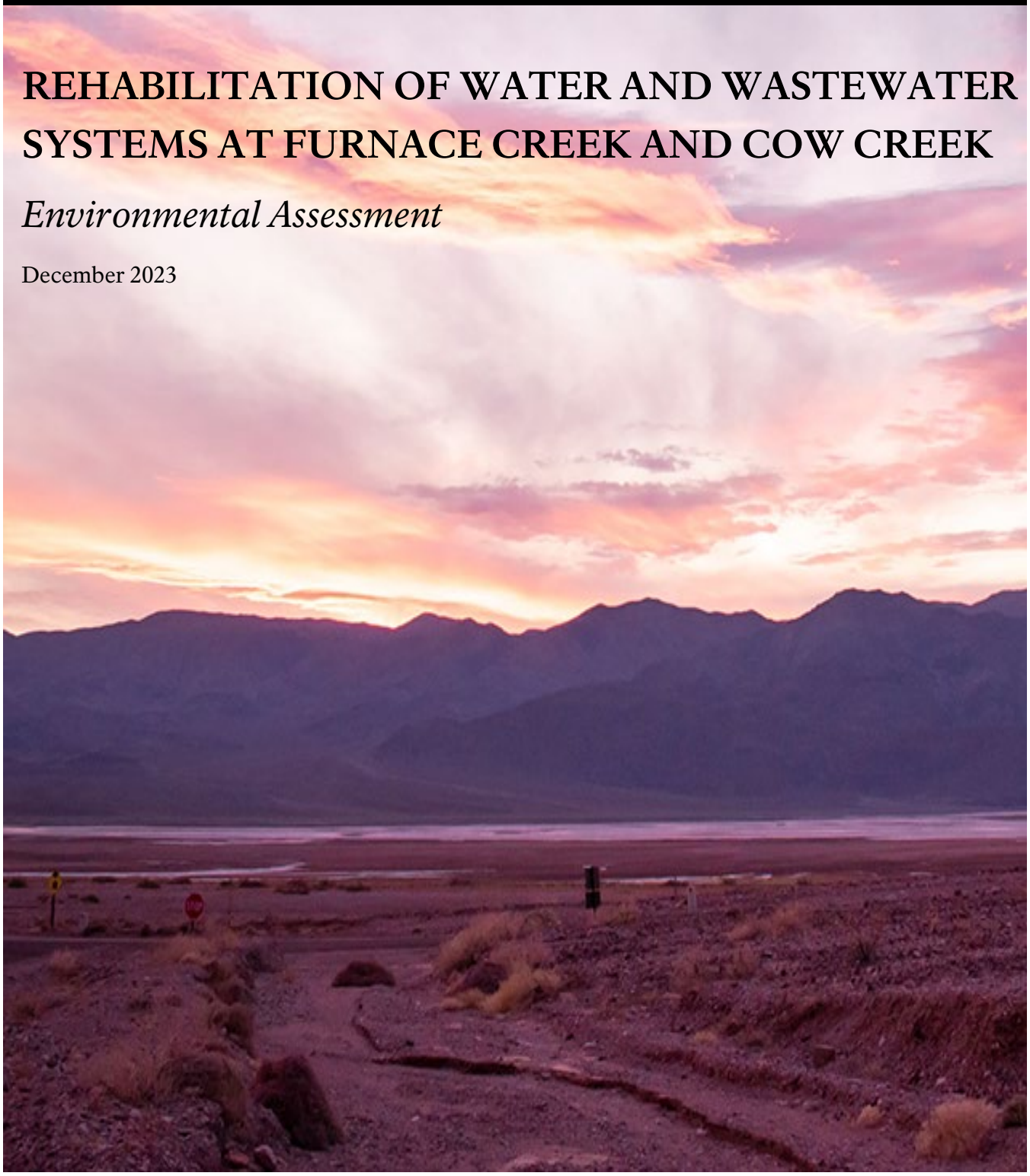
National Park Service
U.S. Department of the Interior

Death Valley National Park
Region 8

REHABILITATION OF WATER AND WASTEWATER SYSTEMS AT FURNACE CREEK AND COW CREEK

Environmental Assessment

December 2023



NOTE TO REVIEWERS

You may comment for this project online at https://parkplanning.nps.gov/WaterWastewater.

Retrieve Rehabilitate Water and Wastewater Systems at Furnace and Cow Creek to provide comments electronically.

You may also mail comments to:

RE: Furnace Creek and Cow Creek EA

PO Box 579

Death Valley, CA, 92328

Before including your address, phone number, e-mail address, or other personal identifying information in your comment, be aware that your entire comment — including your personal identifying information — may be made publicly available at any time. You can request to have your personal identifying information withheld from public review, but this cannot be guaranteed.

ON THE COVER

Sunset view of the Panamint Range from Cow Creek in Death Valley National Park

Photo NPS/Jason Gray

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List of Acronyms and Initialisms

ABAAS – Architectural Barriers Act Accessibility Standard

APE – Area of Potential Effect

BCC – Bird of Conservation Concern

BMP – Best Management Practice

Caltrans – California Department of Transportation

CCC – Civilian Conservation Corps

CDFW – California Department of Fish and Wildlife

CLI – Cultural Landscape Inventory

CNDDB – California Natural Diversity Database

DEVA – Death Valley National Park

EA – Environmental Assessment

ECS – Espinoza Cultural Services, LLC

EPA – Environmental Protection Agency

ESA – Endangered Species Act of 1973

FC – Candidate for Federal Listing [species status]

FE – Federally Listed Endangered [species status]

FEMA – Federal Emergency Management Agency

FP – Fully Protected [species status]

FT – Federally Listed Threatened [species status]

gpd – gallons per day

IPaC – Information for Planning and Consultation

LF – linear feet

LOD – limit of disturbance

MB – Migratory Bird

NAGPRA – Native American Graves Protection and Repatriation Act

NEPA – National Environmental Policy Act of 1969

NHD – National Hydrography Dataset

NHPA – National Historic Preservation Act

NPS – National Park Service

NRHP – National Register of Historic Places

PEPC – Planning, Environment, and Public Comment [website]

PFYC – Potential Fossil Yield Classification

RO – Reverse Osmosis

RV – recreational vehicle

RWQCBs – Regional Water Quality Control Board

SE – State Endangered [species status]

SHPO – State Historic Preservation Office

SR – State Route

SSC – Species of Special Concern [species status]

ST – State Threatened [species status]

SWPPP – Stormwater Pollution Prevention Plan

TCP – Traditional Cultural Place

USFWS – U.S. Fish and Wildlife Service

VA – Value Analysis

Chapter 1: Purpose and Need

This Environmental Assessment (EA) analyzes the proposed rehabilitation of the water and wastewater systems at Furnace Creek and Cow Creek in Death Valley National Park (DEVA). Chapter 1 includes an introductory description of the project area, service, and functionality of existing water and wastewater systems and the project's purpose and need.

Introduction

The Furnace Creek and Cow Creek areas are located in the central region of DEVA in Inyo County, California near State Route (SR) 190 (Figure 1). These areas serve as a central hub for DEVA visitors and National Park Service (NPS) operations and management staff. They include several park facilities such as the Furnace Creek Visitor Center, staff housing, and three park campgrounds, as well as The Oasis at Death Valley Resort (a Xanterra inholding consisting of several facilities including the Ranch at Death Valley and Inn at Death Valley) and the Timbisha Shoshone Village. The water and wastewater systems for these areas provide water-related services such as treatment and potable water supply; water for bathrooms, kitchens, irrigation, and general utility purposes; and collection and treatment of wastewater for the Furnace Creek and Cow Creek areas (Xanterra and the Timbisha Shoshone Tribe each rely on separate wastewater systems). Development of the Furnace Creek and Cow Creek water and wastewater systems began in the 1930s by the Civilian Conservation Corps (CCC), with major improvements occurring throughout the 1950s and 1960s. Some, but not all, of the system components have been replaced since the 1960s. In 2008, three new groundwater wells in the Texas Springs area were drilled for the Furnace Creek water collection system to replace the previous failing and unreliable system. These wells are still used today. The current Furnace Creek and Cow Creek water systems have capacities for water treated and used of 250,000 and 50,000 gallons per day (gpd), respectively. As discussed above, the Furnace Creek and Cow Creek water and wastewater systems serve various administrative, residential, and recreational facilities of the area. Table 1 below details which facilities are serviced by each system.

TABLE 1 DEVA FACILITIES SERVICED BY WATER AND WASTEWATER SYSTEMS

Facilities	Furnace Creek Water System	Furnace Creek Wastewater System	Cow Creek Water System	Cow Creek Wastewater System
The Oasis and Death Valley Resort (Ranch at Death Valley, Inn at Death Valley, and the US Post Office)	X			
Timbisha Shoshone Village	X			
Furnace Creek Visitor Center	X	X		
Furnace Creek, Texas Springs, and Sunset Campgrounds	X	X		
Employee Housing Area and Inyo County Public Library			X	X
Administrative Area (DEVA maintenance yard, offices, and emergency services building)			X	X
California Department of Transportation (Caltrans) maintenance yard			X	X
Death Valley Natural History Association Office and residence			X	X
Death Valley Unified School District facilities			X	X

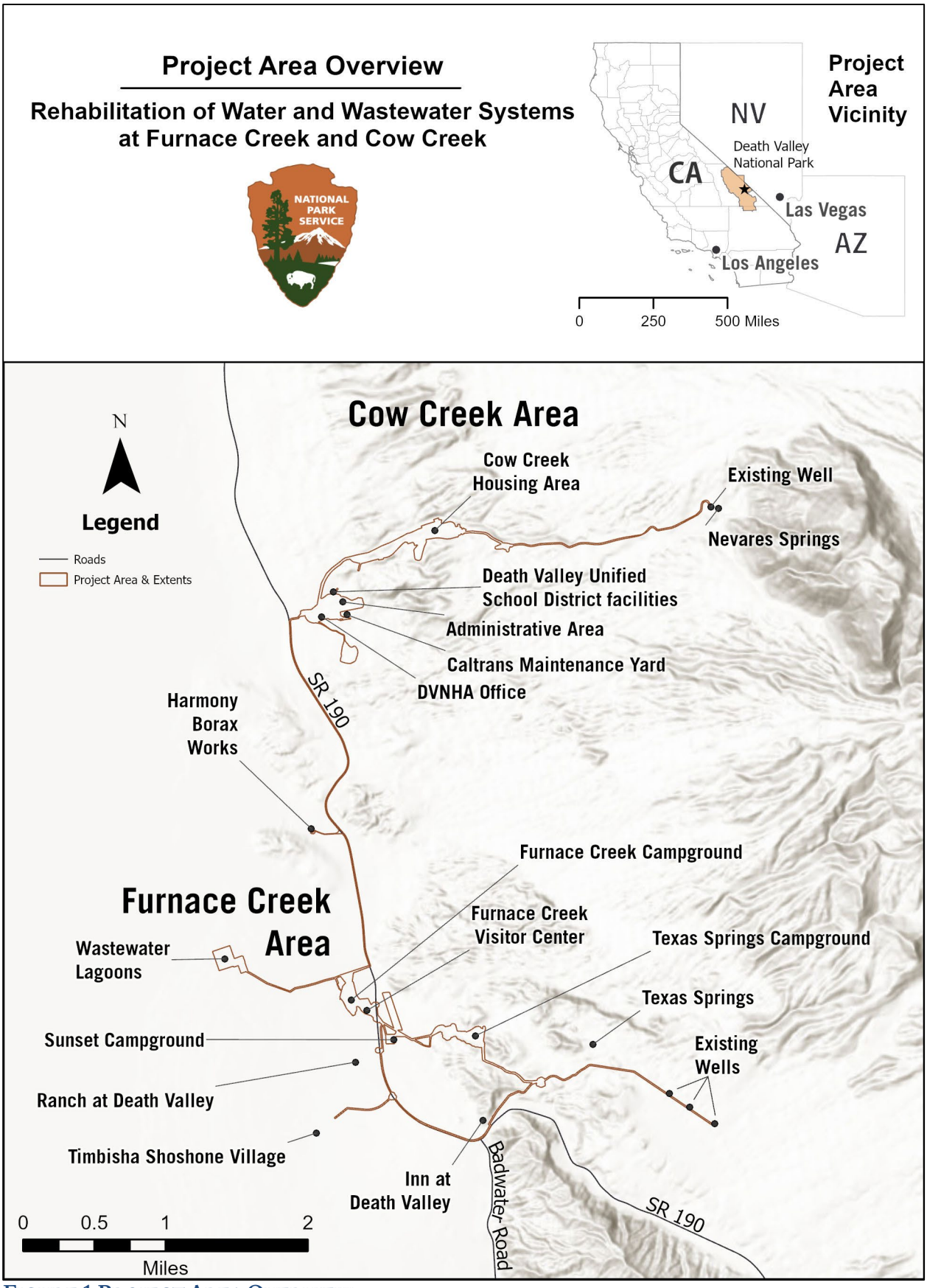

FIGURE 1 PROJECT AREA OVERVIEW

The Cow Creek and Furnace Creek water and wastewater systems are deteriorating rapidly and are in a state of failure. Operational issues include water pipes that are past life expectancy, exceedances of the permitted wastewater lagoon inflow capacity (80,000 gpd), leaking air release and blow-off valves, antiquated components and design which make repairs difficult, and poor security which could lead to injuries or a compromised water system. Furthermore, harsh environmental factors such as extreme heat and dryness, mineralized water, and seismic activity accelerate the deterioration of this aging infrastructure.

Under current conditions, these water and wastewater systems malfunction several times per month, interrupting service to the facilities identified in Table 1. This means safe drinking water is not consistently available for many of the 450 residents and 1.7 million visitors that pass through DEVA each year. These systems have diminishing capacity to support existing levels of use and are unlikely to support anticipated future growth of visitors, staff, and residents of the area. Given the extreme climate of DEVA, such water and wastewater system failures pose serious risks to human health and safety, especially when DEVA staff must perform emergency repairs in weather exceeding 120 degrees Fahrenheit, placing them at high risk of heat-related injury and illness. Additionally, sensitive cultural and environmental resources are located in close proximity to the failing infrastructure. Sudden infrastructure failures (e.g., leaks) and the disturbance associated with frequent emergency repairs threaten these resources.

Purpose and Need

The rapidly deteriorating and outdated Furnace Creek and Cow Creek water and wastewater systems break down several times per month, resulting in unexpected service interruptions to the area. These service interruptions, which may require emergency repairs in extreme heat, affect the availability of potable water and cause health and human safety issues for visitors, staff, and residents. Furthermore, breakages and the disturbance associated with emergency repairs threaten sensitive cultural and environmental resources surrounding the infrastructure. Finally, continuing deterioration and service interruptions would make it difficult for DEVA to accommodate the anticipated increases in park visitation.

The purpose of this project is to rehabilitate, replace, and upgrade water and wastewater infrastructure in the Furnace Creek and Cow Creek areas. Accordingly, DEVA has identified several management objectives for this project:

- Modernize water and wastewater systems to provide ease of operation and repair while withstanding environmental factors of extreme dryness, heat, seismic forces, mineralized water, and wind and dust storms;
- Upgrade water and wastewater systems to support increasing park visitation and provide reliable water and wastewater services—especially potable water—to ensure the safety of visitors, staff, and residents; and
- Rehabilitate water and wastewater systems with a design that reduces potential impacts to sensitive cultural and environmental resources adjacent to system infrastructure.

Chapter 2: Alternatives

Chapter 2 includes descriptions of the two alternatives carried forward for analysis in this EA as well as the alternatives considered but dismissed from detailed analysis. Alternatives for the project were identified and discussed during Value Analysis (VA) study workshops conducted on October 18–20, 2022 and June 6–8, 2023 during the schematic design phase of the project (DJ&A 2023a). The VAs reviewed background information, identified design criteria, and conducted an analysis for the range of reasonable alternatives to ultimately select a preferred alternative that best meets long-term management objectives.

Alternative A: No Action

Alternative A, the no action alternative, would involve continued reliance on existing deteriorating water and wastewater systems in Furnace Creek and Cow Creek without rehabilitation activities except for the anticipated and increasingly frequent required repairs. The water systems would continue to break several times per month, resulting in inconsistent availability of potable water and health and safety risks to visitors, staff, and residents. Disturbances from system failures and necessary repairs would continue to pose risks to sensitive cultural and environmental resources.

Alternative B: Rehabilitate Water and Wastewater Systems at Furnace Creek and Cow Creek (Proposed Action and Preferred Alternative)

Under Alternative B, rehabilitation of the water and wastewater systems at Furnace Creek and Cow Creek would occur to ensure reliable services for all visitors, staff, residents, and park partners as well as provide for future visitation and growth. Improvements would be designed to handle the extreme climate of DEVA, thus reducing maintenance needs, ensuring availability of potable water, and facilitating safe and reliable wastewater management. Sensitive infrastructure would be protected by structures designed to withstand harsh environmental conditions such as high winds, dust storms, sun exposure, and extreme heat. Water and sewer lines would be replaced with materials made to withstand sun exposure, heat, and mineralized water and incorporate components such as valves, pumps, mechanical systems, electrical systems, and communication systems that are easily operable and maintainable in the remote setting of DEVA. Existing water and sewer lines would be replaced via open trenching and, where feasible, methods that reduce surface disturbance such as horizontal directional drilling, pipe bursting, and cured-in-place piping. An average bury depth of four feet for water and wastewater pipes would be used to provide reasonable access for operation and maintenance while reducing susceptibility to environmental conditions. The updated systems would improve water use efficiency by replacing damaged and degraded pipes that are currently leaking water. Though the new systems would not increase water use beyond authorized levels, they are designed to accommodate additional use related to increased visitation or future administrative developments without exceeding sustainable groundwater pumping rates. This project would ensure that the Furnace Creek and Cow Creek water and wastewater systems can safely serve visitors, NPS staff, and park partners.

The maximum footprint for all project activities would be up to 244 acres, with approximately 125 of those acres currently either developed or non-vegetated due to previous ground-disturbing activities. Disturbance from project activities would vary in severity ranging from minimal disturbance activities such as foot traffic to more intensive disturbance activities such as open trenching. The total anticipated footprint of project activities was minimized to the most reasonable extent possible given the amount of

work required to rehabilitate the water and wastewater systems. Disturbance related to Alternative B would generally include a 50-foot buffer along linear features to account for temporary disturbance from construction activities and a more encompassing footprint in areas with concentrated infrastructure such as campgrounds or housing areas. The total maximum footprint acreage also accounts for the addition of new facilities and structures and discrete staging areas for equipment. The general location of pipeline replacement methods and project components are illustrated in Figure A 1 of Appendix A. Table 2 below details the maximum footprint anticipated according to each method or project component. Construction would begin in 2024 and last for approximately two years. Wherever possible, disturbance to natural areas would be mitigated through revegetation efforts and native slopes would be restored after completion of construction.

TABLE 2 DISTURBANCE CAUSED BY PIPELINE REPLACEMENT OR PROJECT COMPONENT

Method or Project Component		Maximum Footprint of Disturbance (Linear Feet (LF) / Acreage)
Pipeline Replacement	Open Trench	120,000 LF / 118.40 acres
	Horizontal Directional Drilling	900 LF / 9.20 acres
	Pipe Bursting	1,050 LF / 1.20 acres
	Cured-In-Place Piping	18,330 LF / 21.00 acres
Facility/Structure	Furnace Creek Reverse Osmosis Plant	2.00 acres
	Furnace Creek Lagoons	26.20 acres
	Supply Well near Nevares Springs	0.25 acres
	Cow Creek Lift Station	0.10 acres
	Cow Creek Reverse Osmosis Plant	1.70 acres
	Coyote Loop Lift Station	0.05 acres
	Pool/Filtration Building	0.05 acres
	Staging Areas	35.80 acres
	General construction activities (i.e., personnel access, vehicle traffic, and materials transport)	28.00 acres
	TOTAL	**140,280 LF / 243.95 acres**

Furnace Creek Water System

Improvements to the Furnace Creek water system would include replacing existing distribution systems with newly designed systems; upgrading the software control system; replacing critical distribution system components; rehabilitating the water storage reservoir access hatch and internal ladder; rehabilitating the existing Reverse Osmosis (RO) treatment plant and chlorination storage area; implementing erosion control features along access roads, Texas Springs Campground drainage channel, and at the RO plant; installing safety/security fencing around the existing source wells, reservoir, and RO plant; and designing the system to ensure adequate water availability in main pipe for emergency use of fire hydrants. Improvements also include the replacement of one well pump. This

staggered replacement approach of the well pumps helps prevent system-wide service interruptions during routine maintenance and at the end of the pumps' service life.

Options for Routes for Portions of Water System

To create effective loops to achieve the purpose and need, portions of the Furnace Creek water system alignment must pass through private property. The existing alignment was dismissed (see Figure A 2 of Appendix A) and the route requires an agreement with the NPS and the landowner that is not finished at the time of printing. Alternative B is considering two options for the alignment of the proposed Furnace Creek Water System water line for the Furnace Creek Water System. One option includes installing the proposed water line from The Inn at Death Valley parking lot and along the eastern edge of SR 190 up to The Ranch at Death Valley property. A second option utilizes the existing water line alignment up to Texas Springs Road, then follows Texas Springs Road to SR 190 and then parallels SR 190. Both options are fully analyzed as part of Chapter 3.

