



— BUREAU OF —  
RECLAMATION

# **Final Environmental Assessment and Finding of No Significant Impact for the Jordan Aqueduct at Bangerter Highway and 4700 South**

**PRO-EA-22-003**

**Interior Region 7 – Upper Colorado Basin  
Provo Area Office  
Provo, Utah**

## **Mission Statements**

The U.S. Department of the Interior protects and manages the Nation's natural resources and cultural heritage; provides scientific and other information about those resources; and honors its trust responsibilities or special commitments to American Indians, Alaska Natives, and affiliated Island Communities.

The mission of the U.S. Bureau of Reclamation is to manage, develop, and protect water and related resources in an environmentally and economically sound manner in the interest of the American public.

# **Final Environmental Assessment and Finding of No Significant Impact for the Jordan Aqueduct at Bangerter Highway and 4700 South**

**PRO-EA-22-003**

**Interior Region 7 – Upper Colorado Basin**

**Provo Area Office**

**Provo, Utah**

The U.S. Bureau of Reclamation (Reclamation) prepared this abbreviated Environmental Assessment (EA) to assess the potential consequences to the Jordan Aqueduct from planned Utah Department of Transportation (UDOT) improvements to Bangerter Highway at 4700 South in Salt Lake County, Utah. A Programmatic EA was previously developed and distributed for public comment, but none were received. A Finding of No Significant Impact (FONSI) was signed for the Programmatic EA in March 2022. This abbreviated EA tiers to that Programmatic EA pursuant to the Council on Environmental Quality's regulations implementing the National Environmental Policy Act found at 40 Code of Federal Regulations 1501.11.

The Proposed Action is needed because the planned UDOT interchange project on Bangerter Highway at 4700 South has the potential to encroach on the Jordan Aqueduct easement and pipeline and/or build permanent structures that are not allowed under the Jordan Aqueduct Protection Criteria. The purpose of the Proposed Action consists of two objectives, which are to (1) maintain the Jordan Aqueduct easement and pipeline in a similar or better condition compared to its current condition and (2) ensure that all Jordan Aqueduct Protection Criteria are met at the locations on Bangerter Highway planned for roadway improvements by UDOT.

This abbreviated EA has been prepared in compliance with the National Environmental Policy Act and Reclamation procedures, and is intended to serve environmental review and consultation requirements pursuant to Executive Order 11988 (Floodplain Management), Executive Order 11990 (Wetlands Protection), Executive Order 12898 (Environmental Justice), the National Historic Preservation Act (Section 106), the Endangered Species Act [Section 7(c)], and Department of Interior and Reclamation Indian Trust Asset policies.

For further information, contact:

Jared Baxter,  
NEPA Specialist  
Provo Area Office

Phone: (801) 379-1081;  
email: [jbaxter@usbr.gov](mailto:jbaxter@usbr.gov)

# Contents

	Page
<b>1 Introduction .....</b>	<b>2</b>
<b>2 Alternatives.....</b>	<b>5</b>
<b>3 Summary of Impacts .....</b>	<b>9</b>
<b>4 Minimization Measures Incorporated into the Proposed Action .....</b>	<b>13</b>
<b>5 Finding of No Significant Impact .....</b>	<b>14</b>
<b>6 Decision .....</b>	<b>15</b>
<b>7 Environmental Commitments .....</b>	<b>16</b>
7.1 System Operations .....	16
7.2 Waters of the United States .....	16
7.3 Water Quality .....	17
7.4 Existing Vegetation and Noxious Weeds .....	17
7.5 Cultural Resources.....	17
7.6 Indian Trust Assets .....	18
7.7 Socioeconomics and Private Properties .....	18
7.8 Environmental Justice.....	19
7.9 Recreation Resources .....	19
7.10 Health, Safety, Air Quality, and Noise .....	19
7.11 Access and Transportation.....	20
7.12 Visual Resources .....	20
<b>8 Consultation and Coordination .....</b>	<b>21</b>
<b>9 List of Preparers .....</b>	<b>22</b>
<b>10 References .....</b>	<b>23</b>
<b>11 Appendix .....</b>	<b>24</b>
11.1 Jordan Aqueduct Protection Criteria.....	24

## List of Figures

	Page
Figure 1 Western portion of Jordan Aqueduct features at 4700 South .....	6
Figure 2 Middle portion of Jordan Aqueduct features at 4700 South .....	7
Figure 3 Eastern portion of Jordan Aqueduct features at 4700 South .....	8

## List of Tables

	Page
Table 1 Summary of Impacts .....	9

**U.S. Department of the Interior  
Bureau of Reclamation  
Provo Area Office  
Provo, Utah**

**ENVIRONMENTAL ASSESSMENT  
and  
FINDING OF NO SIGNIFICANT IMPACT**

**for the Jordan Aqueduct at  
4700 South/Bangerter Highway Interchange  
Salt Lake County, Utah**

**PRO-EA-22-003**

Recommended by:

---

Peter Crookston  
Environmental Group Chief

Concur:

---

Ben Woolf  
Water, Environmental, and Lands  
Division Manager

Approved by:

---

Kent Kofford  
Area Manager, Provo Area Office

# 1 Introduction

**Programmatic Environmental Assessment Background.** The U.S. Bureau of Reclamation (Reclamation) completed a Programmatic Environmental Assessment (PEA) for the Jordan Aqueduct on Bangerter Highway between 2700 West (Riverton) and State Route (S.R.) 201 (2100 South) on March 15, 2022 (PRO-EA-21-004). The PEA had two objectives, which were to (1) maintain the Jordan Aqueduct easement and pipeline in a similar or better condition compared to its current condition while minimizing impacts to the surrounding human and natural environment and (2) ensure that all Jordan Aqueduct Protection Criteria are met at the locations on Bangerter Highway planned for roadway improvements by the Utah Department of Transportation (UDOT).

The PEA included the potential consequences to the Jordan Aqueduct from UDOT's planned Bangerter Highway interchange projects at 2700 West (Riverton), 9800 South, 4700 South, 4100 South, 3500 South, 3100 South, Parkway Boulevard (2700 South), and S.R. 201 (2100 South).

