

Draft

**ENVIRONMENTAL ASSESSMENT
EXPANSION AND IMPROVEMENTS OF THE
Quantico National Cemetery
Prince William County, Triangle, Virginia**



Department of Veterans Affairs

425 I Street, NW

Washington DC 20001

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ENVIRONMENTAL ASSESSMENT ABSTRACT

LEAD AGENCY: U.S. Department of Veterans Affairs (VA)

COOPERATING AGENCIES: None

TITLE OF PROPOSED ACTION: Expansion and Improvements of the Quantico National Cemetery

AFFECTED JURISDICTION: Prince William County, Virginia

PROPONENTS: VA

POINT OF CONTACT: Mr. Steven Davis, Department of Veterans Affairs, Design & Construction Service, 425 I Street, NW, Washington, DC 20001; Telephone: 202-632-4833; Email: Steve.Davis@va.gov

DOCUMENT DESIGNATION: Draft Environmental Assessment (EA)

ABSTRACT: This EA evaluates the next phase of construction and operation of the Quantico National Cemetery (QNC), located in Prince William County, Virginia. The VA's Proposed Action is to construct and expand operations on an additional seven acres within the existing cemetery boundary to provide for five more years of burial expansion for multiple burial options (casket, columbarium, and in-ground cremation burial), supporting infrastructure, parking, irrigation, landscaping, visitor amenities, signage, and operational facility improvements. The EA also analyzes the No Action Alternative; no cemetery expansion or improvements would occur with implementation of the No Action Alternative.

The purpose of the Proposed Action for the EA is to continue to enable the VA to provide eligible veterans and their families in the Triangle, Virginia, area with a national cemetery of sufficient size and capacity to serve the projected needs in this region over the next five years.

This EA identifies, analyzes, and documents the potential physical, environmental, cultural, and socioeconomic effects associated with the VA's proposed construction and operation. Technical resource areas that do not require further detailed analysis in this EA, include: community services, environmental justice, floodplains, land use and zoning, recreation, transportation and parking, and utilities. Resource areas that were evaluated in further detail in the EA include: aesthetics; air quality; geology, topography, and soils; water resources, including wetlands; wildlife and habitat; threatened and endangered species and bald eagles; noise; hazardous, toxic, and radioactive waste; cultural resources; socioeconomics, and cumulative impacts.

This EA concludes that no significant direct, indirect, or cumulative adverse effects on the human environment would result from implementing the Preferred Alternative. Therefore, this EA concludes that a Finding of No Significant Impact (FONSI) is appropriate and that an Environmental Impact Statement (EIS) is not required.

EXECUTIVE SUMMARY

In 1978, the VA completed an EIS analyzing the initial site selection and the reasonably foreseeable impacts associated with the phased construction and operation of a new national cemetery in Prince William County, Virginia. The VA determined that no significant impacts on the human environment would result from creation of the national cemetery, and the VA issued a FONSI accordingly. The cemetery was constructed and opened in Triangle, Virginia, in May, 1983, and is formally known as the Quantico National Cemetery (QNC). The cemetery is 726.58 acres in size and located approximately 25 miles south of Washington, DC and 24 miles north of Fredericksburg on Interstate Route 95.

In 2011, a Site-Specific Environmental Assessment tiered to the initial EIS was completed that assessed the construction and operation impacts of a new administration building for cemetery staff and visitors that incorporated renewable energy systems. The new Administration Building has since been constructed.

This EA has been prepared to analyze and evaluate the potential effects of the next phase of expansion and improvements to the QNC. This EA is prepared in accordance with the National Environmental Policy Act of 1969 (NEPA; 42 United States Code [U.S.C] 4321 et seq.), the President's Council on Environmental Quality (CEQ) Regulations Implementing the Procedural Provisions of NEPA (40 Code of Federal Regulations [CFR] Parts 1500 - 1508), 38 CFR Part 26 (Environmental Effects of the Department of Veterans Affairs Actions), and the VA's NEPA Interim Guidance for Projects (VA 2010).

PURPOSE AND NEED

The purpose of the Proposed Action for the EA is to continue to provide eligible veterans and their families in the Triangle, Virginia area with a national cemetery of sufficient size and capacity to serve the projected needs in this region for the next five years. The Proposed Action is needed to meet the VA's goal of providing eligible Veterans with reasonable access to burial options.

ALTERNATIVES

Preferred Alternative – The VA's Preferred Alternative, analyzed in this EA, is to construct and expand operations on an additional seven acres to provide for five more years of burial expansion for all burial options (casket, columbarium, and in-ground cremation burial) and all supporting infrastructure including parking areas, sidewalks, grave and section markers, irrigation, landscaping, visitor amenities, signage, masonry, site furnishings, and stormwater management features as detailed in Section 2.1 of this EA. This phase of expansion and improvements would include expansion of the parking lot of the Old Administration Building and renovations to the Old Administration Building. Renovations to the Old Administration Building will include electrical, water, sanitary sewer, HVAC, and data upgrades. The burial

expansion will include the construction of in-ground cremation burial sites, a memorial wall and ossuary site, preplaced crypts, standard burial sites, and columbarium niches.

No Action Alternative – Under the No Action Alternative, the Proposed Action would not be implemented. Veterans and their families residing in northern Virginia would be underserved starting in the year 2017; without adequate burial capacity at the QNC, veterans and their families would need to travel further to the closest available national cemetery, Arlington National Cemetery, or to a private cemetery for burials. Furthermore, the No Action Alternative would create a hardship for the survivors of deceased veterans for attending the funerals and for grave visitations, because of the distances between homes and the burial sites. If veterans and their families must resort to private burials, they are deprived of the honor and privilege bestowed upon them by a grateful nation for their service to their country.

Although the No Action Alternative does not meet the purpose and need of the project, this alternative was retained, because it reflects the status quo and serves as a benchmark against which the effects of the Proposed Action can be evaluated, as required under the CEQ Regulations (40 CFR Part 1502.14).

AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

The Affected Environment of the Proposed Action or the Region of Influence, is discussed in Section 3 of this EA, as it pertains to respective environmental and cultural resources. The Preferred Alternative and the No Action Alternative are evaluated in this EA to determine their potential direct, indirect, and cumulative effect(s) on the physical, environmental, cultural, and socioeconomic aspects of the Region of Influence.

Section 3 contains in-depth analyses of the Proposed Action's potential effects on the following resource areas:

- Aesthetics
- Air Quality
- Geology, Topography, and Soils
- Water Resources
- Wildlife and Habitat
- Threatened and Endangered Species and Bald Eagle Determination
- Noise
- Hazardous, Toxic, and Radioactive Waste
- Cultural Resources
- Socioeconomics

The Preferred Alternative would result in no significant adverse direct, indirect, or cumulative effects on these resources as identified below and detailed in Section 3 of this EA. In addition, any potential adverse

effects on the resource areas discussed below would be further reduced or avoided through the implementation of Best Management Practices (BMP) or optional management measures, as discussed in Section 3 of this EA.

- **Aesthetics** – There will be minor, short-term adverse temporary impacts to the visual quality of the sites for cemetery visitors during construction. The expansion and improvements sites are not visible outside of the QNC and would not disrupt the visual aesthetics of surrounding properties.
- **Air Quality** – Negligible to minor, short-term to long-term adverse impacts are anticipated to result from the implementation of the Preferred Alternative. Construction activities and long-term maintenance activities would generate fugitive dust emissions and exhaust emissions from heavy equipment.
- **Geology, Topography, and Soils** – Minor, short-term adverse erosion and sedimentation impacts are anticipated with implementation of the Preferred Alternative. Implementation of stormwater management BMPs will substantially reduce erosion and sedimentation impacts. Although soils will be permanently as well as temporarily impacted by implementation of the Preferred Alternative, this would not affect the subsurface geology of the site.
- **Water Resources** – Minor, short-term adverse effects on the area’s surface waters will be largely reduced through implementation of BMPs, and no long-term effects would be expected. The Preferred Alternative would result in no impacts to wetlands or groundwater.
- **Wildlife and Habitat** – Construction of the Preferred Alternative would have short-term to long-term, minor adverse impacts from the permanent and temporary loss of habitats. However, other ample habitats exist at the QNC and mobile wildlife is anticipated to migrate to these areas.
- **Threatened and Endangered Species and Bald Eagles** – Potential habitat for the federally listed northern long-eared bat (*Myotis septentrionalis*) and the small whorled pogonia (*Isotria medeoloides*) occurs within the Preplaced Crypts Site; however, surveys did not indicate the presence of listed species in these areas. Implementation of the Preferred Alternative may affect, but is not anticipated to adversely affect federally listed species.
- **Noise** – Short-term, minor adverse impacts from general construction noise would potentially occur due to construction vehicles’ entering and exiting the cemetery, and land preparation, grading, and other construction work. Normal cemetery operations, which include noises associated with the operation and maintenance of the cemetery as well as regular committal services (salutes using rifle blanks) and other ceremonial activities, would not be anticipated to increase as compared to existing conditions with implementation of the Preferred Alternative.
- **Hazardous, Toxic, and Radioactive Waste (HTRW)** – Minor, temporary adverse impacts may occur from a gasoline spill from construction equipment or vehicles during implementation of the Preferred Alternative; however, no long-term adverse impacts resulting from HTRW are anticipated with implementation of the Preferred Alternative. There is no known history of HTRW

or activities that would generate HTRW occurring within the limits of construction of the Preferred Alternative.

- **Cultural Resources** – Results of the Phase I archeological surveys were used to ensure that expansion and improvements sites avoided impacts to cultural resources; no known cultural resource sites are located within the construction limits of the Preferred Alternative. Therefore, there are no anticipated adverse impacts to cultural resources with implementation of the Preferred Alternative.
- **Socioeconomics** - This alternative will have a negligible, positive effect on the socioeconomic environment. Construction of the cemetery expansion will temporarily support jobs, or bring transient workers into the Prince William County resulting in a minor economic benefit.

AGENCY AND PUBLIC INVOLVEMENT

The VA, as the federal proponent of this Proposed Action, will publish and distribute the Draft EA for a 30-day public comment period, as announced by a Notice of Availability (NOA) in the Washington Post Newspaper. As part of the public review process, letters that describe how to submit comments to the Draft EA will be distributed to local, state, and federal agencies and Tribal governments, as identified in Section 8 of this EA. Comments received during this process will be reviewed and addressed accordingly.

CONCLUSIONS

As a result of the analysis of impacts in this EA, summarized and incorporated by reference herein, it is the conclusion of the VA that, with the implementation of appropriate BMPs and avoidance measures included in Section 3 of this EA, the Proposed Action would not generate significant public controversy nor have a significant adverse impact the quality of the natural or human environment within the meaning of Section 102(2c) of the NEPA. Therefore, preparation of an EIS is not required based on the initial findings of this Draft EA, assuming no significant issues are identified during the Draft EA review process.

1. INTRODUCTION

1.1 Background

The VA, National Cemetery Administration (NCA) services our nation by providing final resting sites to active duty members and veterans of the U.S. military and their families. Veterans and their families are honored with lasting tributes that commemorate the sacrifice and service that veterans have provided to the nation in northern Virginia at QNC. The QNC is located in Triangle, Virginia, approximately 25 miles south of Washington, DC, and 24 miles north of Fredericksburg on Interstate Route 95 (Figure 1-1). It is located on property that was formerly part of the Marine Corps Base Quantico (MCBQ) that was initially

established in 1918. The United States Marine Corps donated 726.58 acres of land to the NCA in January 1977, with the intent to establish the facility now known as QNC. The formal dedication of the QNC occurred on May 15, 1983.

A Master Plan for the QNC that described the overall landscape design and conceptual features, was developed by a design team composed of architects, engineers, and landscape architects. The overall intent was to provide an atmosphere of reverence and serenity with features that blended into the natural wooded terrain to provide a natural shrine. The Master Plan emphasized the importance of native plantings in the overall design to highlight views and features, and beautify or accentuate roadway intersections, building approaches, and entrances. The Master Plan described the intent to provide funerary and burial services to over 600,000 veterans and their families at the QNC. When fully developed, QNC was intended to provide an estimated 275 internment acres with 353,000 projected internments. The Master Plan identified locations suitable for development within QNC and described the following intended design features: a cortege assembly area (parking lane to accommodate funeral processions), mausoleum and columbaria (structure for placement of urns) structures, administration maintenance facilities, and a memorial center and six-acre lake primarily intended for storm water management. The Master Plan also described a dual entrance road with a flag plaza with area loop roads providing convenient access to all cemetery areas.

The initial phases of QNC development are complete, which included construction of two administration buildings, the Maintenance Center, access and dual entrance roads, entrance gates, a cortege area and restroom facility area, and multiple committal service shelters. There are also nine memorials that have been constructed throughout the cemetery as well. Currently, an additional construction phase is necessary to expand burial areas, provide necessary upgrades to the Old Administration Building, and expand the existing Old Administration Building Parking Lot to accommodate staff parking needs. This next phase of construction will include the development of cemetery features originally described in the Master Plan, including columbaria, standard burial areas, and preplaced crypts. Additionally, development of an ossuary (vaulted structure for placement of cremated remains) and memorial wall with a plaza is also planned with this next phase of development.

This EA has been prepared to analyze and evaluate potential impacts of expansion and improvements to the existing Old Administration Building and associated parking of the QNC. This EA has been prepared in accordance with the NEPA, The President's CEQ Regulations Implementing the Procedural Provisions of NEPA, 38 CFR Part 26 Environmental Effects of the Department of Veterans Affairs (VA) Actions, and the VA NEPA Interim Guidance for Projects (2010).

This section presents introductory and background information concerning the Proposed Action for proper analytical context; identifies the purpose of, and need for, the Proposed Action; describes the federal decision to be made concerning the Proposed Action; identifies relevant environmental

documents; and identifies federal, state, and local regulations and permits that are applicable to the Proposed Action.

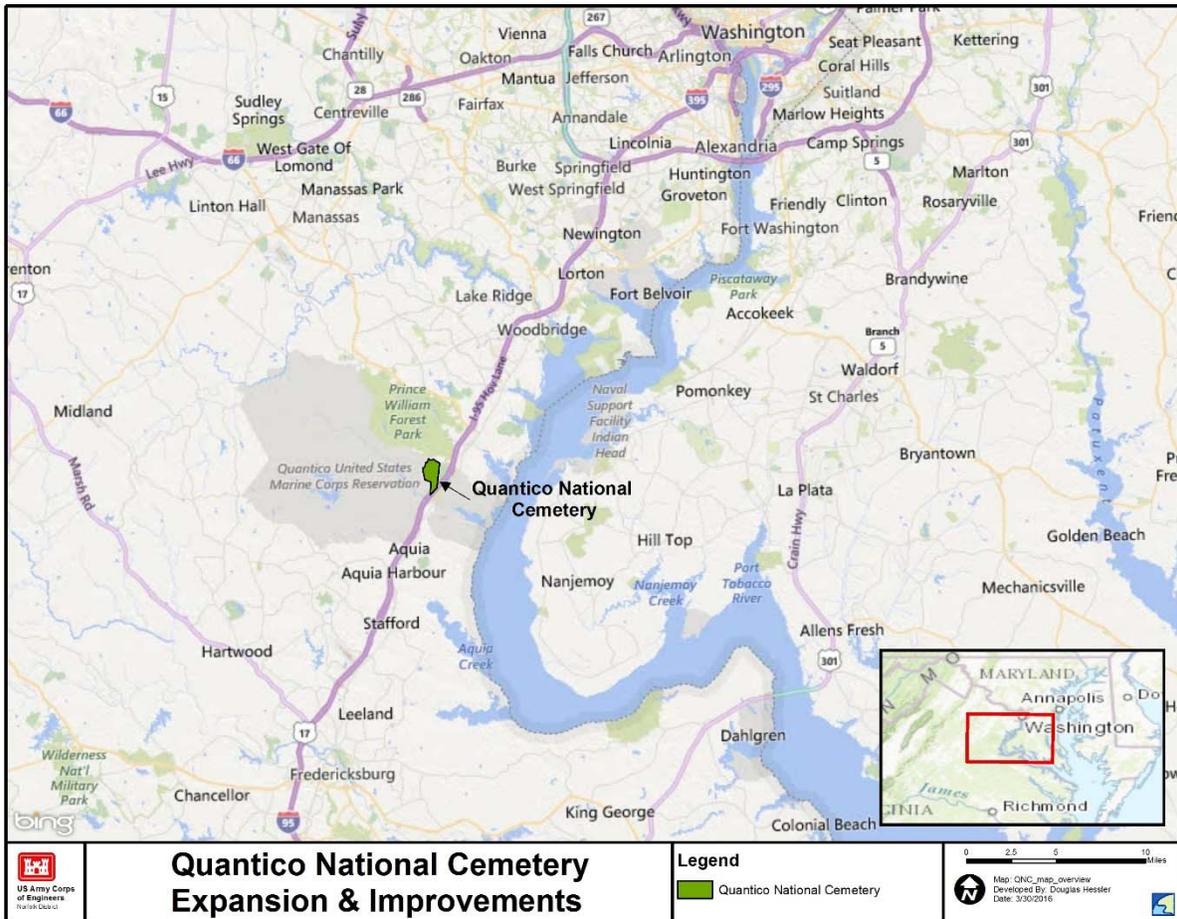


Figure 1-1. General location of the Quantico National Cemetery in Triangle, Virginia.

1.2 Purpose and Need

The purpose of this project is to expand the QNC to accommodate an additional five years of burial sites, accommodate additional parking at the Old Administration Building, and renovate the Old Administration Building. Renovation of the Old Administration Building is necessary to replace the aging electrical, water, and HVAC infrastructure. This project provides a significant contribution to our nation as without implementation of this project, the QNC will not be able to accommodate new burials in 2017.

1.3 Scope of the Analysis

The CEQ regulations require NEPA documents to be “analytic rather than encyclopedic” (40 CFR Part 1502.2a). In addition, the level of analysis should be commensurate with the anticipated level of environmental impact. In consideration of these regulations and guidance, the following topics, described in Table 1-1 were dismissed from further consideration as environmental impacts were determined to be negligible or not relevant to the analysis: Resource topic areas that will be considered in further detail in the EA include: aesthetics; air quality; geology, topography, and soils; water resources; wildlife and habitat; threatened and endangered species and bald eagles; noise; hazardous, toxic, and radioactive material; cultural resources, and socioeconomics.

Table 1-1. Impact Topics Eliminated from Further Analysis in the Environmental Assessment.

Impact Topic	Reason for Dismissal from Detailed Analysis
Community Services	This topic is not relevant as there are no anticipated impacts to community services anticipated with implementation of the Preferred Alternative.
Environmental Justice	We would not anticipate any impacts on specific concentrations of minority or low-income populations.
Floodplains	This topic is not relevant as there are no anticipated impacts to floodplains.
Land Use and Zoning	Compliance with all Prince William County lands use and zoning requirements will be achieved and this topic does not warrant further discussion.
Recreation	This topic is not relevant as there are no anticipated impacts to recreational activities in areas adjacent to the QNC.
Transportation and Parking	No noticeable impacts to transportation and parking and transportation are anticipated.
Utilities	Because all utility systems have adequate capacity to support current and future operations, this topic is not relevant.

1.4 Decision Making

The VA, as a federal agency, is required to incorporate environmental considerations into its decision-making process for the actions it proposes to undertake.

The purpose of this EA is to inform federal decision makers and the public of the potential environmental effects of the Proposed Action and its considered alternatives, prior to making a federal decision to implement the Proposed Action. In this manner, the federal decision-makers can make a fully informed decision, aware of the potential environmental effects of the Proposed Action. Overall, the EA’s purpose is to:

- inform decision-makers and the public of the anticipated environmental effects of the Proposed Action and its considered alternatives, as well as methods to reduce these effects;
- document the NEPA process;
- allow for federal, state, and local agency, Tribal government, and public input into the decision-making process; and
- allow for informed decision-making by the federal government.

This federal decision-making includes identifying the actions that the federal government would commit to undertake to minimize environmental effects, as required under the NEPA, CEQ regulations, and 38 CFR Part 26.

The decision to be made is whether, having taken into account potential environmental, cultural, and socioeconomic effects, the VA should implement the Proposed Action, and as appropriate, carry out measures to reduce its effects on resources. Implementation of BMPs identified throughout the EA, as described in Section 3 and incorporated into the Proposed Action, would ensure that direct, indirect, and significant cumulative effects would not occur.

2. DESCRIPTION OF THE PROPOSED ACTION AND ALTERNATIVES

This section provides the reader with necessary background information and a description of the Proposed Action, and alternatives considered by the VA for this EA, including the Preferred Alternative and the No Action Alternative.

2.1 Proposed Action

The Proposed Action is to construct and expand operations on an additional estimated seven acres of the QNC to provide for five additional years of burial expansion and to also expand parking accommodations at the Old Administration Building and provide renovations to the Old Administration Building. The cemetery expansion will include various burial options (casket, columbarium, and in-ground cremation burial sites) and all supporting infrastructure including parking pullouts, grave and section markers, irrigation, landscaping, visitor amenities, signage, and operational facility improvements. The burial expansion will include the construction of preplaced crypts, oversized gravesites, in-ground cremation burial sites, columbarium niches, and a memorial wall and ossuary site. This project will include the parking pullouts, sidewalks, grading, masonry, site furnishings, signage and landscaping associated with the burial sites. This development would include the associated construction of required stormwater management features as well. Figure 2-1 depicts the approximate location of the proposed project features to be constructed and the general locations of the existing buildings, roads, and features.



Figure 2-1. Proposed locations of Quantico National Cemetery burial expansion sites and the Old Administration Building renovation and parking lot expansion sites. Actual project locations may vary depending on final project designs.

Detailed draft engineering designs of the project features and the estimated geographic limits of construction are provided in the Engineering Appendix (Appendix A). Actual project site locations, construction methods, construction materials, and construction material staging areas may vary depending on final engineering designs.

Renovations to the Old Administration Building parking lot will serve to expand and modify the existing asphalt parking lot to accommodate approximately 23 additional parking spaces. It will also include associated sidewalk renovations to accommodate the new parking areas. Landscaping impacted by the renovations will be relocated or replanted to the maximum extent practicable. Renovations to the Old Administration Building will include electrical, water, sanitary sewer, HVAC, and data upgrades. Stormwater runoff will continue to sheetflow north of the Old Administration Building to the surrounding hardwood forest.