Furnace Creek Wastewater System

Improvements to the Furnace Creek wastewater system would include replacing the sewer system with a new design that involves rehabilitating existing sewer mains; installing new gravity sewer mains; and installing new service laterals and manholes. Improvements would also consist of upgrading the existing three-cell wastewater lagoon system to include a fourth cell to accommodate flows and meet regulatory requirements (Figure A 3 of Appendix A). Additional improvements would include the installation of mechanical screening equipment; a dump station for vault septic waste, and an electrical/power line extension; and upgrade of the aeration equipment, metering, floating dock system, and erosion control.

Cow Creek Water System

Improvements to the Cow Creek water system would consist of drilling a new well (Figure A 4 of Appendix A) to serve as the primary water source; permitting to allow conversion of the existing research well to a backup water source, replacing existing distribution systems with a newly designed distribution system, implementing erosion control features, installing safety/security fencing, and preserving and protecting the Nevares Springs area. Improvement would also include relocating and installing a new treatment building (Figure A 5 of Appendix A) that includes the RO treatment, software control system, and air quality monitoring equipment; upgrading the building's mechanical, plumbing, and electrical systems; and adding a backup generator. Improvements would also address deficiencies identified at the Cow Creek fire water reservoir (i.e., pool) area. A potable water supply line would be run from the north side of the pool to the existing water filtration and chlorination building to accommodate an eye wash station and facilitate cleaning and maintenance of the equipment and building. The pump house would be replaced with a concrete masonry unit building and would match the color and style of the pool restroom building. Accessible parking would be added to the parking area and the existing supply lines used to fill the pool would be replaced. This component of the project would also upgrade the non-potable water distribution system (i.e., trunk and lateral lines) used throughout the Cow Creek housing area for landscape irrigation.

Cow Creek Wastewater System

Improvements to the Cow Creek wastewater system would include replacing the sewer system with a new design that reduces operation and maintenance burden, uses common and easily replaceable parts, and incorporates a combination of rehabilitating existing sewer mains and installing new gravity sewer mains, service laterals, and manholes. Improvements would also include relocating and installing a new

primary lift station and surge tank, demolishing the former building, a new lift station at Coyote Loop (Figure A 6 of Appendix A), and a new force main from the primary lift station to the lagoons.

Alternatives Considered but Dismissed from Detailed Analysis

Throughout project development, several system configurations, construction methods, and materials were eliminated from further consideration and detailed analysis. These decisions were guided by preliminary screening of environmental issues, internal discussions, and VAs conducted on October 18–20, 2022 and June 6–8, 2023 during the schematic design phase of the project.

Water System Improvement Routes

The following water system improvement route was considered but eliminated from detailed analysis:

- Existing Water System Route. Water system improvements from the Furnace Creek RO treatment plant to the Furnace Creek Ranch would follow the existing water route alignment.

The alternative route was dismissed from detailed analysis for the following reasons:

- The construction disturbance associated with these improvement routes was anticipated to have adverse impacts on sensitive cultural and environmental resources.
- The lack of proximity to SR 190 would result in operational inefficiencies due to difficult access.
- The close proximity of these improvement routes to the Furnace Creek Inn was anticipated to have adverse, construction-related impacts on visitor experience.

Water System Configuration

Project development considered combining the Cow Creek and Furnace Creek water and wastewater systems into a single system. This configuration, however, was eliminated from detailed analysis for the following reasons:

- Increased cost to design and install new water main for approximately three miles along SR 190.
- Increased disturbance due to open trench excavation being the likely installation method.
- Potentially extra operation and maintenance effort. The area of SR 190 where the new water main would be installed is in a flood wash area and experienced severe damage from erosion during the recent floods. This would require additional anchoring and stronger pipe material, further increasing the cost.

Mitigation Measures

Mitigation measures are included for implementation under the preferred alternative to avoid, reduce, rectify, or compensate for project-specific impacts identified during the National Environmental Policy Act (NEPA) review process. Best Management Practices (BMPs) are existing policies, practices, and measures required by law, regulation, or NPS policy that reduce the environmental impacts of designated activities, functions, or processes. The mitigation measures and BMPs that would be implemented under the preferred alternative are presented in Appendix B.

Chapter 3: Affected Environment & Environmental Consequences

This chapter provides a summary of topics considered for analysis, introduces issues and topics selected for analysis, describes current conditions of each issue being analyzed, and analyses the environmental consequences of Alternative A and B. It also discusses anticipated cumulative impacts.

Issues and Impact Topics

Environmental issues (issues) were identified through internal and external scoping and civic engagement (see Chapter 4). Issues are environmental problems and concerns regarding the proposal to rehabilitate, replace, and upgrade the water and wastewater systems at Furnace Creek and Cow Creek. The issues describe the relationship between the actions proposed under each alternative (described in detail in Chapter 2) and the specific resources with potential to be affected by those actions. The issues are organized by "impact topics," which represent the affected resource(s) associated with the issues that are analyzed in detail. Generally, issues were retained for consideration and discussed in detail if:

- The potential environmental impacts associated with the issue are central to the proposal design, or of critical importance;
- A detailed analysis of environmental impacts related to the issue is necessary to make a reasoned choice between alternatives;
- The environmental impacts associated with the issue are contentious among the public or other agencies; or
- There are potentially significant impacts on resources associated with the issue.

If none of the considerations above apply to an issue or impact topic, it was dismissed from detailed analysis (see Appendix C).

Issues and Impact Topics Retained for Further Analysis

The issues and corresponding impact topics retained for analysis in this EA are presented in Table 3 below.

TABLE 3 ISSUES AND IMPACT TOPICS RETAINED FOR FURTHER ANALYSIS

Issues	Impact Topics Related to the Issues
Project activities would occur in the vicinity of sensitive cultural resources.	Archeological Resources
Project area and activities would occur within cultural landscapes.	Cultural Landscapes
Project activities would occur within historic districts.	Historic Structures and Districts
Project activities during construction could affect water quality in nearby waterbodies.	Water Quality
Ongoing lapses of water/wastewater system functionality could impact multiple visitor services including the Visitor Center, three park campgrounds, recreational vehicle (RV) dump sites, and restrooms.	Recreation, Visitor Use, and Human Health and Safety
Project activities could impact special status wildlife species and associated habitats that occur within the project area.	Special Status Wildlife Species

Impact Topics Dismissed from Further Analysis

Several potential issues and impact topics were raised during scoping and civic engagement but were not retained for additional analysis. Using the same considerations noted previously, the interdisciplinary team analyzed these issues and determined they did not warrant more detailed discussion in this EA. Appendix C discusses impact topics that were dismissed from further analysis along with a brief explanation of the reasons for dismissal.

Cumulative Impact Scenario

The Council on Environmental Quality regulations that implement NEPA require an assessment of cumulative impacts in the decision-making process for federal projects. Cumulative impacts, as defined by 40 CFR 1508.1(g)(3), are "effects on the environment that result from the incremental effects of the action when added to the effects of other past, present, and reasonably foreseeable actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions. Cumulative effects can result from individually minor but collectively significant actions taking place over a period of time." Cumulative impacts are considered for the no action and action alternatives.

Cumulative impacts were determined by combining the impacts of the actions included in the alternatives with other past, present, and reasonably foreseeable future actions. Therefore, it is necessary to identify past, present, or reasonably foreseeable future actions within DEVA that could result in cumulative impacts. The influences of past actions are reflected in baseline resource conditions. The following specific past, present, and reasonably foreseeable actions were identified:

- Initial development of the Furnace Creek and Cow Creek water systems during the 1930s.
- System improvements and component replacements to portions of the water systems during the 1950s and 1960s.
- The addition of three new groundwater wells in the Texas Springs area for the Furnace Creek water collection system in 2008.
- Armoring multiple roadways in the project area in partnership with Caltrans.

Cultural Resources

Affected Environment

This section discusses the cultural environment which would potentially be impacted by the proposed action. The NPS continues to identify new archeological and ethnographic resources and conduct reanalysis of known sites. The NPS conducts only limited testing of archeological sites to preserve the features of these sensitive resources in situ. Tribal members, the local community, and the SHPO help the park assess the significance of these resources. Climate change could increase the frequency and severity of storms, with the potential of uncovering currently unknown archeological resources throughout the park and causing damage to existing sites. Additionally, exposure of these sites leaves them vulnerable to loss through vandalism. As future weather and climate change alter the park landscape, additional precontact and historic resources whose exact locations are not yet known may be uncovered in the park. As resources are discovered, the NPS will consult with tribes and SHPO to best determine how to document and preserve exposed resources. A map of the cultural resources discussed in the following sections can be found in Figure 2 below.

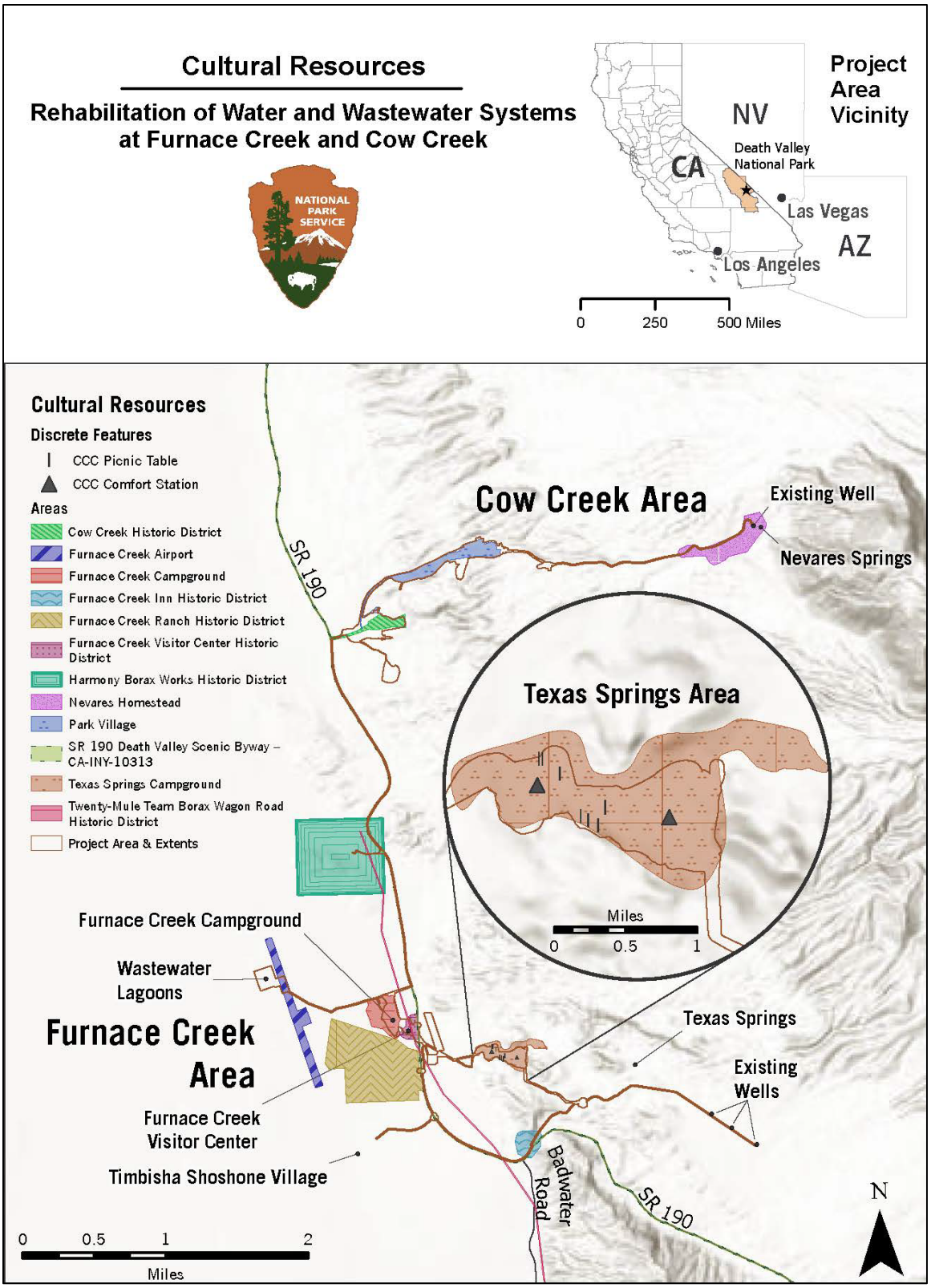

FIGURE 2 MAP SHOWING HISTORIC DISTRICTS AND STRUCTURES WITHIN THE APE

Note: All archaeological resources as well as the *Timbidina'a* (Nevares) Springs Ethnographic Landscape and the *Tumpisa"* Cultural District are excluded from the map per NPS guidelines to protect these sensitive resources. The Cow Creek Water, Cow Creek Wastewater, Furnace Creek Water, and Furnace Creek Wastewater systems are not shown on this map but can be found on Figure 1.

Archeological Resources

Several areas within or adjacent to the project area contain sensitive cultural resources. NPS and private contractors working for NPS and other agencies completed surveys of the Area of Potential Effect (APE) as well as an area outside of the APE surrounding the Nevares Springs area between 2022 and 2023 (Lewandowski et al. 2023). These surveys identified 76 archaeological sites within the APE including 46 sites that are eligible for inclusion in the National Register of Historic Places (NRHP), 18 sites that are not eligible for inclusion in the NRHP, and 12 sites of indeterminate NRHP eligibility, which were treated as NRHP-eligible for the purpose of this analysis. Most of the archaeological resources are affiliated with indigenous cultures and include rock piles, rock circles, cleared circles, lithic scatters, rockshelters, mesquite gathering camps, and foot trails. Historic-era site archaeological resources include CCC-era features, artifact scatters, mine claims, and boundary markers.

Cultural Landscapes

There are two cultural landscapes within the APE: The *Timbidina'a* (Nevares) Springs Ethnographic Landscape and Nevares Homestead. Both landscapes were documented between 2022 and 2023 (NPS 2023a, 2023b).

TIMBIDINA'A (NEVARES) SPRINGS ETHNOGRAPHIC LANDSCAPE

The *Timbidina'a* (Nevares) Springs Ethnographic Landscape is centered around a series of natural springs at the foot of the Funeral Mountains below Nevares Peak. A continuous flow of water emanates from the springs that supports a wide array of wetland vegetation and wildlife. The landscape was initially occupied by Native American groups in the area, including the Timbisha Shoshone, who utilized the water that flows from the springs, gathered plant resources that grew in the areas of spring flows and hunted animals attracted to the area due to the water and flora of the springs. Evidence of land use was documented via hunting blinds, temporary habitation structures, and established foot trails (Lewandowski et al. 2023). Active use of the Nevares Springs area dates as early as 7000 BCE, with the area continuing to be used by the Timbisha Shoshone up to the present day. The current levels of Native American use of the *Timbidina'a* (Nevares) Springs Ethnographic Landscape are not known, but based upon observations, any current use appears to be limited to visitation that results in little to no changes to the landscape.

The *Timbidina'a* (Nevares) Springs Ethnographic Landscape is a NRHP-eligible historic district that is associated with Native American subsistence, settlement patterns, travel and migration, lithic tool manufacturing technologies, and spiritual activities within Death Valley. The landscape includes multiple resources and features that reflect the tenacity and resiliency of Native Americans and their ancestors to survive and thrive in the harsh desert environment of Death Valley. Native American use of the landscape is broad and wide-ranging, encompassing the entire period of human occupation of Death Valley from circa 7000 BCE to the present. Archaeological sites, features, and artifacts; circulation features; and natural systems and features are the principal landscape features that contribute to the historic character of the Nevares Springs Ethnographic Landscape.

NEVARES HOMESTEAD

The Nevares Homestead is located at a series of natural springs, known as Nevares Springs. Landscape features associated with the homestead are atop of and along the eastern and southern slopes of a travertine hill, also referred to as the "spring mound." The travertine hill, where one of the Nevares Springs flows to the surface, is located in the generally west-southwest-facing alluvial fan which extends

from the Funeral Mountains that lie to the east. A wide alluvial wash that empties into the Cow Creek drainage traverses southwest along the northern and western slopes of the travertine hill. The area on top of the travertine hill has previously been referred to as "Upper Nevares." The area below the hill to the west has been referred to as "Lower Nevares" and is defined by the southwest-trending Cow Creek drainage and alluvial terrace along the north side of the drainage. West-northwest oriented alluvial ridges extending off the Funeral Mountains mark the southern side of the Cow Creek drainage. An additional spring area is located to the south of the travertine hill.

The landscape surrounding and within the Nevares Homestead was initially occupied by Native American people, including the Timbisha Shoshone, who utilized the water that flows from the springs, gathered plants that grow in the springs, and hunted animals attracted to the water and aquatic flora. Montillus Murray "Old Man" Beatty is the first known European American to have settled in the area at Nevares Springs sometime prior to 1905. Adolphus "Dolph" Nevares, an employee of the Pacific Coast Borax Company, encountered Beatty at the springs around this same time. Archival records do not provide much clarity on what developments were established during the earliest years of the twentieth century at the Nevares Homestead, but what is clear is that both Beatty and Nevares were active and co-owned the area around the springs up until Dolph acquired the 320-acre property following the death of Old Man Beatty around 1908 (Greene 1981). Nevares is attributed to having constructed a cabin, root cellar, corral, irrigation ditches, fences, and grew a variety of fruits and vegetables as well as alfalfa. The exact dates of construction of these buildings and structures are unknown. DEVA and various mining interests desired to acquire the property due to the water available from the springs, and eventually, DEVA acquired the property under eminent domain in 1952 (Rothman 2004).

The Nevares Homestead is a NRHP-eligible district that is significant for its direct association with and for its ability to contribute important information regarding early twentieth century European American settlement, farming, and ranching within Death Valley, and is a rare surviving example of early twentieth century homestead developed by a European American immigrant in Death Valley. The Nevares Homestead is primarily associated with Dolph Nevares' development and occupation of the area near Nevares Springs from 1908 and ends in 1952 when DEVA acquired the property. Natural manmade features such as the springs, associated vegetation and wildlife, the organization of the historic cabin, corral, root cellar, fences, irrigation system, and many ancillary features convey what a historic homestead in Death Valley was like during the first half of the twentieth century.

Historic Districts

Within the APE, there are eight districts: one recommended eligible Traditional Cultural Place (TCP), one historic district that is listed in the NRHP, two historic districts that have been determined eligible for inclusion in the NRHP, three historic districts that have been recommended eligible, and two historic districts that have been determined to be ineligible for inclusion in the NRHP (Table 4). In this document, the title "historic district" is reserved for districts recommended eligible, determined eligible, or listed in the NRHP. Despite ineligibility, Park Village and Furnace Creek Campground are discussed alongside historic districts in the following sections.

TABLE 4 HISTORIC DISTRICTS LOCATED WITHIN THE APE

District	NRHP Eligibility
Tumpisa" Cultural District	Recommended Eligible TCP
Harmony Borax Works Historic District	Listed
Twenty-Mule Team Borax Wagon Road Historic District	Recommended Eligible

District	NRHP Eligibility
Furnace Creek Ranch Historic District	Recommended Eligible
Furnace Creek Visitor Center Historic District	Determined Eligible
Cow Creek Historic District Cow Creek Pool Cow Creek Pool Filtration and Chlorination Building	Determined Eligible Contributing resource Non-Contributing resource
Park Village	Determined Ineligible
Furnace Creek Inn Historic District	Recommended Eligible
Furnace Creek Campground	Determined Ineligible

TUMPISA" CULTURAL DISTRICT

The proposed *Tumpisa"* Cultural District is a 37,807-acre TCP associated with the Timbisha Shoshone Tribe (Beck and Jones 1996). The proposed TCP encompasses the four locations of 19th and 20th century Timbisha Shoshone camps, as well as three locations of traditional significance to the tribe. Collectively, the locations within the proposed *Tumpisa"* TCP are culturally significant and are a testament to the perseverance of the Timbisha Shoshone people. The entire APE and Nevares Springs inventory area are located within the proposed *Tumpisa"* Cultural District. Through consultation with the Timbisha Shoshone Tribe, the cultural resources identified during the current survey may contribute to the proposed *Tumpisa"* Cultural District, as sites are representative of Timbisha Shoshone occupation of the Furnace Creek, Cow Creek, and Nevares Springs areas throughout the prehistoric and historic eras.