The PEA and the information it generated were intended to be used for the following purposes:

- To disclose expected program-related environmental effects
- To disclose procedures and develop measures that reduce or eliminate these environmental effects
- To assist Reclamation and potentially other agencies in the decision-making process pursuant to the National Environmental Policy Act of 1969, as amended (NEPA)
- To serve as a starting point for evaluating site-specific environmental impacts

The PEA also specified that, as specific project details are determined, site-specific environmental review will occur. This additional environmental review could include, but is not limited to, revisions or additions to proposed measures to minimize and avoid potential effects, and agency consultation. Reclamation will use the following procedures to authorize site-specific UDOT projects that could impact the Jordan Aqueduct:

1. UDOT and the Jordan Valley Water Conservancy District (JVWCD) would propose and develop individual projects specific to a single interchange consistent with the Proposed Action, project design features, and decisions for this PEA.
2. Before Reclamation makes a final decision (a finding of no significant impact, or FONSI) regarding each project, Reclamation will determine whether the effects of the planned activities exceed the effects disclosed in this PEA by preparing a site-specific EA, pursuant to 40 Code of Federal Regulations (CFR) Section 1501.11 (tiering).



- a. If the scope and degree of the effects are within the scope of the effects described in the PEA, Reclamation will complete a brief EA and FONSI, referencing the relevant reports disclosing those effects.
  - b. If the scope and degree of the effects exceed those described in the PEA, Reclamation will perform additional environmental review in a less abbreviated EA or in an Environmental Impact Statement (EIS), depending on the anticipated significance of the effects of the site-specific project. The appropriate decision document (FONSI or Record of Decision) would then follow.
3. Reclamation will post all final EAs and FONSI on Reclamation's website at <https://www.usbr.gov/uc/DocLibrary/ea.html>. EISs have unique web pages.

As described in the PEA and in compliance with NEPA, Reclamation's Provo Area Office has prepared a site-specific EA, pursuant to 40 CFR Section 1501.11 (tiering), to determine whether the effects of UDOT's planned 4700 South/Bangerter Highway interchange project (Project) exceed the effects disclosed in the PEA.

#### **UDOT 4700 South/Bangerter Highway Interchange Project Background.**

UDOT prepared a State Environmental Study (SES) to evaluate the impacts from UDOT's proposal to construct a new grade-separated interchange on Bangerter Highway at 4700 South in West Valley City and Taylorsville, Utah.

The purpose of UDOT's 4700 South/Bangerter Highway interchange project is to alleviate congestion and improve operations at the 4700 South/Bangerter Highway intersection and to support regional network mobility and operations. UDOT is proposing to construct a grade-separated single-point urban interchange at the 4700 South/Bangerter Highway intersection. The new interchange will allow unimpeded traffic flow on Bangerter Highway. Additional project work includes exit and entrance ramps, auxiliary lanes, pavement improvements, and noise wall replacements.

As part of the 4700 South/Bangerter Highway interchange project, an approximately 3,000-foot-long segment of the Jordan Aqueduct will be relocated to the east. This segment is located between the Utah and Salt Lake Canal on the south and the South Jordan Canal on the north. In addition, two turnout valves (Benview Palmer Vault and the 4400 South Vault) on the Jordan Aqueduct will be reconstructed as part of this relocation. An existing cathodic protection rectifier will be relocated, and the existing manway vault at the Utah and Salt Lake Canal will have the deck removed and raised to meet the new finish grade. Additional protect-in-place measures will be required upstream and downstream of the relocated segment (see the Proposed Action section for more details).

A Draft SES was completed in January 2022, and a Final SES was approved on March 16, 2022. UDOT held an in-person public meeting on February 1, 2022; held an online public meeting on February 2, 2022; and provided a 30-day public comment period from January 17, 2022, to February 15, 2022. During the public

comment period, UDOT received 11 comments. The comments generally were concerned with the following topics: property access during and after construction, concerns related to the planning process, construction right-of-way impacts, and the right-of-way acquisition process. None of the comments were related to the proposed relocation of the Jordan Aqueduct or the protect-in-place measures on the Jordan Aqueduct.

## 2 Alternatives

This EA analyzed two alternatives: the No Action Alternative and the Proposed Action Alternative (Proposed Action).

### No Action

With the No Action Alternative, Reclamation would not authorize any UDOT impacts to the Jordan Aqueduct, and UDOT would be required to modify the 4700 South/Bangerter Highway interchange project to avoid impacts to Reclamation facilities. This alternative would not meet the purpose of, or need for, the Proposed Action.

### Proposed Action

The Proposed Action will relocate the Jordan Aqueduct to the east of the 4700 South interchange for a length of approximately 3,000 feet (approximate limits of the Utah and Salt Lake Canal [4900 South] and South Jordan Canal [4440 South]). In addition, internal protect-in-place measures will be included along the aqueduct for an additional 1,500 feet downstream and an additional 1,070 feet upstream of the relocated segment. Protect-in-place measures will include installing internal joint seals and/or internal welding of existing aqueduct joints at critical points along the new interchange that will be subject to potential settlement and vibrations during construction. Internal joint protection seals are being installed under a separate project prior to relocating the Jordan Aqueduct.

In addition to the relocated segment of the Jordan Aqueduct and associated internal protections, this project will require several vault and structure relocations and modifications to accommodate the new interchange. Work will include raising the existing Utah and Salt Lake Canal blowoff and manway vault to the new finished grade, demolishing the JWCD Benview Palmer Turnout and Meter Vault and an air valve vault, and relocating these into a new Benview Palmer Vault. The JWCD Benview Palmer manway vault and blowoff structure will be relocated behind the new UDOT right-of-way along the west side of the roadway. Work will also include demolishing the 4400 South Turnout Vault and the 4400 South Meter and Flow Control Vault and relocating these facilities into one new vault outside the UDOT right-of-way near 4400 South.

The JWCD cathodic protection rectifier well (at approximately 4845 South) will be abandoned. It will be redesigned and relocated, along with relocating all test stations along the impacted reach of the aqueduct relocation.

The Proposed Action also includes easement encroachment agreement work for the Reclamation easements affected by UDOT's 4700 South/Bangerter Highway interchange project. Agreement work on proposed encroachments could include new or relocated utility crossings, roadway crossings, driveways, parking lots, curbs, gutters, sidewalk crossings, trails, or other items that would cross the Reclamation fee title lands or easements.

