U.S. Department of Transportation
Federal Highway Administration

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November 20, 2012

In Reply Refer To:
015-A(208)S
HOP-AZ

015-A(208)S
015 MO 015 H8574 01C
Virgin River Bridge #6 (STR #1619)
Request for Biological Opinion

Mr. Steve Spangle, Field Supervisor
U.S. Fish & Wildlife Service
Arizona Ecological Services Field Office
2321 West Royal Palm Road, Suite 102
Phoenix, Arizona 85021-4951

Attention: Brian Wooldridge

Dear Mr. Spangle:

The Federal Highway Administration (FHWA), as the lead federal agency, and the Arizona Department of Transportation (ADOT), as the project sponsoring agency, propose to rehabilitate Virgin River Bridge No. 6 at milepost (MP) 15.58 on Interstate 15 (I-15). The overall project limits, from milepost (MP) 15.49 to MP 16.04, are located approximately 6.7 miles east of the unincorporated communities of Beaver Dam and Littlefield in Mohave County, Arizona. Throughout the project area, ADOT holds an easement across lands administered by the Bureau of Land Management (BLM). While FHWA is the lead federal agency, ADOT is designated as the non-federal representative for this project for the purposes of formal consultation pursuant to Section 7 of the Endangered Species Act.

The enclosed Biological Evaluation (BE) describes the proposed project and considers the direct, indirect, and cumulative effects of the project on the current Mohave County list of federally protected species and BLM Sensitive Species for the project area. Fourteen species are evaluated in detail due to the potential presence of the species, suitable habitat, and/or Critical Habitat for these species within or near the project area. During coordination with U.S. Fish and Wildlife Service (USFWS) and BLM biologists, it was agreed that all fourteen special status species would be analyzed in a single document to streamline the biological analysis and consultation process.

The BE concludes that the proposed project may affect, and is likely to adversely affect, the Virgin River chub (*Gila seminuda*), woundfin (*Plagopterus argentissimus*), and Virgin spinedace (*Lepidomeda mollispinis mollispinis*). In addition, the proposed project may affect, and is likely to adversely affect, designated Critical Habitat for the Virgin River chub and

woundfin. While the proposed project will have no effect to the Southwestern willow flycatcher (*Empidonax traillii extimus*), the project may affect, but is not likely to adversely affect, designated Critical Habitat for the species. The BE also concludes that the project will have no effect to the California condor (*Gymnogyps californianus*), the Mojave Desert tortoise (*Gopherus agassizii*), or habitat for these two species.

With the submittal of this letter and BE, FHWA and ADOT are initiating formal consultation per 50 Code of Federal Regulations (CFR) §402.14 for the referenced bridge rehabilitation project. Under 50 CFR §402.14, formal consultation ends 90 days after initiation and, within 45 days after consultation concludes, USFWS shall deliver a biological opinion to FHWA and ADOT. As such, we request that a biological opinion be provided by April 5, 2013. If you have questions, please contact Rebecca Swiecki, FHWA Environmental Coordinator, at 602.382.8979 or Rebecca.Swiecki@dot.gov, or Kris Gade, ADOT Environmental Planning Group Biologist, at 602.712.7649 or kgade@azdot.gov. Thank you for your continued cooperation and interest in this project.

Sincerely,

Glen R Hansen

for Karla S. Petty
Division Administrator

Enclosure

Arizona Department of Transportation

Environmental Planning Group

Biological Evaluation

Virgin River Bridge #6 (STR #1619)

015-A(208)S
015 MO 015 H8574 01C

November 20, 2012
Submittal Number 4

Biological Evaluation

FOR

Virgin River Bridge #6 (STR #1619)

015-A(208)S
015 MO 015 H8574 01C

Prepared for:

Arizona Department of Transportation
Environmental Planning Group
1611 West Jackson Street, EM02
Phoenix, Arizona 85007

Prepared by:

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Phoenix, Arizona 85003

November 20, 2012

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1. PROJECT LOCATION

The Arizona Department of Transportation (ADOT), in association with the Federal Highway Administration (FHWA), is planning to rehabilitate Bridge No. 6 located on Interstate 15 (I-15) in the Virgin River Gorge at milepost (MP) 15.58. The project would begin at MP 15.49 and end at MP 16.04. Bridge No. 6 is approximately 6.7 miles east of the unincorporated communities of Beaver Dam and Littlefield in Mohave County, Arizona (Figure 1–State Map and Figure 2–Vicinity Map). Within the project limits, the land immediately adjacent to I-15 is under the jurisdiction of the Bureau of Land Management (BLM) and ADOT holds an easement from BLM that varies from 550 to 1,055 feet wide (Figure 3–Project Limits). The project is located on the Mountain Sheep Spring, AZ, United States Geological Survey 7.5' topographic quadrangle in Township 41 North, Range 14 West, Section 29.

Throughout this Biological Evaluation the term "project limits" is used to represent the construction footprint (area of disturbance), while the term "project area" also includes surrounding lands, outside but adjacent to the project limits. The term "project vicinity" is used to denote a more expansive landscape context.