HARMONY BORAX WORKS HISTORIC DISTRICT

The Harmony Borax Works Historic District is located to the north of the Furnace Creek area and consists of a 185-acre square-shaped area, mostly west of SR 190. The district was listed on the NRHP on December 31, 1974, and includes the Harmony Borax plant, a storage building, and two adobe buildings that likely housed the workers (Holland and Simmonds 1971). The APE intersects the northeastern corner of the Harmony Borax Works district boundary, corresponding with the current alignment of SR 190. One newly recorded site was identified within the portion of the APE that intersects the Harmony Borax Works district. The site consists of a rock pile with associated milled lumber and a single metal can and may represent a mine claim. The site is recommended not eligible for inclusion in the NRHP under any criteria as an individual property; it is also recommended to be a non-contributing resource to the overall NRHP-eligibility of the Harmony Borax Works Historic District.

TWENTY-MULE TEAM BORAX WAGON ROAD HISTORIC DISTRICT

The Twenty-Mule Team Borax Wagon Road Historic District traverses 165 miles between the Harmony Borax Works plant and Mojave, California. It was constructed and used between 1882 and 1887 by the Pacific Borax Company. Originating at the Harmony Borax Works, the route crossed the present-day Devils Golf Course, located south of what is now Furnace Creek Ranch, and passed the Eagle Borax Works at the foot of the Panamint Range to reach Bennetts Well. From there the path passed Mesquite Well five miles to the south, Lone Willow Spring, Granite Wells, Blackwater, and finally the town of Mojave. The trip took ten days to complete (Giambastiani et al. 2005; Greene 1981). The district was determined eligible for inclusion in the NRHP under Criteria A and D by the California State Historic Preservation Office (SHPO) on September 30, 1976.

FURNACE CREEK RANCH HISTORIC DISTRICT

The Furnace Creek Ranch Historic District is currently a private property resort operated by the Xanterra company that provides lodging, dining, golfing, and other amenities to visitors of DEVA. The Ranch is located south of the Furnace Creek Visitor Center on the west side of SR 190. Espinoza Cultural Services, LLC (ECS) documented the Ranch in 2018 (Espinoza and Mehls 2018). It was developed by William Coleman and subsequently by the Pacific Coast Borax Company to support mining at the Harmony Borax Mine and later to provide service to visitors of DEVA. The Ranch Historic District includes 68 buildings, 16 historic-age palm trees, three roads, two ponds, and a date grove in addition to several more recent buildings and structures (Espinoza and Mehls 2018). Espinoza and Mehls (2018) recommended that the Furnace Creek Ranch is eligible for inclusion in the NRHP under Criterion A for its association with mining and tourism in Death Valley from the 1880s through 1952.

FURNACE CREEK INN HISTORIC DISTRICT

The Furnace Creek Inn Historic District is currently a private property resort owned and operated by the Xanterra company that provides lodging, dining, and other amenities to visitors of DEVA. The Inn was recently documented by ECS in 2018 who noted that it was constructed in the Spanish Colonial Revival style by architect and engineer Albert Martin and commissioned by the Pacific Borax Company. Construction began in 1927 and continued into 1940. The facility opened in 1929. In 1956, Fred Harvey, Inc. took over management of the Inn and later purchased it in 1969. More recently, Xanterra acquired the property. Espinoza and colleagues (2018) recommended that the Furnace Creek Inn Historic District is eligible for inclusion in the NRHP under Criteria A and C for its association with mining and tourism in Death Valley and because it is considered the work of master architect Albert Martin.

COW CREEK HISTORIC DISTRICT

The Cow Creek Historic District is located entirely within the APE. A determination of NRHP eligibility for the Cow Creek Historic District was initially prepared in 1989 by Linda Greene that determined the Cow Creek Historic District to be eligible for inclusion in the NRHP under Criteria A and C for its association with the CCC and the early formation of Death Valley National Monument (Greene n.d.). A 2001 Cultural Landscape Inventory (CLI) revised the district boundary and updated the number of contributing and non-contributing structures (NPS 2001). As a result, the Cow Creek Historic District contains 22 contributing buildings and structures that had been constructed during the period of significance, 1933 to 1942, that are associated with the CCC work at Cow Creek. Contributing buildings and structures include a six-foot-high adobe wall surrounding the utility yard, the resource management building that served as the original DEVA headquarters, a number of warehouses including two wood-frame buildings, and the swimming pool that serves as a surplus water tank. More detail is provided below regarding the Cow Creek pool and a pool filtration and chlorination building as proposed work has the potential to impact both of these resources within the Cow Creek District.

COW CREEK POOL

Constructed by the CCC in 1936, the Cow Creek Pool is 3,645 square feet in size and constructed of concrete. Depths range from approximately three feet to nine feet, and it is encircled by a concrete sidewalk. A lawn and row of palm trees border the southern and western sides of the pool, and a set of stone steps leads to the pool on the west (Greene n.d.). The pool and adobe workshop (CC-64) located to the west of the pool are contributing resources to the Cow Creek Historic District. The adobe workshop is a one-room structure that was constructed in 1939 with a galvanized, corrugated sheet

metal gable roof that provided shelter for a hydro-electric generator. It is located to the north of the pool. It was later used as an adobe workshop and is currently used for storage.

THE COW CREEK POOL FILTRATION AND CHLORINATION BUILDING

This building was constructed at an unknown date to house the filter and pumps for the pool, which serves as a water surplus tank. The structure is constructed of concrete masonry unit block and has a wood-frame roof with rolled-asphalt roofing. It is located south of the pool, and vegetation growing in the surrounding area obscures the building. Doors are present at each gable end, and windows are present in the west and east elevations. The pool filtration and chlorination building were determined to be a non-contributing resource to the Cow Creek Historic District (NPS 2001). The building was described as a pump house (CC-307) in the 2001 CLI report.

PARK VILLAGE

Park Village is the Park staff residence area for the Cow Creek and Furnace Creek areas and consists of five CCC-era buildings and several others built during the Mission 66 initiative, an NPS program which sought to expand visitor services throughout the NPS in the late 1950s to mid-1960s. The Mission 66 buildings no longer retain sufficient integrity to be individually eligible for inclusion in the NRHP and do not contribute to the eligibility of Park Village as a district (Brown et al. 2019). Park Village was determined not eligible for inclusion in the NRHP as a historic district since the majority of the elements are non-contributing. Three of the CCC-era buildings (the Custodians Residence/PV-1, a garage/PV-67, and the Comfort Station/PV-69), as well as the Death Valley Elementary School and the Teacherage may be eligible for inclusion in the NRHP individually. The Comfort Station/PV-69 was previously included in a 1988 multiple property nomination form (Greene 1988) and determined to be eligible individually by SHPO on May 10, 1989.

FURNACE CREEK VISITOR CENTER HISTORIC DISTRICT

The Furnace Creek Visitor Center Historic District consists of a complex of buildings, structures, and landscape features associated with the Furnace Creek Visitor Center. The visitor center was constructed between 1959 and 1960 as a part of the Mission 66 program. An NRHP nomination for the district was completed in 2009 and determined that the district is eligible for inclusion in the NRHP under Criteria A and C for its association with the Mission 66 Program and modern architectural design (Owens and Jackson-Retondo 2009). Contributing elements of the Furnace Creek Visitor Center Historic District include the museum, the administration building, the main courtyard, the reflection pool and fountain, the colonnade, the concrete and metal benches, and the visitor and staff parking lots. The exterior vegetation and landscape were integral elements of the original design and contribute to the integrity of the district. The entirety of the nine-acre Furnace Creek Visitor Center Historic District is located within the APE.

FURNACE CREEK CAMPGROUND

The Furnace Creek Campground is located entirely within the APE. The campground was planned and designed at the same time as the Furnace Creek Visitor Center during the late 1950s and it was constructed in the early 1960s. In 2009, DEVA provided the California SHPO with a history of the development of the campground that documented how the campground had been significantly altered since its construction in the 1960s. Due to these alterations, the Furnace Creek Campground no longer retains sufficient integrity to convey its historic significance as a part of the NPS Mission 66 program, and therefore the campground is ineligible for inclusion in the NRHP.

Historic Structures

Within the APE, there are multiple structures not affiliated with districts. Eleven structures are eligible for inclusion in the NRHP and four are ineligible for inclusion in the NRHP (Table 5).

TABLE 5 HISTORIC STRUCTURES LOCATED WITHIN THE APE.

Structure	NRHP Eligibility
Furnace Creek Water System	Eligible
Cow Creek Water System	Ineligible
Furnace Creek Wastewater System	Ineligible
Cow Creek Wastewater System	Ineligible
Texas Springs Campground Comfort Stations (2) and Picnic Tables (7)	Eligible
Furnace Creek Airport	Ineligible
SR 190, Death Valley Scenic Byway – CA-INY-10313	Eligible

FURNACE CREEK WATER SYSTEM

The current Furnace Creek water system includes water mains and distribution lines that convey water throughout the Furnace Creek area, three wells, an RO treatment plant building and chemical storage building, and a 2-million-gallon reservoir tank.

Portions of the earliest Furnace Creek water system infrastructure have previously been documented by ECS (Espinoza and Mehls 2018). The earliest development of the water system dates to 1908 when John Ackerman and Jacob Dearth used the Homestead Act of 1862 to acquire two parcels of land at Travertine Springs that contained springs that became the water source for the system (Espinoza and Mehls 2018). The water sources were needed to support agricultural endeavors at Furnace Creek Ranch (aka Greenland Ranch). Most of the water rights were held by the US Borax and Chemical Company. By the late 1960s the water system included the following: Furnace Creek Wash flood control features and water conveyance features, Furnace Creek Inn Ditch, Travertine Springs Collection Gallery, Texas Springs Tunnel and waterline, and the Furnace Creek Inn Tunnel.

Some of the earliest work during the 1930s and 1940s was undertaken by the US Borax and Chemical Company, who added various diameter pipes and constructed the Texas Springs Tunnel to harvest water. In 1940, DEVA constructed a pipeline that connected to the Pacific Borax Company pipeline (Espinoza and Mehls 2018).

The water system at Texas Springs Campground was constructed from 1954 to 1955 (Completion of Construction Report – Texas Springs Campground Water System, 1955, Death Valley National Park Central Files 1938–1998 [Bulk Dates: 1967–1992]).

Several improvements were made to the DEVA water systems at Furnace Creek as part of the Mission 66 program from 1956 to 1966. A report summarizing Mission 66 achievements at DEVA noted that eight water projects were completed, in-progress, or financed (Memorandum: Report of Mission 66 Accomplishments, 1965, Death Valley National Park Central Files 1938–1998 [Bulk Dates: 1967–1992]).

In 1960, a steel 500,000-gallon water reservoir tank was constructed for the Furnace Creek water system along with approximately one mile of six-inch cement pipe, valves and connections to provide water

service to the Furnace Creek Visitor Center, an existing comfort station, and five fire plugs (Completion of Construction Report – Water System, Furnace Creek Visitor Center, 1960, Death Valley National Park Central Files 1938–1998 [Bulk Dates: 1967–1992]). This reservoir has been abandoned; however, no proposed activities are planned for the reservoir and there would be no effect to this component of the Furnace Creek water system.

In 1961, a 1,000-foot water line along with associated valves and meters was constructed from the 500,000-gallon reservoir tank to the Texas Springs Campground (Completion of Construction Report – Water Supply Line, Furnace Creek, 1962, Death Valley National Park Central Files 1938–1998 [Bulk Dates: 1967–1992]).

Between 2007 and 2008, DEVA developed a series of wells east of Travertine Springs. These developments reduced reliance on Travertine Springs as a water source (Espinoza and Mehls 2018).

Components of the Furnace Creek water system that were expanded and developed by the CCC during the 1930s and 1940s were previously determined to be eligible for inclusion in the NRHP under Criteria A and C for their association with New Deal CCC program between 1933 and 1942 (Greene 1988) in consultation with the California SHPO [letter dated 5/10/1989; From: Gualtieri (SHPO) To: Albright (NPS)]. Later, ECS recommended that the Furnace Creek water system is eligible for inclusion in the NRHP under Criteria A and C for its association with the development of tourism at DEVA during the early to mid- twentieth century and due to the unique mine tunneling engineering technique used to harvest surface water (Espinoza and Mehls 2018).

COW CREEK WATER SYSTEM

The Cow Creek water system was initially constructed in the 1930s and 1940s by the CCC. Since its initial construction, there have been ongoing efforts to repair, rehabilitate, reroute, and replace portions of the system as well as the addition of various storage and treatment facilities based upon a review of available DEVA records. A summary of these efforts is presented below.

As part of the Mission 66 program, several improvements were made to the DEVA water system from 1956 to 1966. A 1965 report summarizing Mission 66 achievements noted that eight water projects were completed, in-progress, or financed (Memorandum: Report of Mission 66 Accomplishments, 1965, Death Valley National Park Central Files 1938–1998 [Bulk Dates: 1967–1992]).

In 1957, efforts were undertaken by DEVA to mitigate contamination from the water source at Nevares Springs that involved construction of a concrete water collection box and the installation of new pipe to an existing water tank (Completion of Construction Report – Water and Sewer System, Cow Creek and Furnace Creek, 1958, Death Valley National Park Central Files 1938–1998 [Bulk Dates: 1967–1992]).

In 1958, a 100,000-gallon storge tank was constructed along with water distribution lines (Completion of Construction Report – Construction of Pipeline – Nevares Springs to Existing Tank 1958, Death Valley National Park Central Files 1938–1998 [Bulk Dates: 1967–1992]).

In 1962, a water line was constructed to provide service to the elementary school and other buildings in both the administrative and residential areas at Cow Creek (Completion of Construction Report – Water and Electric Extension to School, Construction of Water System and Sewer System, Elementary School, 1963, Death Valley National Park Central Files 1938–1998 [Bulk Dates: 1967–1992]).

In 1963, more than 3,500 linear feet (LF) of waterline from the Park Village residential area to the Cow Creek utility area was reconstructed to supply to the Death Valley Elementary School and other

buildings and structures in the area (Completion of Construction Report – Reconstruct Water Line, Cow Creek Area, Day Labor Project 1963, Death Valley National Park Central Files 1938–1998 [Bulk Dates: 1967–1992]).

The current Cow Creek water system includes multiple historic and modern components such as a surface water source at Nevares Springs; a storage tank; an RO treatment plant; and a system of water mains, laterals, valve boxes, and other equipment that convey water from the well source to the treatment plant and storage tank. The Cow Creek water system serves the Park Village residential area and the Cow Creek Administrative and Utility areas.

The Cow Creek water system is associated with significant events in history (Criterion A) including the New Deal Era CCC program and the Mission 66 program. The system has been subject to ongoing repair and replacement over the years since its construction, including those later portions associated with the Mission 66 program. These periodic efforts to repair and improve the system have resulted in a loss of integrity of location for abandoned, demolished, and removed components; design; workmanship; materials; and feeling. Direct association with important persons could not be demonstrated (Criterion B), nor does the structure have any unique characteristics of design or engineering (Criterion C). The structure does not have the potential to provide significant information about history (Criterion D).

DEVA constructed an RO water treatment plant with an attached shade structure for the treatment plant around 1978 based upon reviews of as-built files available at DEVA (exact date unknown). The concrete building is entirely under sediment and built within the slope of the landscape. Concrete wing walls provide the only visible portion of the building from the east elevation, although largely obscured by a fenced exterior machine area. A shade structure comprised of a metal shed roof supported by metal posts is fastened to the concrete apron and provides a framework for the metal fencing.

The RO treatment plant with attached shade structure at Cow Creek that is proposed to be replaced does not meet the 50-year age criterion for consideration for inclusion in the NRHP, nor does it meet any of the other criterion considerations as it is not considered significant. The structure is recommended not eligible for inclusion in the NRHP as an individual property and is a non-contributing resource to the overall NRHP-eligibility of the Cow Creek water system.

FURNACE CREEK WASTEWATER SYSTEM

The Furnace Creek wastewater system collects wastewater from campgrounds and the visitor center in the Furnace Creek area. It was initially constructed during the 1930s and 1940s by CCC companies operating in Death Valley. The system includes a collection system of sewer lines, a lift station, and a wastewater lagoon system located to the north of the existing airport. It has been subject to ongoing repair, rehabilitation, rerouting, and replacement during the intervening years based upon a review of available records at DEVA. A summary of these efforts is presented below.

Several improvements were made to the wastewater systems at DEVA including at Furnace Creek as part of the Mission 66 program from 1956 to 1966. A report summarizing Mission 66 achievements at DEVA noted that six wastewater projects were completed, in-progress, or financed (Memorandum: Report of Mission 66 Accomplishments, 1965, Death Valley National Park Central Files 1938–1998 [Bulk Dates: 1967–1992]).

From 1959 to 1960, an addition to the Furnace Creek wastewater was constructed at the Furnace Creek Campground, which included a 24,000 square foot oxidation pond and 2,525 LF of six-inch cast iron pipe with associated fittings and manholes (Completion of Construction Report – Sewer Line and

Sewage Lagoon, Visitor Center, Furnace Creek Area, Day Labor Project 1961, Death Valley National Park Central Files 1938–1998 [Bulk Dates: 1967–1992]).

In 1963, the sewer line from Texas Springs Campground was extended to the existing Furnace Creek Campground and Visitor Center system (Completion of Construction Report – Sewer Line Extension, Texas Springs Campground, Lagoon, 1963, Death Valley National Park Central Files 1938–1998 [Bulk Dates: 1967–1992]).

The Furnace Creek wastewater system is associated with significant historic events in DEVA including the Mission 66 Program; however, the components of the system that date to these events no longer possess integrity of location, design, materials, workmanship, feeling, and/or setting due to ongoing maintenance, repair, and replacement over the years. As such, the Furnace Creek wastewater system is recommended not eligible for inclusion in the NRHP.

COW CREEK WASTEWATER SYSTEM

The Cow Creek wastewater system collects wastewater from the RO treatment plant for the Cow Creek water system, the Park Village residential area, and the Cow Creek administrative area at DEVA. Portions of the system were originally constructed by the CCC during the 1930s with significant replacement occurring during the 1950s and 1960s as part of the Mission 66 program. The current Cow Creek wastewater system includes sewer collection system, lift stations, and a force main line that transports wastewater to lagoons that are part of the Furnace Creek wastewater system.

Several improvements were made to the wastewater systems at DEVA including at Cow Creek as part of the Mission 66 program from 1956 to 1966. A report summarizing Mission 66 achievements at DEVA noted that six wastewater projects were completed, in-progress, or financed (Memorandum: Report of Mission 66 Accomplishments, 1965, Death Valley National Park Central Files 1938–1998 [Bulk Dates: 1967–1992]).

In 1962, a sewer line was constructed to provide service to the elementary school and other buildings in both the administrative and residential areas at Cow Creek (Completion of Construction Report – Water and Electric Extension to School, Construction of Water System and Sewer System, Elementary School, 1963, Death Valley National Park Central Files 1938–1998 [Bulk Dates: 1967–1992]).

The main Cow Creek lift station was constructed in the 1990s, and the Coyote Loop lift station was constructed in 1998.

The lift stations were constructed during the 1990s and do not meet the 50-year age criterion for consideration for inclusion in the NRHP. Furthermore, they do not meet any of the NRHP criterion considerations that would qualify them to be NRHP-eligible.

The force main from Cow Creek to the wastewater lagoons near the Furnace Creek airport has been subject to multiple repairs and component replacements. More than 30% of the force main has been repaired using pipes of various sizes and materials over the course of the past decade.

In 2015, DEVA and the California SHPO determined that the wastewater system at Park Village is not eligible for inclusion in the NRHP, because the system did not possess sufficient integrity to convey its historic significance prior to a proposed undertaking to repair the wastewater system using cured-in-place pipe techniques [letter dated 1/4/2015; From: Reynolds (NPS) To: Polanco (SHPO)].

TEXAS SPRINGS CAMPGROUND COMFORT STATIONS AND PICNIC TABLES

The Texas Springs Campground contains two comfort stations and seven picnic tables that were built by the CCC. One is a stone masonry comfort station built by the CCC in 1935 and located within the lower loop of the campground. The other is an adobe comfort station built by the CCC in 1939 and located within the upper loop of the campground. The stone picnic tables were constructed from a common model, but individually crafted by the CCC using sawed rock slabs as the tabletops. Three picnic tables are located within the lower loop and four are within the upper loop. The Texas Springs Campground comfort stations and picnic tables were initially included in the 1988 multiple property nomination form pertaining to facilities within the park built by the CCC (Greene 1988) and were determined eligible for inclusion in the NRHP under Criteria A and C by California SHPO on May 10, 1989.

FURNACE CREEK AIRPORT

The Furnace Creek Airport is located to the northwest of the Furnace Creek Ranch and accessed by a paved road, Airport Road, from its junction with the SR 190 at the turnoff for the Furnace Creek Visitor Center. The airport originally only consisted of a runway, referred to as an intermediate landing field, which was constructed in the early 1950s. The runway was oriented north-northwest by south-southeast and measured 5,700 feet long by 100 feet wide. The runway replaced the original airfield that was located east of the Furnace Creek Inn. The runway was later expanded in the modern era to include a new runway and a few buildings and structures. The northwestern portion of the runway located east of the wastewater lagoons is abandoned, with berms installed to direct air traffic to the modern, paved runway. This section is gravel-lined and measures approximately 2,130 feet long by 150 feet wide.

