Environmental Assessment -

Phase IV Expansion and Construction
at
Dallas Fort Worth National Cemetery
Dallas, Texas

United States Department of Veterans Affairs
2000 Mountain Creek Parkway
Dallas, Texas 75211

November 2020

Table of Contents

1.0 PURPOSE AND NEED FOR THE PROPOSED ACTION 1-1
1.1 Background 1-1
1.2 Purpose and Need 1-2
1.3 Federal Decision To Be Made 1-3
1.4 Agency and Native American Tribal Coordination 1-3
1.5 Resources Eliminated From Further Analysis 1-4
2.0 Description of Proposed Action and Alternatives 2-1
2.1 Introduction 2-1
2.2 Development of Alternatives 2-1
2.2.1 **Alternatives Eliminated From Further Consideration** 2-1
2.3 Alternatives Retained for Detailed Analysis 2-1
2.3.1 **Proposed Action** 2-1
2.3.2 **No-Action Alternative** 2-7
2.4 Comparison of the Potential Effects of the Analysis 2-7
3.0 AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES 3-1
3.1 Criteria of Analysis of Impacts 3-1
3.2 Significance Criteria 3-1
3.3 Air Quality 3-2
3.3.1 Effects of the Proposed Action 3-4
3.3.2 Effects of the No-Action Alternative 3-6
3.4 Cultural Resources 3-6
3.4.1 Effects of the Proposed Action 3-7
3.4.2 Effects of the No-Action Alternative 3-7
3.5 Geology, Topography, and Soils 3-7
3.5.1 Effects of the Proposed Action 3-8
3.5.2 Effects of the No-Action Alternative 3-8
3.6 Hydrology and Water Quality 3-8
3.6.1 Effects of the Proposed Action 3-9
3.6.2 Effects of the No-Action Alternative 3-10
3.7 Wildlife and Habitat 3-10
3.7.1 Effects of the Proposed Action 3-18
3.7.2 Effects of the No-Action Alternative 3-18
3.8 Floodplains and Wetlands 3-19
3.8.1 Effects of the Proposed Action 3-19
3.8.1 Effects of the No-Action Alternative 3-19
3.9 Solid and Hazardous Materials 3-22
3.9.1 Effects of the Proposed Action 3-22
3.9.2 Effects of the No-Action Alternative 3-22
3.10 Cumulative Effects 3-22
3.11 Potential for Generating Substantial Controversy 3-23
4.0 AGENCY COORDINATION AND PUBLIC INVOLVEMENT 4-1
5.0 MITIGATION 5-1
6.0 CONCLUSIONS 6-1

7.0 LIST OF PREPARERS 7-1
8.0 REFERENCES 8-1
9.0 LIST OF ACROYMNS AND ABBREVIATIONS 9-1

Tables

Table 2- 1 Comparison of the Potential Effects of the Analyzed Alternatives 2-7
Table 3- 1 National Ambient Air Quality Standards 3-3
Table 3- 2 Build Alternative Estimated Construction Emissions - Annually 3-5
Table 3- 3: Mapped Soil Units with Phase IV 3-8
Table 3- 4: USFWS and TPWD Species Listed for Dallas County, Texas 3-11

Figures

Figure 2-1 Proposed Action 2-2
Figure 2-2 Present Columbarium Niches 2-3
Figure 2-3 Present Gravesites 2-4
Figure 2-3 Roadways to Be Constructed 2-6
Figure 3-1 Wetland Delineations and Associated Communities 3-20
Figure 3-2 FEMA Mapped Floodplain 3-21

Appendices

A Public Involvement
Notice of Intent Letters and Responses
Consultation Request and Responses
Draft EA Notice of Availability
Comments Received

B Previous Studies
Threatened and Endangered Species Habitat Assessment
Waters of the United States Delineation Report
Cultural Resources Survey

1.0 PURPOSE AND NEED FOR THE PROPOSED ACTION

The Department of Veterans Affairs (VA) proposes to construct and operate additional burial sites at the existing Dallas Fort Worth (DFW) National Cemetery in Dallas, Dallas County, Texas. This Environmental Assessment (EA) has been prepared to identify, analyze, and document the potential physical, environmental, cultural, and socioeconomic effects associated with this Proposed Action.

National Environmental Policy Act (NEPA) of 1969, as amended, requires federal agencies to consider environmental consequences in their decision-making process. The President's Council on Environmental Quality (CEQ) has issued regulations to implement NEPA that include provisions for both the content and procedural aspects of the required environmental impact analysis. The intent of NEPA is to protect, restore, or enhance the environment through a well-informed decision making process. The CEQ was established under NEPA to implement and oversee federal policy in this process. To this end, the CEQ issued the Regulations for Implementing the Procedural Provisions of NEPA. The CEQ regulations declare that an EA serves to accomplish the following objectives:

- Briefly provide sufficient evidence and analysis for determining whether to prepare an Environmental Impact Statement (EIS) or a Finding of No Significant Impact (FONSI);
- Aid in an agency's compliance with NEPA when an EIS is not necessary; and
- Facilitate preparation of an EIS when necessary.

The VA accomplishes adherence to this act through 38 Code of Federal Regulations (CFR) Part 26 (Environmental Effects of the Department of Veterans Affairs Actions) and VA's *NEPA Interim Guidance for Projects* (2010), and *VA NEPA Implementation, Directive 0067* (2013). These federal regulations establish both the administrative process and substantive scope of the environmental impact evaluation designed to ensure that deciding authorities have a proper understanding of the potential environmental consequences of a contemplated course of action. This EA has been prepared in accordance with the regulations and guidance documents.

This section of the EA provides introductory and background information for the Proposed Action and its associated NEPA analysis, including a statement of purpose and need; the federal decision to be made; regulatory agency and tribal coordination, consultation, and input; and applicable federal, state, and local regulations. **Section 2** includes a description of the Proposed Action and alternatives considered, including those alternatives eliminated from further analysis.

1.1 Background

The United States (US) Department of Veterans Affairs is responsible for providing programs that benefit veterans and their families. The VA provides health care (including rehabilitation and counseling); burials; and a variety of benefits including education, home loans, and pensions. The Veterans Bureau was established in 1921, the bureau consolidated the Veterans Bureau, the Bureau of Pensions of the Interior Department, and the National Home for Disabled Volunteer Soldiers. The Veterans Bureau provided insurance for service personnel, disability compensation,

and medical care. In 1930, Executive Order (EO) 5398 was signed and the Veterans Bureau was designated as the Veterans Administration, at which time the National Homes and Pension Bureau was transferred to the Veterans Administration. In 1988, the Veterans Administration was raised to a cabinet-level executive department and the Veterans Administration was renamed the Department of Veterans Affairs, the VA.

On 17 July 1862, the US government purchased cemetery grounds to be used as national cemeteries "for soldiers who shall have died in the service of their country"; creating the National Cemetery System. The US government established 14 cemeteries. By 1870, 73 national cemeteries had been established. In 1930 new national cemeteries were established to service those who were living in major metropolitan areas, and not near a battle field. In 1973, 82 national cemeteries were transferred from the Department of the Army to the Veterans Administration; creating a total of 103 cemeteries under the National Cemetery System. In 1998, the National Cemetery System was renamed the National Cemetery Administration (NCA). As of today, there are 150 national cemeteries and the VA administers 136 cemeteries, two of these cemeteries are maintained by the Department of the Army (Arlington and US Soldiers the Airman's Home National Cemetery), and 14 are maintained by the Department of the Interior (cemeteries that are located within National Parks). To date, more than 21,400 acres of land have been designated for use as national cemeteries (US Department of Veterans Affairs. 2018).

The Dallas Fort Worth National Cemetery opened on 12 May 2000. The cemetery is 638.5 acres and includes areas for cremated remains and casketed burial sites. The development of the cemetery grounds has been conducted in phases, to date three phases have been completed. The first phase, was completed when the cemetery opened in 12 May 2000. Phase I included the development of 110 acres including traditional 12,000 gravesites and 2,220 columbariums/garden niches (for cremated remains). Phase II was completed by 2014 and included developing 53 acres and constructed 20,500 casketed burial sites and 4,000 columbarium niches. Phase III began in May 2016 and was completed in 2018. To date, the cemetery as 85,778 casketed burial sites and 31,918 columbarium niches. Phase III was anticipated to provide an additional five years capacity at the cemetery (National Cemetery Administration 2018).

1.2 Purpose and Need

The mission of the NCA is to honor and Veterans and their eligible family members "with final resting places in national shrines and with lasting tributes that commemorate their service and sacrifice to our Nation." The mission is accomplished by providing burial space for Veterans and their eligible family members, maintaining the cemeteries as national shrines in honor and memory of those entombed or memorialized at the cemetery, mark Veterans graves with a government furnished markers and to provide Presidential Memorial Certificates, and administer grants for establishing or expanding state and tribal government veteran cemeteries.

The purpose of the Proposed Action is to support burial requests for eligible individuals and provide sufficient onsite parking to support the needs of Veterans, family members, and staff at the Dallas Fort Worth National Cemetery.

The Proposed Action is needed to provide accessible interment services to Veterans and their families. The existing infrastructure, crypts, and columbariums cannot support burial requests for

eligible individuals as well as provide sufficient onsite parking to support the needs of Veterans, family members, and staff. As of today, projections anticipate that crypts will be unavailable by 2023 and columbariums will be at capacity by 2030.

1.3 Federal Decision To Be Made

The VA is the federal decision-maker concerning this Proposed Action and controls the federal funds that would be used for its implementation, this is a federal Proposed Action. The purpose of this EA is to inform decision-makers of the potential environmental effects of the Proposed Action and alternatives prior to making a federal decision to move forward with any action. In this manner, federal decision-makers can make a fully informed decision, aware of the potential environmental effects of their Proposed Action. Overall, the purpose of this EA is to:

- Document the NEPA process;
- Inform decision-makers of the possible environmental effects of the Proposed Action and its considered alternatives, as well as methods to reduce these effects;
- Allow for regulatory agency and tribal input into the decision-making process; and
- Allow for informed decision-making by the federal government.

This decision-making includes identifying the actions that the federal government will commit to undertake to minimize environmental effects, as required under the NEPA, CEQ Regulations, 38 CFR Part 26, and *VA NEPA Implementation, Directive 0067*.

The decision to be made is whether, having taken potential physical, environmental, cultural, and socioeconomic effects into account, VA should implement the Proposed Action and, as appropriate, carry out mitigation measures to reduce effects on resources. Based upon the analysis, no potentially significant adverse impacts have been identified. VA will ultimately decide if the action is funded and constructed.

VA, as the federal proponent of the Proposed Action, will document their decision in a Finding of No Significant Impact (FONSI), if appropriate. The VA will carefully consider comments received from regulatory agencies and tribes in this decision-making process.

1.4 Agency and Native American Tribal Coordination

Federal, state, and local agencies with jurisdiction that could be affected by the proposed or alternative actions have been notified and consulted. A complete listing of the agencies consulted may be found in Chapter 4. The scoping letters and associated responses, as well as the Draft EA Coordination letters and responses are presented in Appendix A. This coordination fulfills EO 12372, *Intergovernmental Review of Federal Programs* (superseded by EO 12416 and subsequently supplemented by EO 13132), which require federal agencies to cooperate with and consider federal, state, and local views in implementing a proposal.

Federal agencies are required to consult with federally recognized Native American tribes in accordance with the NEPA, the National Historic Preservation Act (NHPA), the Native American Graves Protection and Repatriation Act (NAGPRA), and EO 13175, *Consultation and Coordination with Indian Tribal Governments*, 6 November 2000. As part of this NEPA process, VA consulted with five federally recognized tribes (Apache Tribe of Oklahoma, Comanche Nation of Oklahoma,

Coushatta Tribe of Louisiana, Tonkawa Tribe of Indians of Oklahoma, and Wichita and Affiliated Tribes) that are associated with lands within Dallas County, Texas, in accordance with applicable regulations.

1.5 Resources Eliminated From Further Analysis

Per 40 CFR 1501.7(a)(3) subject matter experts can "identify and eliminate from detailed study the issues which are not significant or which have been covered by prior environmental review (40 CFR Part 1506.3), narrowing the discussion of these issues in the statement [EA] to a brief presentation of why they will not have a significant effect on the human environment or providing a reference to their coverage elsewhere." These resources that are anticipated to not have a significant impact and have been eliminated from further study in this document and the rationale for eliminating them are discussed below.

Aesthetics: Buildings, roads, columbariums, and burial areas associated with Phase IV will be designed, constructed, and operated in accordance with NCA Facility Design Guide Criteria, VA Program Guide PG 18-15, H-18-8 Seismic Design Requirements, and VA Signage Design Guide Chapter 12 National Cemetery Signs, and will mirror the existing design of the DFW National Cemetery; therefore no impact to aesthetics is anticipated.

