle to a significant element during rain events. The project will restore, protect and enhance the existing stream through a series of carefully managed improvements.

As proposed, the project will provide at least 32,000 new first interment burial spaces, including casket burial sections, in-ground sites for ashes of cremated service members and both columbarium niche courts and niche walls. The site will include two (2) assembly areas for service participants including Committal Service Shelters. Supporting facilities include water fountains, waterlines, sanitary sewer, storm drainage, underground electrical and communications/information systems, stream restoration, landscaping, retaining walls, perimeter fencing, vehicle and pedestrian access roads and walks, and security systems.

Background

More than four million people visit ANC annually, many coming to pay final respects at graveside services. ANC performs 27 to 30 funeral services each day. Cemetery space is limited and ANC is projected to reach full capacity in 2025. A space study conducted by the Center for Army Analysis indicated the average burial frequency at 27 per day, resulting in a total of 7,020

burials per year. Current trends show a distribution of 37% for first internment (in-ground burial), 40% for columbaria, and 23% for second internment (in-ground burial for spouse in same plot as first interment). The ANC Millennium project will provide additional burial space and supporting facilities to support the ongoing mission of ANC:

> "On behalf of the American people, lay to rest those who have served our nation with dignity and honor, treating their families with respect and compassion, and connecting guests to the rich tapestry of the cemetery's living history, while maintaining these hallowed grounds befitting the sacrifice of all those who rest here in quiet repose."

Enforceable Policies

The Virginia Coastal Resources Management Program (VCP) contains the below enforceable policies (A-I). More information can be found in the Final Environmental Assessment for this project.

A. Fisheries Management

This program stresses the conservation and enhancement of finfish and shellfish resources and the promotion of commercial and recreational fisheries to maximize food production and recreational opportunities.

There are no commercial or recreational fisheries located in the project site; therefore, no impacts are anticipated.

B. Subaqueous Lands Management

This management program for subaqueous lands establishes conditions for granting or denying permits to use state-owned bottomlands based on considerations of potential effects on marine and fisheries resources, wetlands, adjacent or nearby properties, anticipated public and private benefits, and water quality standards established by the Department of Environmental Quality, Water Division.

No subaqueous lands will be impacted by this project; therefore, adherence to this program is not applicable.

C. Wetlands Management

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

Approximately 8,400 sq ft of non-tidal wetlands are present in the project area. None of the wetlands are located within an area of disturbance for this project. Adherence to this program is not applicable.

D. Dunes Management

Dune protection is carried out pursuant to the Coastal Primary Sand Dune Protection Act and is intended to prevent destruction or alteration of primary dunes.

There are no sand dunes located in the project area; therefore, no impacts are anticipated.

E. Non-point Source Pollution Control

Virginia's Erosion and Sediment Control Law requires soil-disturbing projects to be designed to reduce soil erosion and to decrease inputs of chemical nutrients and sediments to the Chesapeake Bay, its tributaries, and other rivers and waters of the Commonwealth.

Erosion and sediment control (ESC) and stormwater management (SWM) best management practices will be incorporated into the project design to ensure compliance with state programs. The contract plans and specifications will address requirements to achieve reduction of soil erosion and stormwater management. On-site inspections will ensure compliance with government contract plans and specifications and the applicable state program to the maximum extent practicable.

F. Point Source Pollution Control

Point source pollution control is accomplished through the implementation of the National Pollutant Discharge Elimination System permit program established pursuant to Section 402 of the Federal Clean Water Act and administered in Virginia as the Virginia Pollutant Discharge Elimination System permit program.

A Virginia Pollutant Discharge Elimination System (VPDES) permit is not required for this project.

G. Shoreline Sanitation

The purpose of this program is to regulate the installation of septic tanks, set standards concerning soil types suitable for septic tanks, and specify minimum distances that tanks must be placed away from streams, rivers, and other waters of the Commonwealth.

This project involves no septic tanks; therefore, adherence to this program is not applicable.