The Furnace Creek Airport dates to the early 1950s. The southern portion of the runway is paved and currently in use, while the northern stretch of the runway has been purposefully bermed to direct air traffic to the in-use portion. These modifications to the historic runway as well as continued impacts of ongoing maintenance and use have caused the site to no longer retain sufficient integrity to reflect a historic association with air travel and transportation in twentieth century Death Valley. The Furnace Creek Airport is recommended not eligible for inclusion in the NRHP.

SR 190, DEATH VALLEY SCENIC BYWAY – CA-INY-10313

The eastern segment of SR 190, also known as the Death Valley Scenic Byway, is an in-use two-lane paved highway. The highway runs from Death Valley Junction to Olancha in Inyo County, California, with 81.47 miles located within the boundaries of DEVA. The highway is a National Scenic Byway and a California State Scenic Highway (Registered May 19, 1971). SR 190 was previously documented by ECS in 2018 (Espinoza, Ward, and Mehls 2019). Segments of abandoned earlier alignments of SR 190 as well as segments that remain in-use as roads are present within the APE.

SR 190 traverses approximately 4.2 miles through the APE between the Furnace Creek and Cow Creek areas. DEVA has drafted an NRHP registration form for SR 190, recommending the structure to be eligible for inclusion in the NRHP under Criterion A for its association with transportation history (Selinske 2022). The proposed force main line transporting wastewater from the Cow Creek area to the lagoons west of the Furnace Creek Ranch and airport parallels the current alignment of SR 190. A proposed eight-inch water pipeline to the Timbisha Village parallels Timbisha Shoshone Village Road that is part of the historic alignment of SR 190.

Environmental Consequences

Archeological Resources

The analysis area for potential impacts to archaeological resources is the APE, as defined by the National Historic Preservation Act (NHPA) Section 106, within the project area. Potential effects to these resources in the APE were evaluated with respect to potential ground disturbance, discharge of water and/or wastewater, erosion, and contamination. At this time, DEVA anticipates no adverse effects as a result of the proposed action.

IMPACTS OF ALTERNATIVE A — NO ACTION

Under the no action alternative, no improvements or changes would be made to the water and wastewater systems at Furnace Creek and Cow Creek. These systems would continue to fail at random throughout the analysis area. System failures could also result in discharge of water and/or wastewater and associated erosion and contamination, which could increase the potential for impacts to cultural resources such as archaeological sites located near the water and wastewater lines. Impacts from discharge could include the disturbance and loss of surface artifacts and archaeological features, the alteration of surface artifact distributions, and a loss of contextual information.

IMPACTS OF ALTERNATIVE B — PREFERRED ALTERNATIVE

The proposed project has been designed to avoid ground disturbance within most of the archaeological sites identified within the APE. The project has been designed to avoid sites entirely or, when avoidance of the site boundary was not feasible due to other project constraints, the project was designed to avoid archaeological features and artifact concentrations that contribute to the NRHP-eligibility of the site. In addition, mitigation measures discussed in Chapter 2 shall be implemented to avoid adverse impacts to archaeological resources located within the analysis area. See Table 6 for summary of impacts on Cultural Resources.

CUMULATIVE IMPACTS

With the rehabilitated water and wastewater systems at Furnace Creek and Cow Creek, park operations and maintenance, as it relates to these systems, would be minimal and more predictable, having a long-term beneficial impact on this resource.

Cultural Landscapes

The analysis area for potential impacts to cultural landscapes is the APE, as defined by NHPA Section 106, within the project area. Potential effects to these resources were evaluated with respect to potential ground disturbance, discharge of water and/or wastewater, erosion, and contamination.

IMPACTS OF ALTERNATIVE A — NO ACTION

Under the no action alternative, no improvements, repairs, or changes would be made to the water and wastewater systems at Furnace Creek and Cow Creek.

This would result in no ground disturbance from construction activities within the *Timbidina'a* (Nevares) Springs Ethnographic Landscape and Nevares Homestead, and a new well would not be

constructed at Nevares Springs. Given that an existing waterline crosses both the *Timbidina'a* (Nevares) Springs Ethnographic Landscape and Nevares Homestead cultural landscapes, the existing water line would be subject to failure and could result in impacts to archaeological resources and other landscape features such as components of the circulation systems that contribute to the NRHP-eligibility of these landscapes.

The system would continue to experience failures that could result in discharge of water and/or wastewater, which could erode, damage, or contaminate archaeological resources such as artifacts and archaeological features and their contextual information. These failures could also compromise the structural integrity of circulation structures such as the roads and trails, which could be destroyed by erosion from discharge within these landscapes.

IMPACTS OF ALTERNATIVE B — PREFERRED ALTERNATIVE

Activities are proposed within two NRHP-eligible cultural landscapes: Nevares Homestead and *Timbidina'a* Nevares Springs Ethnographic Landscape. These two landscapes overlap spatially and, as such, the same activities will occur in both landscapes.

A new well and water line are proposed within the Nevares Homestead and Nevares Springs Ethnographic Landscape. Furthermore, a staging area is proposed within the disturbed area surrounding an existing monitoring well and the location of the new well within these landscapes. The limit of disturbance (LOD) corridor for the new waterline shall be constricted to 20 feet in width through these two landscapes in order to avoid a contributing resource to the Nevares Homestead and a contributing resource to the *Timbidina'a* (Nevares) Springs Ethnographic Landscape. The northern margin of the restricted LOD corridor shall be fenced to ensure no inadvertent trespass into the locus. The eastern margin of the realigned restricted LOD corridor shall be fenced within 100 feet of the contributing resource to the *Timbidina'a* (Nevares) Springs Ethnographic Landscape to ensure no inadvertent trespass into this archaeological resource. The previously disturbed area around the monitoring well that is proposed for a staging area within the Nevares Homestead should also be fenced prior to the commencement of construction to ensure no trespass outside of the previously disturbed area. Character defining landscape features associated with these landscapes would be unaffected by construction activities. Trenches would be backfilled to the pre-disturbance contour, and care would be taken to backfill and compact trenches to avoid bridging that could result in future settlement. Construction activities would temporarily introduce non-historic visual, audible, and atmospheric elements into the landscapes' settings, but such intrusions would be short-term, lasting only as long as construction. There will be no adverse impacts to the Nevares Homestead and *Timbidina'a* (Nevares) Springs Ethnographic Landscape with the implementation of these project design and mitigation measures. See Table 6 for summary of impacts on Cultural Resources.

CUMULATIVE IMPACTS

Under the preferred alternative, potential cumulative impacts on cultural landscapes would be substantially less than under the no action alternative. With the rehabilitated water and wastewater systems at Furnace Creek and Cow Creek, park operations and maintenance, as it relates to these systems, will be minimal and more predictable. Installation of a new water line and well within these cultural landscapes has the potential to adversely impact these resources. However, potential adverse impacts shall be avoided through the implementation of mitigation measures. The implementation of mitigation measures when combined with more predictable and less frequent operations and maintenance activities would contribute to a long-term beneficial impact on these cultural landscapes within the project area.

Historic Districts

The analysis area for potential impacts to historic districts is the APE. Specifically, this analysis focuses on the portions of the APE with potential for direct impacts to cultural resources. No indirect impacts to historic districts are anticipated. Potential effects to these resources were evaluated with respect to potential ground disturbance, discharge of water and/or wastewater, erosion, contamination, and construction of new structures and infrastructure.

IMPACTS OF ALTERNATIVE A — NO ACTION

Under the no action alternative, no improvements, repairs, or changes would be made to the water and wastewater systems at Furnace Creek and Cow Creek. Associated erosion and contamination from continued failure of these systems could compromise the structural integrity of contributing resources within NRHP-eligible historic districts.

IMPACTS OF ALTERNATIVE B — PREFERRED ALTERNATIVE

Construction activities would potentially affect the following NRHP listed or eligible historic districts within the APE for the proposed project: *Tumpisa"* Cultural District, Harmony Borax Works, Cow Creek Historic District including the Cow Creek Pool, Furnace Creek Visitor Center, and the Furnace Creek Inn Historic District.

Proposed activities within the *Tumpisa"* Cultural District include the rehabilitation and replacement of the wastewater and water lines. These proposed activities will not adversely impact any of the cultural resources that contribute to the NRHP eligiblity of the *Tumpisa"* Cultural District. Furthermore, project related activities will also have no adverse effect on the culturally and traditionally significant locations previously identified as contributing elements to the district. No surficial remains of these resources were identified during the Class III cultural resource inventory of the APE (Lewandowski et al. 2023). All ground-disturbing activities associated with the rehabilitation and installation of pipelines in the culturally significant locations associated with the *Tumpisa"* Cultural District shall be subject to tribal monitoring so that in the event that any resources associated with these resources are encountered during construction, then these resources can be documented and protected in consultation with Native American tribes.

Proposed activities within the NRHP-listed Harmony Borax Works Historic District include replacement of the existing force main sewer line, which will occur within a 20-foot-wide area of disturbance, which corresponds with the previously disturbed east shoulder of SR 190. Because construction would occur in existing areas of disturbance that would be restored to pre-construction contours, there would be no adverse effects to the Harmony Borax Works Historic District, nor any of its contributing resources.

Proposed activities associated with rehabilitation of the Furnace Creek Wastewater System will occur within a segment of the Twenty-Mule Team Borax Wagon Road Historic District that has been previously impacted by the construction of SR 190, and as such these proposed activities will not further impact the Twenty-Mule Team Borax Wagon Road.

Proposed project activities within the Cow Creek Historic District include rehabilitation and replacement of both water and wastewater system lines; the replacement of the Cow Creek pool pump, filtration equipment, and chemical storage building; and design and construction of a new Architectural Barriers Act Accessibility Standard (ABAAS) parking stall at the west end of the existing parking stalls along with a new ABAAS sidewalk that leads to the existing pool deck. The pool is considered a

contributing resource to the Cow Creek Historic District. Several parking stalls currently exist to the east of the proposed ABAAS parking stall, and a new ABAAS stall would be constructed immediately to the west of the existing parking stalls. The construction of the new ABAAS stall and installation of a new sidewalk to the pool deck in the location of the existing parking area will not impact the existing setting of the pool or other aspects of its integrity, and as such will not result in any adverse impacts. The pool filtration and chemical building has been previously determined to be a non-contributing resource to the Cow Creek Historic District. The new pool filtration building shall be designed to be compatible in terms of massing, size, and scale, yet distinct when compared to the extant contributing buildings within the district, and as such will result in no adverse impacts to the Cow Creek Historic District. The proposed sewer and water pipeline installation and rehabilitation will be conducted underground and as such will not impact the viewshed or any of the contributing buildings and structures within the Cow Creek Historic District.

Water and sewer lines shall be installed within the boundary of Furnace Creek Visitor Center District, which will impact the exterior vegetation and landscaping, which contribute to the integrity of the district. The exterior landscape, including plantings, shall be rehabilitated and replaced with in-kind materials and plantings following the Secretary of the Interior's Standards for Rehabilitation of Historic Properties, and as such no adverse impacts will occur to the district.

A water line would be installed within the Furnace Creek Inn Historic District. Two options for the alignment of the new water line were analyzed. Each of these options includes a portion that will be constructed along Echo Canyon Road, through the Inn's parking lot that is adjacent to SR 190. One option includes installing the proposed water line from the parking lot and along the eastern edge of SR 190 through the Furnace Creek Inn property. A second option utilizes the footprint of the existing waterline alignment up to Texas Springs Road, then follows Texas Springs Road to SR 190 and then parallels SR 190. In either option, the proposed water pipeline will be installed underground, and as such the proposed construction would not adversely impact the viewshed of the Furnace Creek Inn. Furthermore, the proposed construction would not adversely impact any of the contributing buildings or structures within the historic district.

CUMULATIVE IMPACTS

Under the preferred alternative, potential cumulative impacts on historic districts would be substantially less than under the no action alternative. With the rehabilitated water and wastewater systems at Furnace Creek and Cow Creek, park operations and maintenance, as it relates to these systems, will be minimal and more predictable. Installation of a new water line and well within these historic districts has the potential to adversely impact the *Tumpisa"* Cultural District, the Furnace Creek Visitor Center Historic District, the Cow Creek Historic District, and the Furnace Creek Inn Historic District. However, potential adverse impacts shall be avoided through the implementation of mitigation measures. The implementation of mitigation measures when combined with more predictable and less frequent operations and maintenance activities would contribute to a long-term beneficial impact on these resources.

Historic Structures

The analysis area for potential impacts to historic structures is the APE. Specifically, this analysis focuses on the portions of the APE with potential for direct impacts to cultural resources.

IMPACTS OF ALTERNATIVE A — NO ACTION

Under the no action alternative, no improvements, repairs, or changes would be made to the water and wastewater systems at Furnace Creek and Cow Creek. Associated erosion and contamination from continued failure of these systems could compromise the structural integrity of NRHP-eligible structures. No indirect impacts to historic structures are anticipated. Potential effects to these resources were evaluated with respect to potential ground disturbance, discharge of water and/or wastewater, erosion, contamination, and construction of new structures and infrastructure.

IMPACTS OF ALTERNATIVE B — PREFERRED ALTERNATIVE

Construction activities would potentially affect the following NRHP-listed or eligible historic structures within the APE for the proposed project: Furnace Creek Water System, Texas Springs Campground Comfort Stations and Picnic Tables, and Twenty-Mule Team Borax Wagon Road.

Two options for the alignment of the new water line near the Furnace Creek Inn Ditch were analyzed. Each of these options includes a portion that will be constructed along Echo Canyon Road, through the Furnace Creek Inn's parking lot that is adjacent to SR 190. One option includes installing the proposed water line from the parking lot and along the eastern edge of SR 190 through the Furnace Creek Inn property. A second option utilizes the footprint of the existing waterline alignment up to Texas Springs Road, then follows Texas Springs Road to SR 190, and finally parallels SR 190. Both options include construction of a proposed new waterline that will cross the Furnace Creek Inn Ditch and the underground pipe that parallels the ditch, which are contributing resources to the Furnace Creek Water System. The horizontal directional drilling method shall be employed to install the new water line underneath the ditch and pipeline. As such there will be no adverse impacts to these contributing resources to the Furnace Creek Water System, regardless of which option is selected.

Proposed activities near the Texas Springs Campground comfort stations and picnic tables include the installation of sewer and water pipelines. In addition, ground-disturbing activities associated with efforts to control erosion within the Texas Springs Campground will occur. The current sewer line runs to both CCC-era comfort stations and is proposed to be rehabilitated via the cured-in-place-pipe method. The locations of comfort stations and picnic tables shall be flagged to ensure avoidance and will be subject to monitoring, and as such the proposed sewer and water pipeline rehabilitation and installation and erosion control ground-disturbing activities will have no adverse impacts to these contributing structures. See Table 6 for summary of impacts on Cultural Resources.

CUMULATIVE IMPACTS

Under the preferred alternative, potential cumulative impacts on historic structures would be substantially less than under the no action alternative. With the rehabilitated water and wastewater systems at Furnace Creek and Cow Creek, park operation and maintenance of these systems will be minimal and more predictable. Installation of a new water line and wastewater lines nearby these historic districts has the potential to adversely impact the Furnace Creek Water System and the Texas Springs picnic tables and comfort stations. However, potential adverse impacts shall be avoided through the implementation of mitigation measures. The implementation of mitigation measures combined with more predictable and less frequent operations and maintenance activities would contribute to a long-term beneficial impact on these resources.

TABLE 6 SUMMARY OF IMPACTS ON CULTURAL RESOURCES

Issue	Alternative A: No Action	Alternative B: Proposed Action and Preferred Alternative
Archaeological Resources	Water and wastewater systems would continue to fail several times per month. Failure of the systems could result in adverse impacts to archaeological resources located near the water and wastewater lines.	Installation and rehabilitation of water and wastewater lines would not cause adverse impacts because the locations of new water and wastewater lines have been designed to avoid archaeological features and the LOD has been constricted to facilitate avoidance. In addition, select resources shall be marked for avoidance and subject to archaeological and possibly tribal monitoring.
Nevares Homestead	Water systems would continue to fail several times per month. Failure of the systems could result in adverse impacts to historic features located near the water lines.	The installation of the new well and water line would not cause adverse impacts because the LOD corridor shall be constricted to avoid contributing resources and the ground-disturbing activities shall be subject to archaeological and tribal monitoring.
Timbidina'a **(Nevares) Springs Ethnographic Landscape**	Water systems would continue to fail several times per month. Failure of the systems could result in adverse impacts to prehistoric ethnographic features located near the water lines.	The installation of the new well and water line would not cause adverse impacts because the LOD corridor shall be constricted to avoid contributing resources and the ground-disturbing activities shall be subject to archaeological and tribal monitoring.
Tumpisa" **Cultural District**	Water and wastewater systems would continue to fail several times per month. Failure of the systems could result in adverse impacts to associated archaeological resources near the Furnace Creek Visitor Center and Furnace Creek Campground.	Installation and rehabilitation of water and wastewater lines would not cause adverse impacts because these activities are not located near the locations of contributing resources. Resources associated with the *Tumpisa"* Cultural District are located near the Furnace Creek Visitor Center and Furnace Creek Campground and these areas shall be subject to monitoring during construction.
Harmony Borax Works Historic District	Wastewater systems would continue to fail several times per month. Failure of the systems could result in adverse impacts to historic buildings and structures located near the wastewater lines.	The replacement of the existing force main sewer line will not adversely impact the Harmony Borax Works Historic District, because the work shall be conducted adjacent to SR 190 in an area previously disturbed. No contributing resources are located within the project area.
Twenty-Mule Team Borax Wagon Road Historic District	No new impacts.	The rehabilitation of the water or wastewater system would not cause adverse impacts because the location of the proposed activities occurs where the resource has previously been impacted by construction of SR 190.

Issue	Alternative A: No Action	Alternative B: Proposed Action and Preferred Alternative
Furnace Creek Inn Historic District	Water systems would continue to fail several times per month. Failure of the systems could result in adverse impacts to historic buildings and structures located near the water lines.	Two options for the proposed water pipeline include underground installation within and near the historic district boundary, and as such the proposed construction would not adversely impact the viewshed of the Furnace Creek Inn Historic District. Furthermore, the proposed construction would not adversely impact any of the contributing buildings or structures within the property regardless of which option is selected.
Furnace Creek Visitor Center Historic District	Water and wastewater systems would continue to fail several times per month. Failure of the systems could result in adverse impacts to historic buildings, structures, and contributing features located near the water and wastewater lines.	The replacement of water and wastewater lines will not adversely impact the Furnace Creek Visitor Center District, because the exterior landscape, including plantings, shall be rehabilitated and replaced with in-kind materials and plantings following the Secretary of the Interior's Standards for Rehabilitation of Historic Properties.
Cow Creek Historic District	Water and wastewater systems would continue to fail several times per month. Failure of the systems could result in adverse impacts to historic buildings, structures, and contributing features located near the water and wastewater lines.	Construction of a new pool filtration building, and new lift station will not cause adverse impacts to the Cow Creek Historic District because the new pool filtration building and lift station shall be designed to be compatible in terms of massing, size, and scale, yet distinct when compared to the extant contributing buildings within the district.
Texas Springs Campground Comfort Stations and Picnic Tables	Water and wastewater systems would continue to fail several times per month. Failure of the systems could result in adverse impacts to historic features located near the water and wastewater lines.	The replacement of water and wastewater lines, erosion control mitigation would not cause adverse impacts because the locations of new water and wastewater lines have been designed to avoid these resources, which shall also be flagged for avoidance and subject to archaeological monitoring.
Furnace Creek Water System	Water systems would continue to fail several times per month. Failure of the systems could result in adverse impacts to historic features located near the water and wastewater lines.	Two options for the proposed replacement of the water line were analyzed, and both options will not adversely impact the Furnace Creek Inn Ditch and historic underground waterline as horizontal directional drilling shall be used to install the new waterline underneath these contributing resources to the Furnace Creek Water System.

Recreation, Visitor Use, and Human Health and Safety

Affected Environment

Recreation and visitor use in DEVA has increased steadily and is expected to continue this trend. Visitor activities in and around the project area include sightseeing, camping, night exploration, road biking, and mountain biking. The Furnace Creek Visitor Center is a popular location for visitors to learn about DEVA and to get trip planning information. The project area also includes three park

campgrounds: Furnace Creek, Texas Springs, and Sunset Campground (Figure 1). Most campground use occurs from November through April during cooler temperature seasons, though Furnace Creek Campground is open year-round. Developed campground capacities and features in the project area are summarized in Table 7.