2. PROJECT DESCRIPTION

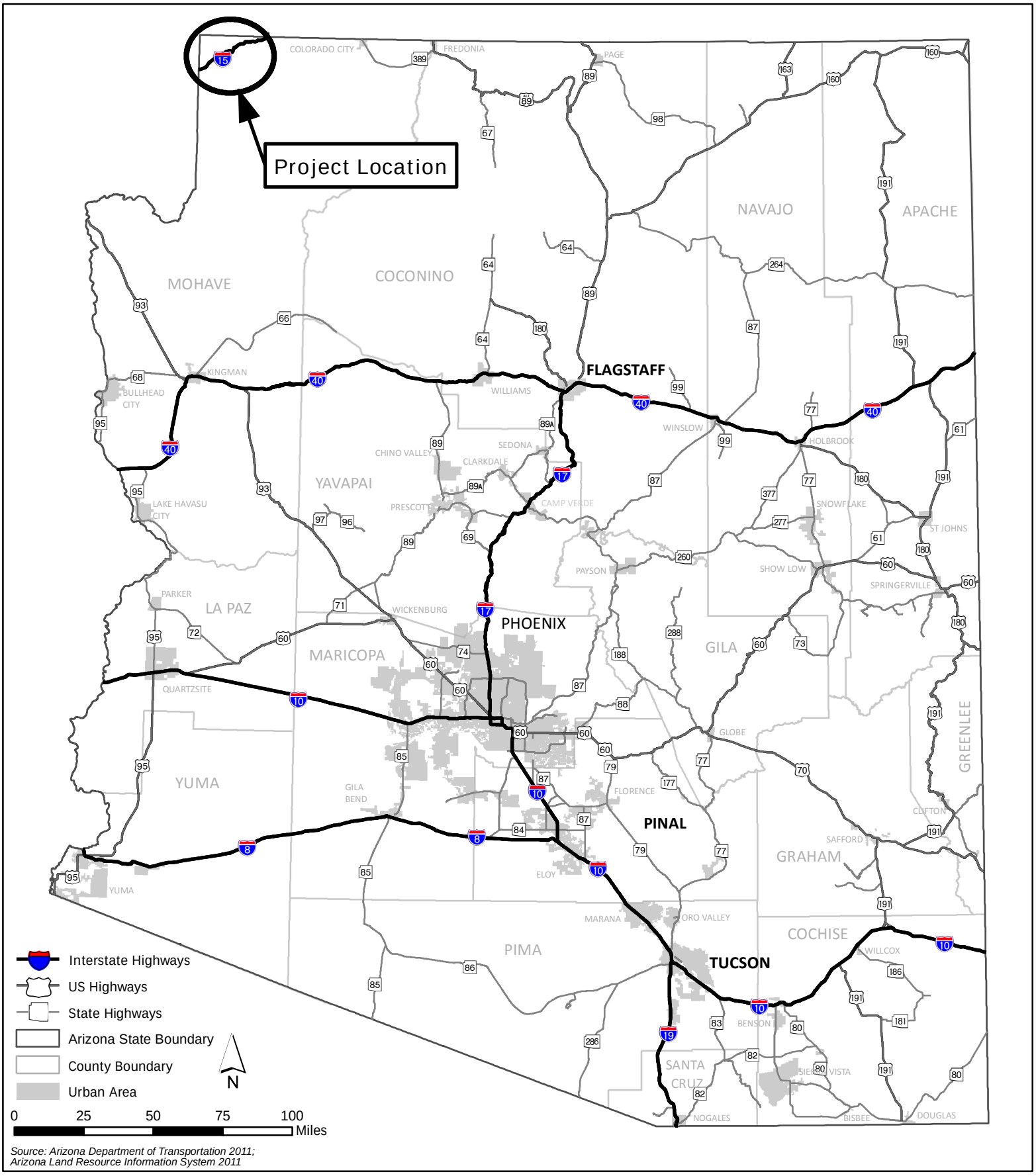
I-15 spans 29.4 miles across the northwest corner of Arizona and provides a vital link between the states of California, Nevada, Arizona, Utah, and beyond. The Arizona portion of I-15 includes seven bridges over the Virgin River, all constructed in the 1960s and 70s; Bridge No. 6 was constructed in 1973. Within the project limits, I-15 is a 4-lane, divided highway with two 12-foot-wide travel lanes and shoulders varying from 2 to 10 feet wide. This stretch of interstate carries a high percentage of truck traffic (as high as 38 percent) and is the only road in Arizona permitted to carry triple tractor trailers. As I-15 ages, truck traffic can increase the rate at which the roadway pavement and bridge infrastructure deteriorate. In addition, the shoulders within the project limits are as narrow as two feet wide, and do not allow room for trucks or other vehicles to pull off the road.

Pier 2 beneath Bridge No. 6 was constructed within the channel of the Virgin River. While the foundation of Pier 2 is anchored into the bedrock beneath the sediments deposited by the river, flows are eroding and scouring the sediment around the foundation. Therefore, the foundation of Pier 2 is directly exposed to increased erosion and scour.