Noise: The nearest noise receptor, Dallas Baptist University, is approximately 0.87 miles (4,600 feet) from the edge of Phase IV. Noise associated with the construction of the existing infrastructure, crypts, and columbariums would be short term, intermittent, and temporary. Construction activities would be limited to daytime hours eliminating potential nighttime noise effects. Noise associated with construction activities are anticipated to be less than 60 decibels (dB) at the University based upon on the Inverse Square Law of Noise Propagation (Harris 1996). Noise levels are reduced by 6 dB as the source distance is doubled (e.g., at 50 feet -6 dBA, 100 feet -12 dBA, at 200 feet -18 dBA, at 400 feet -24 dBA, and at 800 feet -30 dBA). Based upon noise levels documented by the Federal Highway Administration, average construction site equipment dB levels range from 91-86; therefore, within 800 feet, the noise levels associated with construction would be 61-56, below the acceptable range under the U.S Department of Housing and Urban Development (HUD 2011) for residential areas. As such, adverse effects from construction noise would be negligible. Over the long term, internment activities such as burial ceremonies and ceremonial rifle discharged would temporarily increase noise generation; however, the maximum decibels associated with the M-16 rifle blank round is anticipated to be 41 decibels at 0.5 mile, based upon US Army estimates, and as noted with short-term impacts, construction associated noise would be less than 60 decibels. Due to the distance from the site and the noise receptors, the Proposed Action would not result in any short or long term impacts to increase in noise.

Land Use*:* The site, including the entire property is owned and operated by the VA and is designated for use as cemetery. The site, including the areas currently developed are zoned as Planned Development (PD) District, specifically PD 186. A Planned Development District is designated as property in which office centers, combination apartment and retail centers, shopping centers, medical centers with office and housing elements, special industrial districts, housing developments and other similar developments can be constructed/housed (City of Dallas 2018).

The site was designated as PD 186 in 1984 with the permitted of a cemetery or mausoleum. Because the site is zoned and permitted use is that of a cemetery, the land use will not require modification; therefore, the Proposed Action would not result in any substantial changes to land use.

Socioeconomics: The Proposed Action is anticipated to have a minor, short-term, temporary positive impact on the local economy as a result of construction activities within the area. The temporary positive impact should be caused by incidental spending by construction workers and the purchase of construction materials. No adverse impacts to socioeconomic resources would be expected.

Community Services: Additional community services, including police, fire, and medical, are not anticipated to be needed during the construction and upon completion of the Proposed Action. The area is currently serviced by these agencies. No adverse impacts to these services or to the site from these services are anticipated.

Transportation and Parking: The Proposed Action does not include activities associated with Spur 408 and Mountain Creek Parkway. Additional access (ingress or egress) to the site will not be constructed under this Proposed Action. Short-term impacts on these roadways are anticipated during construction, additional traffic associated with the mobilization/demobilization of equipment and labor and delivering of materials. These impacts are anticipated to be short-term, only occurring during the construction of the additional facilities. With the increase in additional interment space, the potential for an increase in visitors is present; however, it is anticipated that the additional visitors would not congregate at one time; therefore, an increase in traffic to the point to where it is noticeable is not anticipated. No adverse impacts to transportation and parking associated with the Phase IV expansion and operation is anticipated.

Utilities: The DFW National Cemetery will continue operating by utilize existing utilities currently under contract with the DFW National Cemetery. The Proposed Action will require new groundwater well distribution lines; however, the new line(s), would utilize existing systems within the DFW National Cemetery; therefore, no impact to utilities is anticipated. In addition, the new areas that require irrigation will be done so utilizing an on-site groundwater well which is discussed under Hydrology and Water Quality. No impact to utilizes are anticipated.

Environmental Justice: There are no low-income or minority communities located within or adjacent to the boundaries of the DFW National Cemetery; the surrounding area does not include residential areas. Since the Proposed Action would occur within the boundaries of the cemetery no adverse impacts to minorities, or low-income populations are anticipated.

2.0 Description of Proposed Action and Alternatives

2.1 Introduction

This section of the EA provides a brief history of the formulation of alternatives, identification of alternatives eliminated from further consideration, a description of the Proposed Action, and a description of the No Action Alternative. The screening criteria and process developed and applied by VA to hone the number of reasonable alternatives for the Proposed Action are described, providing the reader with an understanding of VA's rationale in ultimately analyzing one Action Alternative, the Proposed Action.

2.2 Development of Alternatives

The NEPA, CEQ Regulations, and 38 CFR Part 26 require a range of reasonable alternatives to be explored rigorously and evaluated objectively. Alternatives that are eliminated from detailed analysis must be identified, along with a brief discussion of the reasons for eliminating them. For the purposes of analysis, an alternative was considered "reasonable" only if it would enable VA to accomplish the primary mission "To care for him who shall have borne the battle, and for his widow, and his orphan" that meets the purpose of and need for the Proposed Action. "Unreasonable" alternatives would not enable VA to meet the purpose or need for the Proposed Action. Based upon the mission, three alternatives were identified.

- No Action Alternative – Utilize existing developed areas within the Dallas Fort Worth and continue using the existing administrative facilities within their current configuration and functions.
- Proposed Action - Construct additional burial sites, associated roadways, administrative buildings (including maintenance and general administration), and infrastructure on existing NCA property
- Alternative - Purchase undeveloped property beyond the boundaries of the NCA property and construct additional burial sites, associated roadways, administrative buildings (including maintenance and general administration), and infrastructure.

2.2.1 Alternatives Eliminated From Further Consideration

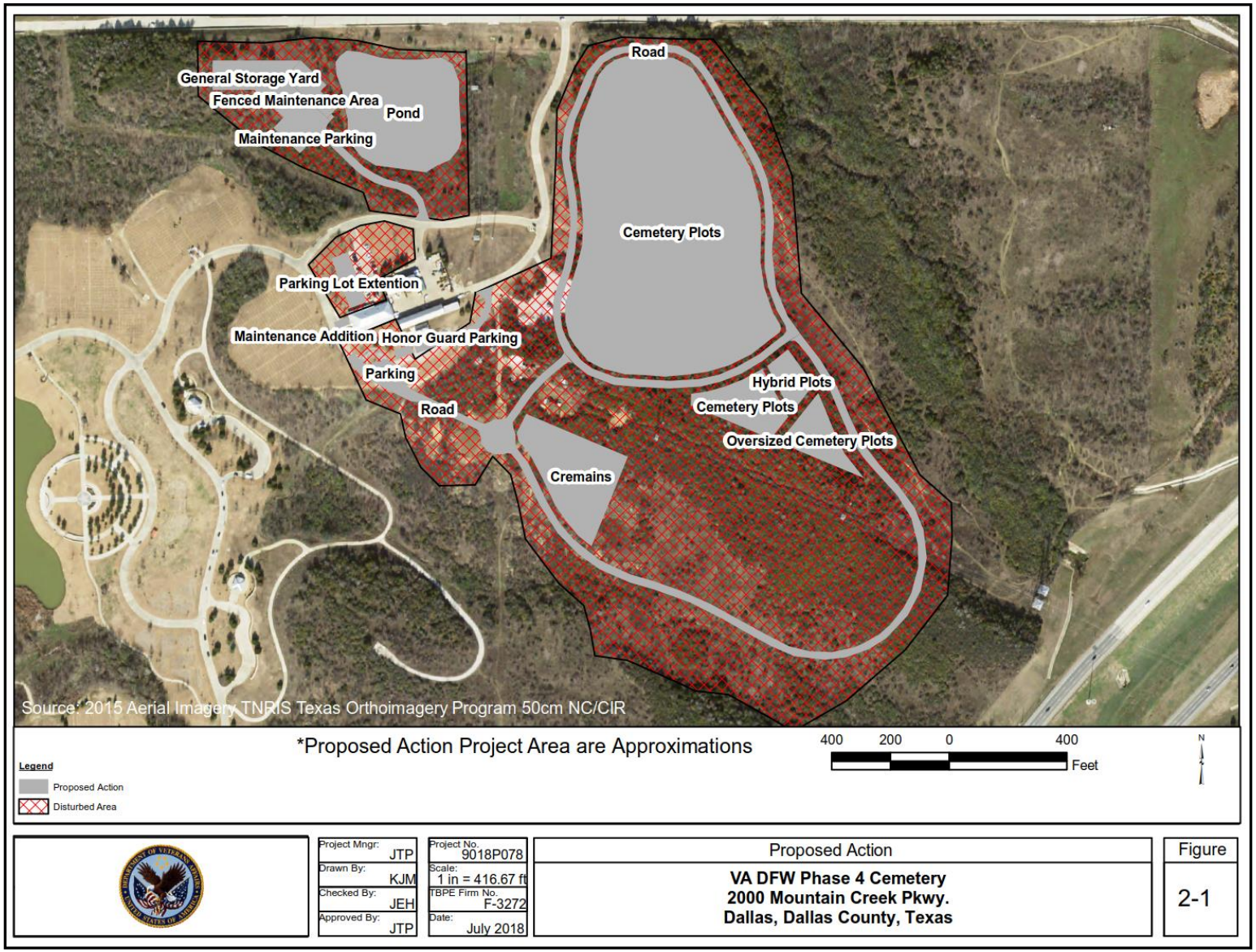
Undeveloped property is available for purchase and development beyond the boundaries of the DFW National Cemetery; however, to date, approximately 486 acres on the DFW National Cemetery property are undeveloped, therefore the potential purchase and development of additional properties alternative was eliminated.

2.3 Alternatives Retained for Detailed Analysis

2.3.1 Proposed Action

Under the Proposed Action (Phase IV), the VA would construct additional burial sites and associated roadways, expand and construct maintenance and administrative structures, construct a storage yard and soil storage building, install a chain-link fence around the perimeter of the DFW National Cemetery, install groundwater well(s), and construct an irrigation pond, see Figure 2-1. It is estimated that the total acreage of temporary and permanent impacts is *67 acres.*

Figure 2-1 Proposed Action



The construction of the burial sites would occur southeast of the administration building on Rio Grande Drive. The construction should include up to 19,000 burial sites including both burial and areas for cremated remains. Burial areas could include approximately 12,500 cemetery sites that include three-foot by eight-foot pre-placed crypts; 600 burial sites that include four-foot by eight-foot oversized crypts; and 600 five-foot by ten-foot traditional gravesites. Areas for cremated remains should include 4,000 four-foot by four-foot in-ground cremains sites for granite headstones (with no grade beams); 300 five-foot by ten-foot hybrid/green natural burial sites; and 4,352 columbarium niches.

Three columbaria will be constructed, housing the 4,352 columbarium niches; two would hold approximately 1,568 niches each and one will have a capacity of 1,216. The columbaria will have a similar configuration as those currently at the facility. The walls will act as retaining walls built into the slopes and be constructed of cast-in-place concrete on drilled concrete piers. The exposed faces of the walls should be covered in stone masonry similar if not identical to the existing columbariums.

The various types of burial sites to be constructed are anticipated to provide a 10-year inventory. The burial site will fit the topography of the expansion area and no crypt sections will have to be stepped up to achieve walkable and operational slopes of four percent or less.

The total acreage for these resting areas would be approximately 18 acres. The crypts/gravesites and columbarium niches will have a similar appearance to those that are already existing, see Figures 2-2 and 2-3. Design and general guidance for this proposed action will follow original master plan concepts, RFP guidelines, NCA Facility Design Guide Criteria, VA Program Guide PG 18-15, H-18-8 Seismic Design Requirements, and VA Signage Design Guide Chapter 12 National Cemetery Signs.

Figure 2-2 Present Columbarium Niches

Figure 2-3 Present Gravesites

Four roadways would be constructed, see Figure 2-4. The longest roadway, Road 1, would link the additional burial sites to the existing road to the west of the Administration Building, Rio Grande Drive. The roadway would travel east and north, circling both the new cremains area and the burial sites. A second roadway would include a road leading from the current administrative building to the soil storage area, this will include a gated entrance. The third roadway would be an access road leading to the newly constructed soil storage building at the northern portion of the cemetery from the Administration Building. Each roadway would include two lanes, allowing for two-way traffic, and would be approximately 28 foot in width, an additional ten foot (five feet on each side) would be constructed to allow for street parking for the roadway that circles the burial and cremains area. A minimum of ten feet of turf grasses should be planted adjacent to roadways.

Structures to be constructed include a new administration building adjacent to or near the existing administration building, within an area that has previously been disturbed, and a soils storage area. The administration building would be approximately 3,150 square feet and would include a reception area, offices (directors, administrative, and budget), shared workspaces/workstations, conference room, operations center, break room, uniform storage, janitorial storage, restrooms, and mechanical areas.