TABLE 7 DEVELOPED PARK CAMPGROUNDS

Campground	Reservations Required	Number of Sites	Water/Wastewater Features
Furnace Creek Campground	Yes—up to six months in advance	136	Year-round RV dump station / Year-round potable water / Year-round flush toilets
Texas Springs Campground	No	92	Seasonal RV dump station / Seasonal potable water / Seasonal flush toilets (Open October–April)
Sunset Campground	No	230	Seasonal RV dump station / Seasonal potable water / Seasonal flush toilets (Open October–April)

The health and safety of visitors, staff, and residents of DEVA is influenced by the condition and layout of infrastructure and facilities. The current condition of water and wastewater infrastructure and facilities in DEVA pose challenges to maintaining public health and safety. Though serviceable, the water and wastewater facilities at campgrounds have deteriorated and experience frequent interruptions in service and closures. Though recreation activities carry some inherent risk in the extreme climate of DEVA, development and proper maintenance of recreation sites decreases risk to human health by providing reliable access to potable water, shelter, and other facilities. Additionally, facilities within the Xanterra inholding and several private neighbors rely on DEVA water and wastewater infrastructure and are adversely affected by the frequent system failures.

Ongoing activities and future trends that could affect visitor use and experience in the project area include increasing visitation and continued demand for campsites in DEVA. Although visitation fluctuates from year to year, visitor numbers have increased steadily in recent years. From 2010 to 2019, visitor use increased 43 percent. Though visitor use peaked in 2019, visitation waned during the COVID-19 pandemic over the next few years. However, increasing use rates have returned and are expected to continue. Despite the decline of visitors because of the COVID-19 pandemic, visitor use since 2010 shows an increase of 13 percent. Visitor numbers are highest from October through April with February and March being the busiest months (NPS 2023c).

Environmental Consequences

While specific dates are to be determined, impacts to visitor use sites are expected to begin late summer/early fall of 2024 with construction taking place over a period of 24 months.

The analysis area for this resource consists of the three previously identified campgrounds, Furnace Creek Visitor Center, staff housing, administrative buildings, and Xanterra inholding and private neighbors who rely on DEVA water and wastewater systems. The temporal boundary for this analysis considers short-term impacts to be those that persist for up to three years during project completion. Long-term impacts are considered to be those persisting longer than three years. This analysis assumes the implementation of mitigation measures identified in Appendix B, thereby reducing and mitigating adverse impacts to recreation, visitor use, and human health and safety.

Impacts of Alternative A — No Action

Under the no action alternative, DEVA would not rehabilitate the water and wastewater systems in the Furnace Creek and Cow Creek areas. The existing system fails to support existing levels of visitation and would not support anticipated future visitation levels and potential future facilities. The current condition of these systems would continue to deteriorate over time. Breakages and corresponding interruptions to water and wastewater services would continue to pose challenges to maintaining human health and safety.

CUMULATIVE IMPACTS

Under the no action alternative, existing infrastructure would continue to fail. As these failures and subsequent emergency repairs are often sudden and unpredictable, there is a potential for impact on recreation, visitor use, and human health and safety in the form of service interruptions and unplanned closures of facilities. As the Furnace Creek and Cow Creek water and wastewater systems continue to deteriorate, there will be a need for increasing maintenance. Accordingly, there may be long-term potential threats to ample, safe water supply and hazards created by failing water and wastewater systems.

Impacts of Alternative B — Preferred Alternative

Due to the health risks of extreme heat, construction would likely occur during the cooler months associated with peak visitation and campground occupancy. Under the preferred alternative, there may be short-term construction noise disruptions and/or closures of campground facilities. Construction traffic on roads leading to the campgrounds would result in increased noise and dust, which may adversely affect the visitor experience. Increased dust and noise levels are not anticipated to affect the health and safety of campground users because of the implementation of mitigation measures and BMPs.

Once complete, the systems installed under the preferred alternative would result in substantially reduced risks to public health and safety from infrastructure failure and enhance visitor experiences by providing more reliable service. The systems would support anticipated future visitation levels and potential future facilities. See Table 8 at the end of this section for a summary of impacts to recreation, visitor use, and human health and safety.

CUMULATIVE IMPACTS

Under the preferred alternative, potential cumulative impacts on recreation, visitor use, and human health and safety would be substantially less than under the no action alternative. With the rehabilitated water and wastewater systems at Furnace Creek and Cow Creek, repairs to these systems would be less frequent and more predictable, having a long-term beneficial impact on this resource.

TABLE 8 SUMMARY OF IMPACTS TO RECREATION, VISITOR USE, AND HUMAN HEALTH AND SAFETY

Issue	Alternative A: No Action	Alternative B: Proposed Action and Preferred Alternative
Recreation, Visitor Use, and Human Health and Safety	No impacts from construction disturbance. Continued deterioration of facilities and interruptions of water/wastewater system services. Risk to human health and safety due to system failures and breakages.	Noise and dust disturbance during construction. Potential short-term campground closures during construction. Improvement of water/wastewater systems to reduce risks to human health and safety and reduce visitor disruptions due to system failures. Newly designed water/wastewater system to accommodate growing visitor use.

Special Status Wildlife Species

Affected Environment

Special status wildlife species include animal species listed as threatened or endangered under the Endangered Species Act (ESA) (federally listed), species listed by the state of California as endangered or threatened (state listed) under the California Endangered Species Act of 1970, species designated by the California Department of Fish and Wildlife (CDFW) as Fully Protected (FP) (FGC § 4700, 3511, 5050, 5515) or Species of Special Concern (SSC) (CNDDB 2023), migratory birds as defined by the Migratory Bird Treaty Act of 1918, bald eagles (*Haliaeetus leucocephalus*) and golden eagles (*Aquila chrysaetos*) as defined by the Bald and Golden Eagle Protection Act of 1940, and species highlighted by DEVA for additional protection and consideration. Table 10 provides a list of all species considered for detailed analysis along with habitat descriptions and likelihood of occurrence within the analysis area. Of these species, no federally listed nor state listed species occur within the analysis area, and no bald eagles or golden eagles nor associated habitat occurs within the analysis area. Species analyzed in detail consist of migratory birds, fully protected species, and SSC (Table 10). In addition to being fully protected, the desert bighorn sheep (*Ovis canadensis nelsoni*) has also held strong cultural importance to the Timbisha Shoshone Tribe since time immemorial and was highlighted by DEVA for additional consideration within this analysis.

The analysis area includes narrow, linear portions of mostly developed lands from the Furnace Creek area to the Cow Creek area, with buffers implemented to account for potential disturbance impacts to nesting migratory birds. Developed lands consist of infrastructure such as roads and rights-of-way, parking lots, campgrounds, buildings, residential areas, wastewater lagoons, and maintenance facilities. Wildlife habitat for special status species within these developed areas is marginal and largely constrained to areas of cultivated vegetation that provide cover, forage, and nesting habitat. The wastewater lagoons located northwest of Furnace Creek support concentrations of waterfowl and wading birds in an otherwise arid landscape, and adjacent mesquite bosques provide perching habitat for raptors and other migratory birds. Undeveloped areas include a mix of desert pavement, desert scrub, shrublands, and badlands (see Table 9). Both developed and undeveloped habitats provide wildlife species with resources necessary to fulfill life cycle requirements. The analysis area also contains riparian and spring habitats associated with Nevares Springs and Texas Springs. These habitats support a diverse community of vegetation (Sada and Cooper 2012) and wildlife species (Bailard and Moret 2017; Parker et al. 2020; Sada, Fleishman, and Murphy 2005) and sustain a concentration of important resources such as surface water, cover, and nesting sites relative to the larger landscape. A

mesquite bosque is also present within the analysis area, located west of SR 190 and northwest of the Furnace Creek area, providing cover, food, and nesting habitat for a variety of wildlife species (Ansley, Huddle, and Kramp 1997).

Over time, special status wildlife species populations and associated habitat have changed in response to biotic and abiotic environmental conditions, however, site-specific information is lacking to reliably report trends of the resource with respect to historic levels of variability. In the absence of this data, habitat quality and availability is an appropriate indicator for trends of the resource. Overall, suitable habitat within the analysis area has been reduced concurrent with the development of infrastructure. In undeveloped portions of the analysis area, habitat for wildlife has been largely improved through restoration efforts and reductions in human disturbance, particularly in sensitive areas such as desert springs. Recent restoration efforts within the analysis area have improved the ecological health of desert springs by removing non-native plant species and reducing human disturbance (Bailard and Moret 2017; Stone et al. 2009). Ongoing threats to habitat within the analysis area include encroachment of non-native invasive plant species and potential fire regime shifts; human population growth and associated visitation increases; surface and groundwater availability; disturbance associated with mining activity; climate change, and increased noise, air, and light pollution (Drost and Hart 2008; Fleishman et al. 2019; Belnap et al. 2008; Gonzalez 2016). In addition to habitat-level trends, several species are subject to additional threats and stressors including desert bighorn sheep, migratory birds, and bats.

Threats to desert bighorn sheep include loss of habitat and fragmentation, reduced genetic diversity due to population isolation, pneumonia, and changing climatic conditions (Fleishman et al. 2019; Epps et al. 2004). Desert bighorn sheep populations within DEVA have maintained steady populations and have moderate to high genetic diversity, indicating adequate gene flow among populations facilitated by habitat connectivity (Fleishman et al. 2019; Epps et al. 2016). Desert bighorn sheep present within the analysis area are most closely associated with the Southern Funeral Mountains population, which was documented in 2017 to have high genetic diversity attributed to large populations (Epps et al. 2016). Gene flow and dispersal appear to occur around the north and south ends of Death Valley, with little flow across the valley itself. Despite currently stable populations, this species remains vulnerable to threats such as disease, habitat loss and fragmentation, and climate change. Predicted increases in temperature and aridity may also result in decreased forage quality and availability for desert bighorn sheep, which could influence movements and distribution in the future (Epps et al. 2004; Gonzalez 2016).

Migratory bird populations associated arid regions (i.e., aridland birds) have been steadily decreasing due to a variety of threats including habitat loss and fragmentation, fires, drought, grazing pressure, development, and climate change (US NABCI Committee 2022). An evaluation of projected habitat suitability found that changing climate is likely to result in mixed effects to species currently present (Wu et al. 2018). Within DEVA, up to 20 species are anticipated to be particularly susceptible to climate change, with potential extirpation of up to eight species in at least one season by 2050. Continued impacts of these threats are anticipated to result in the continued decline of many migratory bird species, though some species may experience beneficial impacts.

As for other special status wildlife species within the analysis area, bat populations nationwide are threatened by white-nose syndrome, and monitoring of species throughout DEVA and other national parks within the Mojave Desert network is being conducted to evaluate population trends over time (Fleishman et al. 2019). As of 2021, the fungus which causes white-nose syndrome had not been detected within the Mojave Desert, though it has been detected in nearby northern California and New Mexico (NPS 2021).

TABLE 9 VEGETATION COMMUNITY COVER TYPE BY ACREAGE WITHIN THE PROJECT AREA

Cover Type	Acreage	Percent of Project Area (%)
Developed (non-vegetated)	125	51
North American Warm Desert Pavement	40	16
Sonora-Mojave Creosotebush-White Bursage Desert Scrub	18	7
Western Warm Temperate Urban Shrubland	16	7
Sonora-Mojave Mixed Salt Desert Scrub	11	5
North American Warm Desert Active and Stabilized Dune	10	4
North American Warm Desert Badland	10	4
North American Warm Desert Playa	9	4
Western Warm Temperate Developed Shrubland	2	<1
North American Warm Desert Bedrock Cliff and Outcrop	2	<1
North American Warm Desert Cienega	0.5	<1
Western Warm Temperate Urban Herbaceous	0.25	<1
Western Warm Temperate Urban Deciduous Forest	<0.25	<1
Total	**244**	**100**

Source: (LANDFIRE 2022)

State Special Status Species

Species designated as FP and SSC by CDFW with potential to occur within the analysis area include six birds and five mammals (Table 10).

Migratory Birds

Numerous migratory bird species occur within the analysis area, with habitats ranging from open desert scrub to springs and adjacent riparian vegetation communities. A list of eleven special status migratory birds likely to occur within the analysis area was compiled using information obtained from U.S. Fish and Wildlife Service's (USFWS) Information for Planning and Consultation (IPaC) site, communication with USFWS, the California Natural Diversity Database (CNDDB), and DEVA staff (CDFW 2023; USFWS 2023b; CNDDB 2023). Migratory birds within the analysis area can occur throughout the year, with peak numbers coinciding with spring and fall migrations. The analysis area also includes important nesting, foraging, and breeding habitat, with the primary breeding season occurring between January and July. Nesting habitat is strongly associated with surface waters of Nevares Springs, Texas Springs, and the wastewater lagoons, though any area with sufficient vegetation could provide a suitable nesting site. Of the eleven migratory birds likely to occur within the analysis area, four were determined to have potential to nest within or adjacent to the analysis area and are subject to additional mitigations outline in Appendix B. These determinations were developed through discussions with USFWS and NPS personnel (USFWS and NPS 2023).

TABLE 10 SPECIAL STATUS WILDLIFE SPECIES WITH THE POTENTIAL TO BE IMPACTED BY ACTIVITIES OCCURRING WITHIN THE ANALYSIS AREA

Common Name	Scientific Name	Status[1]	Habitat Description[2]	Potential to Occur [3]	Analyzed in Detail?
BIRDS					
Black-chinned Sparrow*	*Spizella atrogularis*	MB, BCC	Brushy vegetation, including chaparral, sagebrush, and mixed shrub-conifer stands as well as arid desert slopes. Nests often placed at the center of dense shrubs.	Yes	Yes
Costa's Hummingbird*	*Calypte costae*	MB, BCC	Desert wash, edges of desert riparian and valley foothill riparian areas, desert scrub, desert shrublands, chaparral, palm oasis. Nests in open, sparsely leaved shrubs or trees.	Yes	Yes
Lawrence's Goldfinch	*Carduelis lawrencei*	MB, BCC	Desert riparian, palm oasis, oak, hardwood, and arid woodlands, lower montane. Typically adjacent to herbaceous habitats for foraging. Nests in dense trees or shrubs, most often near water in arid woodlands or chaparral shrublands.	Yes	Yes
Long-eared Owl	*Asio otus*	MB, BCC	Dense riparian and live oak woodlands near meadow edges and nearby woodland and forest habitats. At higher elevations, found in dense conifer stands. Nests in small, densely canopied trees.	Yes	Yes
Marbled Godwit	*Limosa fedoa*	MB, BCC	Estuarine habitat, open beaches, shores, saline emergent wetlands, wet upland fields. Nests on prairies in central Canada.	Yes	Yes
Mountain Plover	*Charadrius montanus*	MB, BCC, SSC	Open plains with low, herbaceous or scattered shrub vegetations. Short grasslands and agricultural fields, open sagebrush. Nests in high-elevation grasslands outside of California.	Yes	Yes
Western Grebe	*Aechmophorus occidentalis*	MB, BCC	Marine subtidal and estuarine habitat as well as large freshwater lakes near the coast and inland at low elevations. Nests within large stands of tall, emergent vegetation adjacent to large lakes.	Yes	Yes
Le Conte's Thrasher*	*Toxostoma lecontei*	MB, SSC, BCC	Open desert wash, desert scrub, alkali desert scrub, desert shrublands. Nests in dense, spiny shrubs or cacti in desert washes.	Yes	Yes
Lucy's Warbler*	*Leiothlypis luciae*	MB, SSC	Desert wash, desert riparian, mesquite bosques, saltcedar thickets. Nests in natural or constructed cavities or crevices.	Yes	Yes
Wood Stork	*Mycteria americana*	MB, SSC	Open mudflats, shallow bays and marshy backwaters, flooded fields	Yes	Yes
Yellow Warbler	*Setophaga petechia*	MB, SSC	Riparian deciduous habitats, woodlands and forests with dense brush understory. Nests in deciduous saplings and shrubs.	Yes	Yes

Common Name	Scientific Name	Status[1]	Habitat Description[2]	Potential to Occur [3]	Analyzed in Detail?
INVERTEBRATES					
Monarch butterfly	*Danaus plexippus*	FC	Habitat containing nectar-producing plants for adult foraging and Milkweed plants (*Asclepias* spp.) necessary for egg-laying and larval foraging.	Yes	Yes
MAMMALS					
Desert bighorn sheep	*Ovis canadensis nelsoni*	FP	Rugged, open habitat containing rocky slopes, canyons, cliffs, and alluvial fans; often found near perennial water sources such as springs during summer months.	Yes	Yes
Big free-tailed bat	*Nyctinomops macrotis*	SSC	Rugged rocky terrain and canyons. Roosts in buildings, caves, cavities, and crevices.	Yes	Yes
American badger	*Taxidea taxus*	SSC	Open shrublands and woodlands with dry, friable soils. Dens in excavated burrows.	Yes	Yes
Pallid bat	*Antrozous pallidus*	SSC	Open, dry habitats with rocky areas. Roosts in caves, crevices, mines, cavities, and buildings.	Yes	Yes
Townsend's big-eared bat	*Corynorhinus townsendii*	SSC	Most commonly found in mesic habitats but can occur in all but subalpine and alpine areas. Roosts in caves, mines, tunnels, buildings, and human-made structures.	Yes	Yes

[*] Migratory bird with potential to nest within the project area
[1] **Status Codes: FE**=federally listed endangered; **FT**=federally listed threatened; **FC**=candidate for federal listing; **SE**=state endangered; **ST**=state threatened; **SSC**=state species of special concern; **FP**=fully protected (state); **MB**=migratory bird; **BCC**=bird of conservation concern (within Terrestrial Bird Conservation Region 33-Sonoran and Mojave Deserts)
[2] **Sources**: (CDFW 2023), (NatureServe 2023), (USFWS 2023a)
[3] **Sources**: (CNDDB 2023), (USFWS 2023a), (USFWS 2023b), (CDFW 2023), (USFWS 2023d)

Environmental Consequences

The analysis area for the special status wildlife species resource consists of the project area with additional buffers implemented as appropriate to account for potential impacts to specified nesting birds. The analysis area for nesting migratory birds consists of the project area buffered by the species-dependent nest buffer listed within Appendix B. The temporal bounds of this analysis consists of the time period in which project activities are performed up to 100 years after project completion. This analysis considers short-term impacts as those persisting for up to three years following project completion and long-term impacts as those persisting longer than three years. The analysis of potential impacts to special status wildlife species is dependent on the locality, duration, and type of impact evaluated, with both positive and adverse impacts possible. For federally listed species, the threshold for significance is based on definitions of "take" and "adverse modification" of designated critical habitat defined by the ESA, and for migratory birds, the significance threshold is "take" as defined by the Migratory Bird Treaty Act of 1918. For all other special status species evaluated within this document, the significance threshold consists of any impact that results in a trend toward Federal listing or loss of viability for the species within the analysis area. For this analysis, it is assumed that implementation of mitigation measures presented in Appendix B would occur, therefore reducing and mitigating negative impacts to special status wildlife species.

Impacts of Alternative A — No Action

Under the no action alternative, DEVA would not rehabilitate the water and wastewater systems in the Furnace Creek and Cow Creek areas. The current infrastructure would continue to fail with subsequent discharges of water and/or wastewater and associated materials within the analysis area. Discharged material could also result in increased soil erosion. Concurrent emergency repairs associated with system failures would continue to result in minor disturbances to special status species, resulting in associated short-term adverse impacts. Continued incidences of system failure within the analysis area could result in increased potential for indirect impacts to special status wildlife habitat through introduction of pollutants and increased erosion and sedimentation within aquatic habitats.

CUMULATIVE IMPACTS

Considering the past, present, and reasonably foreseeable actions under the no action alternative, existing infrastructure would continue to fail. These failures occur at random throughout the analysis area and often result in a need for emergency repairs to reestablish system functionality. Under the no action alternative, these emergency repairs would be expected to occur at increased frequencies compared to the preferred alternative. Emergency repairs could be associated with elevated noise, increased human activity, and disturbance of hydrology, vegetation, and ground surfaces, all of which could increase the potential for both direct and indirect effects to special status wildlife species and associated habitat.

Impacts of Alternative B — Preferred Alternative

Under the preferred alternative, activities could result in short-term, minimal indirect impacts to special status wildlife species and associated habitat. Potential impact-causing activities associated with the preferred alternative include: addition of a fourth wastewater lagoon cell, operation of vehicles and mechanized equipment, vegetation removal and modification, trench construction and maintenance, above-ground disturbance (i.e., construction, excavation, embankment), subsurface disturbance (i.e., drilling, horizontal directional drilling, pipe bursting and cured-in-place pipe), erosion control and stabilization, reseeding and replanting, generation of artificial light during nighttime construction, and staging of project equipment.