The existing Committal Shelter C, sidewalk, walkway and landscaping will be demolished and a retaining wall/memorial wall and ossuary plaza will be constructed (Appendix A). This proposed site is labeled as “Ossuary” in Figure 2-1. The proposed project site is anticipated to consist of a concrete base plaza with brick and/or stone paving. An ossuary shaft, with a capacity of approximately 500 cremains (cremated remains), will be located in the center of the plaza. A sidewalk will be constructed to connect the roadway to the plaza. An in-ground cremation burial area with a capacity of approximately 791 plots (each plot size is approximately four feet by four feet in size) will be located adjacent to and surrounding the memorial wall and ossuary plaza. An asphalt parking pullout will be constructed across Appomattox Road from the retaining wall/memorial wall and ossuary plaza for visitor parking. The construction site for the retaining wall/memorial wall and ossuary plaza, in-ground cremation burial area, and other associated features in this area will not extend beyond the limits of the existing manicured lawn area. Stormwater will continue to sheet flow to the southwest towards a culvert, which transports water from the site towards an existing concrete channel that directs flow to a hardwood forest.

The proposed Preplaced Crypts Site (Figure 2-1; Appendix A) will be composed of approximately 3,000 plots containing precast concrete structures (crypts). Each crypt is approximately three feet by eight feet in size. Crypts will be constructed offsite and then delivered for installation at the QNC. Grid and section monument markers, and site furnishings (water spigot, trash, and vase station) will also be installed at this site. To provide required stormwater management, a grass level spreader will be constructed approximately perpendicular to Quantico Drive, west of the preplaced crypts. A grassed swale approximately eight feet in length will flank the centrally-located grassed level spreader along the length of the Preplaced Crypts Site. Stormwater will then flow from the grassed channel offsite to the surrounding hardwood forest.

The proposed Standard Burial Site (Figure 2-1; Appendix A) will be constructed in an upland area that is comprised of a manicured lawn dominated by a mixture of three planted grass species. Approximately 558 burial sites that are approximately five feet by ten feet in size are planned. This upland site will be graded and filled to improve the slope of this area. The existing landscaping (upland shrubbery and trees) will be retained to the maximum extent practicable, to reduce environmental impacts and also improve the landscape aesthetics. Surface runoff will continue to flow eastward to the surrounding forested area.

This Columbarium Site (Figure 2-1; Appendix A) is a proposed open-wall columbarium plaza with capacity for approximately up to 2,000 niches. This site is planned to contain one large concrete columbarium retaining wall with brick masonry or granite façade, and would contain approximately eight two-sided columbarium niche walls made of concrete with a brick masonry façade and granite cap. The plaza would be composed of concrete pavers. A sidewalk would be constructed to connect the plaza to the roadway. A proposed asphalt parking pullout will also be constructed adjacent to the proposed sidewalk and along the length of the columbarium feature for visitor parking. A bioretention area will be constructed in the center of columbarium between the niche walls to serve as a stormwater treatment best management

practice. A level spreader leading to a grass swale approximately four feet long will also be constructed to serve as a stormwater BMP. A gravel diaphragm approximately two feet wide will be constructed adjacent to the north end of the retaining wall and extending north adjacent to the parking pull off to aid in stormwater treatment. A paved gravel ditch approximately four feet wide will be constructed adjacent to the south end of the retaining wall and will surround the columbarium niche structures.

Construction contractors and deliveries of construction materials shall enter the QNC from Joplin Road and vehicles shall not proceed past the Columbarium Site (Figure 2-1). The Standard Burial Area will be used for material staging and therefore, staging disturbance to the QNC will be minimized. During construction, sites will be re-graded, and anticipated construction equipment includes dump trucks, backhoes, graders, cranes, compactors, and other types of earth-moving equipment. Construction will include grading and other earthwork, concrete paving, asphalt paving, and creation of masonry walls. Following construction, the material staging areas will also be re-graded (if necessary) and reseeded to return the non-constructed areas back to pre-construction conditions (manicured lawn). Existing landscaping will be preserved wherever possible and landscaping with native plants will be incorporated into designs where feasible.

Erosion control practices such as silt fences and/or other protective measures will be deployed prior to construction activities to minimize impacts to water quality (total suspended solids) and confine impacts to the maximum practical extent to the construction sites. A stormwater pollution prevention plan will be developed prior to construction that will define erosion control and BMPs inspection procedures to ensure construction impacts to stormwater are minimized to the maximum practical extent.

A wetland assessment was conducted for this project on January 25, 2015 by the USACE and no impacts to wetlands are anticipated with this project; therefore, wetland mitigation will not be required for this project. A significant cultural resource site was identified during the Phase I cultural resources survey; based on the results of the survey, this area was eliminated as a potential cemetery expansion site. Therefore, no cultural resources mitigation is anticipated with implementation of the Preferred Alternative.

This construction phase is anticipated to be initiated in approximately 2016 and be completed by 2018, depending on funding availability. Construction is anticipated to occur in a phased approach with the Preplaced Crypts Site being constructed prior to other expansion and improvements sites.

2.1.1 Environmental Best Management Practices, Permits, and Approvals

Prior to constructing any component of the Proposed Action, the VA would obtain all required federal, state, and local permits and approvals necessary to comply with applicable laws. Applicable environmental permits required for the Proposed Action are described in Section 9. In addition, the VA would implement the BMPs listed in Section 3 as part of the Proposed Action. These include design

measures that serve to proactively minimize adverse environmental effects, as identified through the development of the EA.

2.2 Alternatives Analysis

The NEPA, CEQ Regulations, and 38 CFR Part 26 require that all reasonable project alternatives be explored and objectively evaluated. Alternatives that are eliminated from detailed study must be identified along with a brief discussion of the reasons for eliminating them. For the purposes of this analysis, an alternative was considered “reasonable” only if it would enable the VA to accomplish the primary mission of providing additional burial sites and supporting services to veterans and their families in the region, thus meeting the stated purpose of and need for the Proposed Action. “Unreasonable” alternatives would not enable the VA to meet the purpose of and need for the Proposed Action. Further, although the No Action Alternative does not meet the purpose and need of the Proposed Action, this alternative was retained, because it reflects the status quo and serves as a benchmark against which the effects of the Proposed Action can be evaluated, as required under the CEQ Regulations (40 CFR Part 1502.14).

2.2.1 Evaluated Alternatives

Preferred Alternative.

The VA’s Preferred Alternative, analyzed in this EA, is to construct and expand operations on an additional estimated seven acres to provide for five more years of burial expansion for all burial options (casket, columbarium, and in-ground cremation burial) and all supporting infrastructure, including parking areas, sidewalks, grave and section markers, irrigation, landscaping, visitor amenities, signage, masonry, site furnishings, operational facility improvements, and stormwater management features as detailed in Section 2.1. This phase of expansion and improvements would include expansion of the parking lot for the Old Administration Building and renovations to the Old Administration Building. Renovations to the Old Administration Building will include electrical, water, sanitary sewer, HVAC, and data upgrades. The cemetery expansion will include various burial options (casket, columbarium, and in-ground cremation burial) and all supporting infrastructure, including parking areas, grave and section markers, irrigation, landscaping, visitor amenities, signage, and operational facility improvements. The burial expansion will include the construction of preplaced crypts, oversized gravesites, in-ground cremation burial sites, columbarium niches, and a memorial wall and ossuary site.

No Action Alternative.

Under the No Action Alternative, the Proposed Action would not be implemented. Veterans and their families residing in northern Virginia would be underserved starting in the year 2017; without adequate burial capacity at the QNC, veterans and their families would need to travel further to the closest available national cemetery, Arlington National Cemetery or to a private cemetery for burials. The No Action Alternative would create a hardship for the survivors of deceased veterans for attending the funerals and

for grave visitations, because of the distances between homes and the burial sites. If veterans and their families must resort to private burials, they are deprived of the honor and privilege bestowed upon them by a grateful nation for their service to their country.

Although the No Action Alternative does not meet the purpose and need of the project, this alternative was retained, because it reflects the status quo and serves as a benchmark against which the effects of the Proposed Action can be evaluated, as required under the CEQ Regulations (40 CFR Part 1502.14).

2.2.2 Alternative Eliminated from Detailed Consideration

Alternative On-Site Design Alternatives

Since the inception of the project, the VA has worked with the architects and engineers responsible for designing the project to identify, evaluate, and screen a range of design alternatives. Throughout the design process, the VA has ensured that the next phase of expansion and improvements to QNC would avoid impacts to natural and cultural resources to the maximum extent practicable (e.g., jurisdictional wetlands; cultural resources; upland hardwood forests). The Phase I Cultural Resources survey identified a significant cultural resource site; this location was then eliminated as a potential cemetery development area. As previously discussed, the next phase of expansion and improvements to the QNC area avoids jurisdictional wetlands, cultural resources sites, and minimizes impacts to upland hardwood forests to the maximum extent practicable. Furthermore, the currently-proposed design avoids undisturbed areas to the greatest extent practicable. Based on the results of this iterative process, the VA identified one alternative that best met the purpose of and need for the project and minimized impacts to natural and cultural resources; this alternative was selected as the Preferred Alternative. No other on-site configuration for this phase of cemetery expansion and improvements was considered better for achieving the purpose and need of the Proposed Action, while also avoiding impacts to natural and cultural resources. Therefore, other on-site design alternatives were eliminated from further study.

3. AFFECTED ENVIRONMENT & ENVIRONMENTAL CONSEQUENCES

This section describes the baseline (existing) environmental, cultural, and socioeconomic conditions of the QNC, and its general vicinity, with emphasis on those resources potentially affected by implementation of the Preferred Alternative. In this EA, effects are identified as either “significant” (i.e., common effects that would be of the context or intensity to be considered significant under the NEPA or CEQ Regulations), “minor effect” (an effect that is detectable but would not significantly impact the resource), “negligible effect” (an effect that is not easily detectable and would have little effect to the resource), or “no effect.” Where appropriate and clearly discernible, each effect is identified as either adverse or beneficial. CEQ Regulations specify that in determining the significance of effects, consideration must be given to both “context” and “intensity” (40 CFR Part 1508.27). “Context” means

the geographic, social, and environmental contexts within which the project may have effects. The regulations refer to:

- society as a whole, defined as including all human society and the society of the nation;
- the affected region;
- affected interests, such as those of a community, Indian tribe, or other group; and
- the immediate locality.

“Intensity” is the severity of the potential impact considered in context. The regulations direct agencies to consider:

- both beneficial and adverse impacts;
- impacts on human health and safety; and
- impacts on an area's unique characteristics, such as cultural or historic resources, park lands, prime farmlands, wetlands, wild and scenic rivers, and ecologically critical areas. In this EA, the significance of potential direct, indirect, and cumulative effects has been determined through a systematic evaluation of each considered alternative in terms of its effects on each individual resource area.

Significance criteria for resource areas considered in depth in this EA are as follows:

- **Aesthetics** – A project could have a significant aesthetics impact if it would result in a substantial shift in the planned architectural or landscaping Master Plan for the cemetery. The project would not be in visual accordance with adjacent developed areas of the cemetery. Visitor perception would substantially shift.
- **Air quality** – A project could have a significant air quality effect if it would result in emissions that exceed applicability thresholds, be regionally significant, or contribute to a violation of any federal, state, or local air regulation.
- **Geology, Topography and Soils** – If a project would result in a substantial change in the availability of a geologic resource, it could have a significant effect. If a project would cause a substantial shift in the regional topography or soil type in an area it could have a significant effect.
- **Water Resources** – If a project would result in a substantial reduction in the quantity of water for existing or potential future use; if the project resulted in the violation of federal or state water quality standards or permits; if the demand exceeded the capacity of the potable water system; if it would cause substantial flooding or erosion; if it would subject people or property to flooding or erosion; if it would cause unavoidable adverse effects to a significant water body, such as a stream, lake, floodplain, or coastal zone that could not be mitigated; or if it would cause unavoidable impacts to wetlands that could not be mitigated, it could have a significant effect.

- **Wildlife and Habitat** –The loss of a substantial number of individuals of any plant or animal species (sensitive or non-sensitive species) or its habitat that could affect the abundance or diversity of a population beyond normal variability could have a significant effect.
- **Threatened and Endangered Species and Bald Eagles** - The effect of an alternative on biological resources and ecosystems could be significant if it would cause an adverse effect on any endangered or threatened species, its habitat or designated critical habitat, that could not be mitigated through reasonable and prudent measures, or otherwise results in a jeopardy opinion by the United States Fish and Wildlife Service.
- **Noise** – If a project could result in significantly adverse increases in ambient noise levels at sensitive receptors, or result in excessive ground-borne vibration to persons, property, or natural resources it could have a significant effect.
- **Hazardous, Toxic, and Radioactive Materials** – A significant, adverse effect could occur if a project resulted in a spill or release of a hazardous, toxic, or radioactive material to the natural environment that could not be readily mitigated.
- **Cultural Resources** – An adverse effect on historic properties occurs when an undertaking alters (directly or indirectly) any of the characteristics of a historic property that qualify the property for inclusion in the National Register in a manner that diminishes the integrity of the property's location, design, setting, materials, workmanship, feeling, or association. An adverse effect is not considered significant, if the federal agency, in consultation with the State Historic Preservation Officer (SHPO), Advisory Council on Historic Preservation, and other consulting parties mitigates the adverse effect.
- **Socioeconomics** – An adverse, significant effect on socioeconomics could result if a project resulted in a substantial negative impact to local, regional, national, and/or economies.

3.1 Aesthetics

3.1.1 Affected Environment

The Region of Influence for the Affected Environment consists of all areas visible to the public affected by the expansion and improvements to the cemetery. It includes all areas of temporary and permanent impact, including the staging area as well as areas of construction and delivery vehicle egress/ingress to the QNC. The project sites (Figure 2-1) consist of undeveloped and previously disturbed, manicured cemetery landscapes within the existing property boundary of the QNC. All project sites are bounded by mature, hardwood-dominated forests that are not visible outside the property boundary of the QNC. The Standard Burial Site, the Columbarium Site, and portions of the Old Administration Building Site and the Preplaced Crypts Site consist of manicured lawns that have been previously disturbed from the initial cemetery development. The majority of the Preplaced Crypts Site consists of mature, oak-dominated forests. Mature, oak-dominated hardwood forests also occur throughout the QNC leading to the serene

nature of the cemetery landscape. The Ossuary Site currently consists of a committal shelter surrounded by a manicured lawn and landscaping.

Sources of nighttime light at the cemetery are a spotlight on the flagpole and security lights for the cemetery administration buildings. Nighttime lighting at the QNC does not extend beyond the existing property boundary of the QNC.

3.1.2 Effects of the Preferred Alternative

With the exception of the Preplaced Crypts Site, most construction activity would occur within an area of the cemetery that is currently undeveloped but highly disturbed due to initial cemetery development. Heavy equipment would be used for grading and crypt placement and for the initial stages of building the structures and columbarium. Construction materials would be staged at the Proposed Standard Burial Area. The construction will be phased and is anticipated to occur over a period not to exceed two years. The presence of heavy equipment and unfinished stages of site preparation and construction would temporarily have minor, adverse impacts to the visual quality of the sites for visitors to the cemetery.

The appearance of the exterior of the Old Administration landscape will largely remain unchanged, with the exception that the amount of paved parking areas and sidewalks will increase. The appearance of the Ossuary Site will change from a committal shelter to a retaining wall/memorial wall and ossuary plaza surrounded by in-ground cremation burial sites with markers and associated features (water spigot, trash, and vase station). A parking pullout area with a level spreader stormwater management structure will also be located across Appomattox Road. The Preplaced Crypts area will shift from an oak-dominated forest and manicured lawn to a manicured cemetery landscape containing tombstones, markers, and associated features (water spigot, trash, and vase station). A grass level spreader will be located west and along the length of the Preplaced Crypts Site. The appearance of Standard Burial Area will permanently change from a steeply sloped manicured lawn to a more graded, manicured cemetery landscape containing tombstones and markers. The appearance of Columbarium Site will change from a manicured lawn to a manicured cemetery landscape containing approximately eight columns of columbarium structures and a bioretention stormwater management structure. A parking pullout will be provided adjacent to the columbarium structures adjacent to Jefferson Road.

The proposed cemetery landscape expansion and improvements designs are in harmony with the adjacent developed areas of the cemetery. All proposed expansion and improvements structures would have the same character as the existing structures at the QNC. The expansion and improvements sites are not visible from outside the property boundary of the QNC and would not disrupt the visual aesthetics of surrounding properties outside of the QNC. The long-term perception of the changes to the view for cemetery visitor would likely be neutral or positive, as they would contribute to the solemnity and tranquility of the property, as well as display the expected consistent appearance of QNC with other

national cemeteries. No new nighttime lighting effects are anticipated with implementation of the Preferred Alternative.

3.1.3 Effects of the No Action Alternative

No changes to the cemetery's visual character would occur with implementation of the No Action Alternative. Therefore, there would be no impacts to aesthetics with implementation of the No Action Alternative.

3.2 Air Quality

3.2.1 Affected Environment

The Region of Influence would include the area that would be impacted by any air emissions generated by the expansion and improvements to the QNC. We would not anticipate impacts to extend more than approximately 10 miles from the QNC. However, QNC's air emissions contribute to the larger regional National Capital Interstate Air Quality Control Region (AQCR).

The U.S. Environmental Protection Agency (USEPA) evaluates air quality compliance with National Ambient Air Quality Standards (NAAQS), which measure seven criteria pollutants: carbon monoxide, nitrogen dioxide, ozone, sulfur dioxide, particulate matter measuring less than 10 microns in diameter (PM₁₀), particulate matter measuring less than 2.5 microns in diameter (PM_{2.5}), and lead. These criteria pollutants are those for which the USEPA has placed the greatest emphasis and has developed health-based concentrations for ambient air.

The USEPA defines AQCRs, which are used to evaluate compliance with the NAAQS per the Clean Air Act. The QNC is located within the National Capital Interstate AQCR. The Virginia Department of Environmental Quality (VDEQ) has developed an Air Quality State Implementation Plan (SIP) that outline regulations, control measures, and strategies to achieve compliance with NAAQS.

Air Quality Control Regions that are in violation of NAAQS are designated as nonattainment areas; AQCRs with levels below NAAQS are designated as attainment areas. An area may also be classified as a maintenance area if it was once classified as nonattainment, but has since reached attainment of NAAQS for a probationary period through implementation of maintenance plans.

Prince William County, where QNC is located, is under the jurisdiction of USEPA Region 3 (Mid-Atlantic) and the VDEQ. Per the USEPA Designation of Areas for Air Quality Planning, Virginia (40 CFR 81.347) and the Commonwealth of Virginia State Air Pollution Control Board Regulations for the Control and Abatement of Pollution (9VAC5 Chapter 20), QNC is located in a non-attainment area for ozone, a maintenance area for PM_{2.5}, and is in attainment for all other criteria pollutants. The ozone non-

attainment area and the PM_{2.5} maintenance area designations are likely attributed to vehicle emissions and industrial processes within the National Capital Interstate AQCR.

No substantial sources of regulated air emissions exist at the QNC (e.g., boilers and generators). Thus, the VA, as the owner of the site, is not required to have a Title V Operating Permit, based on current operating conditions.

3.2.2 Effects of the Preferred Alternative

Implementation of the Preferred Alternative would be expected to have negligible to minor, short- and long-term adverse impacts on existing air quality at the QNC. Construction activities such as land clearing, grading, digging, continuation of cemetery operations involving digging and temporarily stockpiling soils, and road work and maintenance activities could generate fugitive dust emissions and exhaust emissions from construction and maintenance vehicles and equipment. These impacts would be minor, adverse short-term impacts. Long-term increased emissions from maintenance activities of newly constructed cemetery features would have a negligible, long-term adverse impact on air quality. Air quality impacts caused by implementation of the Preferred Alternative are not anticipated to cause noticeable local, regional, or global climatic changes.

With respect to compliance with the Clean Air Act, federal actions in air pollutant non-attainment or maintenance areas, such as this project site, are required to conform to the applicable SIP. The SIP is designed to achieve or maintain an attainment designation of air pollutants, as defined by the NAAQS. The regulations governing this requirement are found in 40 CFR Part 93, also known as the General Conformity Rule (GCR), which applies to federal actions occurring in regions designated as nonattainment, or areas subject to maintenance plans. The threshold (de minimis) emission rates have been established for actions that have the potential to have significant air quality impacts that are not otherwise exempt. In addition, exemptions to the GCR have been established for actions that are clearly below de minimis thresholds. As specified in 40 CFR 93.153(c)(2), Conformity Determination regulations for federal actions shall not apply for “actions which would result in no emissions increase or an increase in emissions that is clearly de minimis.” As specified in 40 CFR 93.153(c)(2), projects that are clearly de minimis, and for which exemptions apply, include:

- (ii) continuing and recurring activities such as permit renewals, where activities conducted will be similar in scope and operation to activities currently being conducted;
- (iv) routine maintenance and repair activities, including repair and maintenance of administrative sites, roads, trails, and facilities;
- (vii) routine, recurring transportation of materiel and personnel;

(x) actions, such as the following, with respect to existing structures, properties, facilities, and lands where future activities conducted will be similar in scope and operation to activities currently being conducted at the existing structures, properties, facilities, and lands; and

(xiii) routine operation of facilities, mobile assets, and equipment. Project emissions associated with this federal action are clearly below de minimis, and fall within the scope of projects listed in 40 CFR 93.153(c)(2) (ii), (iv), (vii), (x), and (xiii), which are clearly below de minimis thresholds.

Project emissions associated with implementation of the Preferred Alternative fall within the scope of projects listed in 40 CFR 93.153(c)(2) (ii), (iv), (vii), (x), and (xiii), which are clearly below de minimis thresholds. Therefore, this action is exempt from the GCR requirement to prepare a full Conformity Determination, and a detailed analysis of emissions is not warranted. Thus, a Record of Non-Applicability was prepared and is presented in Appendix B.

3.2.3 Effects of the No Action Alternative

The No Action Alternative would result in negligible, adverse impacts on air quality. The expansion and improvements at the QNC would not occur and burial operations would eventually be reduced from their current level, resulting in a negligible reduction in air emissions from reduced maintenance activities at the QNC. However, at a regional scale, the No Action Alternative may result in increased vehicles emissions, as veterans and their families are required to travel greater distances to other national cemeteries in the region.

3.2.4 Minimization and Best Management Practices

Fugitive dust associated with construction will be minimized by using appropriate dust control measures such as applying water, dust palliative, soil stabilizers, enclosures, covers, and silt fences, and re-vegetating disturbed areas as soon as possible.

3.3 Geology, Topography, and Soils

3.3.1 Affected Environment

The Region of Influence for the Affected Environment consists of all areas where soil will be physically disturbed by construction activities or otherwise disturbed indirectly by erosional impacts and includes all areas of temporary and permanent impact, including the staging area as well as the limits of construction and delivery vehicle egress/ingress to the QNC.

Geology and Topography. The land is variable with gently rolling wooded areas and areas containing steep slopes (VA 1978). The topography ranges from small, flat upland ridges to extensive steep valley walls with slopes exceeding 30 percent (VA 1978). Two stream valleys run through the QNC from north to south and drain to the Chopawamsic Creek (VA 1978); however these are not located within the

Affected Environment. The highest elevation at QNC is an estimated 279 feet and the lowest elevation is approximately 100 feet with substantial sloping occurring between these elevations (VA 1978).