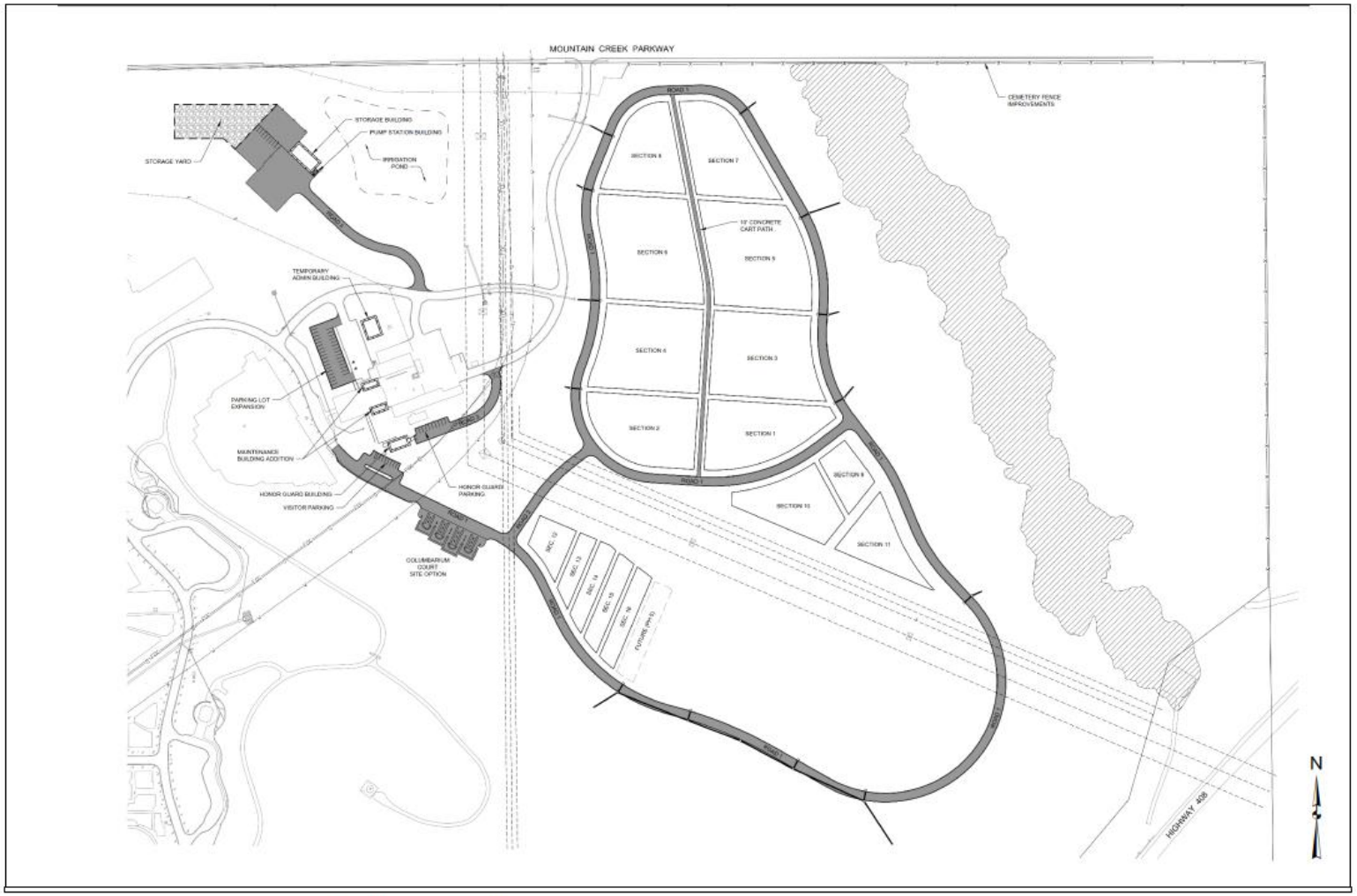
The soils storage area is anticipated to be constructed to the south of Mountain Creek Parkway. The area would include a soil storage building as well as a pump station building, storage yard/bins, and maintenance yard. The approximate area associated with the soils storage area is 60,000 square feet. The soil storage building would be approximately 4,000 gross square feet pre-manufactured building with a cast-in-place concrete wall and foundation, with drilled concrete piers. It is anticipated the building will be approximately 20 feet high and include at least two overhead panel doors. The building would be surrounded by concrete storage bins, grave boxes, soil shredder pad, headstone cutter area, fenced in area for maintenance contractor, and a pump station.

The Administration Building is anticipated to undergo an interior re-configuration and designation. The current Administration Building would be converted to house maintenance offices and an honor guard area which would include additional restrooms and storage. The parking lot associated with the Administration Building would also be expanded to include an additional 14,100 square feet.

An irrigation pond is anticipated to be constructed approximately 255 feet north of the Administration Building. The pond will either be supplied by existing water sources, including stormwater runoff, or by groundwater wells that are to be installed under the Proposed Action. The pond should be at least two acres in size; however at least three acres will be disturbed and graded to construct the pond with a 4:1 side slope and at a 10-foot depth. If required, up to three groundwater wells will be constructed near the soil storage area, northwest of the location of the proposed cemetery sections (Sections 63 and 64). It is anticipated that at least 3,500 to 4,000 gallons per minute will be pumped from the aquifer to irrigate the entire cemetery at buildout. This sizing will allow for some operational inefficiencies that can occur with a site this large. To reach the proposed burial sites with the additional required water, the existing mainline pipes do not have the capacity. It is anticipated that either parallel mainlines and/or new upsized mainline pipe will be installed. Length of new or upsized piping is anticipated to be approximately 3,000 feet. This length of pipe does not include new piping or the branching off of the mainlines that will be required to irrigate the new areas. In addition, rotor sprinklers, bubblers, and spray sprinklers or other watering devices will be installed throughout the proposed burial sites and adjacent to existing roadways.

During construction of the Proposed Action, temporary traffic barriers, maintenance trailers, staging areas, and stockpiles will be mobilized and later removed upon completion of the construction activities. These areas are noted on Figure 2-1. Additionally, areas immediately to the south of the proposed burial sites could be cleared of vegetation and regraded to add in the construction of the roadway and the burial sites. Soils removed from the cemetery will either remain on site to be used at a later date or removed from the site. It is assumed that approximately 40 acres of the site will be disturbed either by temporary impacts or by clearing activities associated with the construction activities for Phase IV.

Figure 2-4 Roadways to Be Constructed



	Project Mngr: JTP Drawn By: KJM Checked By: JEH Approved By: JTP	Project No. 9018P078 Scale: Not to Scale TBPE Firm No. F-3272 Date: July 2018	Roadway to be Constructed **VA DFW Phase 4 Cemetery** **2000 Mountain Creek Pkwy.** **Dallas, Dallas County, Texas**	Figure 2-4

2.3.2 No-Action Alternative

Under the No-Action Alternative, the VA would not construct additional burial sites, columbariums, roadways leading to the burial areas, parking areas, expand the existing administration building, construct an irrigation pond, and construct soil storage area. The DFW National Cemetery would only have the capacity that was provided under Phase III to provide burial sites to Veterans. Under the No-Action Alternative, the VA could not meet its mission as well as satisfy the purpose and need for the Proposed Action; however this alternative was retained to provide a comparative baseline, against which to analyze the effects of the Proposed Action, as required under CEQ Regulations (40 CFR Part 1502.14).

2.4 Comparison of the Potential Effects of the Analysis

The existing condition of the environmental resources at the DFW National Cemetery and its vicinity that are potentially impacted are presented in **Section 3**. **Section 3** also presents an analysis of each alternative's potential effects on the Resource Areas that were analyzed fully. The resource areas that were eliminated from further analysis in Section 1.5 are not discussed within Section 3.

In accordance with CEQ Regulations at 40 CFR Part 1502.14 and VA Directive 0067 of 21 June 2013 *VA NEPA Implementation*, Table 2-1 presents "the environmental impacts of the proposal and the alternatives in comparative form, thus sharply defining the issues and providing a clear basis for choice among options by the decision-maker and the public."

Table 2- 1 Comparison of the Potential Effects of the Analyzed Alternatives

Resource	Proposed Action	No Alternative
Air Quality	Short-term, adverse, direct, and minor impacts - Due to the increase emissions from heavy equipment used during the construction of Phase IV facilities; however, no long-term impact is anticipated. These impacts are less than significant.	No change - therefore, no impact
Cultural Resources	No cultural materials were identified; therefore, it is assumed that no archaeological sites considered eligible for NRHP inclusion or designation of a state landmark were identified present within the project area. No impact is anticipated.	No change; therefore, no impact
Geology, Topography, and Soils	Short-term, adverse, direct, and minor impacts - During the construction of the facilities, roads, and pond the designated areas would be cleared, graded, and stabilized, where necessary, with compacted fill to provide foundations for construction of the structures and roads as needed. These impacts are less than significant.	No change; therefore, no impact
Hydrology and Water Quality	Long-term adverse, direct, and minor impacts and short-term, adverse, direct, and minor impacts – Impacts are associated with the withdrawal from the Trinity aquifer for the operation of Phase IV. The North-Central Texas Trinity and Woodbine Aquifers Priority Groundwater Management Area will monitor the quantity of groundwater withdrawn from the aquifer. Long-term impacts associated with surface water is anticipated due	No change; therefore, no impact

	to the increase in impervious surface, generating additional surface water runoff during rain events. The increase in surface water will be maintained and managed by the implementation of a drainage system. Short and long -term adverse, direct, and minor impacts are associated with the potential increase in sediment loading, decreasing water quality. To reduce impacts, BMPs associated with the implementation of the Stormwater Pollution Prevention Plan will be implemented. These impacts are less than significant.	
Wildlife and Habitat	Short-term, adverse, direct, and minor impact – Removal of the existing vegetation would displace the existing wildlife within the area as well as those species that use the project intermittently or seasonally for nesting. Threatened or endangered species or their critical habitat were not identified within the project area; therefore, a significant impact is not anticipated. However, migratory birds and state listed species may be present and BMPs should be implemented to reduce impacts to those species. These impacts are less than significant.	No change; therefore, no impact
Floodplains and Wetlands	Long-term, adverse, direct, and minor impact - Construction and operation activities would not occur in a floodplain or in areas containing wetlands; therefore, no significant impacts are anticipated. Additional impervious cover will generate additional surface waters; however, engineering design has incorporated this and designed the flow to discharge into the adjacent floodplain. Prior to construction a Developing Permit shall be obtained ensuring authorization to discharge to the floodplain, which is included with the City of Dallas's Municipal Separate Storm Sewer System. These impacts are less than significant.	No change; therefore, no impact
Solid and Hazardous Materials	Short-term, adverse, direct, and minor impact - Construction would generate minimal quantities of solid wastes, creating a short-term adverse direct minor impact. Cemetery operations would generate similar amounts of solid waste as current operations. Current and future solid waste generation would be a minor contributor to overall solid waste generation in the area and the landfills within the area have capacity. These impacts are less than significant.	No change; therefore, no impact

Notes:
No Change or None – There are no impacts expected

3.0 AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

This section describes the baseline, existing conditions of environmental resources (Technical Resource Areas) at and near the DFW National Cemetery potentially subject to effects from implementation of the Proposed Action. Collectively, this is the Proposed Action's Region of Influence (ROI). The baseline conditions presented in this section are described to the level of detail necessary to support analysis of potential impacts associated with the Proposed Action.

3.1 Criteria of Analysis of Impacts

After each description of the relevant baseline conditions of each considered Technical Resource Area, the potential direct and indirect effects of the Preferred Action and No Action Alternative are analyzed. The significance of an action is also measured in terms of its context and intensity. For the purposes of this analysis, the potential environmental impacts are described in terms of duration, whether they are direct or indirect, the magnitude of the impact, and whether they are adverse or beneficial, as summarized in the following paragraphs:

Short-term or long-term. In general, short-term impacts are those that would occur only with respect to a particular time-lined activity, for a finite period, or only during the time required for construction or installation activities. Long-term impacts are those that are more likely to be persistent and chronic.

Direct or indirect. A direct impact is caused by an action and occurs around the same time at or near the location of the action. An indirect impact is caused by an action and might occur later in time or be farther removed in distance but still be a reasonably foreseeable outcome of the action.

Adverse or beneficial. An adverse impact is one having unfavorable or undesirable outcomes on the man-made or natural environment. A beneficial impact is one having positive outcomes on the man-made or natural environment.

3.2 Significance Criteria

Significance is based on the twin criteria of context and intensity (40CFR 1508.27). Context means the affected environment in which a proposed action would occur; it can be local, regional, national, or all three, depending upon the circumstances. Context means that the significance of an action must be analyzed in several contexts such as society as a whole (human/national), the affected region, the affected interests, and the locality. Significance varies with the setting of the proposed action. For instance, in the case of a site-specific action, significance would usually depend upon the effects in the locale rather than in the world as a whole. Both short- and long-term effects are relevant. Intensity refers to the severity of impact, ranging from negligible, minor, or moderate.

Negligible impacts are generally those that might be perceptible but are at the lower level of detection. A minor impact is slight, but detectable. A moderate impact is readily apparent. Significant impacts are those that, in their context and due to their magnitude (severity), have the potential to meet the thresholds for significance set forth in the CEQ regulations (40 CFR 1508.27) and, thus, warrant heightened attention and examination for potential means for mitigation to fulfill the policies set forth in NEPA. Significance criteria by resource area are presented below.

Air Quality. The potential for emissions to result in a considerable net increase of any criteria pollutant within the Dallas Air Quality Control Region that is not incompliance with the State Implementation Plan

Cultural Resources. The potential to result in ground disturbing activities that may adversely affect known or unidentified cultural resources within the project area.

Geology, Topography, and Soils. The potential to alter the geologic or soil composition, structure, or function within the project area.

Hydrology and Water Quality. The potential to result in a violation of applicable water quality and quantity objectives within the North-Central Texas Trinity and Woodbine Aquifers Priority Groundwater Management Area and/or the state of Texas.

Wildlife and Habitat. The potential to result in a reduction of a wildlife species to a level that meets the definition of threatened, endangered, or candidate species within project area per the ESA or Texas Parks and Wildlife regulations. This includes long-term or permanent disturbance or displacement of substantial portions of local populations of listed, proposed, or candidate plant or animal species, or species of special concern. Disturbance can include interference with the movement or migration of any resident or migratory wildlife species within the project area.

Floodplains and Wetlands. The potential to result in major disturbances in the natural flow, discharge, and recharge of water resources within the project or adjacent areas. This includes the potential for a substantial loss, degradation, or fragmentation of wetland habitat.