With the implementation of project-specific mitigation measures, direct impacts to special status wildlife species are not anticipated. These mitigation measures will reduce or mitigate the following potential direct impacts: crushing, burial, disturbance, entrapment, and destruction or disturbance of active migratory bird nests. In addition, it is anticipated that special status wildlife will temporarily avoid the analysis area during active construction, which would reduce the risk of direct impacts. Potential for direct impacts to nesting migratory birds is anticipated to be limited to project activities occurring within a specified buffer distance surrounding an active nest (USFWS 2015b; USFWS and NPS 2023). Potential for direct impacts to active migratory bird nests would be reduced by mitigations outlined in Appendix B, including seasonal timing restrictions for vegetation removal or modification, noise abatement measures, pre-construction surveys, and nest buffers. No long-term adverse impacts to nesting migratory birds are anticipated. Use of artificial light during nighttime construction during active migration will be limited to the furthest extent practicable and is anticipated to be infrequent, temporary, minimal with respect to the larger landscape, and would not result in significant disruptions to migration patterns or adversely affect individually migrating birds or foraging bats (USFWS 2015a, 2023c). Mitigation measures for light impacts would concurrently reduce risk to nocturnally active special status wildlife species (Appendix B). No incidental take of migratory birds is expected to result from project activities. By implementing these project-specific mitigation measures, the risk of direct

impacts is anticipated to be negligible or absent and would not result in trends towards Federal listing or loss of population viability within the analysis area.

Indirect impacts to special status wildlife species could include elevated noise, dust generation, vibrations, and human activity within the analysis area, resulting in short-term disturbance of wildlife species and consequent short-term loss of habitat. Project activities near Nevares Springs, Texas Springs, and the wastewater lagoons may result in disturbance and subsequently limited access to water sources and nesting habitat for migratory birds, though other waterbodies exist in close proximity to the project area, reducing dependance on these habitats. Desert bighorn sheep are also known to utilize the springs for water and forage (Leslie and Douglas 1980; Papouchis, Singer, and Sloan 2001). Impacts to desert bighorn sheep would be mitigated by locating staging areas at least 0.15 miles from Nevares Springs or Texas Springs between March and October; both of which are known to provide or have potential to provide the local population with perennial water (Appendix B). Project activities within 0.15 miles of the aforementioned springs would also be restricted during biologically sensitive time periods (March–October) (Appendix B). The proposed project activities would not result in long-term nor appreciable impacts to desert bighorn sheep because surface water availability would not be altered, and short-term disturbance would be mitigated. Nocturnally active species such as bats are not expected to be impacted by diurnal project activities as the analysis area does not overlap suitable roosting habitat, but these species may be temporarily displaced by nighttime construction activities that occur within the analysis area. Nighttime construction, however, would be infrequent and minimal. Habitat loss associated with vegetation removal or modification is expected to be negligible with respect to the larger landscape. The addition of a fourth wastewater lagoon cell would create additional habitat for special status bird species known to utilize the wastewater lagoons, resulting in a relatively minimal long-term beneficial impact to these species. Short-term, adverse impacts to individuals and negligible loss of habitat is not expected to result in long-term adverse impacts to special status species populations or habitat, and it is anticipated that wildlife will resume baseline activity levels within the analysis area following the conclusion of project activities. Indirect impacts to special status wildlife species would not result in trends towards Federal listing or loss of population viability within the analysis area. See Table 11 for a summary of impacts for special status wildlife species.

CUMULATIVE IMPACTS

As described for the no action alternative, the impacts of past, present, and reasonably foreseeable future actions on special status wildlife species would not result in additional impacts beyond those associated directly with Alternative B, which would not result in any long-term adverse impacts to special status species or associated habitat. Under the preferred alternative, system failures and associated potential cumulative effects related to emergency repairs would be reduced.

TABLE 11 SUMMARY OF IMPACTS TO SPECIAL STATUS WILDLIFE SPECIES

Issue	Alternative A: No Action	Alternative B: Proposed Action and Preferred Alternative
Wildlife	Short-term adverse impacts to special status wildlife species habitat. No long-term adverse impacts to special status wildlife species or habitat.	Short-term adverse impacts to special status wildlife species and habitat. No adverse impacts to active migratory bird nests. No long-term adverse impacts to special status wildlife species or habitat.

Water Quality

Affected Environment

Water quality refers to the physical, chemical, radiological, and bacteriological properties of a waterbody. Under the Clean Water Act of 1972, as amended, states are required to monitor water pollution and report to the Environmental Protection Agency (EPA) biannually. Waterbodies that do not meet water quality standards (referred to as impaired waters) are placed on the State 303(d) list. States are then required to identify which pollutant is causing the impairment and develop an EPA-approved Total Maximum Daily Load for each listed waterbody. There are no 303(d) listed waterbodies within the project area as the waters of the area have not been assessed (California Water Quality Control Boards 2020).

The 244-acre project area is located in the Lower Furnace Creek Wash, Cottonball Marsh-Salt Creek, and Gower Gulch-Salt Creek Sub-watersheds (USGS 2020). The project area sits atop the Alkali Flat-Furnace Creek Ranch groundwater basin and is located in the eastern portion of Cottonball Basin, a closed surface water basin. The National Hydrography Dataset (NHD) indicates that these sub-watersheds contain 41 miles of intermittent stream and no perennial streams as illustrated in Figure 3. The sub-watersheds also contain hundreds of miles of NHD-classified ephemeral drainages. Given the extreme climate, surface flow within the project area is limited and generally only seen following infrequent precipitation events. Like many national parks, DEVA is experiencing climatic changes such as rising temperatures, altered precipitation patterns, and stronger storms (Gonzalez 2016). These changes can lead to increased flooding and erosion, mainly affecting water quality through sedimentation. Surface flows are also found near perennial springs such as Nevares or Texas Springs. Much of the surface water of the project area originates from these springs. The mineral-laden water discharged from these springs is near 100 degrees Fahrenheit in temperature (Hunt et al. 1966). When present, surface water flows generally east to west encountering multiple unnamed ephemeral streams/rivers. Prominent NHD-named features are Cow Creek, an ephemeral stream/river, in the northern portion of the project area and Furnace Creek Wash, an intermittent stream/river, in the southern portion of the project area. Surface flow that is not evaporated or transpired within the project area terminates in the saltpan valley floor of Cottonball Basin west of the project area.

Environmental Consequences

The analysis area for this resource includes the project area and portions of Cottonball Basin down gradient of the project area to where surface water flows terminate. This analysis considers short-term impacts as those persisting for up to three years following project completion and long-term impacts as those persisting longer than three years. Implementation of mitigations and BMPs would reduce adverse impacts to water quality.

Effects on vegetation, soils, and hydrology were considered in the overall water quality analysis. Impacts to the quality and quantity of riparian vegetation were considered in terms of their spatial extent, composition, and vigor. Soil impacts considered include erosion and compaction potential. Types of hydrologic impacts considered include changes in surface water runoff characteristics, flooding, base flows, and habitats, as well as short- and long-term effects to water quality from sedimentation and pollutants.

Impacts of Alternative A — No Action

There would be no direct effects to water quality under the no action alternative. Under the no action alternative, the existing infrastructure would continue to fail. Many of these failures occur in close proximity to drainage features that may carry surface waters. These failures would continue to potentially introduce pollutants associated with wastewater and erode soil indirectly affecting water quality through sedimentation and the introduction of other pollutants.

CUMULATIVE IMPACTS

Under the no action alternative existing infrastructure would continue to fail. These failures often result in the need for emergency repairs which can occur in close proximity to drainages that may carry surface waters of the analysis area. These emergency repairs can be considered reasonably foreseeable actions and often result in ground-disturbing activities. Water quality may be indirectly affected by these repairs as they can increase soil erosion potential and compaction leading to sedimentation and the introduction of other pollutants. Furthermore, emergency repairs are approved in an expedited fashion that does not always involve rigorous NEPA analysis and, therefore, may not result in repair activities with increased environmental consequences.

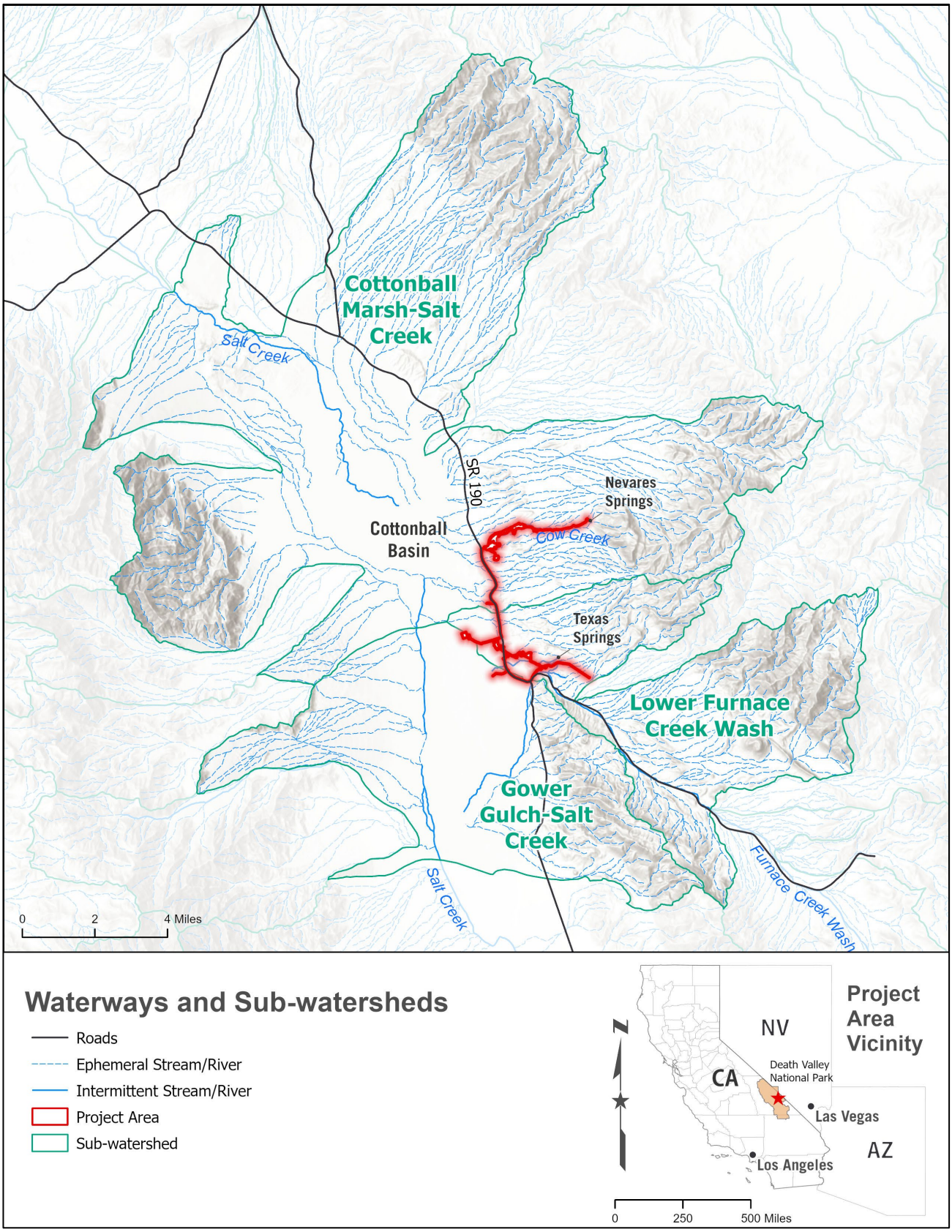

FIGURE 3 NHD FLOWLINES AND SUB-WATERSHEDS OF PROJECT AREA

Impacts of Alternative B — Preferred Alternative

Under the preferred alternative, construction activities may have short-term negative effects on water quality; however, BMPs would ensure there are no significant impacts. The construction activities may increase soil erosion and compaction potential or introduce sediment and pollutants to waterways. Accordingly, these possible effects would be reduced by the BMPs identified in Appendix B and adherence to a Clean Water Act Section 401 certification for the project. If determined necessary, DEVA would file a Notice of Intent to discharge stormwater to the Regional Water Quality Control Boards (RWQCBs) prior to construction. A Stormwater Pollution Prevention Plan (SWPPP) would also be prepared and implemented to control runoff during construction. The BMPs of the SWPPP would specify means of waste disposal, sediment and erosion control, and monitoring and maintenance responsibilities (see Appendix B). The construction contractor would also be required to implement appropriate hazardous materials management practices to reduce the possibility of chemical spills or releases of contaminants. Post-construction permanent BMPs would be implemented where necessary to reduce long-term effects from land disturbance, increased runoff, and contaminated runoff.

In the long-term, the updated infrastructure is expected to require less maintenance and repair, reducing the negative effects to water quality discussed in the no action alternative above. See Table 12 for a summary of impacts to water quality.

CUMULATIVE IMPACTS

With the rehabilitated water and wastewater systems at Furnace Creek and Cow Creek, park operations and maintenance, as it relates to these systems, would be minimal and more predictable. No other cumulative impacts from past, present, and reasonably foreseeable future actions would be expected to occur.

TABLE 12 SUMMARY OF IMPACTS TO WATER QUALITY

Issue	Alternative A: No Action	Alternative B: Proposed Action and Preferred Alternative
Water Quality	Continued negative impacts due to frequent failure of infrastructure in or near waterways.	Short-term negative impacts during construction mitigated by BMPs, and adherence to processes outlined in the Section 401 certification. Long-term positive impact due to decreased maintenance and repair requirements.

Chapter 4: Consultation and Coordination

This chapter summarizes the consultation and coordination processes completed thus far for this EA.

Civic Engagement

DEVA initiated civic engagement with a news release sent to all local news outlets and the release of a newsletter. The press release was posted on the DEVA website, as well as a link to the NPS Planning, Environment, and Public Comment (PEPC) site on social media. This civic engagement period ran from May 17, 2023, to June 16, 2023 and provided the public an opportunity to comment on the purpose and need for the project, the proposed actions, and the scope of the analysis, as well as an opportunity to identify any issues and concerns and provide recommendations.

DEVA received 13 correspondences during the 30-day comment period. Ten correspondences were posted to the PEPC website and three were received as emails. Commenters provided a range of suggestions related to water conservation, design features, and natural resource considerations.

Internal scoping was conducted by an interdisciplinary team of professionals from DEVA, Denver Service Center, Pacific West Regional Office, and consultants. Internal scoping included VA workshops held on October 18–20, 2022, and June 6–8, 2023. Team members met multiple times from 2022 through 2023 to discuss the purpose and need for the project, various alternatives, potential environmental impacts, reasonably foreseeable actions that may have cumulative effects, and mitigation measures. Over the course of the project, team members have conducted numerous site visits to view and evaluate the project area.

Consultation

State Historic Preservation Office

As required by Section 106 of the NHPA, the NPS initiated consultations on August 29, 2022, with the office of the California State Historic Preservation Officer. The Section 106 consultation process is being conducted separately from, but concurrently with, the NEPA process to assess the effect of the project on historic properties. Consultations under Section 106 are ongoing, and the NPS will continue consultations as appropriate during project implementation.

Tribal Consultation

DEVA initiated tribal consultation with the Timbisha Shoshone Tribal Historic Preservation Office on August 29, 2022. Consultations with the Timbisha Shoshone Tribe continued when the NPS submitted a preliminary end-of-fieldwork summary to the tribe for review and comment. On March 30, 2023, the NPS cultural resource contractor presented a summary of the results of cultural resource investigations to the Timbisha Shoshone Tribe during a quarterly meeting. Representatives from the Timbisha Shoshone Tribe toured a select number of resources near the Nevares Springs area immediately following the March 30, 2023, meeting. Tribal consultation is ongoing, and copies of this EA will be forwarded to the tribal members.

Lahontan Regional Water Quality Control Board

DEVA would obtain a Section 401 Water Quality Certification permit from the Lahontan RWQCB for the project. The RWQCB will evaluate the project for impacts in compliance with the California Environmental Quality Act.