Soils. Caroline fine sandy loams compose the highest percentage of the project site areas (> 50 percent) followed by the lunt loam soils (greater than 20 percent) (U.S. Department of Agriculture, Natural Resources Conservation Service (NRCS) 2015). The Aura-Galestown-Sassafrass Complex only covers an estimated 2% of the project site areas (NRCS 2015). The soil types present at the respective project sites are depicted in Figure 3.

- **Aura – Galestown – Sassafrass Complex (AwD):** Soils of the Aura series are deep, well-drained soils of the Coastal Plain uplands that formed in stratified gravelly and loamy sediment (NRCS 1974). Typical slopes are approximately two to six percent. Soils of the Galveston series are deep, somewhat excessively drained, sloping to steep soils on uplands. These soils formed in sandy Coastal Plain sediment. Typical slopes range from 15 to 30 percent. Soils of the Sassafrass series are deep, well-drained nearly level to steep soils formed in sandy and loamy Coastal Plain sediment (NRCS 1974). Typical slopes are approximately zero to two percent.
- **Caroline Fine Sandy Loam (CaB2, CaC2):** Soils of the Caroline series are deep and well drained soils formed from fluvial and marine sediments on the upper and middle portions of the Atlantic Coastal Plain (NRCS 1974). Typical slopes where these soils are found range from zero to 25 percent (NRCS 1974).
- **Lunt Loam (34C, 34D):** Soils of the Lunt series are characterized as deep and well drained soils formed in stratified sediments of sand, silt, and clay (NRCS 1989). Typical slopes where these soils are found range from seven to 25 percent. They are typical soils of the northern part of the Coastal Plain terraces (NRCS 1989).

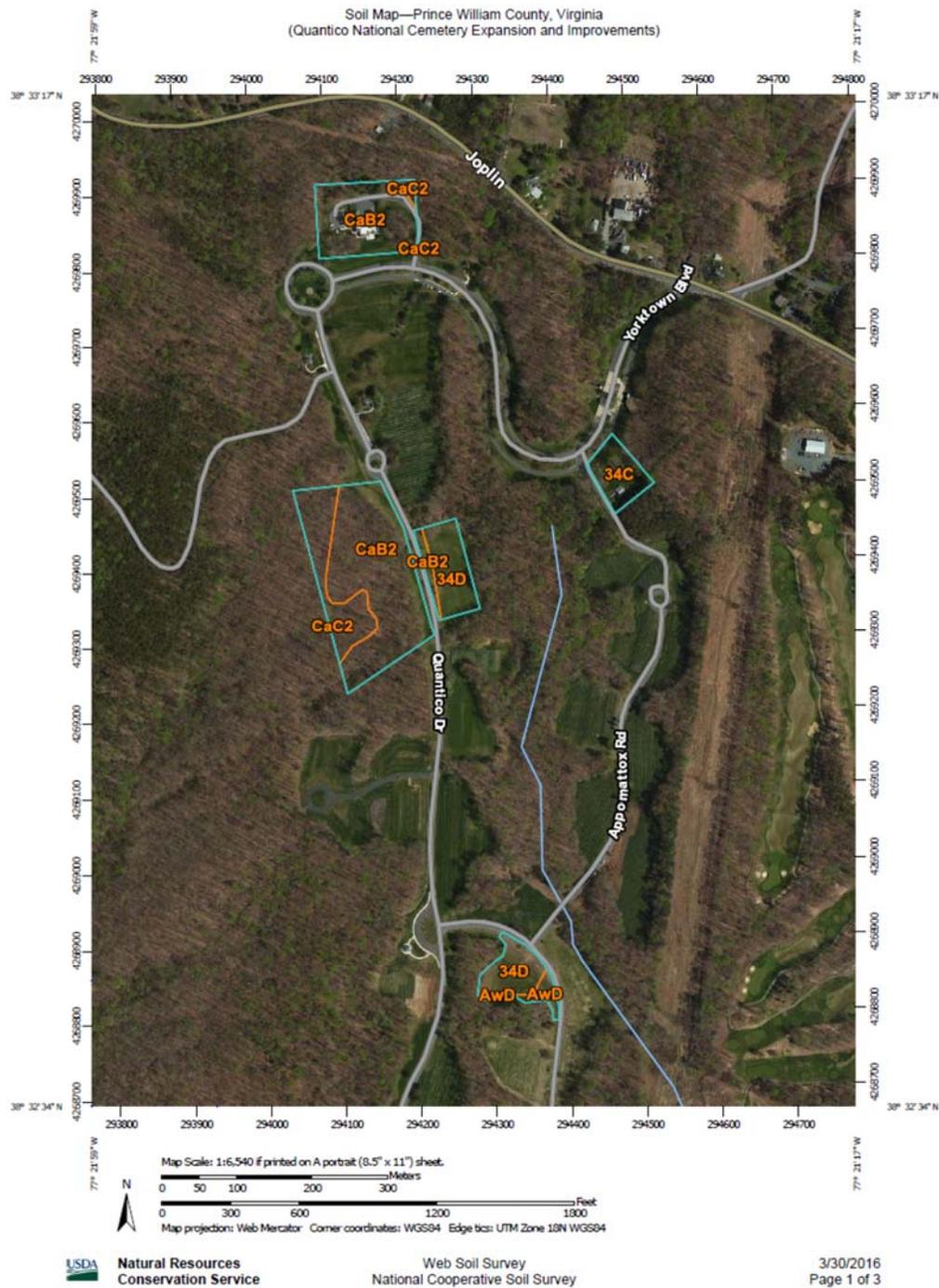


Figure 3-1. Soil Types within the Affected Area at Quantico National Cemetery (NRCS 2015).

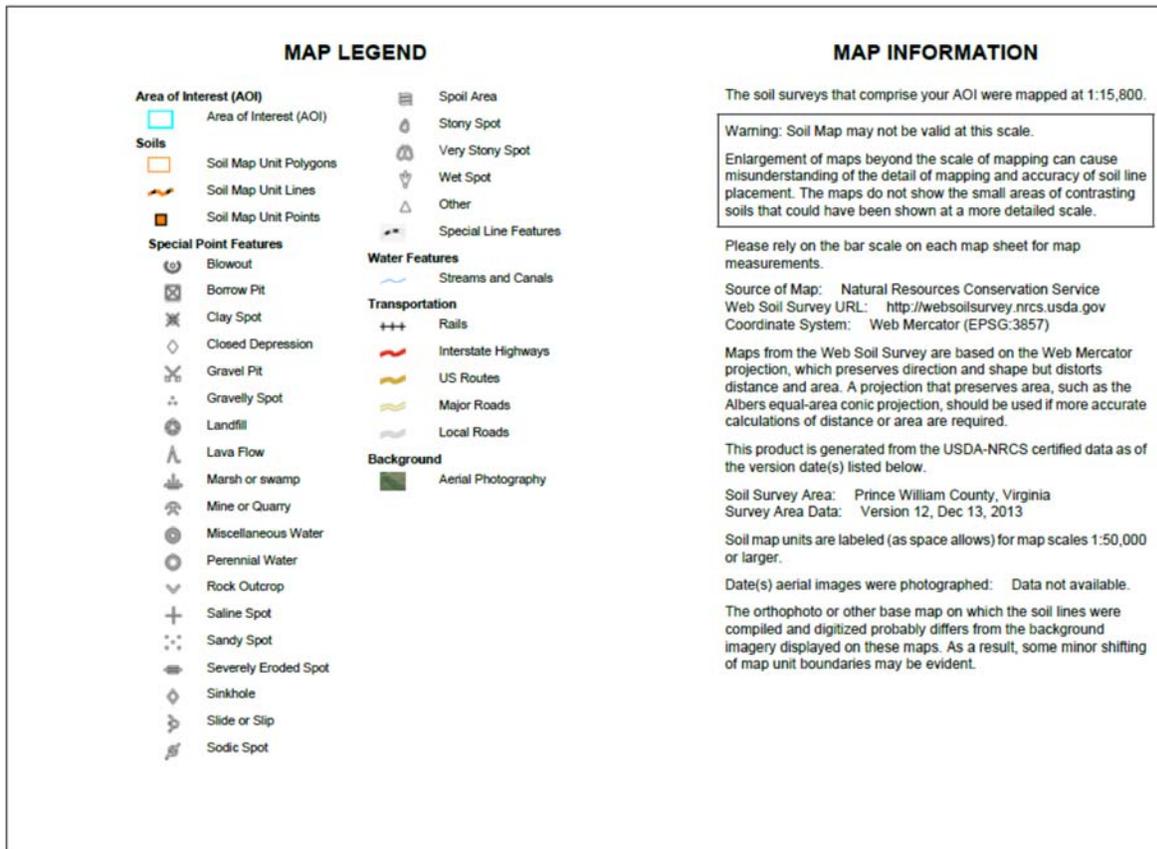


Figure 3-1, Continued. Soil Types within the Affected Area at Quantico National Cemetery (NRCS 2015).

3.3.2 Effects of the Preferred Alternative

Minor, adverse impacts to soils and topography that range from short-term to long-term impacts will occur with implementation of the Preferred Alternative. Considerable grading of soils will be necessary to achieve the target slopes in the Standard Burial Site due to the steeply sloped topography that currently exists at this site. The majority of the soils at the Preplaced Crypt Site have not been previously graded so there will be some new soil disturbance throughout this site. However, grading in the remaining project site areas would be minimized because construction will occur on sites that have already been previously disturbed and graded. Construction of the Preferred Alternative would include vegetative clearing, regrading, and stabilization of exposed soil surfaces. Construction will result in the temporary disturbance of approximately five acres of soil. Approximately seven additional acres of soils will be permanently disturbed in the immediate footprint of the project features as well. Construction activities would remove vegetative cover and disturb soils, increasing susceptibility to wind and surface runoff. However,

implementation of stormwater management BMPs will be used to largely control potential erosion and sedimentation issues during construction and following construction. Exposed soils would be susceptible to wind erosion, temporarily increasing particulate matter in the area, creating short-term visibility, and aesthetic impacts. Implementation of the Preferred Alternative is not anticipated to affect the subsurface geology of the site.

The use of construction BMPs described in Section 3.2.4 and adherence to the Virginia Stormwater Management Handbook will reduce adverse soil impacts. Soil erosion and sedimentation impacts would be a minor, adverse impact as a Storm Water Pollution Prevention Plan and an erosion and sedimentation plan will be developed as required per the Virginia Pollutant Discharge Elimination System (VPDES) General Construction Permit. The use of construction BMPs will ensure compliance with state and federal water quality standards and minimize short- and long-term adverse impacts to soils and water quality.

3.3.3 Effects of the No Action Alternative

The No Action Alternative would result in no new impacts to geology, topography, or soils, because expansion would not occur and operations would remain at their current level.

3.3.4 Minimization and Best Management Practices

The use of stormwater management BMPs to reduce erosion and sedimentation impacts will help minimize short-term and long-term impacts to soils as well as water quality. Prior to construction, a Stormwater Pollution Prevention Plan approved by the VDEQ as authorized under the Virginia Stormwater Management Program (VSMP) Regulation (9VAC25-870) that includes erosion control practices, inspection procedures, and other BMPs will be required. An erosion and sediment control plan approved by the VESCP authority as authorized under the Erosion and Sediment Control Regulations (9VAC25-840) shall be developed that minimizes soil exposure and compaction during construction and controls stormwater discharges to minimize soil erosion.

Specific measures to minimize soil exposure and compaction and reduce potential impacts to stormwater that the contractor will be required to follow during construction will consist of the following:

- Install and monitor erosion-prevention BMPs, such as silt fences, sediment berms, and/or other equivalent sediment control measures as appropriate and in accordance with the approved Storm Water Pollution Prevention Plan;
- Apply permanent or temporary soil stabilization to denuded areas within seven days after final grade is reached on any portion of the site;
- Apply nutrients to landscaping areas in accordance with manufacturer's recommendations and do not apply nutrient during rainfall events;
- Inspect stormwater water BMPs and potential risks to stormwater (e.g. material stockpiles, silt fences, etc.) (i) at least once every four business days or (ii) at least once every five business days and no later than 48 hours following a measurable storm event. In the event that a measurable

storm event occurs when there are more than 48 hours between business days, the inspection shall be conducted on the next business day; and

- Stabilize disturbed areas immediately whenever any clearing, grading, excavating, or other land-disturbing activities have permanently ceased on any portion of the site, or temporarily ceased on any portion of the site and will not resume for a period exceeding 14 days.

3.4 Water Resources

3.4.1 Affected Environment

Surface Waters and Wetlands. The Region of Influence for the Affected Environment consists of all areas physically disturbed by construction activities or otherwise disturbed indirectly by erosional impacts and includes all areas of temporary and permanent impacts, including the staging area as well as the limits of construction and delivery vehicle egress/ingress to the QNC. The project area is located in the watershed of the Chopawamsic Creek. Two stream valleys run through the site from north to south and drain into the Chopawamsic Creek (VA 1978).

The U.S. Army Corps of Engineers, Norfolk District, performed a wetland assessment at all potential project site areas within the anticipated construction limits of the Preferred Alternative on January 25, 2015. The USACE inspected all potential site areas and also sampled and classified soil types (using Munsell Soil Color Charts) to determine the presence of hydric (wetland) soils. Results of this wetland assessment indicated that no jurisdictional wetlands exist within the limits of construction within the potential project site areas. A summary site visit report that documents the predominant vegetation, soil types, and results of the wetland assessment is provided in Appendix C.

3.4.2 Effects of the Preferred Alternative

Surface Waters, Wetlands, and Groundwater. Implementation of the Preferred Alternative is anticipated to have no adverse impacts on wetlands, as no jurisdictional wetlands are located within the area of effect for the Preferred Alternative. Implementation of the Preferred Alternative would have minor, short-term adverse effects to surface waters from discharge of stormwater because removal of vegetation for site preparation would increase overland flow. Adherence to the conditions of the NPDES permit, discussed in Section 3.2.4, would help reduce stormwater impacts associated with new construction. Implementation of the stormwater management structures and other stormwater BMPs will ensure that post-development stormwater discharge would not exceed current conditions. Several relevant BMPs are discussed in Section 3.2.4.

Overall, construction of proposed expansion and improvements coupled with BMPs and adherence to local, state, and applicable federal permitting requirements precludes major disruption of the site's surface water resources. Therefore, overall impacts on water resources resulting from the Preferred Alternative would be adverse, minor, and short-term.

The U.S. Army Corps of Engineers, Norfolk District, previously determined that the Preferred Alternative would not result in adverse impacts on jurisdictional wetlands of the United States. This conclusion was based on a determination that the Preferred Alternative would not result in the discharge of dredge or fill material into jurisdictional waters of the United States. Consequently, the Preferred Alternative would not be subject to regulations pursuant to Section 404 of the CWA or Section 10 of the Rivers and Harbors Act, and no USACE permit would be required (Appendix C).

Groundwater. The Preferred Alternative is anticipated to have no adverse impacts on groundwater. Appropriate groundwater engineering controls would be necessary, were excavation to occur in shallow groundwater areas. In addition, standard NCA crypt designs would largely minimize the leaching of byproducts into the groundwater or surrounding soil. Current designs use subsurface concrete crypts, into which caskets are set, rather than burying them directly in the soil. The VA is not involved in funeral homes processes; however, modern embalming fluids are no longer arsenic-based and are biodegradable, resolving toxicity issues previously associated with traditional embalming preparations. The increased use of cremain burial sites and columbaria would further decrease the risk of adverse impacts on groundwater. Therefore, any potential impacts to groundwater are anticipated to be negligible, adverse impacts.

3.4.3 Effects of the No Action Alternative

The No Action Alternative would result in no impact on water resources, because expansion would not occur and operations would remain at their current level.

3.4.4 Minimization and Best Management Practices

Please refer to Section 3.2.4 for an applicable listing of stormwater BMPs.

3.5 Wildlife and Habitat

3.5.1 Affected Environment

The Region of Influence for the Affected Environment consists of all areas physically disturbed by construction activities or otherwise disturbed indirectly by erosional impacts and includes all areas of temporary and permanent impact, including the staging area as well as the limits of construction and delivery vehicle egress/ingress to the QNC.

The existing Shelter C consists of a roofed open structure over a concrete pad that has a paved walkway leading up to it. An upland manicured lawn that is dominated by a planted mixture of three grass species surrounds the Shelter C. There is also a hardwood tree and 14 horticultural bushes adjacent to the Shelter C and manicured lawn.

This proposed Columbarium Site is comprised of a manicured lawn dominated by a planted mixture of three grass species. Natural channelization was evidenced parallel to the road across this site and a channel (lacking standing water) was also observed in the northwest to southeast direction.

The proposed Standard Burial Site is comprised of a manicured lawn dominated by a planted mixture of three planted grass species. No standing water or channeling was observed at this site. Three oak trees (*Quercus sp.*) are located on the west end of the site.

The proposed Preplaced Crypts Site consists of a manicured lawn dominated by a mixture of three planted grass species that extends into an upland oak-dominated forest. Between the manicured lawn and the oak forest there is a bordering line of mature sweetgum trees (*Liquidambar styraciflua*). Dominant species in the oak forest are swamp chestnut oak (*Quercus michauxii*) and southern red oak (*Quercus falcata*). Other species in the mature canopy were pin oak (*Quercus palustris*), white oak (*Quercus alba*), American beech (*Fagus grandifolia*) and pine (*Pinus sp.*). Although not a dominant species, American holly (*Ilex opaca*) was noted in small scatterings in the understory. The majority of the understory was covered in oak leaves and the bottom surface of the leaves on the ground was moist and darkly stained.

Because of the relatively undisturbed oak-dominated forests that dominate the QNC, a diversity of wildlife inhabits the area of effect. Birds found throughout the project area would include a variety of songbirds, birds of prey, turkeys, woodpeckers, and migratory bird species. Flocks of wild turkeys (*Meleagris gallopavo silvestris*) are known to frequent the site, likely due to the ample food source of acorns found in the oak forests. Acorns provide a food source for a variety of wildlife including white-tailed deer (*Odocoileus virginianus*), turkeys, and squirrels (various species). A variety of mammals that would typically occur in the area include the gray squirrel (*Sciurus spp.*), chipmunks (*Tamias spp.*), deer, eastern cottontail (*Sylvilagus floridanus*), woodchuck (*Marmota monax monax*), skunks (*Mephitis spp.*), Virginia opossum (*Didelphis virginiana virginiana*), and raccoon (*Procyon lotor lotor*). Based on an acoustic survey conducted June 2-5, 2015 in the proposed Preplaced Crypts Site, red bats (*Lasiurus borealis*) are known to inhabit within the project area; however, no other bat species were detected during the survey. A listing of wildlife species with the potential to occur in and/or near the Project Area was compiled from the Virginia Fish and Wildlife Information Service (VaFWIS; species within a three-mile radius of the Study Area) (Virginia Department of Game and Inland Fisheries (VDGIF) 2015), Information, Planning and Conservation System (IPaC) (species in Study Area) (U.S. Fish and Wildlife Service (USFWS) 2015c), and Virginia Natural Heritage databases (Virginia Department of Conservation and Recreation (DCR) 2015) and is provided in Appendix D.

3.5.2 Effects of the Preferred Alternative

The construction will result in temporary to permanent, adverse, minor effects to wildlife and wildlife habitat in the Study Area. Most motile wildlife will be disturbed and flushed by construction noise and disturbance and will move away from the construction sites. Mobile species such as deer and squirrels

would move away from the construction impacts and utilize other comparable habitats at the QNC. However, impacts to these species would be minor as ample amounts of comparable habitats are found nearby at the QNC. Implementation of the Preferred Alternative will permanent impact approximately seven acres of wildlife habitat at the QNC. The majority type of wildlife habitat lost will be the oak-dominated forests located at the proposed Preplaced Crypts Site. Implementation of the Preferred Alternative will also result in the approximately five acres of temporary construction impacts. Following construction these areas will be regraded and reseeded.

3.5.3 Effects of the No Action Alternative

With implementation of the No Action Alternative there would be no impacts to wildlife or wildlife habitat.

3.6 Threatened and Endangered Species and Bald Eagles

3.6.1 Affected Environment

Animals and plants listed as endangered or threatened are protected under the Endangered Species Act, of 1973, as amended (ESA). According to the ESA, “endangered species” is defined as any plant or animal species in danger of extinction throughout all or a substantial portion of its range. A “threatened species” is any species likely to become an endangered species in the foreseeable future throughout all or a substantial part of its range. “Proposed Species” are animal or plant species proposed in the Federal Register to be listed under Section 4 of the ESA. “Candidate Species” are species for which the USFWS and National Marine Fisheries Service have sufficient information on their biological status and threats to propose them as endangered or threatened under the ESA. The Biological Assessment and all relevant consultation correspondence is provided in Appendix D.

This section provides information on threatened and endangered species that have the potential to occur in the project area (or as otherwise provided by the USFWS in the Official Species List). To ensure compliance with Section 7 of the ESA, a Biological Assessment was submitted to the USFWS on July 13, 2015. This section also summarizes the results of our searches for Bald Eagle nesting sites at and within the vicinity of the project sites. The following references were consulted for inclusion of applicable information into this section: VaFWIS database search within a three-mile radius of the Study Area (VDGIF 2015), IPaC database search (USFWS 2015c), and the Virginia Natural Heritage Database Search (DCR 2015). A copy of the reports generated from the federal and state databases is provided in Appendix D. Federally listed species having the potential to occur in the Study Area are described in Table 3-1 as well as results of our searches of eagle nests at and within the vicinity of the study area.

Northern Long-Eared Bat. The USFWS listed the northern long-eared bat (*Myotis septentrionalis*) threatened in 2015, with no designated critical habitat. The most severe threat attributed to the substantial population decline of the northern long-eared bat has been the widespread spread of the White-Nosed Syndrome that is caused by the fungal infection *Pd* (*Pseudogymnoascus destructans*). The

Study Area is located within the managed White-Nose Syndrome Buffer Zone as defined by the USFWS (2015b). Populations in Virginia are thought to have declined by 96% and are anticipated to decline with the continued spread of the White-Nose Syndrome (VDGIF 2014, unpublished data in USFWS 2015a). The northern long-eared bat is a dark brown on its back with lighter coloration underneath with a wingspan of approximately 9-10 inches and is approximately 3 – 3.7 inches in body length (USFWS 2015a). This bat is distinguished from other similar bat species in its genus by the length of its ears that extend past its nose when folded. During the winter, northern long-eared bats hibernate in caves and mines called hibernacula. During the summer, this species roosts beneath bark and in cavities of both live and dead trees (snags). They will also roost in human-made structures such as culverts, barns, and sheds. Females give birth to one young during the summer. No reported natural hibernacula are located in the Study Area.