Solid and Hazardous Materials. The potential for non-hazardous, regulated, or hazardous substances to be collected, stored and/or disposed of improperly.

3.3 Air Quality

The United States Environmental Protection Agency (USEPA) established primary and secondary National Ambient Air Quality Standards (NAAQS) under the Clean Air Act (CAA), 42 United States Code § 7401 et seq. The CAA also set emission limits for certain air pollutants from specific sources, set new source performance standards based on best demonstrated technologies, and established national emission standards for hazardous air pollutants.

The CAA specifies two sets of standards – primary and secondary – for each regulated air pollutant. Primary standards define levels of air quality necessary to protect public health, including the health of sensitive populations such as people with asthma, children, and the elderly. Secondary standards define levels of air quality necessary to protect against decreased visibility and damage to animals, crops, vegetation, and buildings. Federal air quality standards are currently established for six pollutants (known as criteria pollutants), including carbon monoxide (CO), nitrogen dioxide (NO_2), ozone (O_3), sulfur oxides (SO_x), commonly measured as sulfur dioxide [SO_2]), lead, particulate matter equal to or less than 10 micrometers in aerodynamic diameter (PM_{10}) and particulate matter equal to or less than 2.5 micrometers in aerodynamic diameter ($PM_{2.5}$). Although O_3 is considered a criteria pollutant and is measurable in the atmosphere, it is often not considered as a pollutant when reporting emissions from specific sources, because O_3 is not typically emitted directly from most emissions sources. Ozone is

formed in the atmosphere from its precursors – nitrogen oxides (NO_x) and volatile organic compounds (VOCs) – that are directly emitted from various sources. Thus, emissions of NO_x and VOCs are commonly reported instead of O_3. The NAAQS for the six criteria pollutants are shown in Table 3-1.

Table 3- 2 National Ambient Air Quality Standards

Pollutant	Primary/Secondary	Value	Form
Carbon Monoxide 1-hr average 8-hr average	 Primary	 35 ppm 9 ppm	No to be exceeded more than once per year
Nitrogen Dioxide 1-hr average Annual average	 Primary Primary and Secondary	 100 ppb 53 ppb	 Hourly - 98th percentile of 1-hour daily maximum concentrations, averaged over 3 years Annual Average – Annual Mean
Ozone 8-hr average[(b)]	Primary and Secondary	0.070 ppm	Annual fourth highest maximum 8-hour concentration, averaged over 3 years
Lead	Primary and Secondary	0.15 µg/m^3	Rolling average
Particle Matter $_{10}$ 24-hr average	Primary and Secondary	150 µg/m^3	Not to be exceeded more than one per year on average over 3 years
Particle Matter$_{2.5}$ 24-hr average Annual average Annual average	 Primary and Secondary Primary Secondary	 35 µg/m^3 12.0 µg/m^3 15.0 µg/m^3	 98th Percentile, averaged over 3 years Annual mean, averaged over 3 years Annual mean, averaged over 3 years
Sulfur Dioxide 1-hr average 3-hr average	 Primary Secondary	 75 ppb 0.5 ppm	 99th Percentile of 1-hr daily maximum concentrations, averaged over 3 years Not to be exceeded more than one per year

Source: USEPA 2019

The USEPA classifies the air quality within an Air Quality Control Region (AQCR) according to whether the region meets federal primary and secondary air quality standards. An AQCR or portion of an AQCR may be classified as attainment, non-attainment, or unclassified with regard to the air quality standards for each of the criteria pollutants. "Attainment" describes a condition in which standards for one or more of the six pollutants are met in an area. The area is considered an attainment area for only those criteria pollutants for which the NAAQS are met. "Nonattainment" describes a condition in which standards for one or more of the six pollutants are not met in an area. "Unclassified" indicates that air quality in the area cannot be classified and the area is treated as attainment. An area may have all three classifications for different criteria pollutants.

The CAA requires federal actions to conform to any applicable state implementation plan (SIP). USEPA has promulgated regulations implementing this requirement under *40 CFR Part 93*. A SIP must be developed to achieve the NAAQS in non-attainment areas (i.e., areas not currently

attaining the NAAQS for any pollutant) or to maintain attainment of the NAAQS in maintenance areas (i.e., areas that were non-attainment areas but are currently attaining that NAAQS). General conformity refers to federal actions other than those conducted according to specified transportation plans (which are subject to the Transportation Conformity Rule). Therefore, the General Conformity rule applies to non-transportation actions in non-attainment or maintenance areas. Such actions must perform a determination of conformity with the SIP if the emissions resulting from the action exceed applicability thresholds specified for each pollutant and classification of nonattainment. Both direct emissions from the action itself and indirect emissions that may occur at a different time or place but are an anticipated consequence of the action must be considered.

Dallas County is located within an area designated as non-attainment for 8-hour ozone for both 2008 and 2015 standards (EPA 2020) and as such, the VA must demonstrate that a proposed action would not cause or contribute to any new violations of the NAAQS, would not interfere with provisions in the SIP, would not increase the frequency or severity of existing violations, or would not delay timely attainment of any standard. The federal agency must provide documentation that the total of direct and indirect emissions from such future actions would be below the conformity determination emission rates that are established in 40 CFR 93.153.

3.3.1 Effects of the Proposed Action

Under the Proposed Action, construction activities would generate minor amounts of fugitive dust (PM_{10}) and gaseous emissions of CO, VOC, NO_x, SO_2, and and $PM_{2.5}$ from the combustion of fuel by construction equipment and vehicles. These quantities would be below the Applicability for Conformity as noted in Table 3-1.

The quantity of uncontrolled fugitive dust emissions from a construction site is proportional to the area of land worked on and the level of construction activity. The USEPA estimates that uncontrolled fugitive dust emissions from ground-disturbing activities is emitted at a rate of 80 pounds (lbs) of total suspended particulate (TSP) per acre day of disturbance. In a USEPA study of air sampling data at a distance of 164 feet downwind from construction activities, PM10 emissions from various open dust sources were determined based on the ratio of PM10 to TSP sampling data. The average PM10 to TSP ratios for topsoil removal, aggregate hauling, and cut and fill operation are reported as 0.27, 0.23, and 0.22, respectively. Using 0.24 as the average ratio for purposes of this analysis, the emission factor for PM10 dust emissions becomes 19.2 lb per acre per day of disturbance. During construction fugitive dust emissions would increase due to the nature of ground disturbance/c; however, the closest receptors are those attending and working at Dallas Baptist University, would be the residential areas are located approximately 0.87 miles to the southwest feet from the edge of the Project. Therefore, the emissions would decrease prior to reaching the receptors. Additionally, the USEPA estimates that the effects of fugitive dust from construction activities are reduced significantly with an effective watering program. Watering the disturbed area of the construction site twice per day with approximately 3,500 gallons per acre per day reduces TSP emissions as much as 50 percent (USEPA 2009). The effects from fugitive dust last only as long as the duration of construction activity, fall off rapidly with distance from the construction site, and do not result in long-term impacts.

Combustive emissions, which include CO, VOCs, NOx and SO2, from construction equipment exhaust were estimated by using USEPA-approved emissions factors for heavy-duty diesel-powered construction along with the emission factors for the estimated types and numbers of equipment expected to be used during construction. The emission estimates are shown in *Table 3-2*. As with fugitive dust emissions, construction equipment would produce slightly elevated air pollutant concentrations on an annual basis. However, the estimated emissions would not exceed the applicable conformity level.

Table 3- 3 Build Alternative Estimated Construction Emissions - Annually

	CO	VOC	NO_x	SO_x	PM_{10}
Proposed Action	37.59	6.27	85.56	9.13	5.61
Applicability for Conformity	100	100	100	100	100

Notes:
CO = carbon monoxide
NO_x = nitrogen oxides
PM_{10} = particulate matter equal or less than 10 micrometers in diameter
SO_x = sulfur oxides
tpy = tons per year
VOC = volatile organic compound

There would be a short-term, adverse, direct, and minor impact in air quality due to the increase emissions from heavy equipment used during the construction of Phase IV facilities as well as those used during the operation of the facility. It is assumed that the heavy equipment used at the DFW National Cemetery would remain unchanged to operate the activities within Phase IV; therefore, no impact to air quality during the operation is anticipated. Based upon the estimated construction emissions and the assumption that the level of emissions associated with operating the facility will remain consistent, the Proposed Action would not have negative significant long-term operational impacts on local air quality; therefore, no mitigative actions would be required. However, to mitigate short-term impacts, best management practices (BMPs) should be implemented to reduce emissions during the construction. These BMPs could include:

- The construction contractor will implement the following air quality Best Management Practices (BMPs), to reduce the combustion/engine emissions (CO, VOC, NOx, SO2) and PM10 emissions during construction.
- Use appropriate dust suppression methods during on-site construction activities. Available methods include application of water, dust palliative, or soil stabilizers; use of enclosures, covers, silt fences, or wheel washers; and suspension of earth-moving activities during high wind conditions.
- Define and post appropriate speed to minimize dust generated by vehicles and equipment on unpaved surfaces.
- Shut off equipment when it is not in use.
- Stabilize previously disturbed areas with vegetation or mulching if such area will be inactive for 14 calendar days or more (unlikely) as required under TXR150000.Plan for soil disturbance of areas that will be actively worked on and not clear all land at once.

- Visually monitor all construction activities regularly and particularly during extended periods of dry weather and implement dust control measures in additional to scheduled period when needed.

3.3.2 Effects of the No-Action Alternative

Under the No-Action Alternative, the area proposed for the expansion would not be impacted and no construction activities would take place; therefore, no air quality impacts are anticipated.

3.4 Cultural Resources

Cultural resources are prehistoric and historic sites, districts, structures, artifacts, or any other physical evidence of human activity considered important to a culture, subculture, or community for scientific, traditional, religious, or other reasons. A historic district is an area that "possesses a significant concentration, linkage, or continuity of sites, buildings, structures, or objects united historically or aesthetically by plan or physical development" (NPS 1997).

The nature and potential significance of cultural resources are identified by considering the following definition: historic properties, under 36 CFR Part 800, are defined as "any prehistoric or historic district, site, building, structure, or object included in, or eligible for inclusion in, the National Register of Historic Places (NRHP)." For the purpose of these regulations this term includes artifacts, records, and remains that are related to and located within such properties. The term "eligible for inclusion in the National Register" includes both properties formally determined as such by the Secretary of the Interior and all other properties that meet NRHP-listing criteria.

A cultural resources survey was conducted on the approximately 67 acre area associated with the Proposed Action, including the area in which the pond is to be constructed. Three archaeological surveys (ca. 1994, 2002, and 2015) have taken place at and around the proposed project area. Three historic-age archaeological sites were recorded within the immediate vicinity and within one kilometer of the proposed project area. Historic windmill sites, 41DL364 and 41DL365, were recorded in 1995 (Skinner et.al. 1995) and were not relocated during attempts to revisit the sites in 2015 (Lindemuth). Site 41DL421, an early to mid-twentieth century artifact scatter recorded in 2002, was revisited circa 2006 and could not be re-located. Early consultation with the Texas Historical Commission (THC) during a 2015 expansion phase of the cemetery concluded that archaeological survey should be conducted due to the time span between the previous surveys (i.e., greater than 10 years). Accordingly, pedestrian survey supplemented with shovel test pits investigated the general area north of the current project for previously recorded, as well as unrecorded, archaeological resources. The previously identified sites could not be re-located and were likely destroyed since their initial documentation (Lindemuth 2015: 3-3). None of these sites are/were documented within the present area of potential effect for the proposed expansion and improvements activities.

To investigate the area associated with the Proposed Action, archaeologists conducted pedestrian survey in 30-meter transects following a one square acre grid overlaid onto the project area, including excavation of a total of 45 shovel tests at 57 potential shovel test locations (i.e., 12 shovel test locations were not excavated due to clear disturbances). Shovel tests were placed at regularly spaced intervals.

No cultural materials were identified at the surface across the property, and no cultural materials were identified in the 45 excavated shovel tests. Shovel test excavations yielded observations of relatively shallow bedrock in more upland environments, as well as shallow and ferrous subsoils in low-lying portions of the Proposed Action. Shovel test excavations were typically terminated by 30 to 50 centimeters below surface. Non-cultural gravels were encountered in many shovel tests.

3.4.1 Effects of the Proposed Action

Based upon the findings of the cultural resources survey, no cultural materials were identified; therefore, it is assumed that no archaeological sites considered eligible for NRHP inclusion or designation of a state landmark were identified present within the project area; therefore, no impact is anticipated. However, if artifacts are identified during ground disturbing activities, work should cease, and the THC contacted. No impacts are anticipated.

3.4.2 Effects of the No-Action Alternative

Under the No-Action Alternative, no ground disturbance would occur and potential to excavate an artifact is not present. No impacts are anticipated.

3.5 Geology, Topography, and Soils

The site is situated on the Eagle Ford Formation of Cretaceous age. Residual clays of high plasticity are weathered from the Eagle Ford Formation. These soils are noted for their ability to experience large volume changes with fluctuations in their moisture content. The Eagle Ford is dark gray to gray shale with occasional seams and thin layers of limestone. Calcareous concretions, often exceeding 12 inches in diameter, are found throughout the Eagle Ford Formation, as well as occasional thin layers and nodules of pyrite and chert. The Eagle Ford is anticipated to be over 200 feet thick at this site (Terracon 2018).