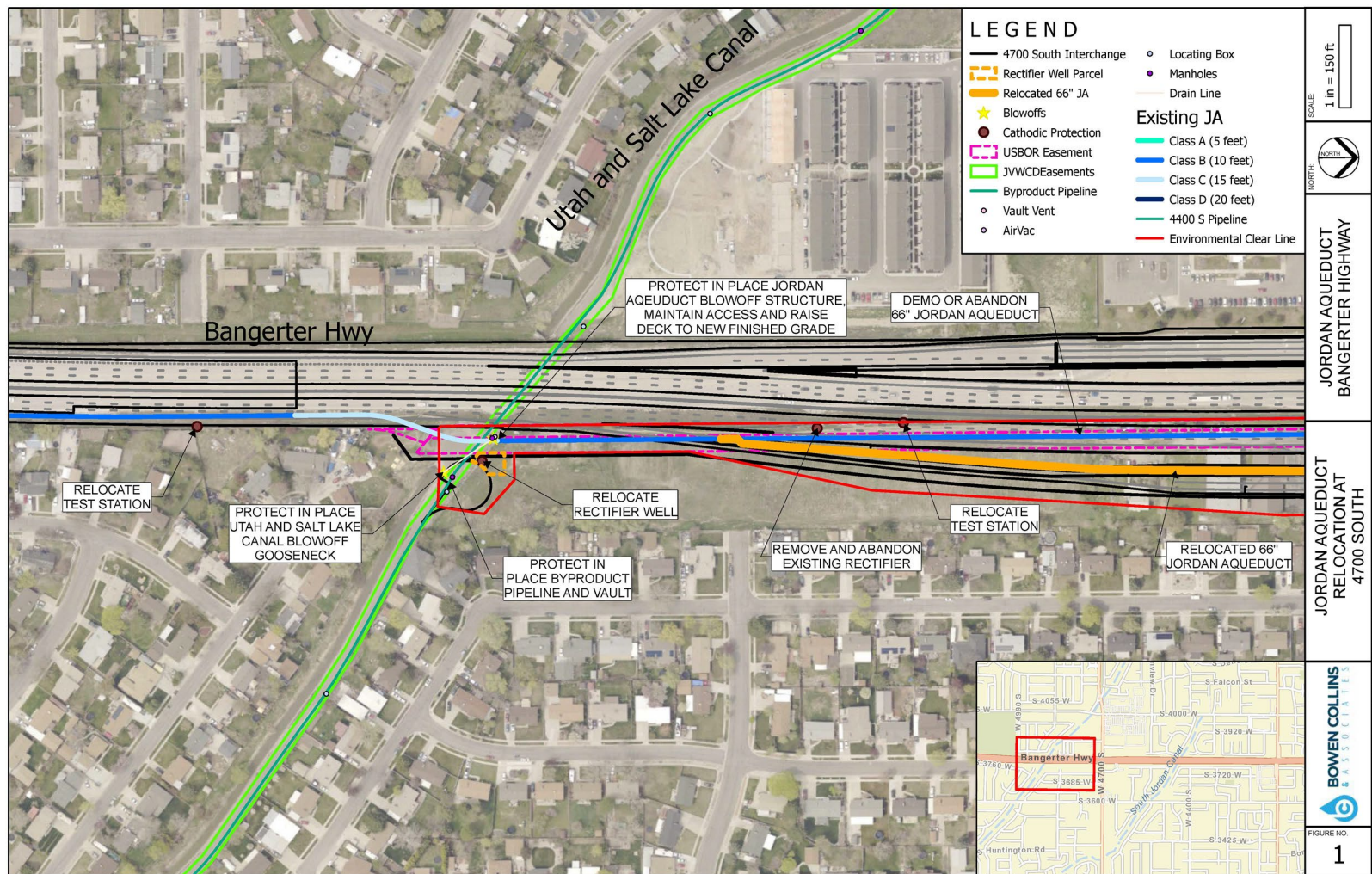
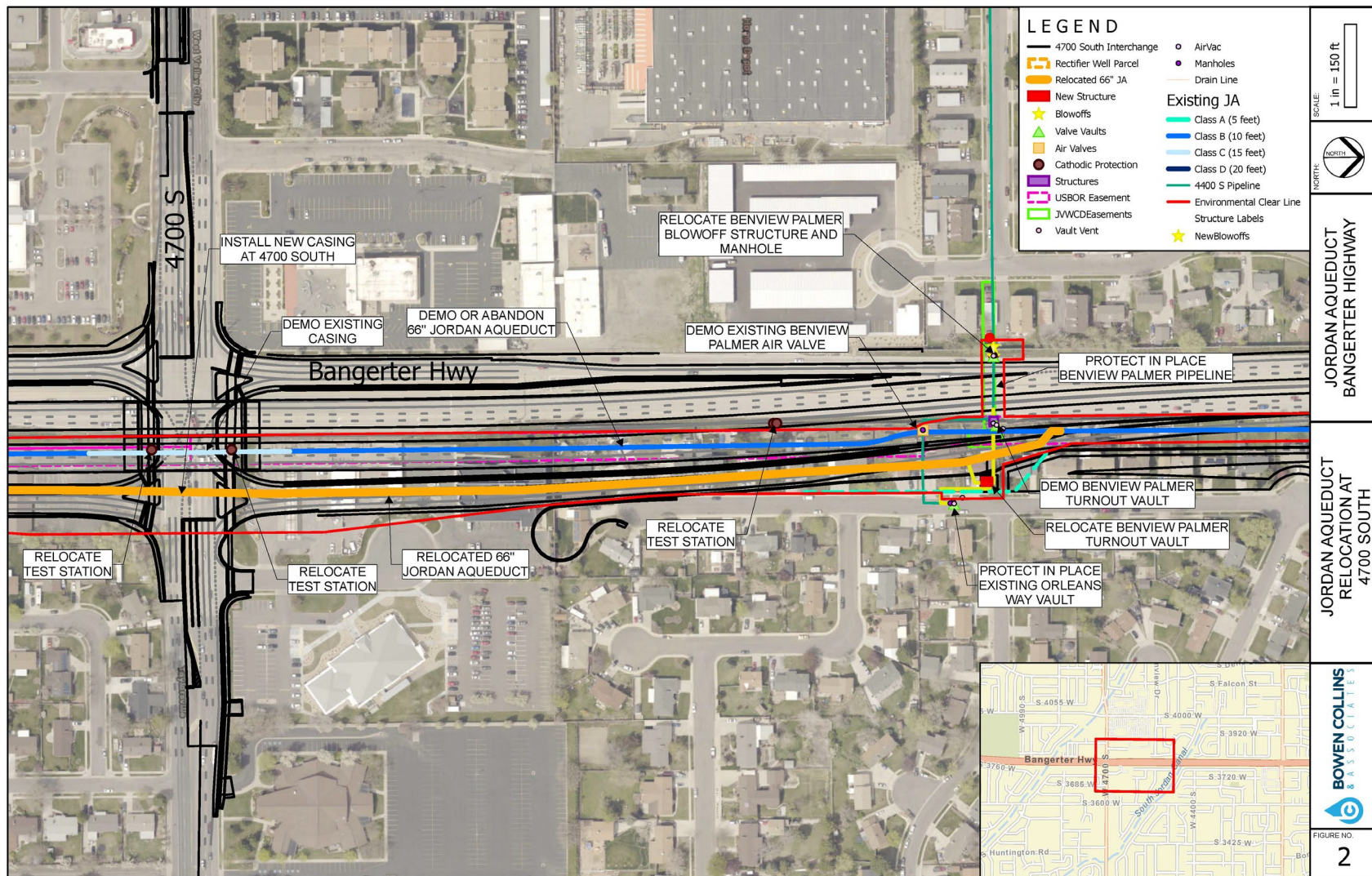