H. Air Pollution Control

The program implements the Federal Clean Air Act to provide a legally enforceable State Implementation Plan for the attainment and maintenance of the National Ambient Air Quality Standards (NAAQS).

The Clean Air Act prohibits Federal entities from taking actions which do not conform to the State implementation plan (SIP) for attainment and maintenance of the national ambient air quality standards (NAAQS).

The construction activities of this project will produce some short-term, direct, minor adverse effects. The use of trucks, excavating equipment, and other heavy equipment and machinery will generate minor amounts of criteria pollutants. This project shall conform to the SIP.

I. Coastal Lands Management

Coastal Lands Management is a state-local cooperative program administered by the DCR's Division of Stormwater Management – Local Implementation (previously the Division of Chesapeake Bay Local Assistance) and 88 localities in Tidewater, Virginia established pursuant to the Chesapeake Bay Preservation Act; Virginia Code §§ 10.1-2100 through 10.1-2114 and Chesapeake Bay Preservation Area Designation and Management Regulations; Virginia Administrative code 9 VAC10-20-10 et seq.

As part of the ANC Millennium project, the existing stream channel is proposed to be restored and integrated into the overall project as a natural landscape amenity. While NOAA has determined that the CZMA does not grant states regulatory authority over activities on federal lands, federal activities affecting Virginia's coastal resources must be consistent with the Bay Act and the Regulations as one of the enforceable programs of Virginia's Coastal Zone Management Program.

The project will comply with the RPAs to the maximum extent practicable by incorporating the following:

- 100-foot RPA buffer incorporated into design
- Encroachments into the outer 50 feet of the RPA buffer for grading and Columbarium's where it is demonstrated that such requirements are not self-imposed (i.e. for a specified yield rate) but rather due to unique site features such as topography and forest preservation (per Section 9VAC10-20-150.C.)
- Roadways located so as to minimize impacts (subject to site line constraints and grade restrictions to allow for ADA compliant sidewalks) to the RPA except as needed to cross the RPA and stream with a bottomless culvert/bridge or with a box culvert depressed a minimum of 6 inches below the stream invert and providing both low flow and high flow channels to minimize impacts to an RPA core component
- Features that are not water dependent and that can be relocated out of the 100 ft buffer, such as plaza, water features, and Committal shelters will be relocated during the design development process
- Trails may be located within the inner 50 foot portion of the RPA buffer
- BMPs to mitigate for the reduced buffer's pollutant removal capacity from impacts to the RPA buffer will be provided and may include, but not be limited to:

- Stream Restoration and Stream Enhancement (using interim Chesapeake Bay Program removal rates)
- Restoration and Reforestation of currently disturbed areas of RPA Buffer

Additionally, USACE will cause the preparation of an RPA Plan (using the restored stream alignment as a core RPA component), an RPA Exception Request (that documents the changes made during design development to comply with the Chesapeake Bay Act Regulations) and an associated Water Quality Impact Assessment (WQIA) prepared in accordance with state regulations; review and make a recommendation for action by the appropriate ANC Officer; and document said approval. The Environmental Assessment and Joint Permit Application will contain more detailed information about the RPA.

Advisory Policies for Geographic Area of Particular Concern

a. Coastal Natural Resource Areas

Coastal Natural Resource Areas are areas that have been designated as vital to estuarine and marine ecosystems and/or are of great importance to areas immediately inland of the shoreline. These areas include the following resources: wetlands, aquatic spawning, nursing, and feeding grounds, coastal primary sand dunes, barrier islands, significant wildlife habitat areas, public recreation areas, sand gravel resources, and underwater historic sites.

The project area contains wetlands and public recreation areas. Approximately 8,400 sq ft of wetlands are present in project area; however, the wetlands are not within an area of disturbance for this project. Permitted recreational activities will be temporarily affected during the time of construction, but they shall otherwise not be impacted long-term.

b. Coastal Natural Hazard Areas

This policy covers areas vulnerable to continuing and severe erosion and areas susceptible to potential damage from wind, tidal, and storm related events including flooding. New buildings and other structures should be designed and sited to minimize the potential for property damage due to storms or shoreline erosion. The areas of concern are highly erodible areas and coastal high hazard areas, including flood plains.