A USFWS-approved surveyor, Michael St. Germain, Conservation Management Institute at Virginia Tech, conducted a bat acoustic survey in accordance with the 2015 Range-Wide Indiana Bat Summer Survey Guidelines at three monitoring locations located within the proposed Preplaced Crypts Site (two in the northern reaches of the site and one in the southern portion of the site) from June 2, 2015 to June 5, 2015, for three consecutive evenings. Song Meter ZC and Anabat acoustic monitoring equipment were set up in the interior forest habitat approximately 300 feet from Quantico Road. St. Germain noted on June 2, 2015, during the site visit and set up of the bat acoustic monitoring equipment, that the Preplaced Crypt Site does contain potential habitat for the northern long-eared bat. Tree snags and cavities were observed during the site visit. The survey was limited to the proposed Preplaced Crypt Site as this is the site where tree clearing is proposed for the project. The bat calls were quantitatively analyzed using Kaleidoscope Pro version 2.0.7. No long-eared bats or federally listed Indiana bats (*Myotis sodalis*) were detected during the survey. The acoustic data revealed that eastern red bats (*Lasiurus borealis*), a non-federally listed species, are present at the proposed Preplaced Crypt Site.

Small-Whorled Pogonia. The USFWS listed the small-whorled pogonia in 1982 as an endangered species and it was later reclassified as threatened. The primary threat to this species is habitat loss, primarily from urban development and encroachment (USFWS 2016). The small-whorled pogonia is also an orchid, which makes it susceptible to collecting. The small-whorled pogonia has a single grayish-green stem that is approximately 10 inches tall when in flower (in May or June) and approximately 14 inches tall when containing fruit (USFWS 2016). The plant is named “whorled” for the whorl of five to six leaves that are found at the top of the stem below the flower. The leaves are grayish green as well, oblong and are approximately one to three and a half inches long.

A USFWS-approved surveyor, Keith Goodwin, USACE, conducted a small-whorled pogonia survey of the proposed project sites and adjacent areas on June 2, 2015. All project site areas (extending throughout the limits of construction) were surveyed by Goodwin, including the Preplaced Crypts Site. It was determined during the survey that portions of the Preplaced Crypts Site (non-disturbed sites away from

the immediate vicinity of Quantico Drive) could potentially provide suitable habitat for the small-whorled pogonia. However, no small whorled pogonia was observed during the survey. It was determined during the survey that the other project sites do not provide suitable habitat for the small whorled pogonia. One large-whorled pogonia (*Isotria verticillata*), a non-federally listed species, was observed in the proposed Preplaced Crypts Site during the survey.

Bald Eagles. There is no suitable nesting habitat for bald eagles at the project sites. No bald eagle nesting sites are located within three miles of the project sites (The Center for Conservation Biology 2015).

3.6.2 Effects of the Preferred Alternative

Species Conclusion Table. The Species Conclusion Table below provides the ESA, Section 7 effect determinations for federally listed species with the potential to occur in the project area or as otherwise provided in the Official Species List provided by USFWS. This table also documents that there are no anticipated effects to critical habitat or candidate species, and that this project will not require a bald eagle (*Haliaeetus leucocephalus*) permit. Reference species lists compiled from the VaFWIS database search within a three-mile radius of the Study Area (Virginia Department of Game and Inland Fisheries 2015) and results of the Virginia Natural Heritage Database search (Virginia Department of Conservation and Recreation 2015) are provided in Appendix D. Implementation of the Preferred Alternative may affect, but is not likely to adversely affect the northern long-eared bat or the small-whorled pogonia. The USFWS included harparella (*Ptilimnium nodosum*) on the Official Species List, however, there is no potential habitat for harparella at the project sites; therefore, with implementation of the Preferred Alternative there will be no effect to harparella. There are no anticipated effects to critical habitat or candidate species with implementation of the Preferred Alternative.

Table 3-1. Species Conclusion Table.

Species / Resource Name	Conclusion	ESA Section 7 / Eagle Act Determination	Notes / Documentation
Northern long-eared bat (<i>Myotis septentrionalis</i>)	Suitable habitat present (Proposed Preplaced Crypts Site); based on acoustic survey, species not present	Not likely to adversely affect	Initial site visit by USACE on January 25, 2015 indicated potentially suitable habitat is present at the proposed Preplaced Crypts Site. A three night (June 2-5, 2015) consecutive acoustic bat survey conducted by USFWS-approved surveyor, Michael St. Germain, Conservation Management Institute at Virginia Tech, indicated the northern long-eared bat is

Species / Resource Name	Conclusion	ESA Section 7 / Eagle Act Determination	Notes / Documentation
			not present at the proposed Preplaced Crypts Site. No more than approximately eight acres of trees will be permanently cleared from the proposed Preplaced Crypts Site. No known northern long-eared bat maternity roosts or hibernacula are documented at or located within five miles of the project area. Project construction is anticipated to occur during all times of the year.
Small whorled pogonia (<i>Isotria medeoloides</i>)	Suitable habitat present (Proposed Preplaced Crypts Site); based on survey, species not present	Not likely to adversely affect	Initial site visit by USACE on January 25, 2015 indicated potentially suitable habitat is present at the proposed Preplaced Crypts Site. June 2, 2015 survey by USFWS-approved surveyor, Keith Goodwin, USACE, indicated small whorled pogonia is not present at any of the proposed project sites. However, he noted that potential habitat exists at non-disturbed areas of the proposed Preplaced Crypts Site.
Harparella	No suitable habitat present	No effect	In the Piedmont region, harparella occurs along rock or gravel shoals and sandbars of swift flowing streams. The project affected area, while located in the Northern Piedmont region, does not include any stream or riverine habitats. Habitats in the affected project area are

Species / Resource Name	Conclusion	ESA Section 7 / Eagle Act Determination	Notes / Documentation
			restricted to uplands that include deciduous oak (<i>Quercus spp.</i>)-dominated habitats and manicured (grass-dominated) lawns. Based on detailed visits of the affected project areas on January 25, 2015 and June 2, 2015 by the USACE, there is no potential habitat for this species in the affected project areas.
Critical habitat	No critical habitat present	No effect	No critical habitat is listed for species with the potential to occur in the affected project area.
Bald eagle (<i>Haliaeetus leucocephalus</i>)	Unlikely to disturb nesting bald eagles. Does not intersect with eagle concentration area.	No eagle act permit required	Per The Center for Conservation Biology CCB Mapping Portal (accessed 10 July 2015), the closest recorded active eagle nest is located more than three miles away from the project affected area. The affected project area does not likely provide suitable nesting or foraging habitat for eagles.
Candidate species	No species present.	No effect	No known candidate species occur in the area affected by the proposed project.

3.6.3 Effects of the No Action Alternative

Implementation of the No Action Alternative is anticipated to have no impacts to Threatened and Endangered Species.

3.7 Noise

3.7.1 Affected Environment

The most common sources of noise in the QNC are generated from vehicles, lawn maintenance activities, and burial ceremonies. Noise receptors within a 10-mile radius of the QNC include Prince William Forest

Park, the Locust Shade Park, the Forest Greens Golf Course, residential homes, and the Quantico Marine Corps Base. Building and infrastructure maintenance activities are a source of potential noise at the cemetery. Based on activities and land use in the QNC, ambient noise levels in the QNC are anticipated to be typically at a cemetery or park-level at an estimated 67 decibels A (dBA) (23 CFR, Part 772, Table 1 Noise Abatement Criteria). However, noise levels from infrastructure and building maintenance within the Affected Area are estimated to peak at approximately 86 dBA (U.S. Department of Transportation, Federal Highway Administration 2015).

Blank round rifle salutes used during committal services are the most substantial long-term source of noise at the NCA. Salutes typically range in number from three to five at a target distance of approximately 50 meters, and last less than 10 seconds and would typically exceed 100 dBA. Up to approximately 30 ceremonies occur per day on weekdays between the hours of 8:00 am and 4:30 pm, with occasional services on weekends.

3.7.2 Effects of the Preferred Alternative

Construction of Preferred Alternative would result in minor, short-term adverse noise impacts. Table 3-2 provides the estimated distance the construction noise will travel during the construction phase. During construction, noise from construction vehicles’ entering and exiting the cemetery is likely to temporarily increase noise levels. Land preparation, grading, and other construction activities will further contribute to temporary noise impacts above existing ambient noise levels.

We would anticipate construction activities to have an average approximate noise level of 86 dBA (U.S. Department of Transportation, Federal Highway Administration 2015). Based on a sound dissipation rate of five dBA per doubling of distance (U.S. Department of Transportation, Federal Highway Administration 2011), construction noise impacts were estimated to extend to an estimated distance of 0.1 – 0.2 mile from the construction sites (Table 3-2).

Table 3-2. Estimated distance of construction noise resulting from implementation of the Preferred Alternative.

Distance from noise (ft)	dBA ¹	Distance from noise (mile)
50	86	0.009
100	81	0.019
200	76	0.038
400	71	0.1
800	66	0.2
1,600	61	0.3
3,200	56	0.6

Distance from noise (ft)	dBA ¹	Distance from noise (mile)
6,400	51	1.2
12,800	46	2.4
25,600	41	4.8
51,200	36	9.7
102,400	31	19.4
204,800	26	38.8
409,600	21	77.6

We would anticipate that noise from normal cemetery operations, which include noises associated with the operation and maintenance of the cemetery as well as regular committal services and other ceremonial activities, would not change from current conditions.

3.7.3 Effects of the No Action Alternative

The No Action Alternative would result in no impact on noise relative to current QNC operational conditions, because expansion would not occur and operations would remain at their current levels. Thus, noise impacts associated with the daily upkeep, maintenance, and operation of the cemetery would continue. In addition, noise impacts from rifle salutes would occur as long as committal services are taking place at the site.

3.7.4 Minimization and Best Management Practices

The following minimization measures will be used to reduce the impacts associated with the implementation of the Preferred Alternative:

- designing the landscape to baffle the cemetery from surrounding uses and minimize noise impacts on neighboring properties;
- using properly maintained and muffled vehicles and equipment;
- complying with the Prince William County Noise Control Ordinance at all times; and
- shutting down heavy equipment and other noise emitters when they are not in use.

3.8 Hazardous, Toxic, and Radioactive Waste

3.8.1 Affected Environment

The Region of Influence for the Affected Environment consists of all areas physically disturbed by construction activities including all areas of temporary and permanent impact including the staging area.

Based on discussions with the QNC staff, the site visit, and searches in the VDEQ Department of Environmental Quality Pollution Response Program Database and other pertinent records, no evidence of hazardous substances, HRTW, or other regulated contaminants are known or anticipated in the Study Area. A review of historical records and document pertinent to this site was examined for any recorded evidence of operations or activities that may have generated hazardous material and/or waste. While the QNC was formerly used as a tactical training site for the Quantico Marine Corps Base, there is no record of munitions or any evidence or records indicating that explosives were ever stored or detonated on the site.

3.8.2 Effects of the Preferred Alternative

Hazardous, radioactive, and/or toxic waste is not anticipated to be generated nor stored onsite with implementation of the Preferred Alternative. Should a spill of gasoline occur from a fuel tank in construction equipment, the spill will be contained and any gasoline and contaminated soil will be placed into a labeled, approved container and be transported to an approved disposal facility. Therefore, while a gasoline spill could result in minor, temporary, adverse impacts, there is not anticipated to be any long-term adverse impacts resulting from HTRW within the Study Area with implementation of the Preferred Alternative.

3.8.3 Effects of the No Action Alternative

There is no history of HRTW spills or known HRTW present in the project area, therefore, there is not anticipated to be impacts resulting from HTRW with implementation of the No Action Alternative.

3.8.4 Minimization and Best Management Practices

Should a spill of gasoline occur from a fuel tank in construction equipment, the spill will be contained and any gasoline and contaminated soil will be placed into a labeled, approved container and be transported to an approved disposal facility.

3.9 Cultural Resources

3.9.1 Affected Environment

The Region of Influence for the Affected Environment consists of all areas disturbed by construction activities, including all areas of temporary and permanent impact including the staging area.

Cultural resources are defined by the National Historic Preservation Act (NHPA) as historic properties including prehistoric and historic sites, structures, buildings, objects, districts, or any other physical evidence of human activity associated with important historic events, with persons important in history, representing the work of a master or exemplary as a type, or have or may yield information important to history or prehistory. Several federal laws and regulations protect these resources, including the NHPA of 1966, the Archaeological and Historic Preservation Act of 1974, the American Indian Religious Freedom

Act of 1978, the Archaeological Resources Protection Act of 1979, and the Native American Graves Protection and Repatriation Act of 1990.

Section 106 of the NHPA and its implementing regulations, 36 CFR Part 800, requires an assessment of the potential impact of an undertaking on historic properties that are within the proposed project's Area of Potential Effect (APE), which is defined as the geographic area(s) "within which an undertaking may directly or indirectly cause alterations in the character or use of historic properties, if any such properties exist." The area of direct and indirect potential effects of the proposed project are the grounds of QNC.

Earliest human inhabitation of the Americas remains one of the most debated issues in archaeology, but clearly Native Americans began to inhabit the Chesapeake Bay region over 12,000 years ago. Many of the sites left by the 'Paleo-Indians' of this period may now be submerged on the bottom of the bay and the Atlantic continental shelf, for sea-levels during the Wisconsin Glaciation of the Pleistocene epoch, or Ice Age were some 400 feet below contemporary levels. Very few sites from this early period are known for Prince William County, as is the case with the rest of northern Virginia. Populations were evidently low, but grew considerably during the Archaic Period, which is divided into Early (8000-6500 BCE), Middle (6500 to 3000 BCE) and Late (3000 to 1200 BCE) Archaic Periods.

Again, in the Early Archaic Period sites are few in Prince William in comparison with other areas in Virginia. Some archaeologists suggest that settlement may have focused on the Potomac, and that sites were inundated by the post-Pleistocene sea level rise. This trend changed in the Middle Archaic, and sites with artifacts from this period are abundant in the area. Along with increasing population, there is evidence of an increased diversity in resources hunted and gathered for food, with an expansion in fishing and shellfish gathering particularly notable.

Around 1200 BC people in the region began making and using pottery. This marks the beginning of the Woodland Period, also divided into Early (1200-500 BCE), Middle (500 BCE to 900 CE), and Late (900-1600 CE) Woodland Periods. There seems to have been little change in settlement between the Late Archaic and Early Woodland Periods, apart from the use of pottery; but during the Middle Woodland people seem to have dispersed into smaller, though perhaps more sedentary settlements. It was during this period that the maize-beans-squash crop combination of American Indians was adopted in the region. During the Late Woodland Period populations increased with an expansion of agriculture, as did political hierarchy. Village districts consisting of a series of hamlets, or in the native language "hattos" were strung along the shores of the major estuaries, with a nucleated, often palisaded chief's residence central to them. This was the state of native culture in the Chesapeake Bay region during early exploration and settlement, and the direct historical accounts of that period give the name Protohistoric Period to 1600-1650. The larger Native American sites in Prince William County are most often located on points and near the mouths of major tributaries, and often include artifacts from several, sometimes all of the periods

of prehistory. No previously recorded Native American archaeological sites were in the direct APE of this project at its onset.

The Virginia Department of Historic Resources has developed a statewide historic context. This divides the history of Virginia into eight periods: Settlement to Society (1607-1750), Colony to Nation (1750-1789), Early National Period (1789-1830), Antebellum Period (1830-1860), Civil War (1861-1865), Reconstruction and Growth (1865-1917), World War I to World War II (1917-1945), and The New Dominion (1945 to present).

The Settlement to Society (1607-1750) period opens with Captain John Smith's exploration of the Chesapeake Bay. In two epic voyages Smith and his small crew logged over 3,000 miles exploring the bay and its tributaries. Smith had noticed a pigment in body paint used by the natives that he thought might contain silver. He arraigned with the chief or Werowance of the local Patowomeke tribe to be guided to the source of this material. This trek led him inland to two places marked with crosses on his "Map of Virginia" published in 1612 and again in 1624. One of the crosses approximates the vicinity of Chopawamsic Creek, near where Interstate 95 now crosses it. The pigment, known by the native word *matchqueon*, was a black powder with flecks of silvery material. This description fits a poryphoroblastic schist which occurs at the interface of the Quantico Slate and Chopawamsic geological formations, and outcrops along Chopawamsic Creek and its tributaries near Interstate 95 (Haynes 2007). After his brief explorations, Smith left the area and soon returned to England.

Apart from a couple of notable incidents, the English colonists had little activity on the north part of the Lower Potomac for the rest of the first half of the 17th century. These notable incidents include a trading expedition to Patowomack by Captain Gabriel Archer in 1610, in which he bartered a copper kettle for Pocahontas and brought her back to Jamestown, where she later married John Rolfe. The other was sending a boy named Henry Spelman to live with the Patowomeke and learn their language. Spelman later wrote some interesting accounts of native customs. The first European settler in what later became Stafford County was a Marylander named Giles Brent, who married the daughter of a Piscataway chief, and settled at the mouth of Aquia Creek in 1655.

The Virginia colony had only turned its attention to settlement on the Potomac in 1645 when Northumberland County was formed from the Indian district of Chicacoan, and included all of the Northern Neck and northern Virginia. As more land was patented, Westmoreland County was formed from western Northumberland in 1653, and then Stafford from northern Westmoreland in 1664. Apart from Brent, there was no colonial settlement in the vicinity of what would later become Prince William County until the beginning of the 18th century. A map composed in 1670 by Augustine Herrman shows two large Indian towns on the Maryland side of the river, but little else. A descendant of Giles Brent attempted to establish a settlement in the interior in the late 1680's near the current location of

Somerville, but it was soon abandoned amid sightings of “strange Indians” and rumors of French intrigues in the area.

Around 1701 Burr Harrison established a homestead on Chopawamsic Creek, near the place where Route 1 crosses it. Harrison negotiated with the Piscataway, who had crossed into Virginia and settled in what was later Loudoun County, and secured rights for the English to settle along the Potomac. Settlement was soon increasing along the river. Then in 1722 the English colonies concluded the Treaty of Albany with a number of eastern tribes, opening the area up to the Blue Ridge Mountains to settlement. After this a flood of settlers came into northern Virginia, and Prince William County was formed in 1731.

Virginia was entering its “Golden Age” of the colonial period, reaping wealth from growing and exporting tobacco. Settlement expanded westward and northward. In 1742 Fairfax split off from Prince William County. Prince William built a new courthouse on Cedar Run, moving the function from Woodbridge, but then in 1759 moved it again to Dumfries as Fauquier County split off from Prince William County, shifting the population center of the county east again. Dumfries grew to be one of the busiest ports in Virginia, an export point for the ever-expanding tobacco industry.

Like much of rural Virginia, Prince William County entered a period of relative decline following the Revolutionary War. Tobacco farming had depleted soils, and opportunity to settle new lands to the south and west were depleting the population. The port of Dumfries had ceased to be accessible by the end of the 1700’s, with Quantico Creek silted in from eroding soils. In spite of these setbacks, rural industry continued with more than a dozen mills constructed, mostly grist mills and saw mills.

The outbreak of the Civil War put Prince William County on the front lines for the first year. As the Union and Confederate Armies mustered their troops, battle lines developed along the northern border of the county. Confederate forces massed around Centerville, and in late July 1861 were attacked by the Union Army. The result was the Battle of Manassas, the first large scale battle of the war, and a Union defeat. Following this, the Confederates, under direction of Confederate Naval officers began construction of batteries to hold heavy guns along the Potomac River. These batteries were intended to have an offensive function, to block Union shipping and warships from navigation. On October 15, 1861 batteries at Shipping Point near Evansport (later called Quantico) opened up scoring several hits on Union warships. This was the beginning of five months during which navigation was interrupted on the Potomac River between Washington and the Chesapeake Bay, and the scene of almost daily gun duels between the Confederate batteries, Union gunboats, and Union field artillery on the Maryland shore. In spite of a great deal of ordnance expended on both sides there were few casualties on either side (Haynes 2008). Early in March 1862 all of the Confederate forces in northern Virginia were ordered to withdraw south of the Rappahannock River, toward Richmond as Confederate leaders anticipated a Union offensive; although this would come on the Virginia Peninsula rather than in northern Virginia.

Prince William County was something of a rural backwater during the last decades on the 19th century. With the coming of the rail line along the Potomac, some hoped to spur growth. Such was the case at Evansport, renamed Quantico, but development plans there never bore much fruit in spite of a railroad station and steamer wharf. There were a few mines exploiting pyrite deposits for sulfur and gold, but otherwise the area was primarily agrarian.

The looming threat of world-wide war had the Wilson administration looking at expansions in defense in 1917. One of these measures would be to establish a new Marine Corps base in the Washington D.C. area. The presence of the railroad, steamer wharf, and a large tract of land for sale made Quantico the ideal location for this base. In May 1917 construction was begun, dedicated by Assistant Secretary of the Navy, Franklin D. Roosevelt just as America entered World War I. This began an economic transformation in the area, with thousands of Marines pouring in and hundreds of civilian jobs opening up to support the base.

Following the war the Marine Corps base remained, and helped support people in a rural county which like much of rural America began to feel the economic downturn years before the stockmarket crash of 1929. Later, as Roosevelt enacted his many “New Deal” programs the Works Progress Administration developed the “Chopawamsic Recreational Demonstration Area,” established in eastern Prince William to serve residents of Washington. Civilian Conservation Corps workers built four camping areas, and the agency acquired additional lands from 1934 to 1942. As the United States entered World War II the Marine Corps needed expanded training areas. In 1943 the base expanded west and northwest increasing its area more than eight times over. Over 300 families were forced from their homes with only a few weeks’ notice. Most of the burials from small family cemeteries were relocated to cemeteries established on the western perimeter of the base, but more than a dozen were left in place. The part of MCBQ beyond Route 1, the 50,000 acre expansion of 1943 is known sometimes as the “Guadalcanal Side” of the base, the expansion coming on the heels of the American victory in the Solomon Islands. In 1978, the area which became QNC was transferred from the Department of Navy to the VA for the creation of the cemetery.

Archaeological Resources. Several archaeological surveys have been conducted on QNC prior to projects there and sites recorded, others have been conducted prior to highway projects nearby, or for inventory on MCBQ and Prince William Forest Park. Although 19 archaeological surveys have been conducted within 1.5 miles of the center point of the study areas for this project, only three have been within the bounds of QNC, including the survey done for this project (Table 3-3; Table 3-4). Fifty-seven previously recorded sites are within 1.5 miles of the project. Most of these were either determined not NRHP eligible or have not been evaluated. Only one, a primarily Middle and Late Archaic site (44PW1106) east of Route 1 on MCBQ has been determined NRHP eligible. Survey conducted for this project in April 2015 (Goode 2015) identified site 44PW1983, a Late Archaic and Early Woodland camp site, and potentially NRHP eligible.

Table 3-3. Archaeological Surveys within 1.5 Miles of Project.