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Appendix A:
Design Details

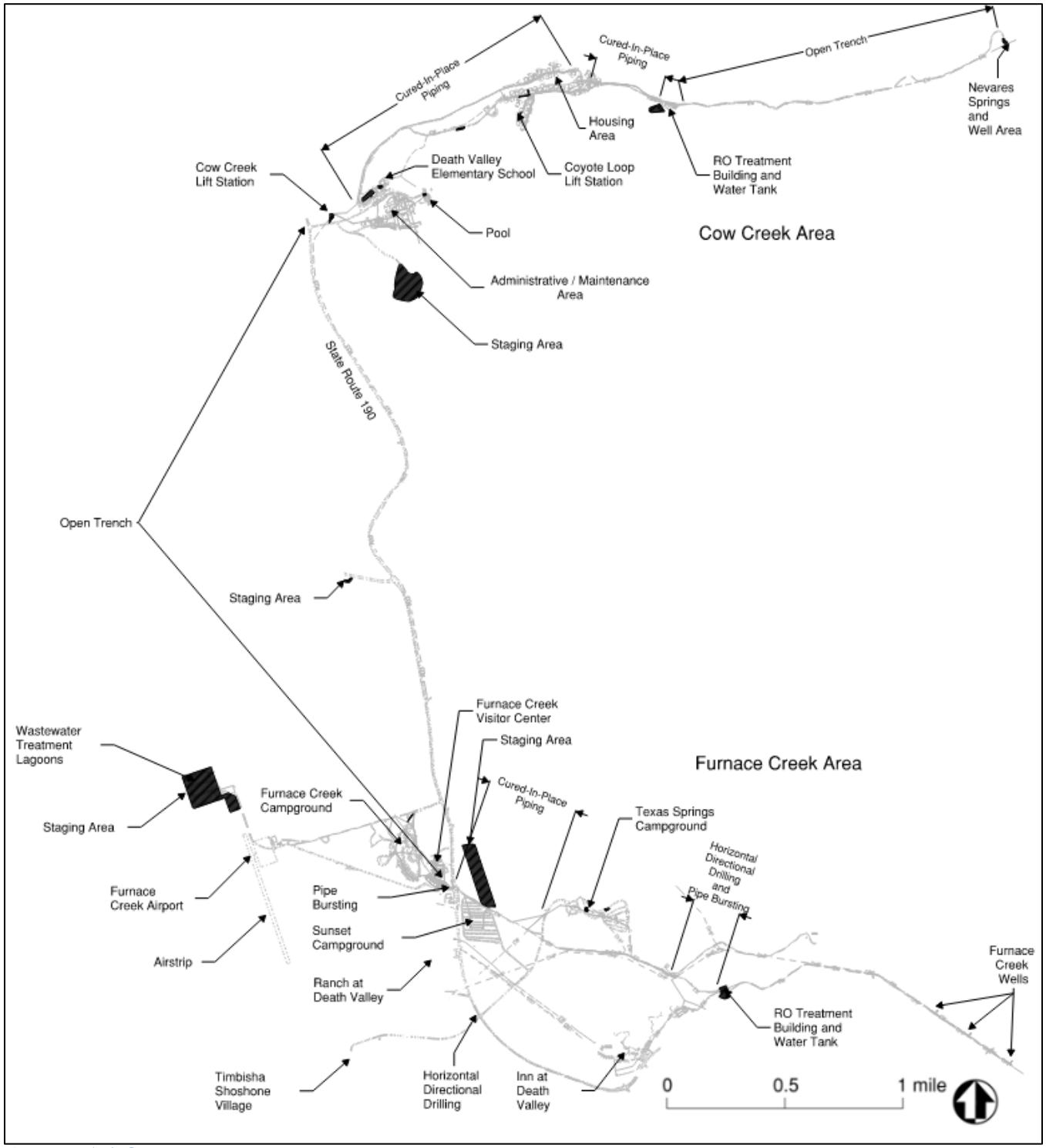

FIGURE A 1 OVERVIEW OF PROJECT COMPONENTS AND GENERAL LOCATION OF PIPELINE REPLACEMENT BY METHOD

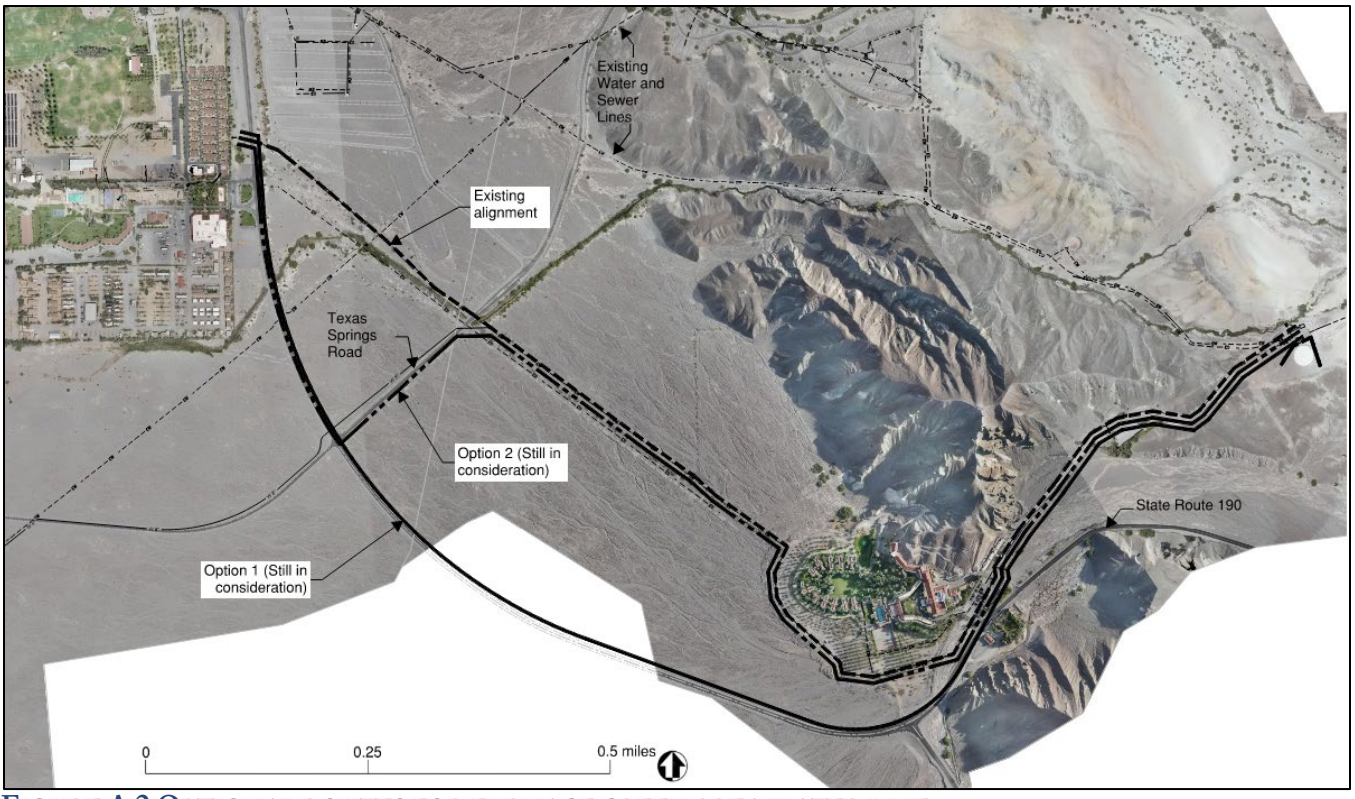

FIGURE A 2 OPTIONAL ROUTES FOR FURNACE CREEK AREA WATER LINE

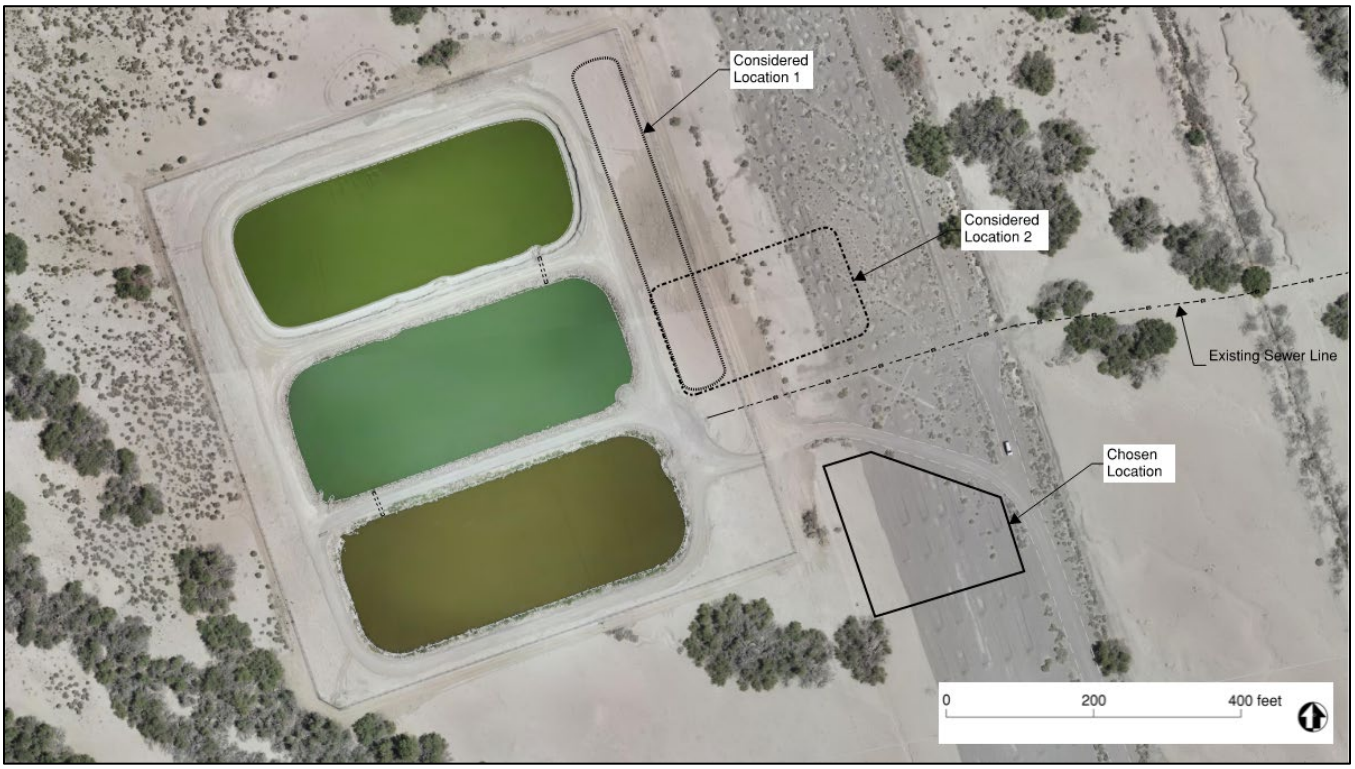

FIGURE A 3 DETAIL ON LAGOON SYSTEM INCLUDING CONSIDERED AND CHOSEN LOCATION FOR FOURTH CELL

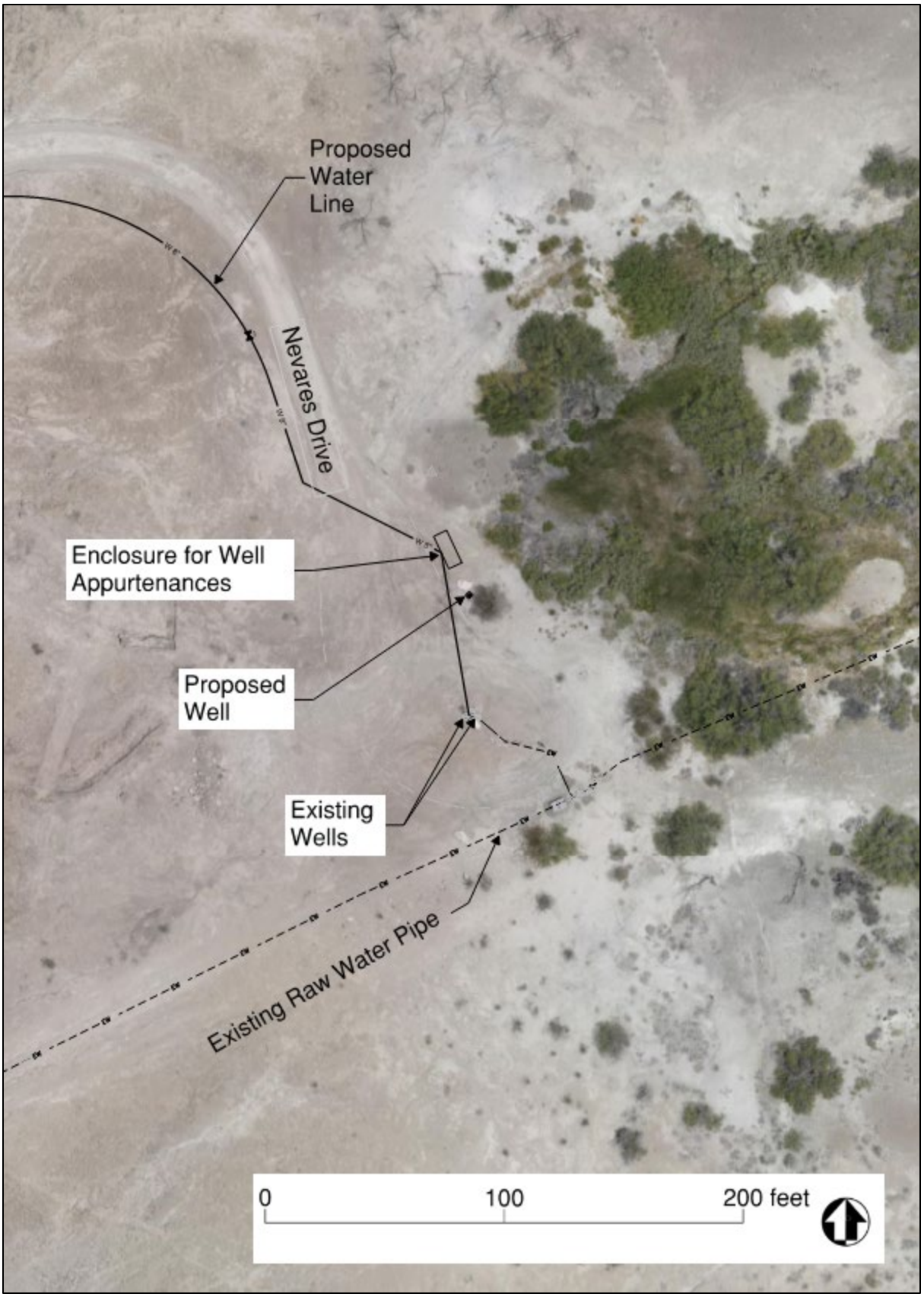

FIGURE A 4 DETAIL ON NEVARES SPRINGS WELL AREA

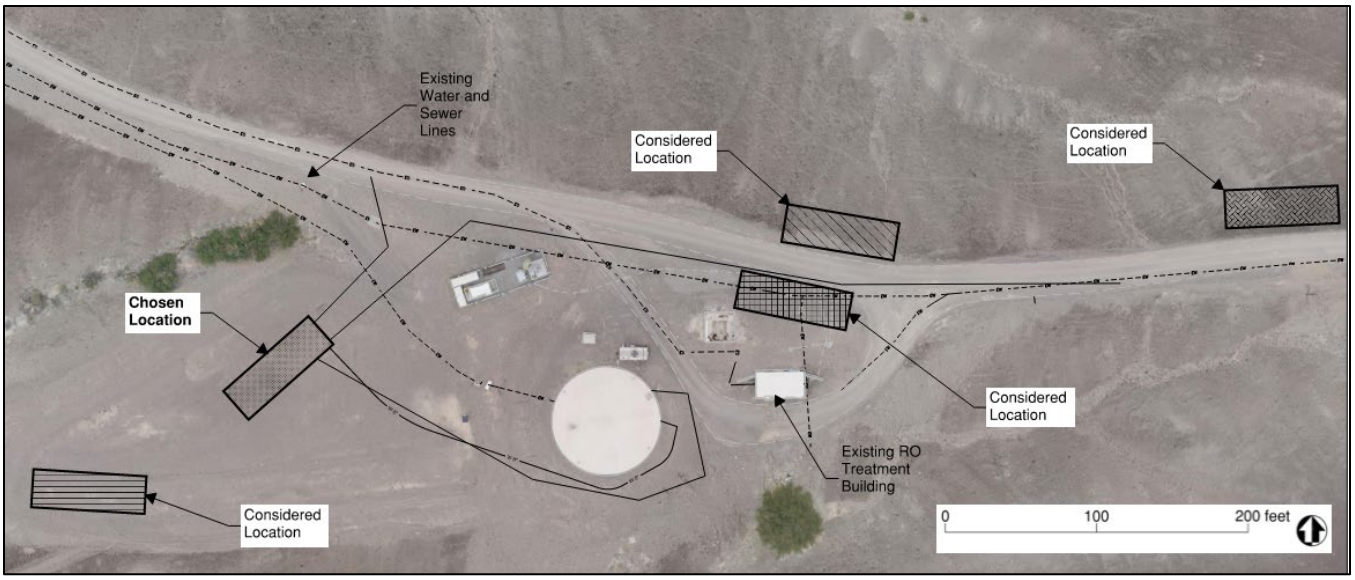

FIGURE A 5 DETAIL ON COW CREEK RO TREATMENT PLANT INCLUDING CONSIDERED AND CHOSEN LOCATION FOR TREATMENT BUILDING

FIGURE A 6 DETAIL ON COYOTE LOOP INCLUDING CONSIDERED AND CHOSEN LOCATION FOR LIFT STATION

Appendix B:
Mitigation Measures and Best Management Practices

Mitigation Measures

Mitigation ID	Cultural Resources
CUL-1	The LOD for construction shall be constricted from 50 feet in width to 20 feet in width near and within sites eligible for the National Register of Historic Places (NRHP) and sites of indeterminate NRHP eligibility in order to avoid impacts to contributing features and artifacts. Contractors should consult design drawings when establishing LOD in the field.
CUL-2	Ground-disturbing project related construction activity, machinery, and vehicles shall avoid NRHP-eligible and unevaluated sites. The boundaries of select sites shall be marked/flagged prior to commencement of construction.
CUL-3	An archeologist meeting the professional qualifications standards outlined in the Secretary of the Interior's Standards and Guidelines for Archeology and Historic Preservation (qualified archeologist) and tribal monitor hall monitor ground-disturbing construction activities in areas that are near known cultural resources and in areas sensitive to cultural resources such as the area near the Furnace Creek Visitor Center and Furnace Creek Campground.
CUL-4	Horizontal directional drilling shall be employed to install water lines under significant cultural resources, where feasible and appropriate (as specified in the design drawings), to avoid directly impacting these resources.
CUL-5	Apply Secretary of the Interior's Standards for Rehabilitation at the Furnace Creek Visitor Center to replace any contributing landscaping plantings with in-kind following project construction.
CUL-6	New construction of buildings and structures (Cow Creek Lift Station and Cow Creek Pool Filtration Building) shall be similar in scale, size, and massing to existing structures in the nearby Cow Creek Historic District or to mitigate visual intrusions into the historic district but designed to be clearly differentiated from the historic buildings and structures.
CUL-7	In the unlikely event that previously unreported cultural resources are encountered during ground-disturbing activities, all work must cease immediately within 100 feet of the resource until a qualified archaeologist has documented the discovery and evaluated its eligibility for the NRHP in consultation with park compliance archaeologist, SHPO, and Tribes, as appropriate. Work must not resume in the area of concern without written approval of the park compliance archaeologist.
CUL-8	In the unlikely event that any discoveries potentially covered by the Native American Graves Protection and Repatriation Act (NAGPRA) (Public Law 101-601; 25 U.S.C. 3001-3013) are encountered during ground-disturbing activities, all work must immediately cease within 100 feet of the discovery. The park compliance archaeologist, SHPO, and appropriate Tribes must be notified of the discovery within 24 hours (following NPS protocol). All applicable discoveries will be treated in accordance with the NAGPRA by following the park's NAGPRA inadvertent discovery plan. Work cannot resume in the area without proper authorization from park compliance archaeologist, SHPO, and the appropriate Tribes.
Mitigation ID	**Floodplains, Water Quality, and Wetlands**
FWW-1	To prevent unnecessary disturbance to nearby wetlands and floodplains, designated staging areas would be used. These staging areas will utilize existing hardened surfaces where feasible and, where not feasible, avoid delineated wetlands and designated floodplains wherever possible. Equipment should be parked or stored on a hardened surface within a staging area whenever possible.
FWW-2	Fueling of machinery would be conducted only in approved equipment staging areas away from water bodies. Furthermore, to prevent spills, fuel containment is required for all fuel caches and under parked equipment if oil leaks are noted. Any spills of fuel or hazardous materials would be cleaned up immediately to prevent contamination or discharge into ground or surface waters.

<table>
<tr><th>Mitigation ID</th><th>Floodplains, Water Quality, and Wetlands</th></tr>
<tr><td>FWW-3</td><td>Equipment would be inspected upon entrance to the park to ensure that they are free of any fluid leaks (fuel, oil, hydraulic fluid, etc.). Additionally, equipment would be inspected upon arrival to the work site at the beginning of each shift for leaks. Leaking equipment would be moved off-site for necessary repairs before the commencement of work.</td></tr>
<tr><td>FWW-4</td><td>A SWPPP would be prepared for the project that would identify BMPs consistent with federal and state standards.</td></tr>
<tr><th>Mitigation ID</th><th>Recreation, Visitor Use, and Human Health and Safety</th></tr>
<tr><td>RVH-1</td><td>Advance notification (at least three weeks) should be given to inform park visitors, staff, residents, and concessionaires of planned utility shutdowns and construction activities.</td></tr>
<tr><td>RVH-2</td><td>A campground closure strategy will be developed to minimize closure impacts.</td></tr>
<tr><td>RVH-3</td><td>To offset downtime of restrooms and water utilities, portable toilets, handwashing stations, and potable water tanks would be provided at campgrounds, the Timbisha Shoshone Village, and visitor, staff, and resident facilities throughout the affected area. During system downtime, delivery plans, and waste solutions plans would be in place to serve the Timbisha Shoshone Village.</td></tr>
<tr><td>RVH-4</td><td>To maintain a positive visitor experience, DEVA would try to limit traffic delays to no more than 10 minutes.</td></tr>
<tr><td>RVH-5</td><td>To maintain a positive visitor experience, it is important to reduce negative impacts to visitor experience. DEVA will inform visitors of anticipated closures through the DEVA website, social media, press releases, project partners, and/or other avenues, as appropriate.</td></tr>
<tr><th>Mitigation ID</th><th>Special Status Wildlife Species</th></tr>
<tr><td>SSW-1</td><td>To the extent practicable, project staging areas should not be located within 0.15 miles of known water sources for desert bighorn sheep such as Nevares Springs and Texas Springs unless approved by a qualified biologist. Project activities within this buffer would not occur between March and October in order to avoid biologically sensitive time periods.</td></tr>
<tr><th>Mitigation ID</th><th>Special Status Wildlife Species – Migratory Birds</th></tr>
<tr><td>SSB-1</td><td>Recommendations and training would be provided to construction contractors working on-site to prevent and mitigate any potential harm and to protect resident and migratory nesting bird species.</td></tr>
<tr><td>SSB-2</td><td>To the extent practicable, vegetation removal or modification would be done outside of the nesting season (January–July). Pre-construction surveys for active migratory bird nests would be conducted by an authorized biologist within the Nevares Springs and lagoon areas at least 2 weeks prior to any construction activities occurring within the nesting season. The survey area would encompass the species-specific buffers listed within the table below. If an active migratory bird nest is discovered within the survey area during the nesting season (January–July), a buffer prohibiting ground-disturbing construction using equipment that produces noise ≥ 85 dB at 17 m and any vegetation removal or modification would be implemented following nest buffer guidelines provided by the USFWS and other scientific literature and listed by species in the table below. If buffers cannot be implemented, noise abatement methods may be utilized to further reduce potential impacts to nesting birds. If an active nest buffer is unknown, a qualified biologist would determine an appropriate buffer distance.
<table>
<tr><th>Common Name</th><th>Scientific Name</th><th>Active Nest Buffer (feet)</th><th>Nesting Habitat Description within Analysis Area</th></tr>
<tr><td>Lucy's Warbler</td><td>Leiothlypis luciae</td><td>150[1]</td><td>tree cavities, partial crevices in tree bark or banks</td></tr>
<tr><td>Black-chinned Sparrow</td><td>Spizella atrogularis</td><td>150</td><td>understory/thickets</td></tr>
<tr><td>Le Conte's Thrasher</td><td>Toxostoma lecontei</td><td>150</td><td>trees/shrubs, open scrub</td></tr>
<tr><td>Costa's Hummingbird</td><td>Calypte costae</td><td>100</td><td>trees/shrubs</td></tr>
</table>
[1] Nest buffer corresponds with distances applied for other tree-nesting passerines provided by USFWS (Pacific Gas and Electric Company 2015; USFWS and NPS 2023)</td></tr>
</table>

Mitigation ID	Special Status Wildlife Species – Migratory Birds
SSB-3	Lighting associated with nighttime construction activities would be limited to the furthest extent practicable during the active migration period. If construction activity time restrictions are not possible, down shielding or directional lighting would be used whenever possible to limit light pollution. To the maximum extent possible, while allowing for public safety, low intensity energy saving lighting (e.g., low pressure sodium lamps) will be used. If possible, illumination will be minimized through the use of motion or heat sensors and white lights such as metal halide, halogen, fluorescent, mercury vapor, and incandescent lamps would not be used.
Mitigation ID	**Vegetation**
VEG-1	Construction staging areas have been selected such that they that avoid or cause minimal damage to intact vegetative communities within the project area.
VEG-2	Wherever possible, mitigate any damages by revegetation efforts such as seed scattering and outplanting nursery-grown, native, perennial plant species following the construction phase.
VEG-3	Where feasible, plants should be sourced from nurseries implementing BMPs for Phytophthora and other potential molds, diseases, and parasites.
VEG-4	DEVA standard operating procedure for preventing the introduction and spread of invasive species will be followed during the project (NPS 2020). All materials and equipment need to be inspected before entering the site and all debris should be removed before entering the site. Equipment to be cleaned includes shoes and other materials that will be used on the site. There would be a Qualified Individual inspecting the site to ensure all equipment is free from foreign materials.
VEG-5	Native soils would be reused as trench backfill to prevent the introduction of invasive species from external sources. Areas with trench backfill would be treated for invasive plant species as necessary for up to three years beyond project completion.
VEG-6	The project area would be identified by printed maps for monitoring to prevent the spread of nonnative or invasive species.