The highly expansive soils present at this site can subject shallow foundations bearing in them to differential movements due to moisture fluctuations in the soils and uplift forces on drilled shafts. The potential magnitude of post construction movements at this site is dependent on several factors including the thickness of active clay soils and moisture levels of in-situ soils. Due to the wide variations of the thickness of the active clay soils across the site, the potential magnitude of moisture induced potential vertical movement at this site are estimated to vary from 1½ to 7 inches at or near existing grades when the soils are in a dry moisture condition.

The 7.5-minute U.S. Geological Survey Duncanville Quadrangle shows the study area as rolling to undulating low hills with elevations ranging across the area from 500 to 550 feet above sea level. Bedrock geology is mapped as the Cretaceous-age Eagle Ford Group, which are selenitic shales with calcareous concretions over platy, burrowed sandstone that rests on a hard limestone base (USGS: GDT 2007). Three soils are mapped in the area: Houston Black Series, Ferris-Heiden Complex, and Vertel Clay (NRCS 2020). Houston Black Series consists of very deep and very slowly permeable clay soils that formed in clayey residuum from calcareous mudstone; the Ferris-Heiden Complex are both very deep soils, slowly permeable clay soils that formed from clayey residuum of calcareous mudstone; Vertel Clays are moderately deep, very slowly permeable soils that are gently to strongly sloping soils on uplands that form in shaly materials (NRCS 2020). Table

3-3 contains a summary of the mapped soil units within the study area and relevant physical characteristics.

Table 3- 4: Mapped Soil Units with Phase IV

Map Unit Name	Landform	Natural Drainage Class	Frequency of Ponding	Frequency of Flooding
Ferris-Heiden complex, 5 to 12 percent slopes	Ridges	Well Drained	None	None
Heiden clay, 2 to 5 percent slopes, eroded	Ridges	Well Drained	None	None
Houston Black clay, 1 to 3 percent slopes	Ridges	Moderately Well Drained	None	None
Lewisville silty clay, 3 to 5 percent slopes, eroded	Stream terraces	Well Drained	None	None
Vertel clay, 5 to 12 percent slopes	Ridges	Well Drained	None	None
Ferris-Heiden complex, 5 to 12 percent slopes	Ridges	Well Drained	None	None
Heiden clay, 2 to 5 percent slopes, eroded	Ridges	Well Drained	None	None

3.5.1 Effects of the Proposed Action

The Proposed Action would have short-term, adverse, direct, and minor impacts effects on geology and soils at the DFW National Cemetery. During the construction of the facilities, roads, and pond the designated areas would be cleared, graded, and stabilized, where necessary, with compacted fill to provide foundations for construction of the structures and roads as needed. To mitigate for the clay soils the buildings and columbariums should be supported on structural slabs to avoid problems with uneven floors, floor and wall cracking, and sticking doors to name some of the problems that can develop in expansive soils. The void space below the floor slab is recommended to be at least 12 inches.

The proposed buildings and columbarium courts are recommended to be supported on straight drilled shafts bearing in the gray shale encountered at depths of 3 to 29 feet. Grade beams should be supported by the drilled shafts, and at least a 12-inch void space should be provided between the grade beams and the underlying clay soils. Cut and fill slopes are expected to be stable with respect to deep seated shearing movements.

3.5.2 Effects of the No-Action Alternative

Under the No-Action Alternative, the area proposed for the expansion would not be impacted and no construction activities would take place; therefore, the soils and grade would remain undisturbed, no impacts are anticipated.

3.6 Hydrology and Water Quality

The Cemetery is located above the Trinity Aquifer. The Trinity Aquifer is one of nine major aquifers within Texas and extends across much of the central and northeastern portion of Texas. The aquifer is composed of several small contained aquifers which consist of limestones, sands, clays,

gravels, and conglomerates. Water available for drinking is available between 600 to 1,600 feet below ground surface. The water is considered to be “hard” due to the high levels of dissolved solids. This aquifer is one of the most extensively used in Texas, with its primary uses including drinking water, irrigation, and livestock (TWDB 2011). The municipalities in the area no longer use the aquifer for drinking water.

A surface water feature is located to the east of the project area, and within a defined floodplain. The feature drains to Mountain Creek Lake and commences 0.35 miles to the southeast of the DFW National Cemetery, in an undisturbed area. The feature receives surface water from the automotive commercial facilities located to the east of the DFW National Cemetery as well as Highway 408.

3.6.1 Effects of the Proposed Action

Both short and long-term adverse, direct, and minor impacts are anticipated to hydrology and water quality. Those impacts that are present can be reduced by the implementation of BMPs.

Under the proposed action, groundwater wells would be installed to irrigate the maintained areas. No short-or long- impact to groundwater is anticipated associated during construction. The impact, long-term, would be associated with the withdrawal of groundwater, which is to be stored within a pond located at the northern portion of the project area. Based upon two years of irrigation data, it is assumed, an average of 43 million gallons of water, annually, would be required to irrigate the existing grounds (not including Phase IV), approximately 174 acres. It is assumed that the additional maintained areas, under the proposed action, should require an additional 16 million gallons of water once in full operation (Phase IV is thirty-eight percent in size of the existing maintained area).

Dallas County is located within the North-Central Texas Trinity and Woodbine Aquifers Priority Groundwater Management Area (PGMA) (TCEQ 2020). A PGMA is an area designated and delineated by TCEQ that is experiencing, or is expected to experience, within 50 years, critical groundwater problems including shortages of surface water or groundwater, land subsidence resulting from groundwater withdrawal, or contamination of groundwater supplies. A Groundwater Management Plan for the aquifer was adopted in May 2010 and then readopted in May 2015. As part of this plan, prior to constructing the wells, the wells must be registered with the Northern Trinity Groundwater Conservation District, and the wells could be subject to a fee, a meter, and reporting requirements. To decrease the quantity required to irrigate the maintained areas associated with new burials and columbariums, irrigation systems should be programmed to water during times that have the lowest evaporation rates as well as include drip and/or include a low irrigation system. The district will monitor the quantity of groundwater withdrawn from the aquifer; therefore, no significant long-term adverse impact to the existing quantity of groundwater is anticipated.

Short-term and long-term adverse, direct, and minor impacts are anticipated on surface water resources, in association with the construction and operation of the cemetery. During construction over 40 acres of soils will be disturbed, potentially increasing the opportunity for sediment to leave the construction site and enter surface waters, increasing sediment loading and decreasing water quality. Due to the quantity of soil disturbed, over five areas, the proposed action would require

authorization under the Texas Construction General Permit, TXR150000. To obtain authorization under the permit, prior to any ground disturbance, a Notice of Intent (NOI) must be filed with the Texas Commission on Environmental Quality (TCEQ) and a Stormwater Pollution Prevention Plan (SWPPP) prepared and implemented; minimizing the impact. The BMPs that could be implemented to decrease sedimentation associated with erosion include:

- Limit stockpiling of materials on-site;
- Manage stockpiled materials to minimize the time between delivery and use;
- Cover stockpiled materials with tarps;
- Install silt fences around material stockpiles, storm water drainage routes, culverts, and drains; and
- Install hay or fabric filters, netting, and mulching around material stockpiles, storm water drainage routes, culverts, and drains.

Implementation of the SWPPP and BMPs documented within the SWPPP are anticipated to reduce the impacts to less than significant. Additionally, upon completion, all disturbed areas will be covered either with impervious surface or native grasses, removing the potential impact associated with sediment loading.

Upon completion of the construction, there will be an increase in impervious cover in connection with the new roads, additional structure at the administrative area, and the columbariums which should impact the surface water runoff generated during a rain event. The impacts are minimized with the construction of existing drainage system as well as new systems which will be connected with the existing one. In addition, the additional flow would be discharged to surface water and floodplain located immediately to the east of the project area.

3.6.2 Effects of the No-Action Alternative

Under the No-Action Alternative, groundwater wells would not be constructed, and the quantity of pervious cover would remain; therefore, there would be no impact to the groundwater or surface water resources.

3.7 Wildlife and Habitat

The U.S. Endangered Species Act (ESA) of 1973, as amended, provides protections for those species that are listed as threated or endangered, along with their critical habitat. The act grants the U.S. Fish and Wildlife Service (USFWS) primary responsibility in administering the species and habitat designations and protections granted under the ESA. “Endangered” means that a species is in danger of extinction throughout all or a significant portion of its range. “Threatened” means that a species is likely endangered in the foreseeable future. “Critical habitat” is the specific geographic areas that contain features essential to the conservation of an endangered or threatened species and that may require special management and protection. Critical habitat may also include areas that are not currently occupied by the species but will be needed for its recovery. The Texas Parks and Wildlife Department (TPWD) provides management for wildlife at the state level.

The USFWS Information, Planning, and Consultation System (IPaC) provides a species lists that identifies any federally threatened, endangered, proposed and candidate species that may occur within the boundary of a proposed project or may be affected by a proposed project. The list also includes designated critical habitat if present within the study area. The IPAC report is contained within the Protected Species Habitat Assessment provided in Appendix B.

The list of threatened and endangered species compiled by the USFWS on the IPaC for Dallas County, Texas includes five species identified by the USFWS and 34 species identified by TPWD. The species potentially present within the project are presented in the table below.

Table 3- 5: USFWS and TPWD Species Listed for Dallas County, Texas

Species	Status	Habitat Description	Habitat Present
Birds			
Dendroica chyrsoparia (Golden-cheeked Warbler)	USFWS – Endangered TPWD – Endangered	Juniper-oak woodlands; dependent on Ashe juniper for long fine bark strips, only available from mature trees, used in nest construction; nests are placed in various trees other than Ashe juniper; only a few mature junipers or nearby cedar brakes can provide the necessary nest material; forage for insects in broad-leaved trees and shrubs; nesting late March-early summer	No; absence of suitable habitat within or near the study area (adequate juniper shrub habitat was not observed from aerial review or site reconnaissance)
Sterna antillarum (Least Tern)	USFWS – Endangered TPWD – Endangered	Nests along sand and gravel bars within braided streams, rivers; also known to nest on man-made structures (inland beaches, wastewater treatment plants, gravel mines, etc.)	No; absence of suitable habitat within or near the study area.
Charadrius melodus (Piping Plover)	USFWS – Threatened TPWD - Threatened	Wintering migrant along the Texas Gulf Coast; beaches and bayside mud flats	No; absence of suitable habitat within or near the study area.
Calidris canatus rufa (Red Knot)	USFWS - Threatened	Migrate long distances in flocks northward through the U.S. mainly April to June, southward July to October. Prefers the shoreline of coast and bays and also uses mudflats during rare inland encounters; Primarily inhabits seacoasts on tidal flats and beaches, herbaceous wetlands, and tidal flat/shore	No; absence of suitable habitat within or near the study area.
Grus americana (Whooping Crane)	USFWS - Endangered TPWD - Endangered	Potential migrant via plains throughout most of Texas to the coast; winters in coastal marshes of Aransas, Calhoun, and Refugio counties. Breeds, migrates, winters, and forages in a variety of wetland and other habitats;	No; absence of suitable habitat within or near the study area

Species	Status	Habitat Description	Habitat Present
		During migration, a variety of habitats are used; however, wetland mosaics appear to be the most suitable	
Falco peregrinus anatum (American Peregrine Falcon)	TPWD - Endangered	Year-round resident and local breeder in west Texas, nests in tall cliff eyries; also, migrant across state from more northern breeding areas in US and Canada, winters along coast and farther south; occupies wide range of habitats during migration, including urban, concentrations along coast and barrier islands; low-altitude migrant, stopovers at leading landscape edges such as lake shores, coastlines, and barrier islands.	No; absence of suitable habitat within or near the study area
Falco peregrinus tundrius (Arctic Peregrine Falcon)	--	Migrant throughout state from subspecies' far northern breeding range, winters along coast and farther south; occupies wide range of habitats during migration, including urban, concentrations along coast and barrier islands; low-altitude migrant, stopovers at leading landscape edges such as lake shores, coastlines, and barrier islands.	No; absence of suitable habitat within or near the study area
Haliaeetus leucocephalus (Bald Eagle)	TPWD - Threatened	Found primarily near rivers and large lakes; nests in tall trees or on cliffs near water; communally roosts, especially in winter; hunts live prey, scavenges, and pirates food from other birds	Based on prior field experience on adjoining properties east of Nursery Road and the confluence of Delaware Creek and the West Fork Trinity River some bald eagles have been observed. Bald eagle nest has not been observed in the project vicinity. If Bald Eagle presence is observed in the study area it would be considered incidental.
Vireo atricapilla (Black-capped Vireo)	TPWD - Endangered	Oak-juniper woodlands with distinctive patchy, two-layered aspect; shrub and tree layer with open, grassy spaces; requires foliage reaching to ground level for nesting cover; return to same territory, or one nearby, year after year; deciduous and broad-	No; absence of suitable habitat within or near the study area