Figure 1 Southern portion of Jordan Aqueduct features at 4700 South







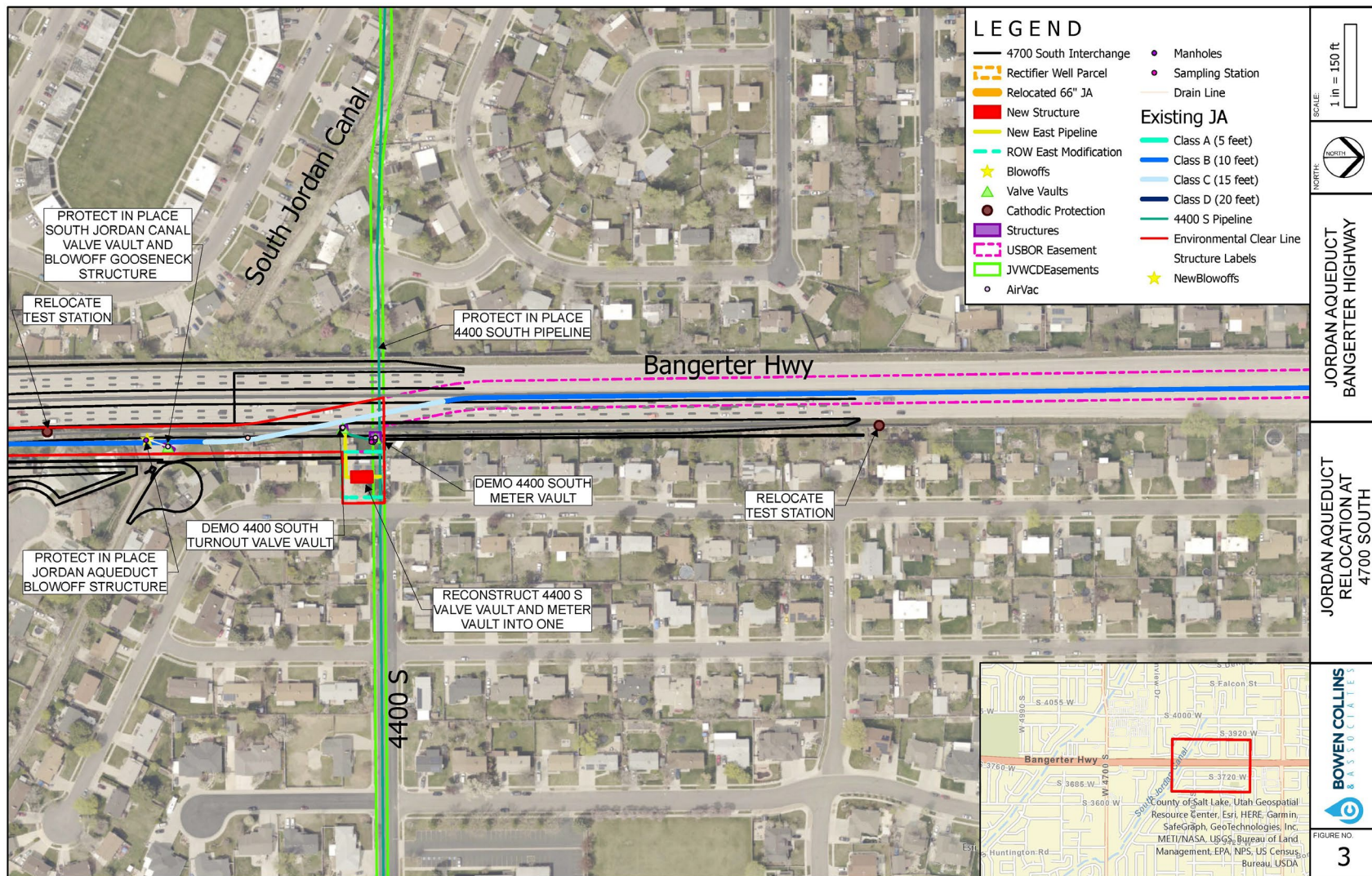


Figure 3 Northern portion of Jordan Aqueduct features at 4700 South

### 3 Summary of Impacts

The PEA eliminated 10 resources from full consideration: hydrology, floodplains, geology and soils, paleontological resources, threatened or endangered species, wildlife resources, riparian areas, wilderness and wild and scenic rivers, prime and unique farmlands, and water rights. The PEA identified the following 12 resources that could be impacted by the UDOT Bangerter Interchange projects. The impacts to each of these 12 resources were evaluated as part of UDOT's SES for the 4700 South/Bangerter Highway interchange project and are summarized in Table 1 below. This FONSI adopts those analyses in full, with the corresponding effects.

Table 1 Summary of Impacts

Resource	Impacts from the Proposed Action Alternative
System Operations	There will be no permanent impacts to the Jordan Aqueduct operations with proposed relocation and protect-in-place measures. The relocated Jordan Aqueduct and protect-in-place measures will be constructed prior to any impacts to the existing Jordan Aqueduct to ensure no impact to operations.
Waters of the United States	UDOT's SES determined that there will be an impact to the South Jordan Canal. The existing box culvert for the South Jordan Canal under Bangerter Highway will need to be extended east to accommodate the wider roadway footprint. UDOT will obtain a Clean Water Act Nationwide Permit 14 for Linear Transportation Projects for this culvert extension.
Water Quality	The Proposed Action could potentially have impacts to water quality during construction of the relocated Jordan Aqueduct. UDOT and/or JWCD will obtain a Utah Pollutant Discharge Elimination System (UPDES) Storm Water Discharge Permit for Construction Activities related to the relocation of the Jordan Aqueduct and from the Utah Division of Water Quality for the 4700 South/Bangerter Highway interchange project.
Existing Vegetation and Noxious Weeds	The Proposed Action will have temporary impacts to existing vegetation in areas where excavation, grading, or staging will occur. The temporary impacts could include removing some existing vegetation before construction. Impacted areas will be treated to control weeds and will be revegetated after construction.
Cultural Resources	No impacts to cultural resources are needed for the Jordan Aqueduct relocation or the installation of the protect-in-place measures for the Jordan Aqueduct with the Proposed Action. The Jordan Aqueduct relocation will