Report Title	Report Year	Report Author	Author Affiliation
A Phase I Evaluation of Three Streams in Prince William County, Virginia: Broad Run, Bull Run, and Quantico Creek	1985	James R. Cromwell, Jr., Robert McIver, Clarence R. Geier	James Madison University (Archaeological Research Center/Laboratory)
Phase I Archaeological Survey: Russell Road Landfill, Quantico Marine Base, Prince William County, Virginia	1995	J. Sanderson Stevens, Janice Artemel, Julie Abell	Parsons Engineering Science (Parsons/Parson Management Consultants)
Phase I Cultural Resources Investigation of Twelve Tracts Aboard the Marine Corps Base Quantico, Fauquier, Prince William, and Stafford Counties, Virginia with Addendum . . .	1996	Debra McClane, Eric Voigt	Gray and Pape, Inc.
Cultural Resources Identification Survey (Phase I) Improvements to US 1 from Stafford County Line to Route 123, Prince William County, Virginia, Project A	2001	Bill Hall, Loretta Lautzenheiser, John P. Cooke, Mary Ann Holm, N. Carolyn McCollum	Coastal Carolina Research
An Archaeological Assessment and Survey of Marine Corps Base, Quantico, Fauquier, Prince William, and Stafford Counties	1996	Clifton A. Huston, Donald W. Linebaugh, Charles M. Downing, Veronica L. Deitrick	(College of) William and Mary Center for Archaeological Research
Phase I and II Cultural Resource Investigations, Russell Road, Marine Corps Base Quantico, Prince William County, Virginia	2003	John Bedell, Stuart Fiedel	Louis Berger Group (Louis Berger and Associates)
Phase I Archaeological Survey For a 1,500 Ft Road Right-of-Way and New Gate at Marine Corps Base Quantico, Prince William County, Virginia	2002	Jesse B. Kulp, Christine Heidenrich, Michael B. Hornum	R. Christopher Goodwin and Associates, Inc.
Phase I Cultural Investigations Marine Corps Base Quantico, Prince William and Stafford Counties, Virginia	2003	Stuart Fiedel, John Bedell, Eric Griffiths	Louis Berger Group (Louis Berger and Associates)
A Phase I Archeological Investigation of Circa 14 Miles Proposed for Water Main Construction and 2.1 Miles of Small Service Lines Within the Prince	2003	William Gardner, Kimberly Snyder, Joan Walker & Gwen Hurst	Thunderbird Archaeological Associates (Thunderbird Research Corp.)

Report Title	Report Year	Report Author	Author Affiliation
William Forest Park, Prince William County, Virginia			
A Phase I Archaeological Survey for the Department of Veterans Affairs National Cemetery Administration's Cemetery Expansion and Improvements Quantico National Cemetery, Quantico, Prince William County, Virginia	2006	Robert Wall, Eric Schmidt	TRC Environmental (TRC Garrow and Associates)
Third Addendum to the Phase I Archeological Investigations of the I-95/395 HOV/Bus/HOT Lanes Project, Arlington, Fairfax, Prince William and Stafford Counties and the City of Alexandria	2008	Jarod Hutson, John Mullen	Thunderbird Archaeological Associates (Thunderbird Research Corp.)
Phase I Cultural Resource Investigations Marine Corps Base Quantico, Prince William and Stafford Counties, Virginia	2010	John Bedell, Jason Shellenhamer	Louis Berger Group (Louis Berger and Associates)
Cultural Resources Investigations of Sites 44PW945, 44PW946, 44PW1289 and 219 Acres of Timber Compartments at Marine Corps Base Quantico, Prince William and Stafford Counties, Virginia	2009	Charles Goode, Sarah Traum, Joseph Balicki	John Milner Associates
Phase I Archaeological Survey of Approximately 33 Acres at the Quantico National Cemetery, Prince William County, Virginia	2010	Sean Norris	TRC Environmental (TRC Garrow and Associates)
Phase I Archaeological Survey, Marine Corps Heritage Center, Marine Corps Base, Quantico, Stafford County, Virginia	1998	J. Sanderson Stevens, Dennis Knepper, Madeleine Pappas	Parsons Engineering Science (Parsons/Parson Management Consultants)
Phase I Survey of 16 Areas and Phase II Evaluation of 44ST205, 44ST327, 44ST399 and 44PW634, Marine Corps Base, Quantico, Stafford and Prince William Counties, Virginia	2001	Cynthia W. Auman, Christopher Egghart, Susan Hathway, Patrick O'Neill	Parsons Engineering Science (Parsons/Parson Management Consultants)
Report Title	Report Year	Report Author	Author Affiliation

Report Title	Report Year	Report Author	Author Affiliation
Phase I Archeological Investigations of the I-95/395 HOV/Bus/HOT Lanes Project, Arlington, Fairfax, Prince William and Stafford Counties and the City of Alexandria, Virginia	2007	Brian Buchanan, Christopher Shephard, David Carroll, Curt Breckenridge, Johnna Flahive, Christine Jirkowic, Tammy Bryant, William Barse	Thunderbird Archaeological Associates (Thunderbird Research Corp.)
An Archaeological Assessment and Survey of Marine Corps Base, Quantico, Fauquier, Prince William, & Stafford Counties, Virginia	1994	Clifton Huston, Charles Downing	(College of) William and Mary Center for Archaeological Research

Table 3-4 Archaeological Sites within 1.5 Miles of Project.

DHR_ID	Site Categories	Site Types	Time Periods	Evaluation Status
44PW0378	null	null	Prehistoric/Unknown (15000 B.C. - 1606 A.D.)	null
44PW0381	null	null	Prehistoric/Unknown (15000 B.C. - 1606 A.D.)	null
44PW0382	null	null	Prehistoric/Unknown (15000 B.C. - 1606 A.D.)	null
44PW0384	null	null	Prehistoric/Unknown (15000 B.C. - 1606 A.D.)	null
44PW0624	null	null	Prehistoric/Unknown (15000 B.C. - 1606 A.D.)	null
44PW0636	Domestic	Camp, temporary	Prehistoric/Unknown (15000 B.C. - 1606 A.D.)	null
44PW0638	Domestic	Camp, temporary	Prehistoric/Unknown (15000 B.C. - 1606 A.D.)	null
44PW0639	Domestic	Camp, temporary, Dwelling, single	Middle Archaic (6500 - 3001 B.C.), 19th Century: 4th quarter (1875 -	DHR Staff: Not Eligible

DHR_ID	Site Categories	Site Types	Time Periods	Evaluation Status
			1899), 20th Century: 1st half (1900 - 1949)	
44PW0639	Domestic	Camp, temporary, Dwelling, single	Middle Archaic (6500 - 3001 B.C.), 19th Century: 4th quarter (1875 - 1899), 20th Century: 1st half (1900 - 1949)	DHR Staff: Not Eligible
44PW0909	DSS Legacy	Camp, Other	Prehistoric/Unknown (15000 B.C. - 1606 A.D.), 20th Century: 1st quarter (1900 - 1924)	null
44PW0911	Domestic	Farmstead	Prehistoric/Unknown (15000 B.C. - 1606 A.D.), 19th Century: 4th quarter (1875 - 1899), 20th Century: 1st quarter (1900 - 1924)	null
44PW1001	Domestic	Camp, temporary	Prehistoric/Unknown (15000 B.C. - 1606 A.D.)	DHR Staff: Not Eligible
44PW1002	Domestic	Camp, temporary	Prehistoric/Unknown (15000 B.C. - 1606 A.D.)	DHR Staff: Not Eligible
44PW1003	Domestic	Camp, temporary	Prehistoric/Unknown (15000 B.C. - 1606 A.D.)	DHR Staff: Not Eligible
44PW1042	Funerary	Cemetery	20th Century (1900 - 1999)	DHR Staff: Not Eligible
44PW1043	Domestic	Trash pit	null	DHR Staff: Not Eligible
44PW1044	Subsistence/Agriculture	Agricultural field	Indeterminate	DHR Staff: Not Eligible
44PW1045	Domestic	Camp, temporary	Prehistoric/Unknown (15000 B.C. - 1606 A.D.)	DHR Staff: Not Eligible

DHR_ID	Site Categories	Site Types	Time Periods	Evaluation Status
44PW1046	Domestic	Camp, temporary	Prehistoric/Unknown (15000 B.C. - 1606 A.D.)	DHR Staff: Not Eligible
44PW1047	DSS Legacy	Other	Prehistoric/Unknown (15000 B.C. - 1606 A.D.)	DHR Staff: Not Eligible
44PW1048	DSS Legacy	Other	Prehistoric/Unknown (15000 B.C. - 1606 A.D.)	DHR Staff: Not Eligible
44PW1106	Domestic, DSS Legacy	Camp, temporary, Trash scatter	Late Archaic (3000 - 1201 B.C.), 19th Century: 2nd half (1850 - 1899)	DHR Staff: Eligible
44PW1127	DSS Legacy	Camp	null	null
44PW1135	Domestic	Camp, temporary	Prehistoric/Unknown (15000 B.C. - 1606 A.D.)	null
44PW1145	Domestic	Camp, temporary	Prehistoric/Unknown (15000 B.C. - 1606 A.D.)	null
44PW1150	DSS Legacy	Camp	Prehistoric/Unknown (15000 B.C. - 1606 A.D.)	null
44PW1151	Military/Defense	Military base/facility	Prehistoric/Unknown (15000 B.C. - 1606 A.D.), 20th Century: 1st half (1900 - 1949), 20th Century: 1st quarter (1900 - 1924)	null
44PW1157	Domestic	Dwelling, single	19th Century (1800 - 1899)	null
44PW1167	null	null	Prehistoric/Unknown (15000 B.C. - 1606 A.D.), 19th Century: 2nd/3rd quarter (1825 - 1874)	null
44PW1223	DSS Legacy	Other	Indeterminate	DHR Staff: Not Eligible
44PW1224	DSS Legacy	Other	Indeterminate	DHR Staff: Not Eligible

DHR_ID	Site Categories	Site Types	Time Periods	Evaluation Status
44PW1228	DSS Legacy	Other	null	DHR Staff: Not Eligible
44PW1261	Domestic	Camp, temporary	Prehistoric/Unknown (15000 B.C. - 1606 A.D.)	null
44PW1263	Domestic	Farmstead	19th Century: 4th quarter (1875 - 1899), 20th Century: 1st half (1900 - 1949)	null
44PW1264	Domestic	Farmstead	19th Century (1800 - 1899), 20th Century: 1st half (1900 - 1949)	null
44PW1387	DSS Legacy	Camp	Late Archaic (3000 - 1201 B.C.), Late Woodland (1000 - 1606)	null
44PW1453	Domestic, Funerary	Cemetery, Dwelling, single	19th Century (1800 - 1899)	null
44PW1664	Domestic	Camp, temporary	Prehistoric/Unknown (15000 B.C. - 1606 A.D.)	null
44PW1709	DSS Legacy	Mill	19th Century: 3rd quarter (1850 - 1874)	null
44PW1730	Industry/Processing/Extraction	Lithic scatter	Prehistoric/Unknown (15000 B.C. - 1606 A.D.)	DHR Staff: Not Eligible
44PW1761	DSS Legacy	Trash scatter	19th Century (1800 - 1899), 20th Century (1900 - 1999)	null
44PW1762	DSS Legacy	Trash scatter	19th Century (1800 - 1899), 20th Century (1900 - 1999)	null
44PW1763	Domestic	Dwelling, single	19th Century: 1st half (1800 - 1849), 19th Century: 2nd half (1850 - 1899)	null

DHR_ID	Site Categories	Site Types	Time Periods	Evaluation Status
44PW1766	Domestic	Camp, temporary	Prehistoric/Unknown (15000 B.C. - 1606 A.D.)	null
44PW1767	null	null	19th Century (1800 - 1899), 20th Century (1900 - 1999)	null
44PW1768	DSS Legacy	Camp	Prehistoric/Unknown (15000 B.C. - 1606 A.D.)	null
44PW1769	null	null	19th Century: 4th quarter (1875 - 1899), 20th Century (1900 - 1999)	null
44PW1844	Domestic	Camp, temporary	18th Century: 4th quarter (1775 - 1799)	null
44PW1845	Domestic	Camp, temporary	Prehistoric/Unknown (15000 B.C. - 1606 A.D.)	DHR Staff: Not Eligible
44PW1847	Domestic	Camp, temporary	Prehistoric/Unknown (15000 B.C. - 1606 A.D.)	DHR Staff: Not Eligible
44PW1884	Industry/Processing/Extraction	Lithic scatter	Prehistoric/Unknown (15000 B.C. - 1606 A.D.)	DHR Staff: Not Eligible
44PW1885	Domestic, Industry/Processing/Extraction	Dwelling, single, Lithic scatter	Prehistoric/Unknown (15000 B.C. - 1606 A.D.), 19th Century: 2nd half (1850 - 1899), 20th Century: 1st half (1900 - 1949)	DHR Staff: Not Eligible
44PW1886	Industry/Processing/Extraction	Lithic scatter	Prehistoric/Unknown (15000 B.C. - 1606 A.D.)	DHR Staff: Not Eligible
44PW1887	Industry/Processing/Extraction	Lithic scatter	Prehistoric/Unknown (15000 B.C. - 1606 A.D.)	DHR Staff: Not Eligible
44PW1905	Domestic	Camp, temporary	Prehistoric/Unknown (15000 B.C. - 1606 A.D.)	null

DHR_ID	Site Categories	Site Types	Time Periods	Evaluation Status
44PW198 3	Domestic	Camp	Late Archaic Period (3000 - 1201 B.C.), Early Woodland (1200 B.C. - 299 A.D.)	DHR Staff: Potentially Eligible
44PW198 4	Domestic	Camp	Pre-Contact	null
44PW198 5	Domestic	Camp	Pre-Contact	null

Architectural Resources. In the 2011 the National Register of Historic Places, a unit of the National Park Service published a policy statement concerning the NRHP eligibility of National Cemeteries (National Park Service 2011). This holds that all National Cemeteries are NRHP-eligible with all active areas, including support facilities, contributing to the cemeteries’ NRHP eligibility as historic districts. Contribution to eligibility of cemetery areas, structures, buildings, and objects is ongoing under this policy, so that newly constructed elements are considered to contribute to the cemeteries’ historical significance immediately upon their being put into use. Thus, although QNC is less than 50 years old, and no exceptional architectural works have been identified, it is considered to be NRHP-eligible under Criterion A. Criterion A supports eligibility of properties “that are associated with events that have made a significant contribution to the broad patterns of our history” (36 CFR § 60.4). Therefore, the existing landscape, structures, and buildings at QNC must be considered as contributing to the significance of an NRHP-eligible historic district; however none of the buildings, structures, or landscape of QNC have been inventoried as individual resources.

Table 3-5. Architectural Resources within 1.5 Miles of Project.

DHR_ID	Property Names	Historic District Name	Evaluation Status
076-0049	Abel Cemetery (Historic)	null	null
076-0056	Sisson Cemetery (Historic/Current), Triangle Cemetery (Historic/Current), Triangle Public Cemetery (Historic)	null	null
076-0136	Chopawamsic RDA- Orenda Historic District (Missing)	Camp Orenda SP-26 Historic District	NRHP Listing, VLR Listing
076-0299	Chopawamsic Recreation Demonstration Area (Historic), Prince William Forest Park Historic District (Historic/Current)	Prince William Forest Park Historic District	NRHP Listing, VLR Listing

DHR_ID	Property Names	Historic District Name	Evaluation Status
076-5045	Chili Hut (Current)	null	DHR Staff: Not Eligible
076-5046	Skyline Tattoo (Current)	null	DHR Staff: Not Eligible
076-5047	Foxhole Tavern (Current)	null	DHR Staff: Not Eligible
076-5048	Tobacco Outlet (Current)	null	DHR Staff: Not Eligible
076-5049	House, 18509 Jefferson Davis Highway (Function/Location)	null	DHR Staff: Not Eligible
076-5050	Store, 18502 Jefferson Davis Highway (Function/Location)	null	DHR Staff: Not Eligible
076-5051	House, 18428 Jefferson Davis Highway (Function/Location)	null	DHR Staff: Not Eligible
076-5052	House, 18426 Jefferson Davis Highway (Function/Location)	null	DHR Staff: Not Eligible
076-5053	Cline House (Current)	null	DHR Staff: Not Eligible
076-5054	Mister Janitor (Current)	null	DHR Staff: Not Eligible
076-5055	House, 4023 Brady's Hill Road (Function/Location)	null	DHR Staff: Not Eligible
076-5056	Triangle Restaurant (Current)	null	DHR Staff: Not Eligible
076-5057	House, Jefferson Davis Highway (Function/Location)	null	DHR Staff: Not Eligible
076-5058	House, 18324 Jefferson Davis Highway (Function/Location)	null	DHR Staff: Not Eligible
076-5194	Colonial Road Section, Prince William Park (Function/Location), Washington-Rochambeau Trail (Descriptive)	Revolutionary War Route and Transportation Survey...1781-1782	null
076-5195	Colonial Road (King's Highway) Section,	Revolutionary War Route and Transportation Survey ... 1781-1782	null
076-5423	Commercial Building, 18723 Fuller Heights Road (Function/Location), House, 18723 Fuller Heights Rd (Historic)	null	null
076-5424	Garage, 18729 Fuller Heights Road (Function/Location)	null	null

DHR_ID	Property Names	Historic District Name	Evaluation Status
076-5425	Marine Corps League Building, 18736 Fuller Heights Road (Function/Location)	null	null
076-5426	House, 4016 Post Street (Function/Location)	null	null
076-5427	House, 4025 Post Street (Function/Location)	null	null
076-5428	House, 18630 Triangle Street (Function/Location)	null	null
076-5429	First Assembly of God Church, 4212 Inn Street (Function/Location)	null	null
076-5430	House, 4226 Inn Street (Function/Location)	null	null
076-5431	House, 4228 Inn Street (Function/Location)	null	null
076-5433	Iwo Jima Memorial (Historic)	Quantico Marine Base Historic District	null
287-5058	Building No. 3301 (Current), Dependents School (Historic), John H. Russell Elementary (Historic)(Historic)	null	null

3.9.2 Effects of the Preferred Alternative

Five project areas where direct physical effects are anticipated were identified for this project. In addition to these, the project would have visual effects (often referred to as indirect effects) to the QNC landscape. After copies of the initial Charette Report became available, they were transmitted to the Virginia SHPO for review. The plans, which include the demolition of Committal Shelter C, are essentially the same as the final design, with the exception of the crypt burial area, discussed below. The SHPO found that these plans, including the demolition of Committal Shelter C and its replacement with an ossuary, would not result in an adverse effect to QNC, considering its status as an NRHP-eligible historic district.

Phase I archaeological survey of a total of 14.38 acres of potential project areas resulted in the identification of three archaeological sites, all within the crypt burial area west of Quantico Drive. These three sites, all prehistoric Native American sites, were recorded with the Virginia Department of Historic Resources as 44PW1985, 44PW1984, and 44PW1983. Sites 44PW1985 and 44PW1984 were both small scatters of quartz debitage, and recommended to SHPO as not eligible for the NRHP. Site 44PW1983 yielded a much more substantial inventory of stone artifacts, including projectile points and other bifacial artifacts, as well as prehistoric pottery identified as an Early Woodland type. The projectile points were identified as types dating to the Late Archaic and Early Woodland periods (3000 to 500 BCE). The

researchers interpreted the soils at the site as having never been plowed, and recommended the site as having high research potential and as potentially eligible for the NRHP. SHPO concurred with these recommendations (Memorandum Marc Holma Department of Historic Resources to John Haynes USACE June 30, 2015, DHR file #2015-3391).

USACE recommended to the NCA that the project be redesigned to avoid any effects to site 44PW1983. An additional area to the north of the survey area for the crypt burial area was surveyed with no finds, and the planned construction area was shifted north, avoiding impacts to site 44PW1983. The Virginia SHPO concurred that the project would have no adverse effects to historic properties, and the Section 106 process was completed for this project.

3.9.3 Effects of the No Action Alternative

There would be no historic resources affected if the No Action Alternative is chosen.

3.9.4 Minimization and Best Management Practices

Based on the results of the Phase 1 archeological survey, Site 44PW1983 was eliminated as a potential expansion site to avoid any potential impacts to cultural resources. Site 44PW1983 will be fenced during construction to avoid potential inadvertent impacts. Based on the Phase 1 archeological surveys conducted within the construction limits of the Preferred Alternative, impacts to cultural resources were avoided as no known cultural resources sites are located within the construction limits of the Preferred Alternative. There are no adverse impacts to cultural resources with implementation of the Preferred Alternative.

3.10 Socioeconomics

3.10.1 Affected Environment

Mostly suburban, Prince William County, where QNC is located, is part of the Washington-Arlington-Alexandria Metropolitan Statistical Area (MSA). The MSA has a population of over six million, making it the 7th largest in the nation. Prince William County contributes 446,094 by the 2014 Census Bureau estimate (U.S. Census Bureau 2016a). The independent cities of Manassas and Manassas Park, wholly contained within Prince William County, have a combined population of 57,255 by the 2014 estimate. With 336 square miles of land area, Prince William County has a population density of 1,258 per square mile, a figure that would be higher if the substantial areas covered by Marine Corps Base Quantico, Prince William Forest Park, Leesylvania State Park, and QNC were not included in the county's land area. Population growth in Prince William County is striking. From a mostly rural county of only 22,612 in 1950, the population has increased more than 20-fold. Although the biggest percentage increases came in the 1950's and 1960's, when increases were over 121% in both decades, the 2010 census was 43.2% over the 2000 census, a gain of 121,189, more than the entire population of the county in 1970 (U.S. Census Bureau 2016b).

In 2014, Prince William County, including Manassas and Manassas Park, had a per capita personal income (PCPI) of \$48,020. This PCPI was slightly below the state average of \$50,345, but above the national average of \$46,049. This is in contrast to the median household income of the county at \$98,514, compared with that of the nation at \$53,482. The 2014 PCPI reflected an increase of 2.6% from 2013. The 2013-2014 Virginia change was 2.8% and the national change was 3.6% (Bureau of Economic Analysis 2016). The estimated portion of the population with income below the poverty level for 2014 was 6.5%, less than half that of the nation, at 15.6% (U.S. Census Bureau 2016a).

Like the greater Washington D.C. area, Prince William County has a diverse population due to the influx of emigrants. Although whites are a majority at 62%, this is less than the state at 69%. The percentage of blacks is about the same in the county as the state, with 20% and 19% respectively. The percentages of Hispanics and Asians are significantly higher than the state composition. Hispanics make up almost double the amount in the county at 21%, versus the state at 12% (totals equal more than 100% since Hispanics may also be included under another race). The county population is 8% Asian, a third more than the state's 6%. Foreign-born people make up 22% of the population in Prince William County, but only 12% of the population in Virginia as a whole. This is also a relatively younger population, where the median age in the county is 33.7, versus in the state 37.6, and in the nation 37.4 (U.S. Census Bureau 2016a).