The project area contains no coastal natural hazard areas; therefore, adherence to this program is not applicable.

c. Waterfront Development Areas

These areas are vital to the Commonwealth because of the limited number of areas suitable for waterfront activities. The areas of concern are commercial ports, commercial fishing piers, and community waterfronts.

There will be no waterfront development associated with this project, as no part of the project area fronts navigable waterways.

Advisory Policies for Shorefront Access Planning and Protection

a. Virginia Public Beaches

These public shoreline areas will be maintained to allow public access to recreational resources.

There are no public beaches within the project area; consequently this project will not affect public access to beaches.

b. Virginia Outdoors Plan (VOP)

The VOP, which is published by Virginia's Department of Conservation and Recreation (DCR), identifies recreational facilities in the Commonwealth that provide recreational access. Prior to initiating any project, consideration should be given to the proximity of the project site to recreational resources identified in the VOP.

This project is consistent with the Virginia Outdoor Plan for Region 8, Northern Virginia. Permitted recreational activities at ANC will be temporarily affected during the time of construction, but they shall otherwise not be impacted. A jogging path along the edge of the project on Joint Base Fort Myer-Henderson Hall will be temporarily impacted but will be reconstructed as part of the project.

c. Parks, Natural Areas, and Wildlife Management Areas

The recreational values of these areas should be protected and maintained.

The United States National Park Service (NPS) administers property adjacent to the Millennium project location as a part of Arlington House-Robert E. Lee Memorial. There would be no impact to the Arlington House-Robert E. Lee Memorial viewshed due to tree removal. A portion of the adjacent forest, recommended as contributing to the Arlington House property in its own right, but not within the viewshed of the property in any season, would be affected. Stream restoration and erosion control measures have been included in the Millennium Project design. The restored stream will flow onto NPS-administered property adjacent to the project location. The project should provide benefits to the downstream area from improved stormwater management and decreased erosion.

d. Waterfront Recreational Land Acquisition

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

This project does not limit the ability of the Commonwealth in any way to acquire, preserve, or maintain waterfront recreational lands. The ANC is currently a federally-owned and maintained facility.

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e. Waterfront Recreational Facilities

Boat ramps, public landings, and bridges shall be designed, constructed, and maintained to provide points of water access when and where practicable.

This project does not involve the design, construction, or maintenance of any boat ramps, public landings, or bridges.

f. Waterfront Historic Properties

The Commonwealth has a long history of settlement and development, and much of that history has involved both shorelines and near-shore areas. The protection and preservation of historic shorefront properties is primarily the responsibility of the Virginia Department of Historic Resources.

National Historic Preservation Act - Section 106 consultation with the Department of Historic Resources (DHR) is currently ongoing. The Corps and ANC shall develop measures to avoid, minimize, or mitigate adverse effects to historic properties in consultation with DHR, Arlington County, the National Trust for Historic Preservation, and NPS. As the waterbody involved, historically known as Wampakin Creek, is an intermittently dry branch in these reaches, it has historically been neither navigable nor a fishing resource.

Determination

Based upon the following information, data, and analysis, the U.S. Army Corps of Engineers, Norfolk District, on behalf of Arlington National Cemetery, finds that the construction of the expansion project is consistent to the maximum extent practicable with the enforceable policies of the Virginia Coastal Resources Management Program.

Pursuant to 15 CFR Section 930.41, the Virginia Coastal Resources Management Program has 60 days from the receipt of this letter in which to concur with or object to this Consistency Determination, or to request an extension under 15 CFR section 930.41(b). Virginia's concurrence will be presumed if its response is not received by the U.S. Army Corps of Engineers on the 60th day from receipt of this determination.

8 Nov 12
Date

Michelle L. Hamor
for Susan Conner
Acting Chief, Planning and Policy Branch