Resource	Impacts from the Proposed Action Alternative
Cultural Resources (cont.)	<p>occur on parcels acquired by UDOT for the 4700 South/Bangerter Highway interchange project. UDOT's SES determined that the 4700 South/Bangerter Highway interchange project will have an Adverse Effect to 7 eligible/contributing architectural properties and No Adverse Effect to 1 archaeological site (Site 42SL291, the South Jordan Canal) and 10 eligible/contributing architectural properties. UDOT received concurrence for the Utah State Historic Preservation Officer (SHPO) on January 3, 2022, with the determinations of eligibility and findings of effect for the project. UDOT and the Utah SHPO signed a Memorandum of Agreement for the mitigation of adverse effects of the 7 eligible/contributing historic properties January 14, 2022.</p>
Indian Trust Assets	<p>There are no known Indian Trust Assets at the location of the planned 4700 South/Bangerter Highway interchange. UDOT conducted Native American consultation as part of the SES. None of the tribes responded to the notification, and no Indian Trust Assets have been identified.</p>
Socioeconomics and Private Properties	<p>No impacts to socioeconomics or private property are needed for the Jordan Aqueduct relocation or the installation of the protect-in-place measures for the Jordan Aqueduct with the Proposed Action. The Jordan Aqueduct relocation will occur on parcels acquired by UDOT for the 4700 South/Bangerter Highway interchange project. The parcels will need to be acquired for both the interchange improvements and the Jordan Aqueduct relocation. UDOT will acquire up to 17.42 acres of property from 91 parcels as part of the 4700 South/Bangerter Highway interchange project. This will include 54 partial property acquisitions, one potential full acquisition, and 36 full property acquisitions. The full acquisitions include the Bible Baptist Church. UDOT will provide compensation to impacted property owners, businesses, and tenants pursuant to the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 and the Utah Relocation Assistance Act (Utah Code Annotated Section 57-12-1 et seq.).</p>
Environmental Justice	<p>Residential areas around the 4700 South interchange have higher percentages of low-income and/or minority populations compared to the county averages. No impacts to private property are needed for the Jordan Aqueduct relocation or the installation of the protect-in-place measures for the Jordan Aqueduct with the Proposed Action. The Jordan Aqueduct relocation will</p>



Resource	Impacts from the Proposed Action Alternative
Environmental Justice (cont.)	<p>occur on parcels acquired by UDOT for the 4700 South/Bangerter Highway interchange project. All property impacts caused by the Proposed Action will occur because the properties are close to Bangerter Highway and the Jordan Aqueduct. No property impacts will be caused on the basis of income, race, or ethnicity. At the 4700 South/Bangerter Highway interchange area, the demographic data is the same on both sides of Bangerter Highway. There are no alternatives that will avoid all impacts from constructing the interchanges or relocating the Jordan Aqueduct to properties that are potentially owned by low-income and/or minority individuals. Similarly, because the demographic data is the same on both sides of Bangerter Highway near 4700 South, there are no locations where impacts to potential low-income or minority properties could be avoided by impacting high-income or non-minority properties. Any impacts to properties owned or leased by low-income or minority residents will be mitigated by UDOT providing compensation to impacted property owners pursuant to the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 and the Utah Relocation Assistance Act (Utah Code Annotated Section 57-12-1 et seq.). The mitigation for property impacts is proportionate and the same regardless of income, race, or ethnicity status. No disproportionate effects on low-income or minority populations are anticipated.</p>
Recreation Resources	<p>UDOT's SES determined that there are no recreation resources at this location.</p>
Health, Safety, Air Quality, and Noise	<p>The Proposed Action could have short-term effects on noise and air quality during construction. Heavy equipment and truck traffic could temporarily increase noise levels at 4700 South while the new Jordan Aqueduct pipeline is being installed. Air quality could temporarily be reduced during relocation and installation of the new Jordan Aqueduct pipeline. Fugitive dust could increase during pipeline relocation and installation at 4700 South; however, dust-suppressing measures will be used to help reduce any short-term impacts. The UDOT 4700 South/Bangerter Highway interchange project will impact one site that previously had an underground storage tank that was removed in 2006. If UDOT builds the Bangerter Highway Under Option, there is potential for excavation to approach the 4700 South and</p>

Resource	Impacts from the Proposed Action Alternative
Health, Safety, Air Quality, and Noise (cont.)	Bangerter Plume (a contaminated groundwater plume). If this option is selected, a Phase I and Phase II investigation might be needed to further assess conditions for potentially impacted areas and necessary mitigation measures. The UDOT 4700 South/Bangerter Highway interchange project will have short-term noise and air quality impacts during construction. The UDOT 4700 South/Bangerter Highway interchange project will increase noise levels at adjacent receptors. UDOT is recommending four new noise walls (subject to balloting approval) and will replace-in-kind one existing noise wall to mitigate for noise impacts from the UDOT 4700 South/Bangerter Highway interchange project.
Access and Transportation	There could be temporary impacts to access and transportation from the Proposed Action due to road closures and travel delays on 4700 South and local roads to install the new Jordan Aqueduct. Delays and temporary closures on 4700 South are anticipated from the UDOT 4700 South/Bangerter Highway interchange project.
Visual Resources	There could be short-term visual impacts during construction in areas where the Jordan Aqueduct is relocated if the new pipeline is installed using an open-trench technique. The UDOT 4700 South/Bangerter Highway interchange project will result in visual changes in the area by constructing a new grade-separated interchange.

## 4 Minimization Measures Incorporated into the Proposed Action

The minimization measures, along with other measures listed under each resource in Chapter 4 of the PEA and Chapter 7 of this abbreviated EA, have been incorporated into the Proposed Action to lessen the potential adverse effects. Environmental commitments that are integral to the Proposed Action are as follows:

- **Project Agreement Conditions** – The Proposed Action will meet all conditions and follow all procedures specified in the Project Agreement.
  - A Project Agreement and Relocation Agreement among Reclamation, JVWCD, and UDOT related to work on the Jordan Aqueduct pipeline, easement, and associated facilities will be completed prior to any work on the Jordan Aqueduct.
  - UDOT and its contractor will follow all conditions specified by Reclamation and JVWCD in the Project Agreement and Relocation Agreement.
  - The installation of the Jordan Aqueduct protection features and aqueduct relocation work near 4700 South will be complete before the interchange project's construction work exceeds the vibration, settlement, and construction loading allowed in the Jordan Aqueduct easement.
  - All protect-in-place measures will be completed in a winter shut-down period (approved by Reclamation and JVWCD), and temporary construction easements will be obtained before beginning any roadway construction in any property within the Jordan Aqueduct easement.
  - The relocation of vault surface features and cathodic protection above-ground items can occur concurrent with or after the completion of the roadway construction.
  - The demolition of the Benview Palmer Vault and the 4400 South Vault shall only occur within shutdown timeframes designated by JVWCD. Water shutdowns and connections shall only be made within timeframes designated by JVWCD.
  - UDOT and its contractor will conduct vibration monitoring on the Jordan Aqueduct in the construction areas to ensure that the vibration requirements in the protection criteria are not exceeded.
  - UDOT will complete a Phase 1 Environmental Site Assessment for all properties that will become new Reclamation easements as well as existing easements. The Phase 1 Environmental Site Assessment and Phase 1 report will be submitted to Reclamation for review and approval.