3.10.2 Effects of the Preferred Alternative

This alternative will have a negligible, somewhat positive effect on the socioeconomic environment. Construction of the cemetery expansion will temporarily support jobs, or bring workers into the Prince William County resulting in a minor economic benefit. The level of activity at QNC would continue and staffing levels could be maintained. A temporary addition to traffic of the construction vehicles would have a negligible impact on traffic and quality of life. There are no schools or medical facilities near QNC, and nearby parks are buffered by wooded areas.

3.10.3 Effects of the No Action Alternative

The No Action Alternative would have a negligible, but slightly negative effect on the local economy. If the cemetery is not expanded, burials would cease, staffing would decrease, and funeral attendees who may come from outside the local area and spend money for food and lodging would no longer contribute to the local economy.

3.10.4 Minimization and Best Management Practices

As the potential effects of the Preferred Alternative to the socioeconomic environment would be negligible, no minimization, mitigation, or BMPs are recommended.

3.11 Cumulative Effects

As defined by CEQ Regulations in 40 CFR Part 1508.7, cumulative impacts are those that “result from the incremental impact of the Proposed Action when added to other past, present, and reasonably

foreseeable future actions, without regard to the agency (federal or non-federal) or individual who undertakes such other actions.” Cumulative impact analysis captures the effects that result from the Proposed Action in combination with the effects of other actions taken during the duration of the Proposed Action in the same geographic area. Because of extensive influences of multiple forces, cumulative effects are the most difficult to analyze. NEPA requires the analysis of cumulative environmental effects of a Proposed Action, or set of actions, on resources that may often be manifested only at the cumulative level, such as traffic congestion, air quality, noise, biological resources, cultural resources, socioeconomic conditions, utility system capacities, and others.

3.11.1 Considered Cumulative Actions

Beyond the Proposed Action, some other actions within the region could result in cumulative impacts. Within the same timeframe as the next phase of construction and operation of the cemetery, other actions that may have cumulative impacts on the environment include:

- past, present, and potential future expansions and operations within QNC;
- general construction and development within Prince William County due to the high level of growth and development characteristic of Prince William County; and
- global climatic changes.

3.11.2 Effects of Cumulative Actions on the Proposed Action

The projects planned in the vicinity of the Proposed Action are likely to affect transportation, air quality, and noise in the region during construction phases, though in a much more substantial way than the Proposed Action itself. No cumulative negative or positive impacts are expected from the next phase of construction and operation of the cemetery at the proposed site. Any impacts from nearby development are expected to be more substantial than those from the Proposed Action; consequently, the Proposed Action would create negligible impacts to contribute to the cumulative impact. Air quality impacts caused by implementation of the Preferred Alternative with past, present, and projected future climatic changes are not anticipated to cause noticeable local, regional, or global climatic changes.

Potential future QNC expansions and improvements should have no adverse effects, so long as archaeological sites are identified and adverse effects to NRHP-eligible sites are mitigated. Future additions should not adversely affect threatened and endangered species, so long as proper surveys are conducted where necessary and adverse effects are properly mitigated.

3.11.3 Effects of Cumulative Actions on the No Action Alternative

Under the No Action Alternative, the QNC would not be adequate to meet veterans’ burial needs in the region. Only limited burials could occur at the cemetery, which would require veterans to find other burial options and drive farther to other cemetery locations. Furthermore, the projects planned in the vicinity of the Proposed Action are likely to affect transportation, air quality, and noise in the region, and in a much more substantial way than the current operations at the QNC, as previously discussed.

3.12 Potential for Generating Substantial Public Controversy

No aspect of this action is anticipated to generate any public controversy.

4. PUBLIC INVOLVEMENT

This section describes the public, agency, and Native American consultation process associated with development of this Draft EA.

4.1 Public and Agency Involvement

The VA invites public participation in decision-making on new proposals through the NEPA process. Public participation with respect to decision-making on the Proposed Action is guided by 38 CFR Part 26, the VA's policy for implementing the NEPA. Additional guidance is provided in the VA's NEPA Interim Guidance for Projects (VA 2010). Consideration of the views and information of all interested persons promotes open communication and enables better decision-making. Agencies, organizations, and members of the public who have a potential interest in the Proposed Action, such as minority, low-income, and disadvantaged persons, are urged to participate. A record of agency coordination and public involvement associated with this EA will be provided in Appendix D in the Final EA.

4.1.1 Agency Coordination

Interagency and Intergovernmental Coordination for Environmental Planning (IICEP) is a federally-mandated process for informing and coordinating with other governmental agencies regarding federal proposed actions. CEQ regulations require intergovernmental notifications prior to making any detailed statement of environmental effects. Through the IICEP process, the VA notifies relevant federal, state, and local agencies and allows them sufficient time to make known their environmental concerns that are specific to a Proposed Action. Comments and concerns submitted by these agencies during the IICEP process are subsequently incorporated into the analysis of potential environmental effects conducted as part of the EA.

A full listing of agencies consulted during the preparation of this EA can be found in Section 8.

4.1.2 Public Review

The VA, as the federal proponent of this Proposed Action, is publishing the Draft EA for a 30-day public comment period, as will be announced in a Public Notice that will be published in the Washington Post. As part of the public review process, letters will be distributed to local, State and Federal agencies as identified in Section 8 of this EA. These letters provided information on where to find the Draft EA and how to comment. Comments received during this process will be reviewed and incorporated accordingly into the Draft EA.

4.1.3 Native American Consultation

For federal proposed actions, federal agencies are required to consult with federally-recognized Native American tribes in accordance with the NEPA, the NHPA, the Native American Graves Protection and Repatriation Act, and Executive Order 13175. The VA has identified Native American tribes as having possible ancestral ties to the Proposed Action's ROI (i.e., Prince William County, Virginia), and will invite each tribe to consult on this Proposed Action. Tribal correspondence will be provided in Appendix D.

5. CONCLUSIONS

This EA analyzed the potential environmental effects of the VA's Proposed Action construct the next phase of expansion and improvements to the QNC.

This EA evaluated two alternatives: (1) the Preferred Alternative, to perform the next phase of expansion and improvements to the QNC; and (2) the No Action Alternative, not to construct the next phase of expansion and improvements to the QNC.

This EA evaluated possible effects on: aesthetics; air quality; geology, topography and soils; water resources; wildlife and habitat; threatened and endangered species and bald eagles; noise; hazardous, toxic, and radioactive materials; cultural resources; and socioeconomics. Implementation of the BMPs/environmental protection measures discussed in Section 3 can further reduce the minor adverse effects identified in the EA.

As a result of the analysis of impacts in the EA summarized and incorporated by reference herein, it is the conclusion of the VA that, with the implementation of appropriate management and avoidance measures described in Section 3, the Proposed Action would not generate significant public controversy nor have a significant adverse impact on the quality of the natural or human environment within the meaning of Section 102(2)(c) of the NEPA of 1969. Therefore, preparation of an EIS is not required.

6. LIST OF PREPARERS

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Landscape Architect

Table 6-1. List of U.S. Army Corps of Engineers Preparers

Name	Role	Years of Experience
Alicia Logalbo, M.S. Biology, U.S. Army Corps of Engineers; Chief, Environmental Analysis Section	Subject Matter Expert, Document Preparation	15
John Haynes, M.A. (ABD) Anthropology, U.S. Army Corps of Engineers; Archeologist	Subject Matter Expert, Document Preparation	30

Name	Role	Years of Experience
Kathy Perdue, B.S. Environmental Science, U.S. Army Corps of Engineers, Biologist	Document Review	24
Larry Ives, B.S. Water Resources, U.S. Army Corps of Engineers	Document Review	35

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7. LIST OF ACRONYMS AND ABBREVIATIONS

APE Area of Potential Affect

AQCR Air Quality Control Region

BMP Best Management Practice

CEQ Council of Environmental Quality

CFR Code of Federal Regulations

DCR Virginia Department of Conservation and Recreation

EA Environmental Assessment

EIS Environmental Impact Statement

ESA Endangered Species Act

FONSI Finding of No Significant Impact

GCR General Conformity Rule

HTRW Hazardous, Toxic, and Radioactive Waste

IICEP Interagency and Intergovernmental Coordination for Environmental Planning

IPAC Information, Planning and Conservation System

NAAQS National Ambient Air Quality Standard

NCA U.S. Department of Veterans Affairs, National Cemetery Administration

MCBQ Marine Corps Base Quantico

MSA Metropolitan Statistical Area

NEPA National Environmental Policy Act of 1970, as amended

NHPA National Historic Preservation Act of 1966

PM_{2.5} Particulate Matter (less than 2.5 microns in diameter)

PM₁₀ Particulate Matter (less than 10 microns in diameter)

QNC Quantico National Cemetery

RONA Record of Non-Applicability Concerning the General Conformity Rule

SHPO State Historic Preservation Officer

SIP State Implementation Plan

USFWS U.S. Fish and Wildlife Service

USEPA U.S. Environmental Protection Agency

VA U.S. Department of Veterans Affairs

VaFWIS Virginia Fish and Wildlife Information Service

VDEQ Virginia Department of Environmental Quality

VGDF Virginia Department of Game and Inland Fisheries

VESP

VPDES Virginia Pollutant Discharge Elimination System

VSMP Virginia Stormwater Management Program

8. AGENCIES AND INDIVIDUALS CONSULTED

During preparation of the EA, the USACE coordinated with and consulted with the state, federal, and local agencies below to ensure the project would meet all regulatory requirements. The coordination and consultation record is provided in Appendix D. The list of tribal entities consulted and the record of tribal correspondence is provided in Appendix D.

Federal Agencies

U.S. Fish and Wildlife Service

Virginia Ecological Services Field Office
6669 Short Lane
Gloucester, VA 23061-4410

State Agencies

Virginia Department of Conservation and Recreation

600 E. Main St., 24th Floor
Richmond, VA 23219

Virginia Department of Game and Inland Fisheries

4010 West Broad St.
Richmond, VA 23230

Virginia Department of Environmental Quality

4949-A Cox Road
Glen Allen, VA 23060

Virginia Department of Historic Resources

2801 Kensington Avenue
Richmond, VA 23221

County

Prince William County

7987 Ashton Avenue
Manassas, VA 20109

9. SUMMARY OF ENVIRONMENTAL PERMITS REQUIRED

Table 9-1. Summary of Environmental Permits and Approvals Required.

Permit, Approval, or Certification	Responsible Agency	Applicable Criteria	Required Actions	Permitting Schedule	Status
Virginia Pollutant Discharge Elimination System (VPDES) Construction Permit	VDEQ	Required for construction projects disturbing one acre of land	Contractor to apply for VPDES General Construction Permit	14 day processing time	Not Completed
Protection of federally listed species	USFWS	Required to prevent impacts to federally listed species and their habitat.	Complete the ESA, Section 7 Consultation	No permit required	Consultation Completed
Protection of cultural resources, historic structures	Virginia SHPO	Required to prevent negative impacts on cultural and historical resources	Complete the National Historic Preservation Act, Section 106 Consultation	No permit required	Consultation Completed

APPENDIX A – Draft Engineering Design

QUANTICO NATIONAL CEMETERY GRAVESITE EXPANSION & CEMETERY IMPROVEMENTS

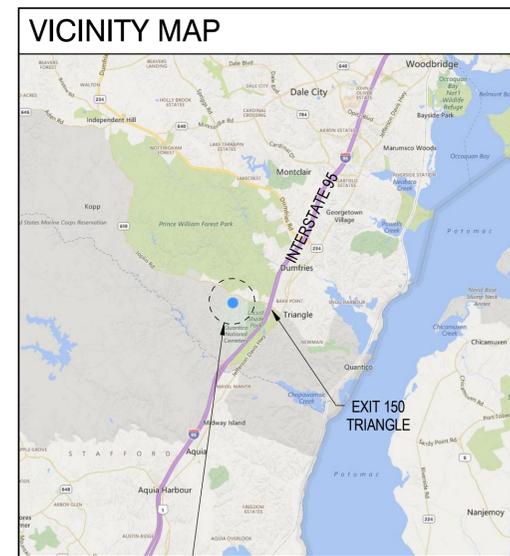
18424 JOPLIN ROAD

TRIANGLE, VIRGINIA

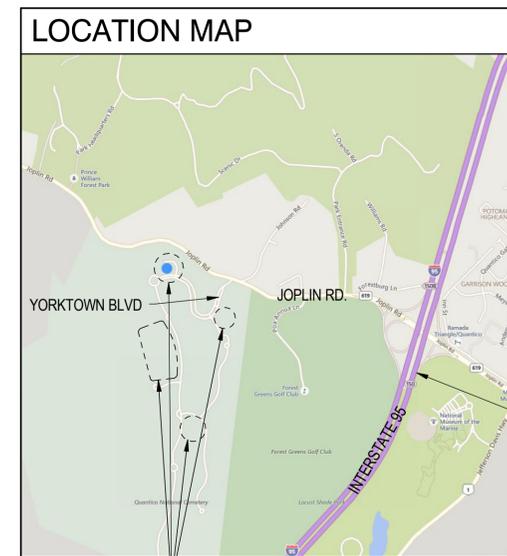
WALLER, TODD AND SADLER ARCHITECTS, INC.

MSA, P.C.
NRW ENGINEERING
J.P. HARVEY ENGINEERING SOLUTIONS
JENSEN HUGHES
MCCLESKEY PROFESSIONAL SERVICES

CIVIL ENGINEERING
STRUCTURAL ENGINEERS
MECHANICAL, ELECTRICAL, PLUMBING ENGINEERS
FIRE PROTECTION, LIFE SAFETY ENGINEERS
LANDSCAPE, CEMETERY DESIGNERS



PROJECT LOCATION



PROJECT LOCATIONS

QNC BURIAL EXPANSION SCHEDULE			
SITE NAME	BURIAL TYPE	EXPANSION QUANTITY	AREA OF DISTURBANCE
1. OSSUARY SITE	CREMAINS	500	0.67 ACRES
2. IN-GROUND CREMAINS (OSSUARY SITE)	CREMAINS	791	(SAME)
3. COLUMBARIUM SITE	CREMAINS	2,400 (expand to 2,640)	0.67 ACRES
4. PRE-PLACED CRYPTS	CRYPTS	3,113 (including 60 O.S.A.)	3.99 ACRES
5. STANDARD BURIAL AREA	4'X10' PLOTS	558	1.84 ACRES
TOTAL BURIAL SITES		7,362 BURIALS	
		(expand to 7,602)	

*O.S.A. = OVERSIZED AREAS

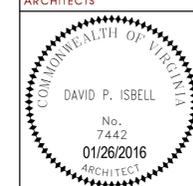


REV.	DATE	DESCRIPTION

DESIGNED: DSR	CHECKED: DPI	DATE: 01/26/2016
DRAWN: DSR	APPROVED: DSR	SCALE: AS NOTED
PROJECT NO: 1303-F	NORFOLK DISTRICT FILE NO.	SPECIFICATION NO.
DRAWING NO.	DATE WORKED ON:	PER SCALE: 1:1
FINAL SUBMITTAL		
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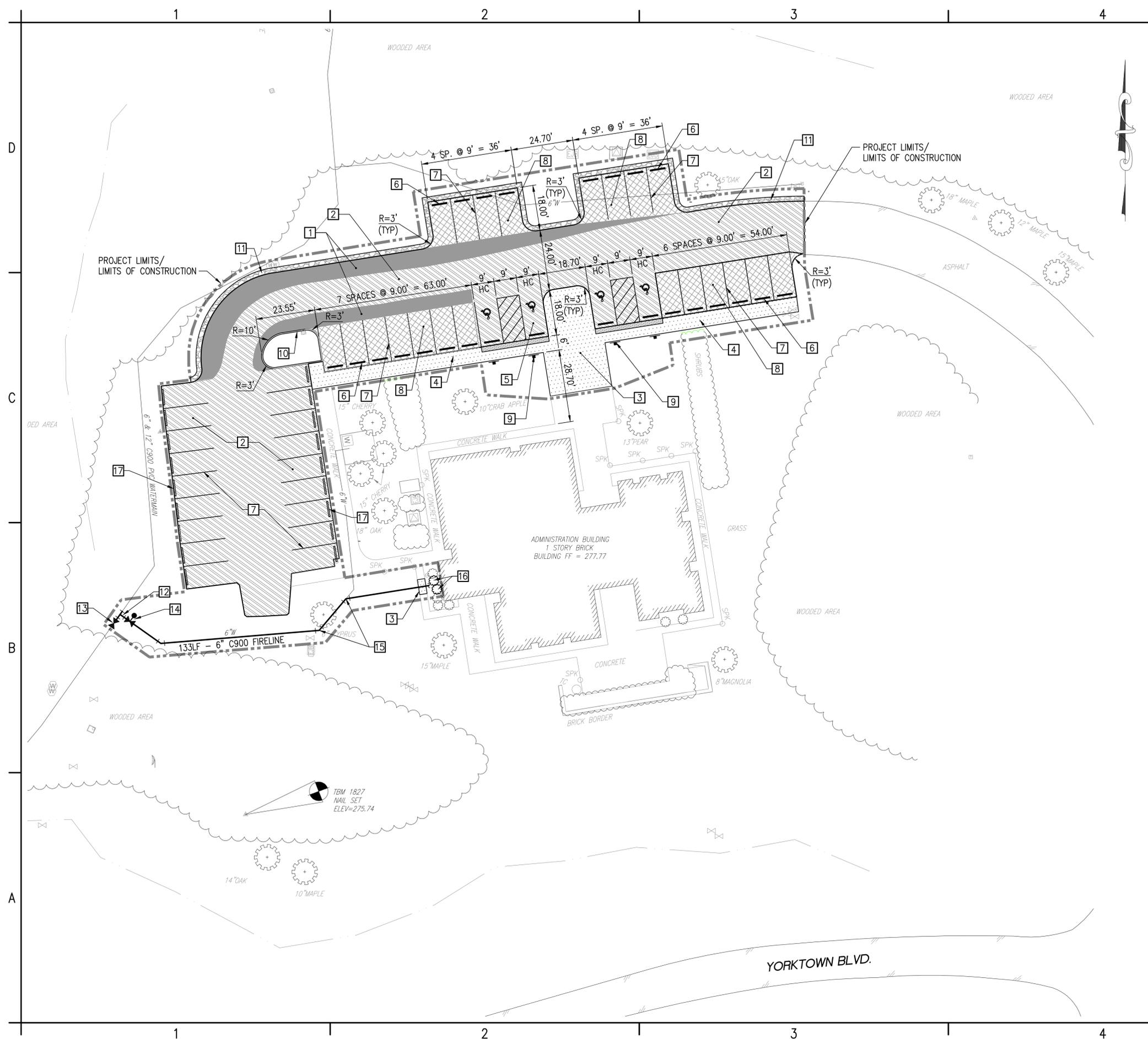
**QUANTICO NATIONAL CEMETERY
EXPANSION & IMPROVEMENTS**

COVER SHEET



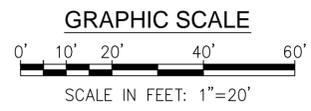
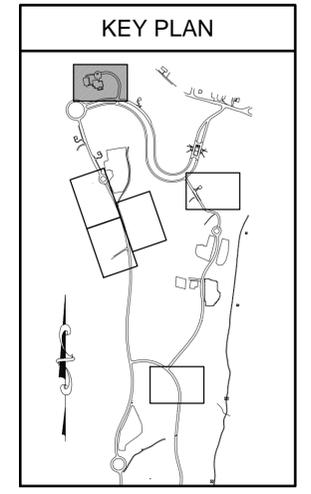
G-001
SHEET 1 OF 136

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- SHEET NOTES:**
- REFER TO SHEET GC005 FOR LEGEND AND ABBREVIATIONS.
 - REFER TO SHEET V-100 FOR SURVEY NOTES.
 - PROTECT ALL PERMANENT BMP'S FROM SEDIMENT DURING LAND DISTURBING ACTIVITIES. DO NOT CONSTRUCT BMP'S UNTIL ALL LAND DISTURBING ACTIVITIES ARE COMPLETE AND THE ENTIRE SITE HAS BEEN STABILIZED.
 - PERMANENT SEEDING WILL BE BROAD CAST SEED TO PROVIDE GROUND COVER. SEE TABLE 3.32-E ON SHEET GC004.

- NEW WORK KEYNOTES:**
- HEAVY-DUTY ASPHALT PAVEMENT, SEE SHEET C-503
 - 2" SM 9.5A OVERLAY
 - 3" CONCRETE SIDEWALK - SEE SHEET C-503
 - 6" CONCRETE SIDEWALK - SEE SHEET C-503
 - ACCESSIBLE PARKING STALL - SEE SHEET C-504
 - WHEEL STOP (TYP.) - SEE SHEET C-503
 - 4" WHITE SOLID LINE (TYP.)
 - LIGHT DUTY PAVEMENT - SEE SHEET C-503
 - ADA SIGN (TYP. OF 4) - SEE SHEET C-504
 - STANDARD 6" CURB (CG-2) - SEE SHEET C-505
 - 2' GRAVEL DIAPHRAGM - SEE SHEET C-502
 - 12"x12"x6" TEE - CONNECT TO EXISTING 12" WATERMAIN
 - 12" GATE VALVE
 - 6" POST INDICATOR VALVE
 - 6" - 45' BEND
 - RELOCATED EXISTING SHRUBS
 - RELOCATED WHEEL STOP (TYP.)