Best Management Practices

Best Management Practices
GENERAL MEASURES
BMPs for drainage and sediment control, as identified and used by the NPS, would be implemented to prevent or reduce nonpoint source pollution, soil loss, and sedimentation in drainage areas. Use of BMPs in the project area for drainage area protection would include all or some of the following actions, depending on site-specific requirements: (1) keeping disturbed areas small to reduce exposed soil and the potential for erosion; (2) locating waste and excess excavated materials outside of drainages to avoid sedimentation; (3) installing silt fences, temporary earthen berms, temporary water bars, sediment traps, stone check dams, or other equivalent measures (including installing erosion-control measures around the perimeter of stockpiled fill material) prior to construction; (4) conducting regular site inspections during construction to ensure that erosion-control measures were properly installed and functioning effectively; and (5) storing, using, and disposing of chemicals, fuels, and other toxic materials appropriately.
A SWPPP would be prepared, as required by the state of California, and implemented throughout the construction period.
A hazardous spill plan would be in place, stating the actions to be taken in the case of a spill, notification measures, and preventive measures to be implemented, including the placement of refueling facilities, storage, and handling of hazardous materials. A spill prevention and pollution control program would be implemented for hazardous materials. Standard measures would include hazardous materials storage and handling procedures; spill containment, cleanup, and reporting procedures; and limitation of refueling and other hazardous activities to non-sensitive sites.
All equipment used on the project would be maintained in a clean and well-functioning state to avoid or reduce contamination from automotive fluids. All equipment would be inspected daily.
All fuel, transmission, or brake fluid leaks, or other hazardous waste leaks, spills, or releases would be reported immediately to the designated safety officer. The contractor would be responsible for spill material removal and disposal to an approved off-site landfill and, if necessary, would notify the appropriate federal agency.
Fueling project-related vehicles and equipment would take place away from water sources, and a contingency plan to control petroleum product spills during the project would be developed. Absorbent pads and containment booms would be stored on-site to facilitate cleanup of any accidental petroleum spills. Fueling of machinery would be conducted only in approved equipment staging areas away from water bodies. Any spills of hazardous materials or fuel would be cleaned up immediately to prevent contamination or discharge into ground or surface waters. Construction equipment would be regularly inspected for leaks of fuel, lubricants, and other chemicals.
Any soil disturbed near water as a result of the project would be protected from erosion (with plastic sheeting, filter fabric, etc.) after exposure, and stabilized as soon as practicable (with vegetation matting, etc.). If erosion-control materials are used, only tightly woven fiber netting or nonbinding materials, e.g., rice straw would be used for erosion control or other purposes at the project site to ensure that small mammals and reptiles do not become trapped. No plastic-tied wattles would be used.
Topsoil will be replaced as quickly as possible during construction.
Disturbed areas would be returned to natural or historic conditions using active restoration to repair selected disturbed areas and control invasive species.
Ground surface treatment would include grading to natural contours, and roughing/scarification and vertical mulching to promote natural seeding.
All potential contaminants (rubbish or debris, introduction of nonnative species, etc.) would be excluded or removed from the environment.
Contractors would be required to properly maintain construction equipment (i.e., mufflers) to reduce noise of equipment use.
Fuel containment would be required for all fuel caches.
Equipment would be free of any fluid leaks (fuel, oil, hydraulic fluid, etc.) upon arrival to the work site and would be inspected at the beginning of each shift for leaks. Leaking equipment would be removed off-site for necessary repairs before the commencement of work.
All work would be restricted to the pre-approved construction area. No impacts on areas outside of the construction area would occur.
The project area would be kept trash free at all times.
Construction equipment would be restricted to paved surfaces where practicable to avoid impacts on natural and cultural resources, including wetland areas. If construction equipment must be used or staged off paved surfaces, BMPs would be implemented to reduce potential for adverse impacts.

Best Management Practices
GENERAL MEASURES
The contractor would be required to follow National Park Service (NPS) construction contract standards during construction, including implementation of an accident prevention program, installation of warning signs at the construction site and along the nearby parking lot, and installation and maintenance of construction fences around the construction sites to prevent noncontractors and the public from entering the construction areas. The construction area would be fenced to keep related disturbances within a DEVA-defined and minimal impact area required for construction.
All mitigation/protection measures would be clearly stated in the construction specifications, and workers would be instructed to avoid conducting activities beyond the fenced construction zone.
Standard dust abatement measures would include the following elements: watering or otherwise stabilizing soils, covering haul trucks, employing speed limits on unpaved roads, minimizing vegetation clearing, and revegetating after construction.
Best Management Practices
ARCHEOLOGICAL RESOURCES
If human remains are discovered during construction activities, all work on the project would stop and the DEVA archeologist would be contacted immediately. As required by law, the coroner would be notified first. All provisions outlined in the NAGPRA (1990) would be followed.
If previously unknown archeological resources are discovered during construction, all work in the immediate vicinity (100 feet) of the discovery would be halted until the resources are identified and documented and an appropriate mitigation strategy developed, if necessary, in accordance with pertinent laws and regulations, including the stipulations of the 2008 Programmatic Agreement Among the National Park Service (U.S. Department of the Interior), the Advisory Council on Historic Preservation, and the National Conference of State Historic Preservation Officers.
All workers would be informed of the criminal penalties for illegally collecting artifacts or intentionally damaging any archeological or historic property. Workers would also be informed of the correct procedures should previously unknown resources be uncovered during construction activities.
The limits of the area(s) surveyed for archeological resources would be identified at the construction contract start-up meeting and clearly flagged in the field. DEVA would ensure that all contractors and subcontractors are informed of the criminal penalties for illegally collecting artifacts or intentionally damaging archeological sites, historic buildings and structures, or elements of the cultural landscape. Workers would also be informed of the correct procedures should previously unknown resources be uncovered during construction activities.
If during construction previously unknown archeological resources are discovered, all work in the immediate vicinity (100 feet) of the discovery would be halted until the resources could be identified and documented and, if the resources cannot be preserved in situ, an appropriate mitigation strategy developed in accordance with pertinent laws and regulations, including the stipulations of the 2008 Programmatic Agreement Among the National Park Service (U.S. Department of the Interior), the Advisory Council on Historic Preservation, and the National Conference of State Historic Preservation Officers and in consultation with the California SHPO and, as necessary, traditionally associated American Indian tribes. In the unlikely event that human remains, funerary objects, sacred objects, or objects of cultural patrimony are discovered during construction, all work in the vicinity (100 feet) of the discovery would stop and the DEVA law enforcement officer and archeologist would be contacted immediately, and provisions outlined in the NAGPRA (25 United States Code 3001) of 1990 would be followed. If human remains are discovered and determined not to be affiliated with Native American tribe, then standard reporting procedures to the proper authorities would be followed, in addition to all applicable federal, state, and local laws.
Best Management Practices
HISTORIC STRUCTURES / CULTURAL LANDSCAPES
Rehabilitation of historic buildings and structures would adhere to the *Secretary of the Interior's Standards and Guidelines for Archeology and Historic Preservation*.
No NRHP-listed or eligible buildings or structures would be removed or allowed to decay naturally ("molder") without prior review by park and region cultural resource specialists, including approval by the regional director, and consultation with the SHPO. Before an NRHP-listed or eligible structure is removed or allowed to molder, appropriate documentation recording the structure would be prepared in accordance with Section 110(b) of the NHPA and the documentation submitted to the Historic American Buildings Survey/Historic American Engineering Record/Historic American Landscapes Survey program.
Rehabilitation of the cultural landscape features would adhere to the *Secretary of the Interior's Standards for the Treatment of Historic Properties and the Guidelines for the Treatment of Cultural Landscapes*.

Best Management Practices
HISTORIC STRUCTURES / CULTURAL LANDSCAPES
Because the project may affect historic structures, the NPS must consider the effects of the undertaking on historic properties and afford the SHPO an opportunity to comment on the potential effects of the project on the historic district and contributing structures. If consultation results in a determination of adverse effect, DEVA, in consultation with the SHPO and other consulting parties, would work to reduce or mitigate the effects of the undertaking on historic properties.
Best Management Practices
NIGHT SKY
DEVA would strive to limit the use of artificial outdoor lighting to that which is necessary for basic safety requirements and to ensure that all outdoor lighting is shielded to the reasonable extent possible to keep light on the intended subject and out of the night sky. Lighting controls would but used when appropriate (timers, motion detectors, switches, etc.) and LEDs in warm colors would be used (2700 Kelvin or less).
Best Management Practices
PALEONTOLOGICAL RESOURCES
If unknown paleontological resources are discovered during construction, work in that location would be stopped until the resources can be properly recorded and evaluated. Measures would be taken to avoid further resource impacts or to mitigate resource loss or disturbance
Best Management Practices
PUBLIC HEALTH AND SAFETY
The length of trench permitted to be open at any time would be limited when, in the opinion of the DEVA project manager, such limitation would be necessary for public safety, and would be less than 400 feet.
All trenches and excavations left open overnight would be protected with fencing, concrete barriers, signage, or any other measures required to protect public safety.
Best Management Practices
SOILS AND WATER QUALITY
All sedimentation control devices/materials would be inspected weekly for quality control. Replacement of worn or damaged components would be undertaken immediately.
Soil erosion would be reduced by limiting the time that soil is displaced and by applying other erosion-control measures, such as erosion control matting, silt fencing, and sedimentation basins in construction areas to reduce erosion, surface scouring, and discharge to water bodies.
Best Management Practices
SOUNDSCAPE MANAGEMENT
Noise abatement measures would be implemented during construction. Standard noise abatement measures would include the following: a schedule that reduces impacts on adjacent noise-sensitive uses, the use of the best available noise-control techniques wherever feasible, the use of hydraulically or electrically powered impact tools when feasible, and location of temporary noise sources as far from sensitive uses as possible.
To reduce noise and pollution emissions, construction equipment would not idle any longer than is necessary for safety or mechanical reasons.
Mufflers and sound attenuation devices would be installed and maintained on all equipment and vehicles, only well-maintained and properly functioning equipment and vehicles would be used, and portable wooden sound screens would be used to reduce particularly noisy operations such as air compressors.
Best Management Practices
VEGETATION
All vehicles, equipment, and tools would be cleaned (i.e., pressure washed to remove mud, debris, and plant material) prior to entering the park to prevent the spread of nonnative plant material. Before entering the park, equipment would be inspected by DEVA staff for compliance.

Best Management Practices
VEGETATION
BMPs would be implemented to prevent the spread or introduction of invasive plants, such as ensuring that construction-related equipment arrives at the site free of mud and seed-bearing materials and certifying that any seeds or straw material are weed free. Tools and machinery would be thoroughly cleaned when moving from an area heavily covered with invasive plants to an area without invasive vegetation.
Only certified weed-free products would be used. Agricultural products (e.g., straw or matting) would be obtained from the local area. When not available locally, products would be sourced from northern latitudes and from states with an established weed-free certification program.
Gravel and fill would be sourced from the project area or local area whenever possible.
Best Management Practices
VISITOR USE AND EXPERIENCE
A traffic control plan would be implemented, as warranted. Standard measures include strategies to maintain safe and efficient traffic flow during the construction period.
Information on upcoming closures, including closure dates and arrangements of alternative access points, would be posted on the park website, distributed at other visitor centers in the park, and posted at the project site. When closures are necessary, information on alternative opportunities for visitor use would be publicized on the park website and on signs at the access points.
There may be some periods when the nature of the construction work may require temporary road closures or traffic may be periodically subjected to alternating one-way flow. All efforts would be made to reduce any delays as much as possible and to alert park staff as soon as possible if delays longer than normal are expected. Flaggers would be used during work hours to control traffic and visitors would be informed of construction activities and associated delays.
Construction equipment would not be stored along roads overnight without prior approval of park staff and Caltrans (where applicable).
The Public Information Officer would be provided with the project schedule three weeks in advance and would provide periodic updates of project work.
A public information program to warn of temporary closures, delays, and road hazards during construction would be implemented. This program would help convey appropriate messages to the public and aid in mitigating potential impacts on visitor expectations and experiences. The public information program would ensure that this project is communicated to affected staff and visitors.
Temporary full closure of areas outside the construction limits may be necessary on limited occasions. Such full closures would be for the minimal time required to complete the work activity.
Best Management Practices
WETLANDS
Where wetlands occur near construction activities, construction limits would be clearly demarcated, such as with fencing, to reduce the potential for wetland fill outside of the intended project area.
Best Management Practices
WILDLIFE
BMPs would be implemented to reduce the potential for wildlife to scavenge food from humans. Wildlife-proof garbage containers would be required at all construction sites.
Prior to the start of work on the next day, crews will check the workspace (e.g., pole cavities, hole, vegetation to be removed, equipment) for trapped wildlife or bird nests. If wildlife is trapped, crews will contact a biologist with the proper handling permits to safely remove the species.

Appendix C:
Impact Topics Dismissed from Further Analysis

Topic	Reason Dismissed
Air Quality	Construction activities would temporarily increase dust and vehicle emissions. Hauling construction material and operating equipment during construction would result in increased vehicle exhaust and emissions (hydrocarbons, nitrogen oxide, and sulfur dioxide emissions), which would be expected to rapidly dissipate. Mitigation measures for dust control would reduce the potential for fugitive dust. Once construction is done, no long-lasting impacts are expected to occur. Therefore, air quality was dismissed from detailed discussion in this EA.
Biological-Bald and Golden Eagles	Bald eagle (*Haliaeetus leucocephalus*) and golden eagle (*Aquila chrysaetos*) protected by the Bald and Golden Eagle Protection Act of 1940 are unlikely to occur within the analysis area. Suitable nesting and foraging habitat do not exist within the analysis area for either species.
Biological – Devils Hole pupfish (*Cyprinodon diabolis)*	No designated critical habitat occurs within the analysis area. Internal review conducted by NPS determined that there would be no effect per ESA regulations, based on a lack of suitable habitat within the analysis area and absence of impact-causing activities associated with the preferred alternative. A no effect memo was filed internally as the species showed on the official IPaC list. Therefore, this topic was dismissed from detailed discussion in this EA.
Biological – Eureka Valley dunegrass (*Swallenia alexandraei*)	There is one federally listed plant species in DEVA, Eureka Valley dunegrass (*Swallenia alexandraei*), which is supported by habitats outside of the analysis area and is therefore dismissed from detailed discussion in this EA.
Biological – July gold (*Dedeckera eurekensis*) and rock lady (*Maurandya petrophila*)	California rare plant species with potential to occur in DEVA that are not otherwise federally listed or proposed include July gold (*Dedeckera eurekensis*) and rock lady (*Maurandya petrophila*). Both species occur on limestone outcroppings at 4,000–7,200 and 4,000–4,600 feet of elevation, respectively. There are no known occurrences of either species within the analysis area (Calflora 2023). While this does not preclude the species from existing in the analysis area, the analysis area does not support viable habitat for either species. Both species are dismissed from detailed discussion in this EA.
Cultural – Abandoned Mineral Lands	No known abandoned mining shafts or adits occur within the APE. This was confirmed through a survey (Lewandowski et al. 2023). Therefore, abandoned mineral lands were dismissed from detailed discussion in this EA.
Cultural – Museum Collections	A CLI was completed for this project to help determine issues, impacts and mitigations (Lewandowski et al. 2023). No objects were collected during this survey. Therefore, this topic was dismissed from detailed discussion in this EA.
Environmental Justice	Executive Order 12898 requires federal agencies to identify and address disproportionately high and adverse human health or environmental effects of their programs and policies on minorities and low-income populations or communities. DEVA is a water service provider to the tribal village and could impact this minority population from temporary lack of water services. To reduce impacts to water users, it is important not to unreasonably delay construction progress. Backup water sources (such as portable toilets, handwashing stations, and potable water tanks), delivery plans, and waste solutions plans should be in place to serve the tribal village during system downtime. Therefore, environmental justice was dismissed as an impact topic because no actions in the alternatives would have disproportionately high health or environmental effects on minority or low-income populations or communities.

Topic	Reason Dismissed
Floodplains	The majority of the analysis area is outside Federal Emergency Management Agency (FEMA)-designated floodplains, with less than 15 of the 244 acres being mapped as either 100- or 500-year floodplain. Under the preferred alternative, the temporary effects of construction activities (excavation, worker occupancy, etc.) would be adequately addressed by the BMPs presented in Appendix B. The preferred alternative would include the construction of a fourth lagoon cell near the existing lagoons within the FEMA-designated 500-year floodplain and replacement of approximately 300 LF of existing waterline along SR 190 located within the 100- and 500-year floodplains. The updated infrastructure is expected to be more resilient to flooding, should it occur. Due to the minimal acreage of disturbance and identified BMPs, floodplain impacts have been dismissed from detailed analysis in this EA.
Geological – Geologic Features and Soils	There is a potential for temporary and long-term impacts from increased soil erosion and compaction due to construction activities. To reduce soil compaction, construction contracts will request that the lightest reasonable equipment will be used for the proposed work. After work is completed, berms will be pulled in and tracks will be raked out, where appropriate, to obliterate signs of the access route. Soil erosion would be reduced by limiting the time that soil is left exposed and by applying other erosion-control measures in construction areas to reduce erosion, surface scouring, and discharge to water bodies. Therefore, this topic was dismissed from detailed discussion in this EA. Horizontal drilling will be employed in undisturbed areas with highly sensitive soils, such as varnished desert pavement.
Lightscapes – International Dark-Sky Park	Lights from construction operation and permanent structures could impact International Dark-Sky Park guidelines because of temporary light pollution during construction or during times of operation. The project will use low light and high-cutoff fixtures only where needed for operations and worker safety. During construction, light towers that shield light source from the night sky to reduce light pollution will be used. Construction vehicles and equipment, as well as permanent structures will follow Dark-Sky requirements and be Dark-Sky compliant. Therefore, lightscapes were dismissed from detailed discussion in this EA.
Paleontological	While there are no known or documented paleontological resources within the project area, there are approximately 2,020 acres of Class 1 potential fossil yield and 970 acres of Class 3 potential fossil yield within the project area according to Potential Fossil Yield Classification (PFYC) data. PFYC values range from 1–5 with 5 being the highest sensitivity for fossils. If any paleontological resources are discovered during construction, DEVA staff will be notified, and work will be halted at the immediate location of the finding until the finding can be assessed, and a plan can be developed. Therefore, this topic was dismissed from detailed discussion in this EA.
Socioeconomic	Project activities would result in construction-related expenditures for labor, supplies, equipment, and material. Construction spending would have a slight beneficial effect on the regional economy. As DEVA is the water service provider to the tribal village, there may be socioeconomic impacts to minority population from temporary lack of water and wastewater services. To reduce impacts to water users, it is important not to unreasonably delay construction progress. Backup water sources (such as portable toilets, handwashing stations, and potable water tanks), delivery plans, and waste solutions plans should be in place to serve the tribal village during system downtime. There would be no long-term adverse effects on socioeconomics. Therefore, this topic was dismissed from detailed analysis in this EA.
Soundscapes	There is a potential for construction noise and operational equipment to affect visitor experience, park staff, and park residents. Visitors will be provided with advance notification of noise impacts resulting from construction. Noise abatement measures would be implemented during construction. Therefore, this topic was dismissed from detailed analysis in this EA.

Topic	Reason Dismissed
Vegetation	Project activities would occur within previously disturbed or sparsely vegetated areas. No special status plant species (threatened, endangered, or species of concern) are known or expected to occur within the project area. New disturbance to native vegetation is expected to be minimal or in areas where vegetation has previously reestablished from disturbance associated with maintenance and operations activities for the water and wastewater systems. Mitigation measures to avoid and minimize impacts on vegetation, including revegetation with native species wherever possible and inspection of equipment for invasive species, would be implemented as described in the BMPs presented in Appendix B. Loss of vegetation community structure or population decimation is not expected to result from the project. For these reasons, vegetation impacts have been dismissed from detailed analysis in this EA.
Water Quantity	Water efficiency and conservation measures will be incorporated into the system design in order to reduce water loss and waste. In the event that water discharge at adjacent springs impacts biological function or integrity due to water usage from the project, adjustments to usage amount will be made. Therefore, this topic was dismissed from detailed analysis in this EA.
Wetlands	Under the preferred alternative, there is 0.057 acre of wetland located downstream of Texas Springs with potential to be disturbed by construction activities. However, the project was designed to avoid wetland areas wherever possible and the BMPs presented in Appendix B adequately address any potential effects of the preferred alternative. Where wetlands cannot be avoided completely, construction techniques such as horizontal directional drilling will be used to reduce impacts to wetlands. In the long-term, the updated infrastructure is expected to require less maintenance and repair, thus reducing the existing negative effects to wetlands into the future. For these reasons, wetland impacts have been dismissed from detailed analysis in this EA.