## **5 Finding of No Significant Impact**

Based on a review of the UDOT SES and its supporting documents, Reclamation has determined that implementing the Proposed Action will not significantly affect the quality of the human or natural environment, individually or cumulatively with other actions in the area. Additionally, Reclamation has determined that the scope and degree of the effects are within the range of effects described in the PEA, and that no environmental effects meet the definition of significance in context or intensity as defined in 40 CFR Section 1508.27. Consequently, an Environmental Impact Statement is not required for the Proposed Action.

## **6 Decision**

It is Reclamation's decision, therefore, to authorize UDOT to implement the Proposed Action as described in this FONSI and the supplementary information attached to this FONSI.

## 7 Environmental Commitments

This section of the EA presents the environmental commitments applicable to implementing either the Proposed Action or the No Action Alternative. The environmental commitments are designed to minimize or avoid adverse effects of the Proposed Action on a resource area, and to implement environmental plans and best management practices (BMPs). Reclamation is committed to ensuring that the following environmental commitments are integrated into the Proposed Action.

### 7.1 System Operations

Impacts to system operations are considered significant if operations of the Jordan Aqueduct could not be maintained in an equal or higher manner compared to existing operations. To ensure that the Proposed Action produces less-than-significant system operation impacts, Reclamation shall ensure that:

- Either protect-in-place measures are provided for the Jordan Aqueduct, or the Jordan Aqueduct is relocated prior to constructing the Bangerter Highway interchanges.
- The Jordan Aqueduct is protected or relocated, and operational, before UDOT's Bangerter Highway interchange projects could have any impacts to the existing Jordan Aqueduct.
- The relocated Jordan Aqueduct will carry the same hydraulic capacity and will continue to deliver water to all existing laterals and turnouts. The relocated Jordan Aqueduct will be designed to carry a similar or higher capacity of water as the existing aqueduct. All turnouts from the Jordan Aqueduct will be relocated and will continue to function.
- Protective measures are installed or other impacted Reclamation facilities (for example, gates, valves, and turnouts) are relocated before the Bangerter Highway interchanges are constructed.
- Reclamation, UDOT, and JWCD will complete Project Agreements to document the proposed protect-in-place and/or relocation of the Jordan Aqueduct pipeline and easement, the crossings of the other Reclamation facilities, and all applicable mitigation measures that must be followed as part of UDOT's proposed project. UDOT and JWCD and their contractors will follow all of the mitigation measures described in the final Project Agreement.

### 7.2 Waters of the United States

Impacts to waters of the United States are considered significant if an action substantially alters the existing drainage pattern or affects normal river operations or the availability of water. Reclamation shall ensure that:

- If a Clean Water Act Section 404 permit(s) is (are) necessary, UDOT obtains the Section 404 permit, and the contractor follows all general and special permit conditions included in the Section 404 permit. Impacts to wetlands and waters will not occur outside areas included in the Section 404 permit.

## 7.3 Water Quality

Impacts to water quality are considered significant if an action would violate any water quality or waste discharge standards. Reclamation shall ensure that:

- UDOT and JWCD obtain a UPDES permit from the State of Utah before any discharges of water occur, if such water is to be discharged as a point source into a regulated water body. UDOT and JWCD will take appropriate measures to ensure that construction-related sediments will not enter any streams or other water bodies during or after construction. UDOT and JWCD will construct settlement ponds and intercepting ditches for capturing sediments, and UDOT and JWCD will haul the sediment and other contents collected off the site for appropriate disposal after the Proposed Action is completed.
- A Storm Water Pollution Prevention Plan (SWPPP) is completed by UDOT during design and advertisement and is provided to the project-awarded contractor.

## 7.4 Existing Vegetation and Noxious Weeds

Impacts to existing vegetation and noxious weeds are considered significant if the spread of noxious weeds could not be controlled. To ensure that the Proposed Action produces less-than-significant impacts to existing vegetation and noxious weeds, Reclamation shall ensure that:

- Impacted areas are treated to control weeds and are revegetated after construction.
- The contractor complies with the requirements in UDOT Special Provision Section 02924S, *Noxious Weed Control*, before construction by cleaning all earthmoving construction equipment before mobilizing onto the project site and avoiding unnecessary earth disturbance.

## 7.5 Cultural Resources

Impacts to cultural resources are considered significant if a resource is physically damaged, altered, or isolated from the context in which it is considered significant. To avoid potential impacts to cultural resources, Reclamation shall ensure that:

- If any cultural resources, either on the surface or in the subsurface, are discovered during construction, UDOT and JWCD will notify Reclamation's Provo Area Office archaeologist, and construction in the area of the inadvertent discovery will stop until a professional archaeologist can assess the resource and make recommendations for further work. Reporting the discovery of cultural resources is also required by UDOT Standard Specification 01355, *Environmental Compliance*.
- If a person knows or has reason to know that she or he has inadvertently discovered possible human remains on federal land, she or he must immediately notify Reclamation's Provo Area Office archaeologist by telephone about the discovery. Work will stop until the proper authorities are able to assess the situation on site. This action will promptly be followed by written confirmation from UDOT and JWCD to the responsible federal agency official with respect to federal land. UDOT and JWCD will promptly notify the Utah SHPO and interested Native American tribal representatives. Consultation will begin

immediately. This requirement is prescribed under the Native American Graves Protection and Repatriation Act (43 CFR Part 10) and the Archaeological Resources Protection Act of 1979 (16 USC Section 470). Reporting the discovery of cultural resources is also required by UDOT Standard Specification 01355, *Environmental Compliance*.

## **7.6 Paleontological Resources**

There are no paleontological localities recorded in the Utah Geological Survey files for this project area. To avoid potential impacts to paleontological resources, Reclamation shall ensure that:

- If vertebrate fossils are encountered by UDOT or its contractor during ground-disturbing actions, construction will be suspended until UDOT and JWCD can contact the Reclamation Provo Area Office archaeologist and a qualified paleontologist can assess the find. Reporting the discovery of paleontological resources is also required by UDOT Standard Specification 01355, *Environmental Compliance*.