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 01/26/2016
 PROFESSIONAL ENGINEER



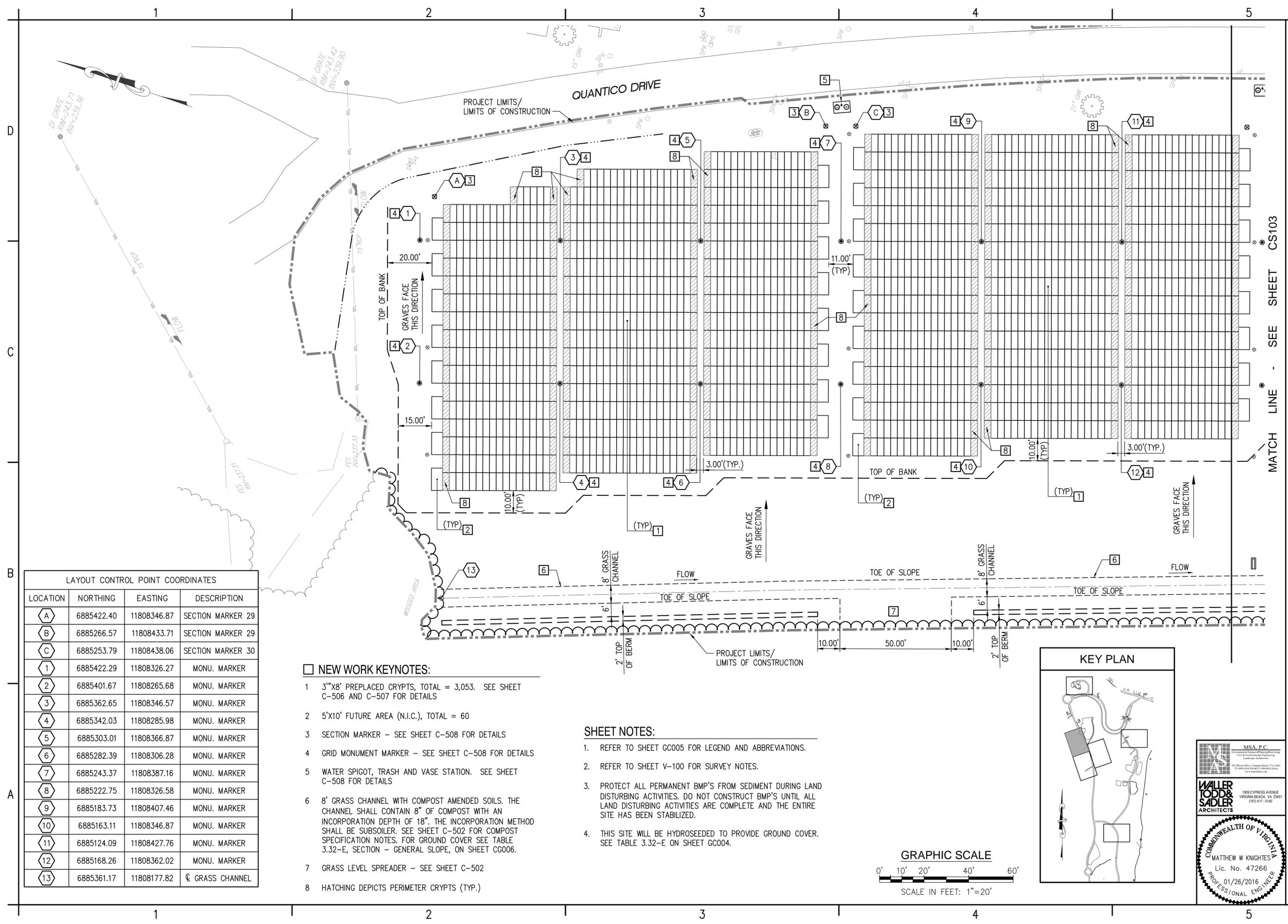
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PROJECT NO. 1303-T	NORFOLK DISTRICT FILE NO.	SPECIFICATION NO.
DRAWING NO.		Plot scale: 1:1
FINAL SUBMITTAL 26 JANUARY 2016		

**QUANTICO NATIONAL CEMETERY
 EXPANSION & IMPROVEMENTS
 SITE PLAN
 ADMIN BUILDING**

CS101
 SHEET 21 OF 136

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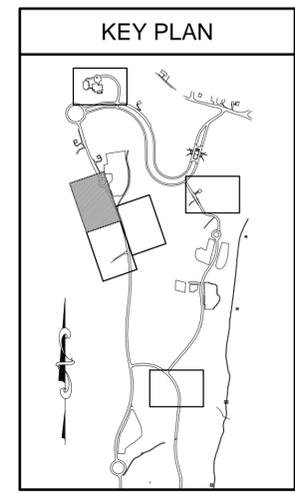
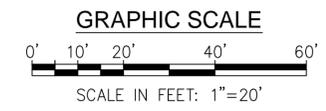
**QUANTICO NATIONAL CEMETERY
EXPANSION & IMPROVEMENTS
EXISTING TOPOGRAPHIC SURVEY
PREPLACED CRYPTS AREA**

CS102
SHEET 22 OF 136

LAYOUT CONTROL POINT COORDINATES			
LOCATION	NORTHING	EASTING	DESCRIPTION
A	6885422.40	11808346.87	SECTION MARKER 29
B	6885266.57	11808433.71	SECTION MARKER 29
C	6885253.79	11808438.06	SECTION MARKER 30
1	6885422.29	11808326.27	MONU. MARKER
2	6885401.67	11808265.68	MONU. MARKER
3	6885362.65	11808346.57	MONU. MARKER
4	6885342.03	11808285.98	MONU. MARKER
5	6885303.01	11808366.87	MONU. MARKER
6	6885282.39	11808306.28	MONU. MARKER
7	6885243.37	11808387.16	MONU. MARKER
8	6885222.75	11808326.58	MONU. MARKER
9	6885183.73	11808407.46	MONU. MARKER
10	6885163.11	11808346.87	MONU. MARKER
11	6885124.09	11808427.76	MONU. MARKER
12	6885168.26	11808362.02	MONU. MARKER
13	6885361.17	11808177.82	Ⓞ GRASS CHANNEL

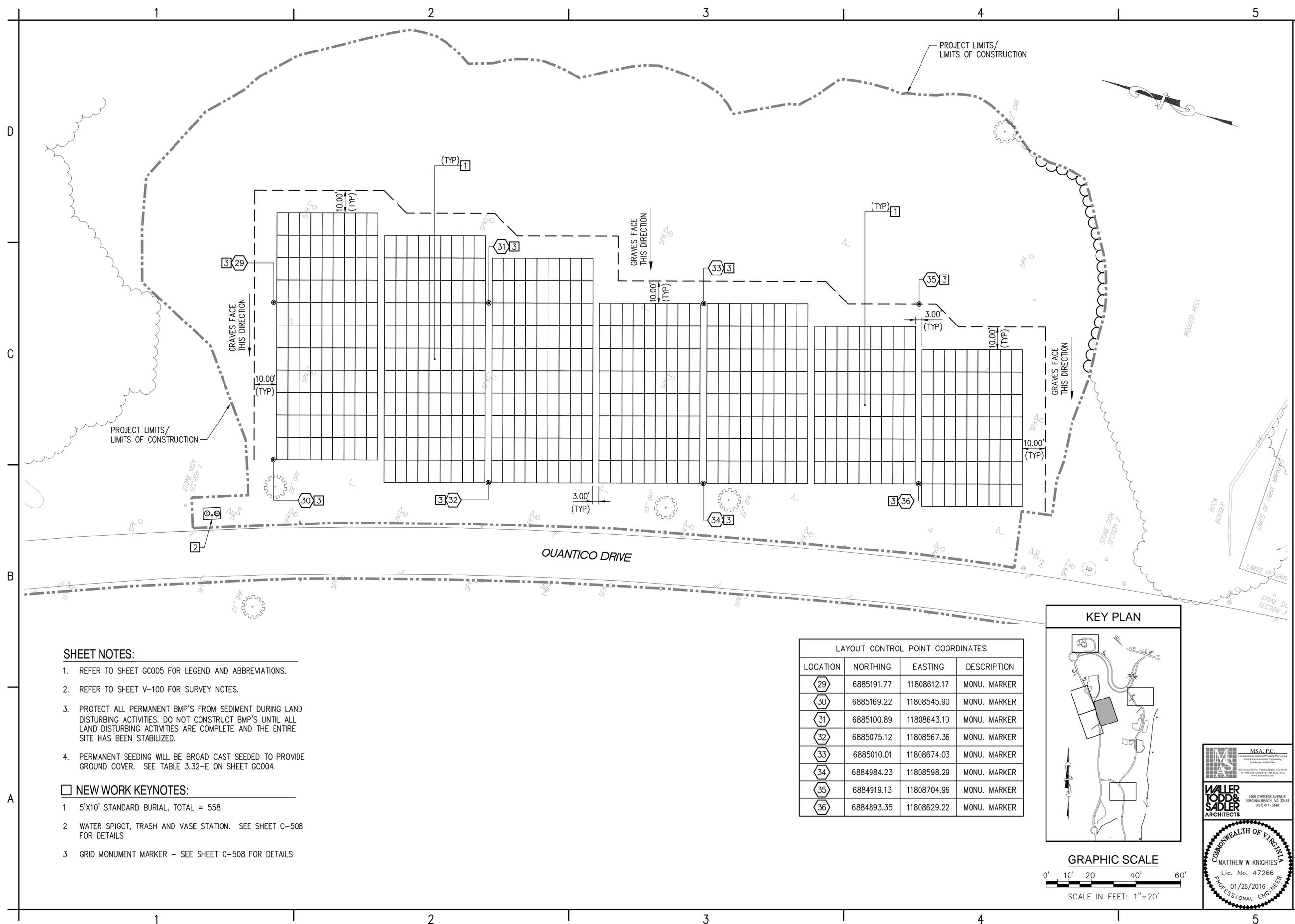
- NEW WORK KEYNOTES:**
- 3"x8' PREPLACED CRYPTS, TOTAL = 3,053. SEE SHEET C-506 AND C-507 FOR DETAILS
 - 5'x10' FUTURE AREA (N.I.C.), TOTAL = 60
 - SECTION MARKER - SEE SHEET C-508 FOR DETAILS
 - GRID MONUMENT MARKER - SEE SHEET C-508 FOR DETAILS
 - WATER SPIGOT, TRASH AND VASE STATION. SEE SHEET C-508 FOR DETAILS
 - 8' GRASS CHANNEL WITH COMPOST AMENDED SOILS. THE CHANNEL SHALL CONTAIN 8" OF COMPOST WITH AN INCORPORATION DEPTH OF 18". THE INCORPORATION METHOD SHALL BE SUBSOILER. SEE SHEET C-502 FOR COMPOST SPECIFICATION NOTES. FOR GROUND COVER SEE TABLE 3.32-E, SECTION - GENERAL SLOPE, ON SHEET CG006.
 - GRASS LEVEL SPREADER - SEE SHEET C-502
 - HATCHING DEPICTS PERIMETER CRYPTS (TYP.)

- SHEET NOTES:**
- REFER TO SHEET GC005 FOR LEGEND AND ABBREVIATIONS.
 - REFER TO SHEET V-100 FOR SURVEY NOTES.
 - PROTECT ALL PERMANENT BMP'S FROM SEDIMENT DURING LAND DISTURBING ACTIVITIES. DO NOT CONSTRUCT BMP'S UNTIL ALL LAND DISTURBING ACTIVITIES ARE COMPLETE AND THE ENTIRE SITE HAS BEEN STABILIZED.
 - THIS SITE WILL BE HYDROSEEDING TO PROVIDE GROUND COVER. SEE TABLE 3.32-E ON SHEET GC004.



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PROJECT NO: 1503-T	NORFOLK DISTRICT FILE NO:	SPECIFICATION NO:
DRAWING NO:		Plot scale: 1:1
FINAL SUBMITTAL		
26 JANUARY 2016		

**QUANTICO NATIONAL CEMETERY
EXPANSION & IMPROVEMENTS
DEMOLITION PLAN
STANDARD BURIAL AREA**

CS104
SHEET 24 OF 136

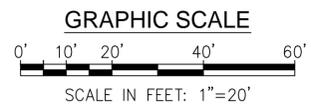
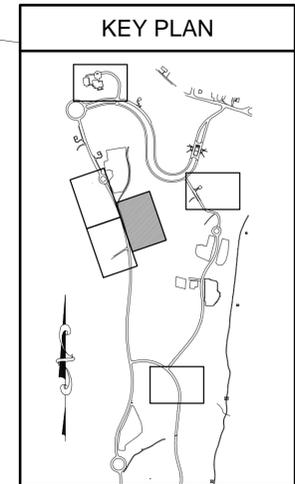
SHEET NOTES:

1. REFER TO SHEET GC005 FOR LEGEND AND ABBREVIATIONS.
2. REFER TO SHEET V-100 FOR SURVEY NOTES.
3. PROTECT ALL PERMANENT BMP'S FROM SEDIMENT DURING LAND DISTURBING ACTIVITIES. DO NOT CONSTRUCT BMP'S UNTIL ALL LAND DISTURBING ACTIVITIES ARE COMPLETE AND THE ENTIRE SITE HAS BEEN STABILIZED.
4. PERMANENT SEEDING WILL BE BROAD CAST SEED TO PROVIDE GROUND COVER. SEE TABLE 3.32-E ON SHEET GC004.

NEW WORK KEYNOTES:

- 1 5'X10' STANDARD BURIAL, TOTAL = 558
- 2 WATER SPIGOT, TRASH AND VASE STATION. SEE SHEET C-508 FOR DETAILS
- 3 GRID MONUMENT MARKER - SEE SHEET C-508 FOR DETAILS

LAYOUT CONTROL POINT COORDINATES			
LOCATION	NORTHING	EASTING	DESCRIPTION
29	6885191.77	11808612.17	MONU. MARKER
30	6885169.22	11808545.90	MONU. MARKER
31	6885100.89	11808643.10	MONU. MARKER
32	6885075.12	11808567.36	MONU. MARKER
33	6885010.01	11808674.03	MONU. MARKER
34	6884984.23	11808598.29	MONU. MARKER
35	6884919.13	11808704.96	MONU. MARKER
36	6884893.35	11808629.22	MONU. MARKER

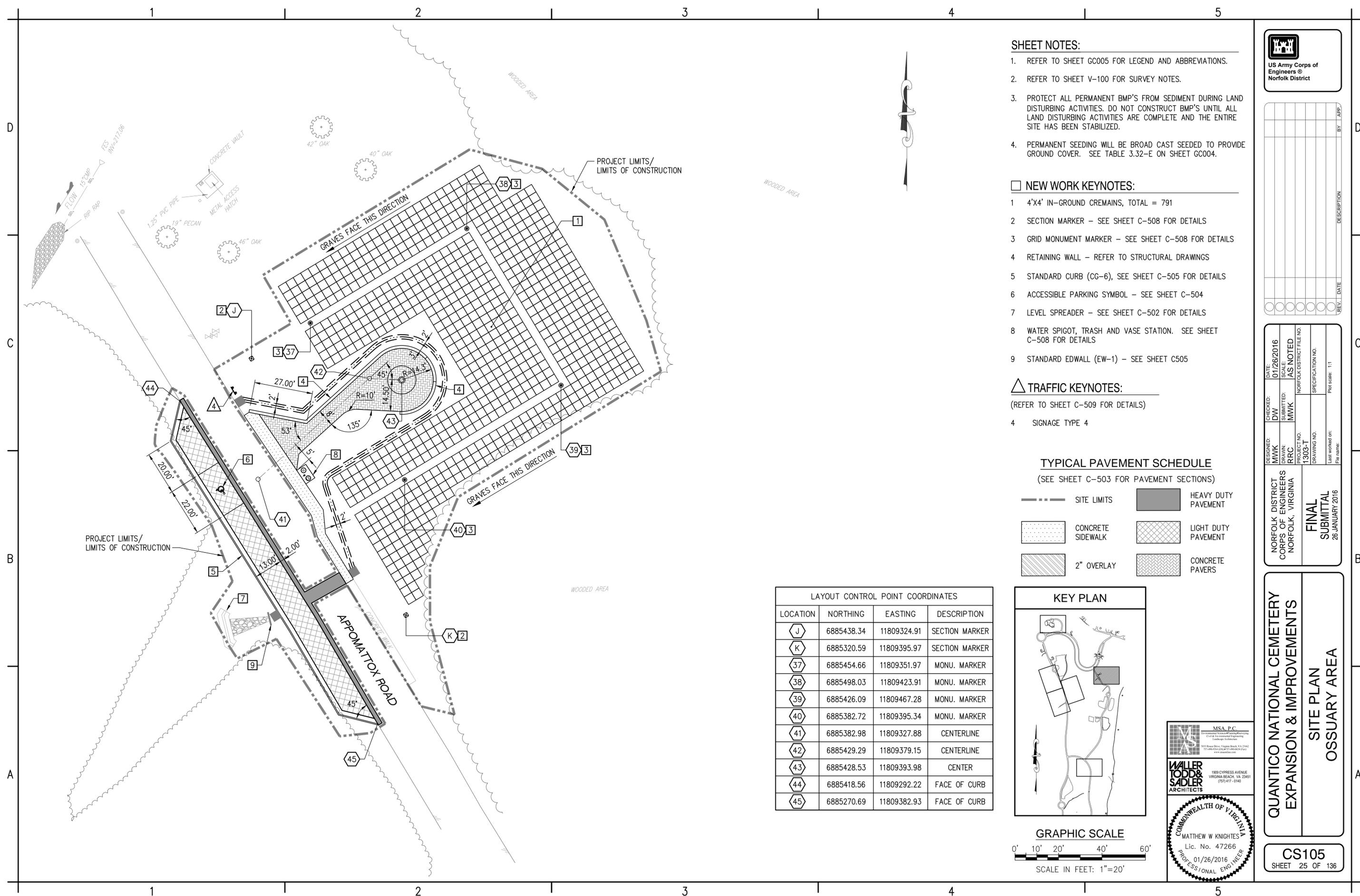


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ARCHITECTS**

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01/26/2016
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- SHEET NOTES:**
- REFER TO SHEET GC005 FOR LEGEND AND ABBREVIATIONS.
 - REFER TO SHEET V-100 FOR SURVEY NOTES.
 - PROTECT ALL PERMANENT BMP'S FROM SEDIMENT DURING LAND DISTURBING ACTIVITIES. DO NOT CONSTRUCT BMP'S UNTIL ALL LAND DISTURBING ACTIVITIES ARE COMPLETE AND THE ENTIRE SITE HAS BEEN STABILIZED.
 - PERMANENT SEEDING WILL BE BROAD CAST SEED TO PROVIDE GROUND COVER. SEE TABLE 3.32-E ON SHEET GC004.

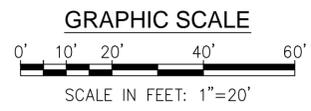
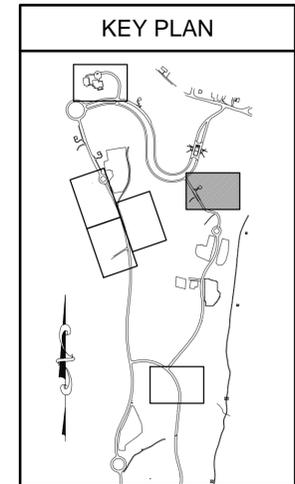
- NEW WORK KEYNOTES:**
- 4'X4' IN-GROUND CREMANS, TOTAL = 791
 - SECTION MARKER - SEE SHEET C-508 FOR DETAILS
 - GRID MONUMENT MARKER - SEE SHEET C-508 FOR DETAILS
 - RETAINING WALL - REFER TO STRUCTURAL DRAWINGS
 - STANDARD CURB (CG-6), SEE SHEET C-505 FOR DETAILS
 - ACCESSIBLE PARKING SYMBOL - SEE SHEET C-504
 - LEVEL SPREADER - SEE SHEET C-502 FOR DETAILS
 - WATER SPIGOT, TRASH AND VASE STATION. SEE SHEET C-508 FOR DETAILS
 - STANDARD EDWALL (EW-1) - SEE SHEET C505

- TRAFFIC KEYNOTES:**
(REFER TO SHEET C-509 FOR DETAILS)
- SIGNAGE TYPE 4

TYPICAL PAVEMENT SCHEDULE
(SEE SHEET C-503 FOR PAVEMENT SECTIONS)

SITE LIMITS	HEAVY DUTY PAVEMENT
CONCRETE SIDEWALK	LIGHT DUTY PAVEMENT
2" OVERLAY	CONCRETE PAVERS

LAYOUT CONTROL POINT COORDINATES			
LOCATION	NORTHING	EASTING	DESCRIPTION
J	6885438.34	11809324.91	SECTION MARKER
K	6885320.59	11809395.97	SECTION MARKER
37	6885454.66	11809351.97	MONU. MARKER
38	6885498.03	11809423.91	MONU. MARKER
39	6885426.09	11809467.28	MONU. MARKER
40	6885382.72	11809395.34	MONU. MARKER
41	6885382.98	11809327.88	CENTERLINE
42	6885429.29	11809379.15	CENTERLINE
43	6885428.53	11809393.98	CENTER
44	6885418.56	11809292.22	FACE OF CURB
45	6885270.69	11809382.93	FACE OF CURB