Species	Status	Habitat Description	Habitat Present
		leaved shrubs and trees provide insects for feeding; species composition less important than presence of adequate broad-leaved shrubs, foliage to ground level, and required structure; nesting season March-late summer	
Ammodramus henslowii (Henslow's Sparrow)	--	Wintering individuals (not flocks) found in weedy fields or cut-over areas where lots of bunch grasses occur along with vines and brambles; a key component is bare ground for running/walking	No; absence of suitable habitat within or near the study area
Sterna antillarum athalassos (Interior Least Tern)	TPWD - Endangered	Subspecies is listed only when inland (more than 50 miles from a coastline); nests along sand and gravel bars within braided streams, rivers; also know to nest on man-made structures (inland beaches, wastewater treatment plants, gravel mines, etc); eats small fish and crustaceans, when breeding forages within a few hundred feet of colony	No; absence of suitable habitat within or near the study area
Falco peregrinus (Peregrine Falcon)	TPWD - Threatened	Both subspecies migrate across the state from more northern breeding areas in US and Canada to winter along coast and farther south; subspecies (F. p. anatum) is also a resident breeder in west Texas; the two subspecies' listing statuses differ, F.p. tundrius is no longer listed in Texas; but because the subspecies are not easily distinguishable at a distance, reference is generally made only to the species level; see subspecies for habitat.	No; absence of suitable habitat within or near the study area
Anthus spragueii (Sprague's Pipit)	--	Only in Texas during migration and winter, mid September to early April; short to medium distance, diurnal migrant; strongly tied to native upland prairie, can be locally common in coastal grasslands, uncommon to rare further west; sensitive to patch size and avoids edges.	No; absence of suitable habitat within or near the study area

Species	Status	Habitat Description	Habitat Present
Athene cunicularia hypugaea (Western Burrowing Owl	--	Open grasslands, especially prairie, plains, and savanna, sometimes in open areas such as vacant lots near human habitation or airports; nests and roosts in abandoned burrows	No; absence of suitable habitat within or near the study area
Plegadis chihi (White-faced Ibis)	TPWD - Threatened	Prefers freshwater marshes, sloughs, and irrigated rice fields, but will attend brackish and saltwater habitats; nests in marshes, in low trees, on the ground in bulrushes or reeds, or on floating mats	No; absence of suitable habitat within or near the study area
Mycteria americana (Wood Stork)	TPWD - Threatened	Forages in prairie ponds, flooded pastures or fields, ditches, and other shallow standing water, including salt-water; usually roosts communally in tall snags, sometimes in association with other wading birds (i.e. active heronries); breeds in Mexico and birds move into Gulf States in search of mud flats and other wetlands, even those associated with forested areas; formerly nested in Texas, but no breeding records since 1960	No; absence of suitable habitat within or near the study area
Insects			
Lordithon niger (Black Lordithon rove beetle)	--	Historically known from Texas	No; absence of suitable habitat within or near the study area
Mammals			
Myotis velifer (Cave myotis bat)	--	Colonial and cave-dwelling; also roosts in rock crevices, old buildings, carports, under bridges, and even in abandoned Cliff Swallow (Hirundo pyrrhonota) nests; roosts in clusters of up to thousands of individuals; hibernates in limestone caves of Edwards Plateau and gypsum cave of Panhandle during winter; opportunistic insectivore	No; absence of suitable habitat within or near the study area
Spilogale putorius interrupta (Plains spotted skunk)	--	Catholic; open fields, prairies, croplands, fence rows, farmyards, forest edges, and woodlands; prefers wooded, brushy areas and tallgrass prairie	Habitat present; woodlands observed.
Mollusks			
Pleurobema riddellii (Louisiana pigtoe)	TPWD - Threatened	Streams and moderate-size rivers, usually flowing water on substrates of mud, sand, and	No; suitable intermittent and/or perennial streams

Species	Status	Habitat Description	Habitat Present
		gravel; not generally known from impoundments; Sabine, Neches, and Trinity (historic) River basins	were not observed in the study area.
Lampsilis satura (Sandbank pocketbook)	TPWD - Threatened	Small to large rivers with moderate flows and swift current on gravel, gravel-sand, and sand bottoms; east Texas, Sulfur south through San Jacinto River basins; Neches River	No; suitable intermittent and/or perennial streams were not observed in the study area.
Potamilus amphichaenus (Texas heelsplitter)	TPWD - Threatened	quiet waters in mud or sand and also in reservoirs. Sabine, Neches, and Trinity River basins	No; suitable intermittent and/or perennial streams were not observed in the study area.
Fusconaia askewi (Texas pigtoe)	TPWD - Threatened	Rivers with mixed mud, sand, and fine gravel in protected areas associated with fallen trees or other structures; east Texas River basins, Sulphur River, Cypress Creek, Sabine through Trinity rivers as well as San Jacinto River	No; suitable intermittent and/or perennial streams were not observed in the study area.
Reptiles			
Macrochelys temminckii (Alligator snapping turtle)	TPWD - Threatened	Perennial water bodies; deep water of rivers, canals, lakes, and oxbows; also swamps, bayous, and ponds near deep running water; sometimes enters brackish coastal waters; usually in water with mud bottom and abundant aquatic vegetation; may migrate several miles along rivers; active March-October; breeds April-October	No; absence of suitable habitat within or near the study area
Thamnophis sirtalis annectens (Texas garter snake)	--	Wet or moist microhabitats are conducive to the species occurrence, but is not necessarily restricted to them; hibernates underground or in or under surface cover; breeds March-August	No; absence of suitable habitat within or near the study area
Phrynosoma cornutum (Texas horned lizard)	TPWD - Threatened	Open, arid and semi-arid regions with sparse vegetation, including grass, cactus, scattered brush or scrubby trees; soil may vary in texture from sandy to rocky; burrows into soil, enters rodent burrows, or hides under rock when inactive; breeds March-September	No; absence of suitable habitat within or near the study area
Crotalus horridus (Timber rattlesnake	TPWD - Threatened	Swamps, floodplains, upland pine and deciduous woodlands, riparian zones, abandoned farmland; limestone bluffs, sandy soil or black clay; prefers dense	No; absence of suitable habitat within or near the study area

Species	Status	Habitat Description	Habitat Present
		ground cover, i.e. grapevines or palmetto	
Plants			
Hexalectris nitida (Glass Mountains coral-root)	--	Apparently rare in mixed woodlands in canyons in the mountains of the Brewster County, but encountered with regularity, albeit in small numbers, under *Juniperus ashei* in woodlands over limestone on the Edwards Plateau, Callahan Divide and Lampasas Cutplain; Perennial; Flowering June-Sept; Fruiting July-Sept	No; absence of suitable habitat within or near the study area
Yucca necopina (Glen Rose yucca)	--	Texas endemic; grasslands on sandy soils and limestone outcrops; flowering April-June	No; absence of suitable habitat within or near the study area
Dalea hallii (Hall's prairie clover)	--	In grasslands on eroded limestone or chalk and in oak scrub on rocky hillsides; Perennial; Flowering May-Sept; Fruiting June-Sept	No; absence of suitable habitat within or near the study area
Agalinis densiflora (Osage Plains false foxglove)	--	Most records are from grasslands on shallow, gravelly, well drained, calcareous soils; Prairies, dry limestone soils; Annual; Flowering Aug-Oct	No; absence of suitable habitat within or near the study area
Matelea edwardsensis (Plateau milkvine)	--	Occurs in various types of juniper-oak and oak-juniper woodlands; Perennial; Flowering March-Oct; Fruiting May-June	Potential habitat; juniper woodlands observed in portions of the study area.
Astragalus reflexus (Texas milk vetch)	--	Grasslands, prairies, and roadsides on calcareous and clay substrates; Annual; Flowering Feb-June; Fruiting April-June	Potential habitat; clay substrates observed in portions of the study area
Cuscuta exaltata (Tree dodder)	--	Parasitic on various Quercus, Juglans, Rhus, Vitis, Ulmus, and Diospyros species as well as Acacia berlandieri and other woody plants; Annual; Flowering May-Oct; Fruiting July-Oct	Potential habitat; woody communities dominated by *Ulmus crassifolia, Ulmus americana*, and *Celtis laevigata* observed.
Hexalectris warnockii (Warnock's coral-root)	--	In leaf litter and humus in oak-juniper woodlands on shaded slopes and intermittent, rocky creekbeds in canyons; in the Trans Pecos in oak-pinyon-juniper woodlands in higher mesic canyons (to 2000 m [6550 ft]), primarily on igneous substrates; in Terrell County under Quercus fusiformis mottes on terrraces of spring-fed perennial streams, draining an otherwise rather xeric limestone landscape; on the	No; absence of suitable habitat within or near the study area

Species	Status	Habitat Description	Habitat Present
		Callahan Divide (Taylor County), the White Rock Escarpment (Dallas County), and the Edwards Plateau in oak-juniper woodlands on limestone slopes; in Gillespie County on igneous substrates of the Llano Uplift; flowering June-September; individual plants do not usually bloom in successive years	

-- Listed according to the state of Texas; however, no designation in regards to Threatened or Endangered

According to TPWD, the site is located in the Texas Blackland Prairies Ecological Region, characterized by flat to gently rolling plains dissected by drainages with the most significant ridges associated with harder chalk formations. Soils are typically Vertisols occurring on calcareous clays but may also occur on loams, clay loams, or even sandy clay loams. Rainfall can be moderate, but somewhat erratic, therefore, moisture is often limited during part of the growing season. Drought, grazing, and fire are the primary natural processes that affect this system. Overgrazing and conversion to agriculture, along with fire suppression, have led to the invasion of some areas by problematic brush species. Three ecological categories were identified within the Phase IV and are:

Native Invasive: Deciduous Woodland - This broadly-defined type may have sugarberry *(Celtis laevigata*), water oak (*Quercus nigra*), cedar elm (*Ulmus crassifolia*), sweetgum *(Liquidambar styraciflua*), yaupon (*Ilex vomitoria*), ashes (*Fraxinus spp.*), and honey mesquite (*Prosopis glandulosa*) among the dominants. Post oak, (*Quercus stellata*), coastal live oak (*Quercus virginiana*), and plateau live oak (*Quercus fusiformis*) may be important. Eastern redcedar (*Juniperus virginiana*), Texas persimmon (*Diospyros texana*), and loblolly pine (*Pinus taeda*) may also be present

Edwards Plateau: Oak/ Hardwood Slope Forest - Forest or woodland on slopes generally greater than 20 percent on steep rocky sites with significant deciduous canopy cover. These sites tend to be somewhat more mesic than similar sites dominated by evergreen canopy. The overstory may be diverse, with species such as Texas oak (*Quercus buckleyi*), Lacey oak (*Quercus laceyi*), white shin oak (*Quercus sinuata var. breviloba*), chinkapin oak (*Quercus muehlenbergii*), cedar elm (*Ulmus crassifolia*), netleaf hackberry (*Celtis laevigata var. reticulate*), Texas ash (*Fraxinus texensis*), escarpment black cherry (*Prunus serotina var. eximia*), Arizona walnut (*Juglans major*), and others. This system may occupy slopes on cretaceous limestone or chalk occurring north and east of the Edwards Plateau. In these situations, Shumard oak (*Quercus shumardii*), chinkapin oak (*Quercus muehlenbergii*), Slippery elm (*Ulmus rubra*), and/or black walnut (*Juglans nigra*) may be present in the canopy, and may represent significant components of it. Plateau live oak (*Quercus fusiformis*), and Ashe juniper (*Juniperus ashei*) may be present, often reaching large size under these conditions. Species such as red buckeye (*Aesculus pavia var. flavescens*), Texas redbud (Cercis canadensis var. texensis), rough-leaf dogwood (*Cornus drummondii*), elbowbush

(*Forestiera pubescens*), Mexican buckeye (*Ungnadia speciosa*), Carolina buckthorn (*Frangula caroliniana*), rusty blackhaw (*Viburnum rufidulum*), and grapes (*Vitis spp*.), tend to occur in the shrub layer more frequently in this vegetation type than in the evergreen vegetation types of this system. Though dense canopy, rocky substrate, and significant litter accumulation results in a sparse herbaceous layer, forbs such as widowstears (*Tinantia anomala*), silver-puff (*Chaptalia texana*), baby blue-eyes *(Nemophila phacelioides*), cedar sage (*Salvia roemeriana*), and various ferns may be present, if patchy.

Urban Low intensity - This type includes areas that are built-up but not entirely covered by impervious cover and includes most of the non-industrial areas within cities and towns.

3.7.1 Effects of the Proposed Action

Implementation of the Proposed Action would remove the existing vegetation and displace the existing wildlife within the area as well as those species that use the project intermittently or seasonally for nesting creating a short-term, adverse, direct, and minor impact. During the site visit associated with the Protected Species Habitat Assessment none of the threatened or endangered species, both federal and state, identified in the table above were observed, additionally, no critical habitat was observed. However, habitat for state listed species was observed. These species include the Plains Spotted Skunk, Plateau milkvine, Texas milk vetch, Tree dodder; however, none were observed. TPWD suggests, as a BMP, that text within construction specifications notification to include language to avoid harming the species if encountered and to avoid unnecessary impacts to dens. Since these are state listed species and these species were not identified, no significant adverse impacts are anticipated.

In addition, due to the vegetation present, trees and bushes, migratory birds may be present. To minimize impact to migratory birds that could be nesting in the trees and bushes, USFWS recommends activities requiring vegetation removal or disturbance to be conducted during times outside the nesting period of March through August. Undergoing this recommendation would reduce the impacts to migratory to less than significant.

The typical terrestrial wildlife species that could be impacted are widely distributed; thus, loss of some individuals and habitat would not measurably impact population abundance or distribution throughout their range. Areas to the south and northeast of the DFW National Cemetery remain undeveloped and could provide areas for those species that are disturbed, to relocate. Noise from construction activities, increased traffic, and earth moving would temporarily disturb wildlife near the construction areas. This disturbance is expected to be short-term and minor. The areas to the northeast and south of the site are undeveloped and would provide an area for the displaced wildlife. Since no critical habitat or listed species were observed; undeveloped areas adjacent to the site, which allows areas for species to relocate to, and work should be conducted during non-nesting season; a less than significant adverse impact to wildlife and vegetation is anticipated.