## **7.7 Indian Trust Assets**

Reclamation anticipates that the Proposed Action Alternative will have no foreseeable negative impacts on ITAs. Impacts to ITAs are considered significant if an ITA is physically damaged, altered, or isolated from the context in which it is considered significant. To avoid potential impacts to ITAs, Reclamation shall ensure that:

- UDOT will consult with tribal representatives as part of the UDOT SES process for each interchange to identify any potential ITAs. If any ITAs, either on the surface or in the subsurface, are discovered during construction, UDOT and JWCD will notify Reclamation's Provo Area Office archaeologist, and construction in the area of the inadvertent discovery will stop until a professional archaeologist can assess the resource and make recommendations for further work. Reporting the discovery of cultural resources is also required by UDOT Standard Specification 01355, *Environmental Compliance*.

## **7.8 Socioeconomics and Private Properties**

Impacts to socioeconomics and private properties are considered significant if there will be substantial changes in employment or population growth or if just compensation could not be provided to impacted private property owners. To ensure that the Proposed Action produces less-than-significant system operation impacts, Reclamation shall ensure that:

- For any impacted property, UDOT provides compensation to the impacted property owners pursuant to the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 and the Utah Relocation Assistance Act (Utah Code Annotated Section 57-12-1 et seq.).



## 7.9 Environmental Justice

The Proposed Action will not result in adverse environmental justice impacts by disproportionately affecting the human health or environment of minority and/or low-income populations.

- Any impacts to properties owned or leased by low-income or minority residents will be mitigated by UDOT providing compensation to impacted property owners pursuant to the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 and the Utah Relocation Assistance Act (Utah Code Annotated Section 57-12-1 et seq.). The mitigation for property impacts is the same regardless of income, race, or ethnicity status.

## 7.10 Recreation Resources

Impacts to recreation resources are considered significant if recreational use of the resource with the Proposed Action could not be maintained in an equal or higher manner compared to existing operations. To ensure that the Proposed Action produces less-than-significant recreation resource impacts, Reclamation shall ensure that:

- UDOT works with the Cities or agencies with jurisdiction for the recreation resources to identify mitigation measures that maintain or enhance the recreation amenities of the affected recreation resources.

## 7.11 Health, Safety, Air Quality, and Noise

Impacts to health, safety, air quality, and noise are considered significant if health, safety, air quality, or noise standards are violated. To ensure that the Proposed Action produces less-than-significant health, safety, air quality, and noise impacts, Reclamation shall ensure that:

- If hazardous material sites are affected by the Proposed Action, UDOT works with the Utah Division of Environmental Response and Remediation and the property owners to identify mitigation or remediation measures. If hazardous materials are discovered during construction, UDOT or the construction contractor will contact the Utah Division of Environmental Response and Remediation and follow UDOT's 2022 Standard Specification 01355 regarding the treatment and disposal of hazardous materials.
- The selected contractor prepares and follows a fugitive dust emission control plan in accordance with the Air Quality Permit from the Utah Division of Air Quality. The Utah Division of Air Quality regulates fugitive dust from construction sites and requires compliance with rules for sites disturbing greater than 0.25 acre. Utah Administrative Code Rule R307-205-5 requires that steps be taken by UDOT and JVWCD to minimize fugitive dust from construction activities. Sensitive receptors include those individuals working at the site or motorists who could be affected by changes in air quality due to emissions from construction activities.
- The contractor follows UDOT's 2017 Special Provision, Section 00555M, *Prosecution and Progress*. The contractor will be required to conform to these specifications to reduce the impact of construction noise on the surrounding community.

## **7.12 Access and Transportation**

Impacts to access and transportation are considered significant if transportation access could not be maintained for all traffic movements during construction. To ensure that the Proposed Action produces less-than-significant access and transportation impacts, Reclamation shall ensure that:

- UDOT clearly notifies the public of delays or detours during construction.
- UDOT coordinates with and obtains permits from the local municipalities for any lane closures needed on city-owned roads during construction.

## **7.13 Visual Resources**

Impacts to visual resources are considered significant if the Proposed Action has an adverse effect on a view, substantially damages scenic resources, or degrades the existing visual quality (or character) of the site and its surroundings. To ensure that impacts to visual resources are minimized, Reclamation shall ensure that:

- All disturbed areas are reclaimed per UDOT standard specifications.

## 8 Consultation and Coordination

Reclamation, in collaboration with UDOT, notified owners of property near the planned interchanges, as well as interested state and federal agencies, of the Draft Programmatic EA. Reclamation provided a 30-day comment period to the public and government agencies to review and provide comment on the Draft Programmatic EA. The 30-day comment period ended on February 28, 2022. No comments were received during the comment period.

UDOT initiated agency and public involvement activities for the current phase of the Bangerter Highway interchange projects in the summer of 2021. Public involvement activities for each of the Bangerter Highway interchange projects included public and agency scoping meetings, meetings with directly impacted property owners, meetings with Cities and other resource agencies, and formal public hearings for the Draft SESs.

For the UDOT 4700 South/Bangerter Highway interchange project, UDOT held an in-person public meeting on February 1, 2022; held an online public meeting on February 2, 2022; and provided a 30-day public comment period from January 17, 2022, to February 15, 2022. During the public comment period, UDOT received 11 comments. The comments generally were concerned with the following topics: property access during and after construction, concerns related to the planning process, construction right-of-way impacts, and the right-of-way acquisition process. None of the comments were related to the proposed relocation of the Jordan Aqueduct or the protect-in-place measures on the Jordan Aqueduct.

Reclamation reviewed and used the public and agency comments provided as part of the UDOT SES processes as part of this EA.

Native American consultation and Section 106 consultation was conducted by UDOT during the SES process for the UDOT 4700 South/Bangerter Highway interchange project. Reclamation has used the Native American consultation and Section 106 consultation provided as part of the UDOT SES processes as part of this EA.