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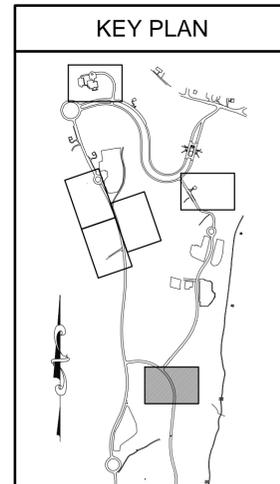
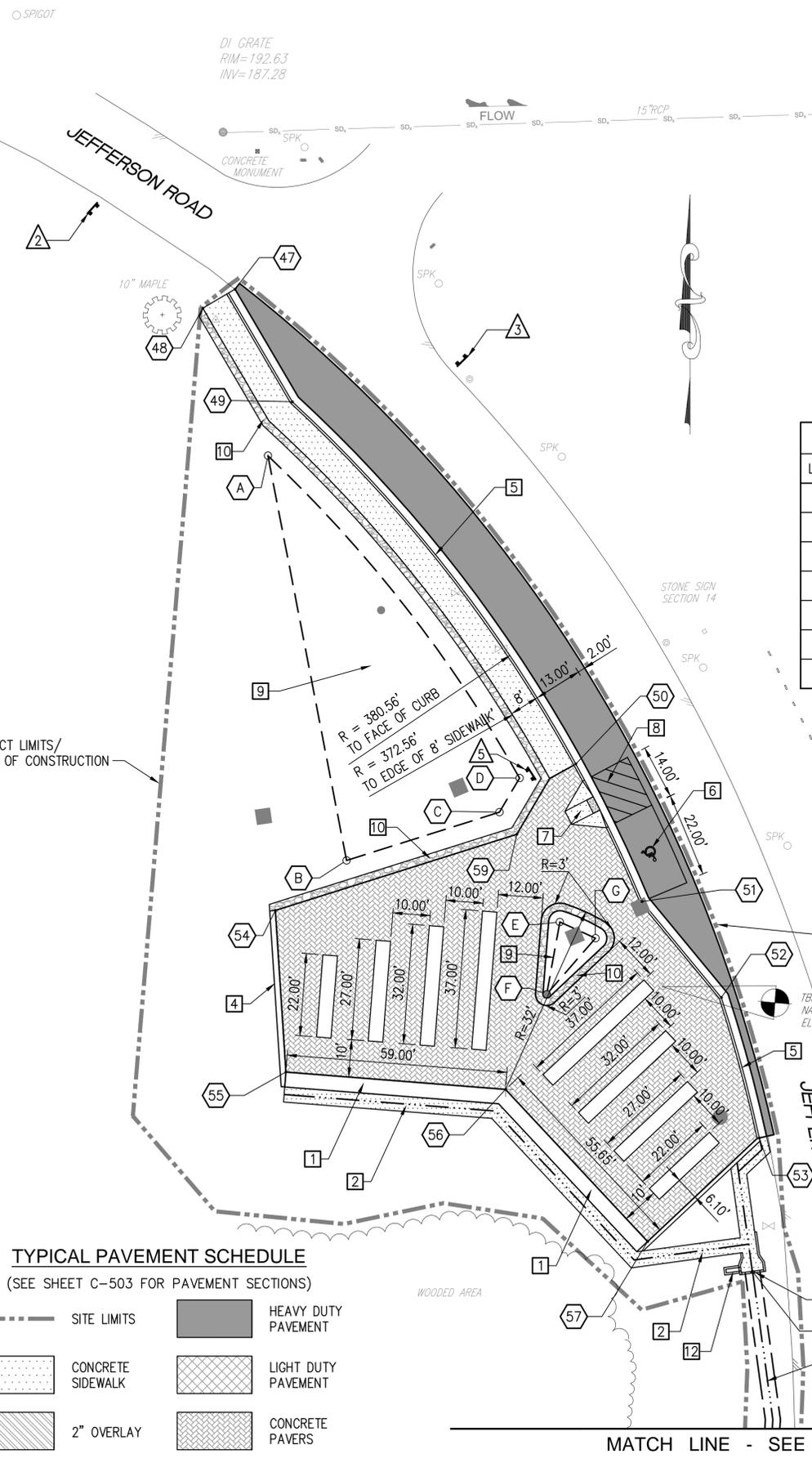
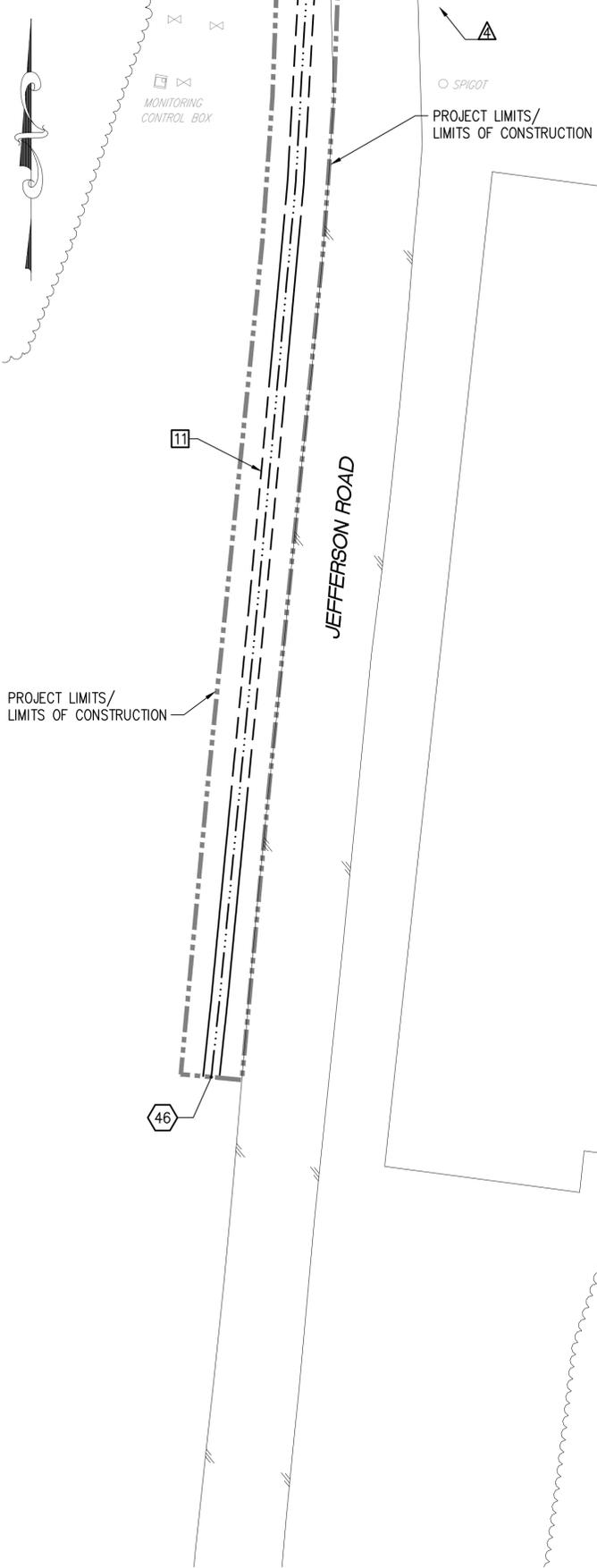
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**QUANTICO NATIONAL CEMETERY
EXPANSION & IMPROVEMENTS
SITE PLAN
OSSUARY AREA**

CS105
SHEET 25 OF 136

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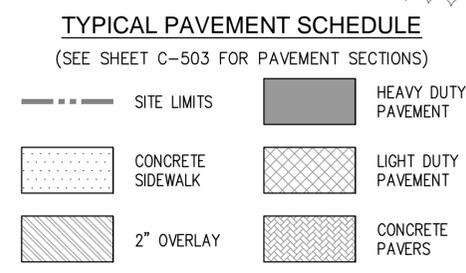


BMP CONTROL POINT COORDINATES		
LOCATION	NORTHING	EASTING
A	6883391.75	11809018.72
B	6883283.67	11809039.77
C	6883296.55	11809080.73
D	6883305.67	11809086.11
E	6883267.24	11809096.90
F	6883247.93	11809093.38
G	6883262.91	11809106.44

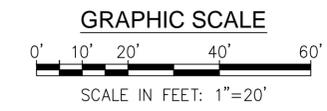
- SHEET NOTES:**
- REFER TO SHEET GC005 FOR LEGEND AND ABBREVIATIONS.
 - REFER TO SHEET V-100 FOR SURVEY NOTES.
 - PROTECT ALL PERMANENT BMP'S FROM SEDIMENT DURING LAND DISTURBING ACTIVITIES. DO NOT CONSTRUCT BMP'S UNTIL ALL LAND DISTURBING ACTIVITIES ARE COMPLETE AND THE ENTIRE SITE HAS BEEN STABILIZED.
 - PERMANENT SEEDING WILL BE BROAD CAST SEED TO PROVIDE GROUND COVER. SEE TABLE 3.32-E ON SHEET GC004.

- NEW WORK KEYNOTES:**
- COLUMBARIUM - REFERENCE L-SHEETS
 - 4' WIDE STANDARD PAVED DITCH
 - LEVEL SPREADER - SEE SHEET C-502 FOR DETAILS
 - RETAINING WALL - REFER TO STRUCTURAL DRAWINGS
 - CG-7 CURB AND GUTTER - SEE SHEET C-505
 - ACCESSIBLE PARKING SYMBOL - SEE SHEET C-504
 - CG-12 WITH DETECTABLE WARNING SURFACE - SEE SHEET C-504
 - 4" WHITE PAINTED LINES
 - BIORETENTION CELL
 - 2' GRAVEL DIAPHRAGM - SEE SHEET C-502 FOR DETAILS
 - 4' GRASS CHANNEL WITH COMPOST AMENDED SOILS. THE CHANNEL SHALL CONTAIN 8" OF COMPOST WITH AN INCORPORATION DEPTH OF 18". THE INCORPORATION METHOD SHALL BE SUBSOILER. SEE SHEET C-502 FOR COMPOST SPECIFICATION NOTES. FOR GROUND COVER SEE TABLE 3.32-E, SECTION - GENERAL SLOPE, ON SHEET GC006.
 - STANDARD ENDWALL FOR PIPE UNDERDRAIN (TYP.) - SEE SHEET C-505

LAYOUT CONTROL POINT COORDINATES			
LOCATION	NORTHING	EASTING	DESCRIPTION
46	6882867.98	11809130.59	GRASS CHANNEL
47	6883436.19	11809009.90	FACE OF CURB
48	6883431.15	11809001.30	SIDEWALK
49	6883406.15	11809025.27	FACE OF CURB
50	6883309.43	11809101.19	FACE OF CURB
51	6883272.71	11809118.91	FACE OF CURB
52	6883247.05	11809140.15	FACE OF CURB
53	6883209.57	11809150.32	FACE OF CURB
54	6883270.34	11809020.72	CORNER PAVERS
55	6883227.16	11809023.54	CORNER PAVERS
56	6883222.54	11809082.36	CORNER PAVERS
57	6883181.91	11809120.41	CORNER PAVERS
58	6883173.97	11809148.45	CENTERLINE DITCH
59	6883290.68	11809085.39	EDGE OF PAVERS



- TRAFFIC KEYNOTES:**
(REFER TO SHEET C-509 FOR DETAILS)
- SIGNAGE TYPE 2
 - SIGNAGE TYPE 3
 - SIGNAGE TYPE 5



REV.	DATE	DESCRIPTION

DESIGNED: MWK	CHECKED: DW	DATE: 07/26/2016
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26 JANUARY 2016		

**QUANTICO NATIONAL CEMETERY
EXPANSION & IMPROVEMENTS
SITE PLAN
COLUMBARIUM AREA**

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01/26/2016
PROFESSIONAL ENGINEER

CS106
SHEET 26 OF 136

APPENDIX B – RECORD OF NON-APPLICABILITY CONCERNING THE GENERAL CONFORMITY RULE

RECORD OF NON-APPLICABILITY CONCERNING THE GENERAL CONFORMITY RULE (RONA)

PROPOSED ACTION

Proposed Action Name: Quantico National Cemetery Expansion and Improvements.

Location: Triangle, Virginia

Project Begin Date: 2016

Project End Date: 2018

Project Action Summary: The Proposed Action is to construct and expand operations on an additional estimated seven acres at the Quantico National Cemetery (QNC) to provide for five more years of burial expansion for all burial options (casket, columbarium, and in-ground cremation burial sites), supporting infrastructure, parking, irrigation, landscaping, visitor amenities, signage, and operational facility improvements. The project will also provide necessary parking, data, water, HVAC, and electrical upgrades to the Old Administration Building.

The Clean Air Act requires federal actions in air pollutant nonattainment or maintenance areas to conform to the applicable State Implementation Plan (SIP). The SIP is designed to achieve or maintain an attainment designation of air pollutants as defined by the National Ambient Air Quality Standards. The regulations governing this requirement are found in 40 Code of Federal Regulations (CFR) Part 93, also known as the General Conformity Rule (GCR), which applies to federal actions occurring in regions designated as nonattainment or areas subject to maintenance plans. The threshold (de minimis) emission rates have been established for actions with the potential to have significant air quality impacts that are not otherwise exempt. In addition, exemptions to the GCR have been established for actions that are clearly below de minimis thresholds. As specified in 40 CFR 93.153(c)(2), Conformity Determination regulations for federal actions shall not apply for "actions which would result in no emissions increase or an increase in emissions that is clearly de minimis".

Pursuant to Section 176 (c) of the Clean Air Act, as amended by the 1990 amendments; the GCR at 40 CFR Parts 51 and 93; the Department of Veterans Affairs determined that the Proposed Action are exempt from conformity requirements in accordance with sections 40 CFR 93.153 (c) (2) (ii), (iv), (vii), (x), and (xiii), as the actions would result in emissions that are clearly de minimis, as outlined in 40 CFR 93.153 (c) (2). Therefore, this action is exempt from the GCR requirement to prepare a full Conformity Determination.

Date RONA Prepared: April 2016

RONA Prepared By: National Cemetery Administration

RONA Approval

Signature	Date
[NAME] Environmental Program Manager	

APPENDIX C – Wetland Assessment - Site Visit Summary

Site Visit Summary

The U.S. Army Corps of Engineers completed a site visit to Quantico National Cemetery with Steve Davis, Veterans Administration, on January 25, 2015. U.S. Army Corps of Engineers staff that participated in the site visit was Maria Franks, John Haynes, Adriane James, Dan Krenz, Alicia Logalbo, and Mike Schuster. Steve Davis provided a general site tour of the proposed project sites (Figure 1) and also provided a tour and overview of the existing underground, stormwater detention structure located south of the New Administration Building. Following the initial site visit, Dan Krenz and Alicia Logalbo conducted a wetland assessment to determine if wetlands are present at the proposed project sites. Based on the results of the wetland assessment, no jurisdictional wetlands are located at the proposed project site areas. The Phase I Cultural Resources Survey has not yet been conducted at the project sites; therefore, potential impacts to cultural resources should be also be considered when selecting project sites. John Haynes reviewed the proposed project sites to refine the scope for the upcoming Phase I Cultural Resources Survey. It should be noted, however, that the location of construction staging areas and potential stormwater management features has not yet been determined for the project and these areas will also need to be evaluated for potential impacts to natural and cultural resources. No threatened or endangered species were observed during the site visit. We recommend another site visit be conducted during the spring to document vegetation groundcover, confirm winter plant identifications, and survey the site for threatened and/or endangered plant species.

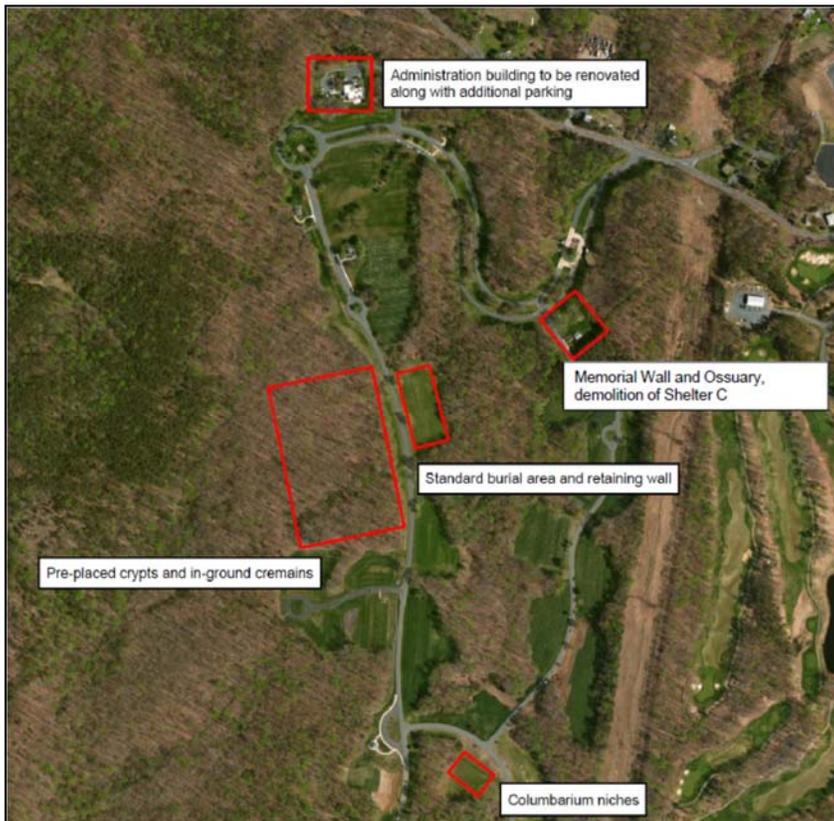


Figure 1. Proposed expansion and improvements sites at Quantico National Cemetery, Virginia.

Existing Stormwater Detention Feature

There is an underground stormwater detention structure located south of the New Administration Building (Figure 2). This structure discharges by gravity feed to an outfall that discharges south into an oak-dominated forest (Figure 3). No standing water or channeling was observed at the outfall discharge area. The client explained this type of stormwater treatment design is an ideal for the cemetery as it is low maintenance, not visible to visitors, and has little impact on the historic landscape.



Figure 2. New Administration Building and lawn south of the building where underground stormwater detention feature is located.



Figure 3. Outfall of the stormwater detention feature that discharges south into an oak-dominated forest.

Existing Shelter C – Proposed Site for Memorial Wall & Ossuary

The existing Shelter C consists of a roofed open structure over a concrete pad that has a paved walkway leading up to it (Figure 4). An upland manicured lawn that is dominated by a planted mixture of three grass species surrounds the Shelter C. There is also a magnolia tree (*Magnolia sp.*) and 14 horticultural bushes adjacent to the Shelter C and manicured lawn. The existing Shelter C will be demolished and this site is the proposed site of the memorial wall and ossuary. The construction site for the memorial wall and ossuary will not extend beyond the limits of the manicured lawn area. The memorial wall and ossuary will be located closer to the road than the existing Shelter C. No standing water or channeling was observed at this site. The existing landscaping could be retained and replanted following construction to reduce environmental impacts and also improve the landscape aesthetics of the future memorial wall and ossuary.



Figure 4. Existing Shelter C that is planned for demolition and is the site of the proposed memorial wall and ossuary. Construction would not extend beyond the manicured lawn.

Proposed Parking Lot Expansion – Old Administration Building

The existing paved, parking lot located west of the Old Administration Building is proposed to be expanded from its current parking capacity of 18 car parking spots to accommodate a total of 44 parking spots. The proposed expansion area is planned to be a paved extension of the existing parking lot.

There is a manicured lawn located west of the Old Administration Building that is dominated by a planted mixture of three grass species. A mature, oak-dominated (*Quercus spp.*) deciduous forest is located west of the manicured lawn. The site steeply slopes down from the grassy area to the oak-dominated forest. Dominant species in the oak-dominated forest include swamp chestnut oak (*Quercus michauxii*), southern red oak (*Quercus falcata*), white oak (*Quercus alba*), and pin oak (*Quercus palustris*). The understory was covered with a thick layer of leaves (dominated by *Quercus spp.*) and no understory vegetation was observed. The bottom surface of the leaves on the ground was moist and

darkly stained. During the site visit, we dug a soil pit and identified three distinct types of non-hydric clay soils that varied with soil depth (Table 1). No standing water or channeling was observed at this site. Based on our investigation of the hydrology, vegetation, and soil composition in accordance with Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Eastern Mountains and Piedmont Region (Version 2.0) (2012), this site is not classified as a wetland. A flock of 15 wild turkeys (*Meleagris gallopavo*) was observed. This site provides prime foraging habitat for wild turkeys due to the robust acorn supply from the oak forest which is a favored food item of the wild turkey.

During the site visit, Alicia Logalbo suggested that the parking lot expansion should be considered due west of the existing parking lot to reduce impacts to the adjacent oak-dominated forest and to likely reduce construction costs. Because the areas surrounding the existing parking lot have a steep elevation, focusing the parking lot expansion due west of the existing parking lot, where the elevation is less severe, is anticipated to reduce the quantity of fill needed for construction of the parking area. Focusing on the west area will also reduce the space between the parking lot and the building which will likely reduce the amount of time users will spend driving and walking to the building. Also, Steve Davis indicated the parking lot is to be out of sight to visitors as much as possible so it would need to be aside of or behind the building. Therefore, we should consider location the expanded parking area due west of the existing parking lot as it is anticipated to minimize negative environmental impacts, reduce construction costs, and meet the clients' location requirements. Impacts to cultural resources should also be considered in the selection of the parking lot location once the results of the Phase I Cultural Resources Survey become available.



Figure 5. Existing Old Administration Building and paved parking area.



Figure 6. Area west of the Old Administration Building and future proposed parking lot expansion site. The manicured lawn slopes down to a mature, oak-dominated forest.

Table 1. Soil depth ranges and respective soil colors at the oak-dominated forest located west of Old Administration Building (38°33'12"N, 77°21'46" W).

Soil Depth (inches)	Munsell Soil Color & Notes
0-3	10YR42* (100%); no redox; stained leaves
3-16	10YR54; no redox
16+	10YR46; soil oxidation – orange layer

*Munsell soil color is written in the standard notation of hue, value, and chroma.

Proposed Site for Columbarium

This area is comprised of a manicured lawn dominated by a planted mixture of three grass species (Figure 7). Natural channelization was evidenced parallel to the road across this site and a channel was also observed in the northwest to southeast direction. Channelization is the result of water flowing from unnamed tributaries of the Chopawamsic Creek across this site. This site often contains standing water and has an estimated average hydroperiod of ~300 days per year based on discussions with the cemetery staff (per communication with Steve Davis). During our site visit, the ground was saturated but little standing water was observed at this site. We dug two soil pits on site one at the lawn area adjacent to the road and one in a natural channeled area and characterized the soils as non-hydric loamy clay soils (Table 2). Based on our investigation of the hydrology, vegetation, and soil composition in accordance with Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Eastern Mountains and Piedmont Region (Version 2.0) (2012), this site is not classified as a wetland.

Table 2. Soil depth ranges and respective soil colors at future columbarium site adjacent to road and at the channeled area parallel to the road.

Location	Soil Depth (inches)	Munsell Soil Color & Notes	GPS Location (degrees, minutes, seconds N)	GPS Location (degrees, minutes, seconds W)
lawn area adjacent to road	0-8	10YR44; rock below this layer; soil uniform likely fill material	38°33'12"	77°21'46"
channeled area parallel to road	0-3	10YR32	38°33'12"	77°21'46"
	3-7	matrix of 10YR42(60%)+Gley 15-10GY (35%)+10YR56(5%) – redox gold color		
	7-8	matrix of 10YR52(55%)+Gley 15-10GY (35%)+10YR56(10%) – redox gold color		



Figure 7. Proposed site for the columbarium.

Proposed Site for Standard Burial Area

This upland area is comprised of a manicured lawn dominated by a planted mixture of three planted grass species (Figure 8). No standing water or channeling was observed at this site. Three oak trees are located on the west end of the site. It is recommended that the oak trees not be disturbed during the standard burial area construction so as to reduce environmental impacts and also maintain some mature tree landscaping to improve the aesthetics of the area. The trees blend nicely into the overall cemetery landscaping as much of the undeveloped areas in the cemetery consist of oak-dominated forests.



Figure 8. Proposed site for the standard burial area and retaining wall.

Proposed Site for Pre-Place Crypts and In-ground Cremains

This upland area consists of a manicured lawn dominated by a mixture of three planted grass species that extends into an upland oak-dominated forest (Figure 9). Between the manicured lawn and the oak forest there is a bordering line of mature sweetgum trees (*Liquidambar styraciflua*). Dominant species in the oak forest are swamp chestnut oak and southern red oak. Other species in the mature canopy were pin oak, white oak, American beech (*Fagus grandifolia*) and pine (*Pinus sp.*). Although not a dominant species, American holly (*Ilex opaca*) was noted in small scatterings in the understory. The majority of the understory was covered in oak leaves and the bottom surface of the leaves on the ground was moist and darkly stained. We dug a soil pit at the bottom of a ravine at this site and detected non-hydric, loamy clay soils with a high sand content (Table 3). No standing water or channeling was observed at this site. Based on our investigation of the hydrology, vegetation, and soil composition in accordance with Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Eastern Mountains and Piedmont Region (Version 2.0) (2012), this site is not classified as a wetland.

Table 3. Soil depth ranges and respective soil colors at the oak-dominated forest at the future site of the pre-placed crypts and in-ground cremains (38° 32'54"N, 77°21'43" W).

Soil Depth (inches)	Munsell Soil Color & Notes
0-3	10YR33
3-12	10YR43; no redox



Figure 9. Proposed site for the pre-placed crypts and in-ground cremains.

APPENDIX D – Consultation Record

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