3.7.2 Effects of the No-Action Alternative

Under the No-Action Alternative the project area would not be disturbed and vegetation would not be removed; therefore, no impacts are anticipated.

3.8 Floodplains and Wetlands

A Preliminary Waters of the United States Delineation was performed for the project area. The delineation was performed in accordance with the 1987 U.S. Army Corps of Engineers (USACE) Manual and 2010 Great Plains Regional Supplement. The delineation included a desktop review of U.S. Geologic Survey 7.5-minute topographic maps (USGS maps), USFWS Wetlands Inventory data, U.S. Department of Agriculture (USDA) soil survey data, Federal Emergency Management Agency (FEMA) floodplain maps, aerial photographs, and local climatic data to assist in identifying potential WOUS and wetland areas in the study area walking the project area and documenting changes in vegetation, soil, and hydrologic conditions utilizing USACE data forms for the Great Plains Region.

The delineation did not identify or delineate aquatic features within the study area. Other streams or open water features were not observed. Although hydrophytic vegetation was observed and recorded throughout the study area, hydric soils and wetland hydrology were not observed and no areas meeting all three wetland criteria were identified or delineated. Features identified during the delineation are noted within Figure 3-1, below. The delineation is provided within Appendix B.

Based upon the FEMA National Flood Hazard Layer 48113C-NFHL for Dallas County, Texas, updated May 29, 2018. According to the FEMA documents, the entirety of the site is located outside the limits of the FEMA mapped 100-year floodplain and 500-year floodplains and it lies within Zone X, unshaded. A 100-year floodplain (Zone A) corridor is depicted offsite parallel to the east study area boundary. The floodplain is noted within Figure 3-2.

3.8.1 Effects of the Proposed Action

Under the Proposed Action, construction and operation activities would not occur in a floodplain or in areas containing wetlands; therefore, no significant adverse direct impacts are anticipated. Due to the increase of impervious cover associated with the additional roadways and the modifications to the topography, additional surface water flow is anticipated to enter the floodplain located to the east of the project area; creating a long-term, direct, adverse, and minor impact. As part of the design process the additional runoff has been incorporated into the design of Phase IV. The surface water system in which this floodplain is located, is within the City of Dallas Municipal Separate Storm Sewer System (MS4). The City of Dallas allows discharged to the MS4 by authorization under Texas Pollutant Discharge Elimination System Permit, WQ0004396000. To discharge to the system a Developing Permit should be completed to ensure compliance within the permit. To apply for the permit, the engineering drawings will be submitted detailing how the additional surface water flow will be managed. The required drainage conveyance systems and outfalls have been designed and will be constructed as part of Phase IV; ensuring that the floodplain and associated MS4 can manage the additional runoff. Due to the engineering designs, no significant impact is anticipated.

3.8.1 Effects of the No-Action Alternative

Under the No-Action Alternative, activities would not occur within the project area and there would be no change in the existing condition of known wetlands and mapped floodplains; therefore no impact is anticipated.

Figure 3-1 Wetland Delineations and Associated Communities

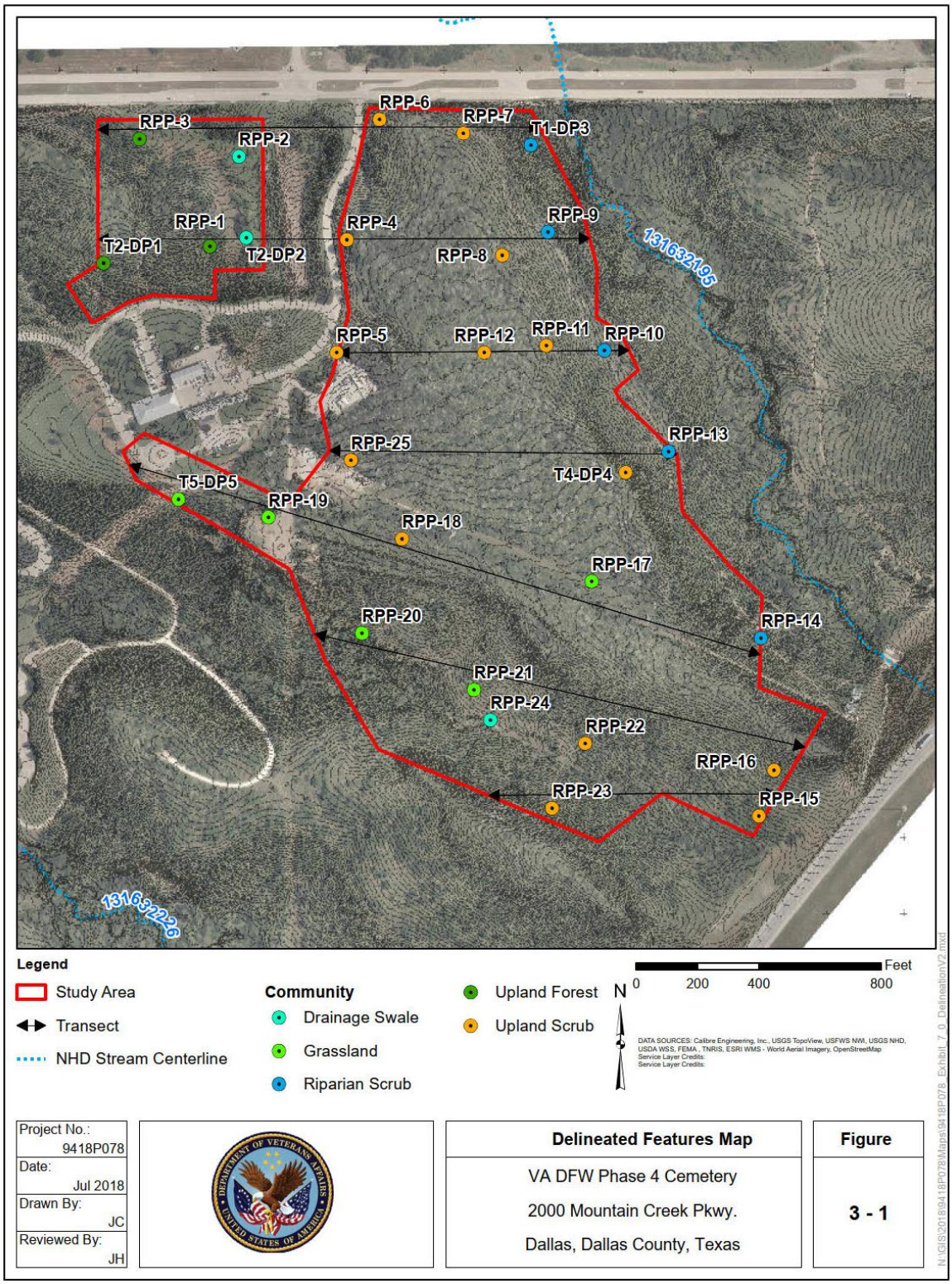
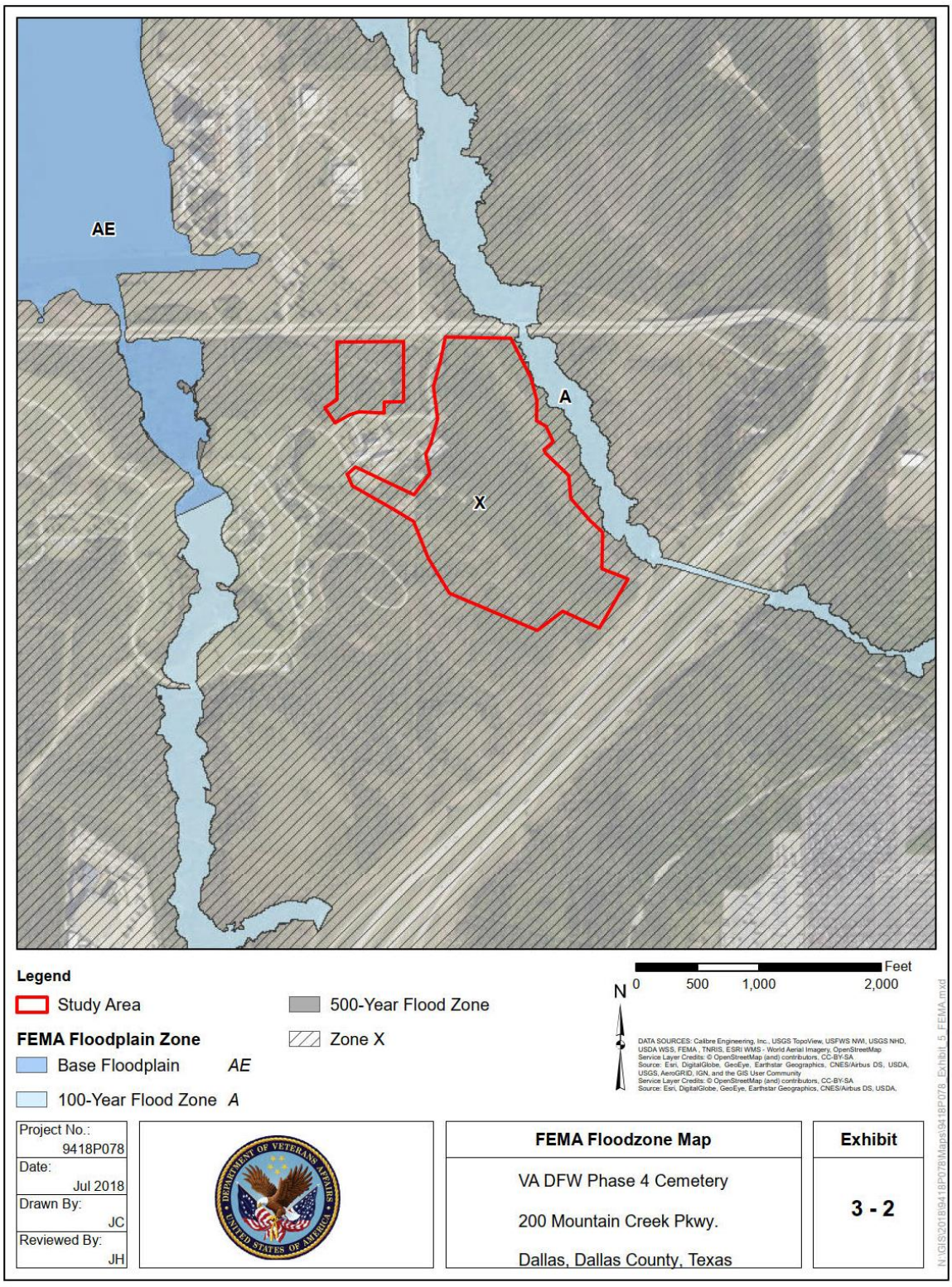


Figure 3-2 FEMA Mapped Floodplain



3.9 Solid and Hazardous Materials

All solid and hazardous wastes are disposed of by a private contractor. Solid wastes include those associated with the operation of the administrative facility as well as ground maintenance. These wastes including paper products, human hygiene related products, as well as pesticides and herbicides. All chemicals are stored and disposed of in accordance with the NCA Facilities Design Guide and the Integrated Pest Management Procedures for NCA National Cemeteries.

3.9.1 Effects of the Proposed Action

Construction of Phase IV would generate minimal quantities of solid wastes, creating a short-term, adverse, direct, and minor impact. The construction activities include ground disturbance associated with the pond, gravesites, new administration facilities, and fencing. Solid wastes that would be generated may include concrete, scrap wire, and packing materials. Excavated soils would be reutilized onsite in accordance with site design specifications as well as stored within the new soil storage areas for use with in cemetery operations. Contractors would be directed to recycle materials to the maximum extent possible, thereby reducing the amount of debris disposed of in landfills. Materials not suitable for recycling would be taken to a landfill permitted to handle construction debris wastes. The proper management and recycling or disposal of construction debris would be the responsibility of construction contractors. Additionally, within the region, landfills have a capacity to store 375,476,359 tons of waste and have a reserve capacity of 36 years (TCEQ 2019).

Cemetery operations associated with the Proposed Action would generate similar amounts of solid waste as current operations. Current and future solid waste generation would be a minor contributor to overall solid waste generation in the area. Due to the available capacity of landfills within the area, the promotion of recycling wastes; even with a short-term increase in waste generation, there would be an adverse, direct, and minor impact to the operating life of the landfill.

Pesticide application and road maintenance would be expanded to the new operational areas, but would continue to be serviced by contractors in accordance with material specifications and would not result in adverse impacts.

3.9.2 Effects of the No-Action Alternative

Under No Action, cemetery expansion would not occur, therefore, no construction-related solid waste and hazardous material generation will take place. As cemetery interments are reduced and eventually ended once the cemetery has reached capacity, solid waste generation would decrease.

3.10 Cumulative Effects

The consideration of cumulative impacts consists of an assessment of the total effect on a resource, ecosystem, or community from past, present and future actions that have altered the quantity, quality, or context of those resources within a broad geographic scope. The CEQ regulations define cumulative effects as "…the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or nonfederal) or person undertakes such other actions. Cumulative effects can result from individually minor but collectively significant actions

taking place over a period of time." (40 CFR 1508.7) The cumulative effects analysis considers the aggregate effects of direct and indirect impacts from federal, nonfederal, public, and private actions on the quality or quantity of a resource.