## 9 List of Preparers

Jared Baxter	NEPA Specialist, Provo Area Office	U.S. Bureau of Reclamation
Maggie Erlick	Archaeologist, Provo Area Office	U.S. Bureau of Reclamation
Zachary Nelson	Archaeologist, UCB Regional Office	U.S. Bureau of Reclamation
Kevin Kilpatrick	Environmental Planner	HDR, Inc.
Sarah Rigard	Environmental Planner	HDR, Inc.
Cristina Nelson	Water Resources Engineer	Bowen Collins and Associates
Jason Luettinger	Water Resources Engineer	Bowen Collins and Associates
Lindsay Minck	Water Resources Engineer	Bowen Collins and Associates
Bill Pope	Water Resources Engineer	HDR, Inc.
Haylie Ferguson	Cultural Resources Specialist	Horrocks Engineers
Amy Croft	Ecologist/Biologist	HDR, Inc.
Terry Warner	Water Quality Specialist	HDR, Inc.
Andrea Clayton	Environmental Planner	HDR, Inc.
Carrie Ulrich	Technical Editor	HDR, Inc.
Justin Beddoes	Transportation Engineer	Horrocks Engineers
Marwan Farah	Project Manager	UDOT
Tyler Allen	Environmental Manager	UDOT
Naomi Kisen	Environmental Program Manager	UDOT

# 10 References

## U.S. Census Bureau

- 2021a QuickFacts for Salt Lake County and Utah.  
<https://www.census.gov/quickfacts/fact/table/saltlakecountyutah,UT/POP010220>.
- 2021b 2020 Decennial Census Data for Salt Lake County Block Groups.  
<https://data.census.gov/cedsci/all?q=&y=2020&d=DEC%20Redistricting%20Data%20%28PL%2094-171%29>.
- 2020 2019 American Community Survey Single-Year Estimates. Poverty Status in the Past 12 Months. <https://data.census.gov/cedsci/table?q=2019%20pverty&tid=ACST1Y2019.S1701>.

## [UDOT] Utah Department of Transportation

- 2016a Final State Environmental Study for Bangerter Highway at 5400 South. June 7.
- 2016b Final State Environmental Study for Bangerter Highway at 7000 South. May 4.
- 2016c Final State Environmental Study for Bangerter Highway at 9000 South. June 1.
- 2018 Final State Environmental Study for Bangerter Highway at 6200 South. S-0154(84)14. April 17.
- 2022 Final State Environmental Study for Bangerter Highway at 4700 South. March 16.

## [UDWS] Utah Department of Workforce Services

- 2021a Salt Lake County Economic Snapshot. July 8.
- 2021b Salt Lake County Quick Facts. July 13.

## [USACE] United States Army Corps of Engineers

- 1987 Corps of Engineers Wetland Delineation Manual. January.
- 2008a Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (Version 2.0). September.
- 2008b A Field Guide to the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States. August.
- 2010 Updated Datasheet for the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States. July.

## [USBR] United States Bureau of Reclamation

- 2016 Jordan Aqueduct Easement and Pipeline Relocation and Encroachments Final Environmental Assessment. PRO-EA-16-021. July.
- 2018 Jordan Aqueduct Easement and Pipeline Relocation Final Environmental Assessment. PRO-EA-18-011. June.
- 2022 Jordan Aqueduct on Bangerter Highway between 2700 West (Riverton) and State Route (S.R.) 201 (2100 South) Final Programmatic Environmental Assessment. PRO-EA-21-004. March.

# **11 Appendix**

## **11.1 Jordan Aqueduct Protection Criteria**

## EXHIBIT "A"

### ENCROACHMENT GUIDELINES FOR JORDAN AQUEDUCT, REACH 1, 2, 3 & 4

#### PROTECTION CRITERIA

A. Surface structures that generally will be allowed to be constructed within United States rights-of-way include asphalt roadways, with no utilities within roadway, non reinforced parking lots, curbs, gutters and sidewalks, walkways, driveways. However, where United States system pipe has specific maximum and minimum cover designation the special requirements for roadways, parking lots and driveways crossing over the pipe shall be obtained from the United States for the maximum allowable external loading or minimum cover. **HOWEVER, IT IS UNDERSTOOD THAT ALL SURFACE STRUCTURES SHALL BE ANALYZED AND CONSIDERED ON AN INDIVIDUAL BASIS.**

B. Structures that may not be constructed in, on, or along United States rights-of-way include but are not limited to, permanent structures such as retaining walls, block walls, buildings, garages, decks, carports, mobile homes with permanent foundations, swimming pools, block, cement, fences, or rock fences and walls as designated by the United States.

C. No trees or vines will be allowed within the rights-of-way of the United States.

D. All temporary or permanent changes in ground surfaces within United States rights-of-way are to be considered to be encroaching structures and must be handled as such. Earthfills and cuts on adjacent property shall not encroach onto United States rights-of-way without prior approval by the United States.

E. Existing gravity drainage of the United States rights-of-way must be maintained. No new concentration of surface or subsurface drainage may be directed onto or under the United States rights-of-way without adequate provision for removal of drainage water or adequate protection of the United States rights-of-way.

F. Prior to construction of any structure that encroaches within United States rights-of-way, an excavation must be made to determine the location of existing United States facilities. The excavation must be made by or in the presence of water users or the United States.

G. Any contractor or individual constructing improvements in, on, or along United States rights-of-way must limit his construction to the encroaching structure previously approved and construct the improvements strictly in accordance with plans or specifications.

H. The ground surfaces within United States rights-of-way must be restored to a condition equal to that which existed before the encroachment work began or as shown on the approved plans or specifications.

The owner of newly constructed facilities that encroach on United States rights-of-way shall notify the United States and/or the District upon completion of construction and shall provide the District with one copy and the United States with two copies of as-built drawings showing actual improvements in, on, or along the rights-of-way.

I. Except in case of ordinary maintenance and emergency repairs, an owner of encroaching facilities shall give the District at least 10 days notice in writing before entering upon United States rights-of-way for the purpose of reconstructing, repairing, or removing the encroaching structure or performing any work on or in connection with the operation of the encroaching structure.

J. If unusual conditions are proposed for the encroaching structure or unusual field conditions within United States rights-of-way are encountered, the United States reserves the right to impose more stringent criteria than those prescribed herein.



K. All backfill material within United States rights-of-way shall be compacted to 90 percent of maximum density unless otherwise shown. Mechanical compaction shall not be allowed within 6 inches of the projects works whenever possible. In no case will mechanical compaction using heavy equipment be allowed over the project works or within 18 inches horizontally of the projects works.

L. That the backfilling of any excavation or around any structure within the United States rights-of-way shall be compacted in layers not exceeding 6 inches thick to the following requirements: (1) cohesive soils to 90 percent maximum density specified by ASTM Part 19, D-698, method A; (2) noncohesive soils to 70 percent relative density specified by ANSI/ASTM Part 19, d-2049, par. 7.1.2, wet method.

M. Any nonmetallic encroaching structure below ground level shall be accompanied with a metallic strip within the United States rights-of-way.

O. Owners of encroaching facilities shall notify the United States at (801) 379-1000 and/or the District at (801) 565-4300 at least forty-eight (48) hours in advance of commencing construction to permit inspection by the United States and/or the District.

P. No use of United States lands or rights-of-way shall be permitted that involve the storage of hazardous material.