The intent of the cumulative-effects analysis is to determine the magnitude and significance of cumulative effects, both beneficial and adverse, and to determine the contribution of the proposed action to those aggregate effects.

At the time in which this EA has been prepared, future projects located adjacent to the DFW National Cemetery have yet to be identified. Additionally, the area to the west and northeast of the DFW National Cemetery is not available for future projects since it is a waterbody and/or drainage. Additional expansion projects could occur to meet the future needs of the VA community, as noted within the 1992 EIS; however, these impacts would be similar to those identified within the EIS as well as those within this document.

Overall, the Proposed Action or the No-Action Alternative would not have a long-term, negative cumulative effect on the resources at the DFW National Cemetery or on resources in the Dallas area.

3.11 Potential for Generating Substantial Controversy

The VA has solicited input from various federal, state, and local government agencies concerning to the Proposed Action. None of these agencies has expressed any concerns with the Proposed Action. Given the nature and location (approximately 0.87 miles from receptors and within existing VA property) of the Proposed Action and it is anticipated that the Proposed Action would not generate substantial controversy.

4.0 AGENCY COORDINATION AND PUBLIC INVOLVEMENT

As stated in Section 1.5, per 38 CFR Part 26 and the VA's NEPA Interim Guidance for Projects, VA has consulted with federal, state, and local agencies and Native American tribes concerning this Proposed Action. Comments received from all parties have been considered and incorporated within this EA. Communications received during this process are located in **Appendix A.**

Public participation opportunities with respect to the EA, as well as decision making on the Proposed Action, are guided by 38 CFR Part 26. Letters of Intent and Consultation letters were sent to various stakeholders including, but not limited to, the following:

- United States Fish and Wildlife Service
- United States Environmental Protection Agency, Region 6
- Texas Commission on Environmental Quality, Region 4
- Texas Historical Commission
- Texas Parks and Wildlife
- Comanche Nation of Oklahoma
- Tonkawa Tribe of Indians of Oklahoma
- Apache Tribe of Oklahoma
- Coushatta Tribe of Louisiana
- Wichita and Affiliated Tribes (Wichita, Keechi, Waco & Tawakonie), Oklahoma
- Wichita and Affiliated Tribes (Wichita, Keechi, Waco & Tawakonie), Oklahoma
- Alabama-Coushatta Tribe of Texas
- City of Dallas, Chief Planning Officer and Director
- City of Dallas, Mayor
- City of Dallas, District 3 City Council

A response was received from the THC and requested a cultural resources survey, including both pedestrian and subsurface testing. Based upon the request, a cultural resources survey was conducted, and an associated report was provided the THC for review and concurrence. On September 30, 2020 The THC stated that no adverse effects on historic properties will occur and no identified historic properties, archeological sites, or other cultural resources are present or affected.

A Public Notice is required. The purpose of the first notice is to announce the availability of the Draft EA for public review. The Draft EA was released to the public for review on September 11, 2020 which is the date the Notice of Availability (NOA). The NOA was published in the Dallas Morning News on September 11 and 14, 2020. The EA was also available at the following website: https://www.cem.va.gov/ea.asp No comments were received.

The public notice records are included within Appendix A.

5.0 MITIGATION

Mitigation measures include those actions intended to reduce, avoid, or compensate for potential adverse effects to the human or natural environment. Based on the findings of this Final EA, the Proposed Action would result in temporary, minor impacts to air quality and hydrology and water quality, and a long-term, hydrology and water quality. None of the environmental consequences documented in **Section 3** above would result in "significant" adverse impacts to the human environment. However, the VA would implement routine BMPs as necessary, to minimize or avoid adverse environmental impacts from the implementation of the Proposed Action. Mitigation measures for each resource discussed in **Section 3** are noted below.

Air Quality: - BMPs should be implemented to reduce impacts. These BMPS could include:

- The construction contractor will implement the following air quality Best Management Practices (BMPs), to minimize the combustion/engine emissions (CO, VOC, NOx, SO2) and PM10 emissions during construction.
- Use appropriate dust suppression methods during on-site construction activities. Available methods include application of water, dust palliative, or soil stabilizers; use of enclosures, covers, silt fences, and wheel washers; and suspension of earth-moving activities during times in which dust is visible from moist and dry surfaces due to the wind.
- Maintain an appropriate speed, less than 15 mph, to minimize dust generated by vehicles and equipment on unpaved surfaces (EPA 2009).
- Shut off equipment when it is not in use.
- Cover haul trucks with tarps.
- Stabilize previously disturbed areas with vegetation or mulching if such area will be inactive for 14 calendar days or more (unlikely) as required under TXR150000.

Geology, Topography and Soils: Support the buildings and columbariums on structural slabs to avoid problems with uneven floors, floor and wall cracking, and sticking doors to name some of the problems that can develop in expansive soils. The void space below the floor slab is recommended to be at least 12 inches.

Hydrology and Water Quality: To decrease the quantity required to irrigate the maintained areas associated with new burials and columbariums, irrigation systems should be programmed to water during times that have the lowest evaporation rates as well as include drip and/or include a low irrigation system.

Due to the quantity of soil disturbed, over five areas, the proposed action would authorization under the Texas Construction General Permit, TXR150000. To obtain authorization under the permit, prior to any ground disturbance, a NOI must be filed with the TCEQ and a SWPPP prepared and implemented.

Construction BMPs would also be implemented to decrease sedimentation by erosion. Common BMPs for construction activities would be followed to minimize erosion. Preventive BMPs include the following:

- Limit stockpiling of materials on-site;
- Manage stockpiled materials to minimize the time between delivery and use;
- Cover stockpiled materials with tarps;
- Install silt fences around material stockpiles, storm water drainage routes, culverts, and drains; and
- Install hay or fabric filters, netting, and mulching around material stockpiles, storm water drainage routes, culverts, and drains.

Wildlife and Habitat: USFWS recommends activities requiring vegetation removal or disturbance avoid the peak nesting period of March through August to avoid destruction of individuals, nests, or eggs. If project activities must be conducted during this time, we recommend surveying for nests prior to conducting work. If a nest is found, and if possible, the USFWS recommends a buffer of vegetation remain around the nest until the young have fledged or the nest is abandoned. For nesting sites discovered within active or imminent construction areas, nest protection practices would be developed in consultation with VA Office of Construction & Facilities Management environmental staff, on a case-by-case basis in consideration of nest location, bird species and habitat requirements, expected duration of nesting activity, and the location, type, and duration of construction activities.

Wetlands and Floodplains: Prior to construction a Developing Permit should be completed and submitted to Dallas County to ensure compliance within the MS4 permit.

6.0 CONCLUSIONS

This Final EA evaluates VA's Proposed Action to expand burial sites, install and construct associated infrastructure within the DFW National Cemetery property, in Dallas, Texas. This EA analyzes the Proposed Action and the No Action Alternative of the Proposed Action. The Proposed Action includes construct additional burial sites and associated roadways, expand and construct maintenance and administrative structures, construct a storage yard and soil storage building, install a chain-link fence around the perimeter of the DFW National Cemetery, install groundwater well(s), and construct an irrigation pond within the existing DFW National Cemetery property. The activities associated with the Proposed Action would require approximately 67 acres of disturbance. The No Action Alternative would include not the expansion of the existing burial sites, columbariums, roadways leading to the burial areas, parking areas, expand the existing administration building, construct an irrigation pond, and construct soil storage area. The DFW National Cemetery would remain unchanged. Evaluation of the alternatives includes analyzing the following resources: air quality; cultural resources; geology, topography, soils; hydrology and water.

This EA concludes there would be no significant impact or cumulative adverse impact to the human health and the environment associated with either the Proposed Action or No-Action Alternative as long as the VA implements the routine management measures, regulatory compliance measures, BMPs and mitigation measures specified in this EA. Therefore, this EA concludes that a FONSI is appropriate and that an Environmental Impact Statement (EIS) is not required.

7.0 LIST OF PREPARERS

Name	Agency/Organization	Resource Area
Fernando L. Fernandez, REM	US Department of Veterans Affairs	Environmental Planning
Jennifer Trombley Peters	Terracon	Project Manager and Resource Lead
Jeremey Hanzlik, P.E	Terracon	Approved Project Reviewer
Jarred Cobb	Terracon	Resource Lead
Tim G. Abrams, P.E.	Terracon	Resource Lead
David Yelacic, RPA	Terracon	Resource Lead
Kevin Moczygemba, AWB, CESSWI	Terracon	GIS Support
Juan Morlock	Terracon	Resource Lead

8.0 REFERENCES

City of Dallas Zoning Website. https://gis.dallascityhall.com/zoningweb/

City of Dallas Development Code, Planned Development District Regulations. Article 186, Available at: http://www.dallascityattorney.com/51P/Articles%20Supp%2051/Articles/ARTICLE%20186.pdf

Federal Highway Administration. 2009. Construction Equipment Noise Levels and Ranges. Highway Construction Noise Handbook Website. November.

Harris, Cyril M., Johnson, D.L., A.H. Marsh. 1991. Inverse Square Law of Noise Propagation. Handbook of Acoustical Measurements and Noise Control. New York: Columbia University.

Lindemuth, John 2015. Cultural Resources Surveys for the Proposed Gravesite Expansion and Improvements at the Dallas-Fort Worth National Cemetery. Prepared by Gulf South Research Corporation. Prepared for US Army Corps of Engineers. March 2015.

National Cemetery Administration. 2018. Dallas-Fort Worth National Cemetery. Available at https://www.cem.va.gov/cems/nchp/dallasftworth.asp. Updated February 23, 2018.

National Geologic Map Database project (NGMDB) and National Geospatial Program (NGP) 2020 TopoView. Available from: https://ngmdb.usgs.gov/topoview/; Accessed Feb 2020.

NPS. National Park Service. 1997. National Park Service. *How to Apply the National Register Criteria for Evaluation.* National Register Bulletin 15. Washington, D.C.: US Department of the Interior, National Park Service, Interagency Resources Division.

NRCS Web Soil Survey 2020 USDA NRCS, 2019 Web Soil Survey. http://websoilsurvey.nrcs.usda.gov/. Accessed May 2020.

Skinner,S. Alan, Brenda B. Whorton, and Jeremy S. Dillon. 1995. Cultural Resources Survey of the Proposed Veterans Administration National Cemetery, Dallas, Texas. Prepared by AR Consultants. Prepared for Veterans Administration, National Cemetery Administration.

TCEQ. Texas Commission on Environmental Quality. 2020. Priority Groundwater Management Areas. Available at: https://www.tceq.texas.gov/groundwater/groundwater-planning-assessment/pgma.html Current as of March 04, 2020

TCEQ 2019. Municipal Solid Waste in Texas: A Year in Review. 2018 Data Summary and Analysis. Available at: https://www.tceq.texas.gov/assets/public/comm_exec/pubs/as/187-19.pdf Prepared May.

Terracon. 2018. Geotechnical Engineering Report. DFW National Cemetery. Dallas, Dallas County, Texas. November.

TWDB. Texas Water Development Board. 2011. Aquifers of Texas, Peter G. George, PhD, PG, Robert E. Mace, PhD, PG, and Rima Petrossian. July

US Department of Housing and Urban Development. 2009. Noise Abatement and Control Guidance. Available at: https://www.hudexchange.info/resource/313/hud-noise-guidebook/

US Department of Veterans Affairs. 2018. About VA – History – Department of Veterans Affairs. Available at: https://www.va.gov/about_va/vahistory.asp Updated August 6, 2018.

USEPA. United States Environmental Protection Agency. 2020 Current Nonattainment Counties for All Criteria Pollutants. Current as of May 31, 2020. Available at https://www3.epa.gov/airquality/greenbook/ancl.html

USEPA 2019. NAAQS Table. Available at: .https://www.epa.gov/criteria-air-pollutants/naaqs-table Updated December 20, 2016

USEPA 2009. Compilation of Air Pollutant Factors, Volume 1: Stationary Point and Area Sources (AP-42), 5th edition, United States Environmental Protection Agency, Ann Arbor, January 1995. Updated 2009

9.0 LIST OF ACROYMNS AND ABBREVIATIONS

AQCR	Air Quality Control Region
CAA	Clean Air Act
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
CO	carbon monoxide
DFW	Dallas Forth Worth
EA	Environmental Assessment
EPA	Environmental Protection Agency
EO	Executive Order
ESA	Endangered Species Act
FEMA	Federal Emergency Management Agency
FONSI	Finding of No Significant Impact
MS4	Municipal Separate Storm Sewer System
IPAC	Information, Planning, and Consultation System
NAAQS	National Ambient Air Quality Standards
NAGPRA	Native American Graves Protection and Repatriation Act
NCA	National Cemetery Administration
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NO_2	nitrogen dioxide
NO_x	nitrogen oxides
NOI	Notice of Intent
O_3	ozone
PGMA	Priority Groundwater Management Area
SO_x	sulfur oxides
SWPPP	Stormwater Pollution Prevention Plan
TCEQ	Texas Commission on Environmental Quality
THC	Texas Historical Commission
TPWD	Texas Parks and Wildlife Department
TSP	total suspended particulate
US	United States
USACE	U.S. Army Corps of Engineers
USDA	U.S. Department of Agriculture
USFWS	U.S. Fish and Wildlife Service

VA	Veterans Affairs
VOCs	volatile organic compounds