In June 2012, ADOT received a federal Transportation Investment Generating Economic Recovery (TIGER) IV grant award to reconstruct Bridge No. 6 and its roadway approaches. The purpose of the project is to better accommodate truck traffic and truck volumes, and to strengthen the Pier 2 foundation against erosion and scouring. The following list provides a point-by-point summary of the construction activities involved in rehabilitating Bridge No. 6. Expanded descriptions of the proposed construction activities follow the list.

- Grading the existing access path and portions of the Virgin River floodplain
- Constructing a temporary bridge across the Virgin River low-flow channel, at least two temporary crane pads, and temporary cofferdams around Pier 2
- Reconstructing and strengthening all piers and foundations as necessary
- Widening the new bridge deck from 63 feet wide to approximately 90 feet wide
- Replacing the existing bridge girders and adding new girders to support the wider bridge deck
- Widening the roadway approaches to match the new 90-foot bridge width

Figure 1. State Map



Source: Arizona Department of Transportation 2011; Arizona Land Resource Information System 2011

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Figure 2. Project Vicinity

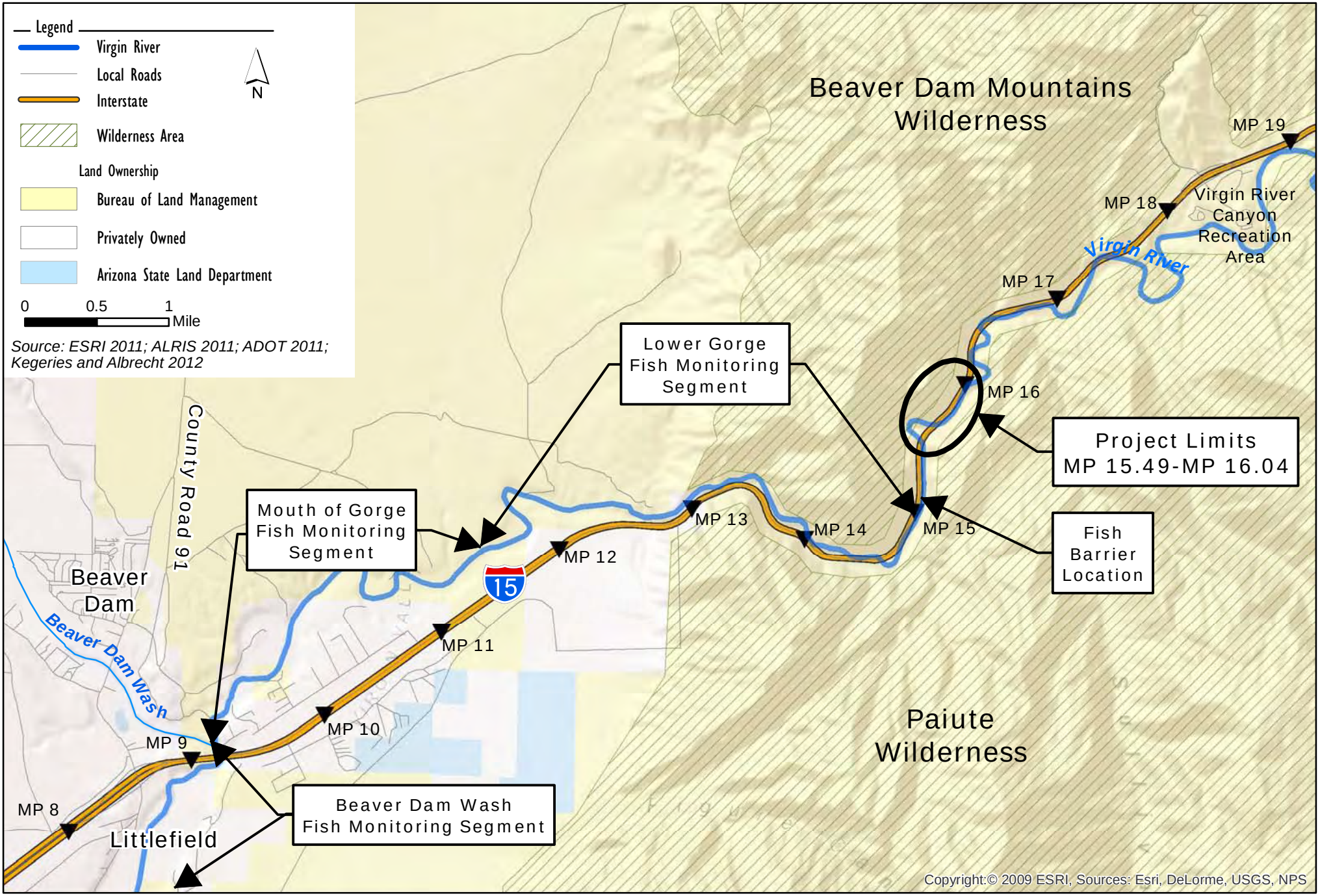
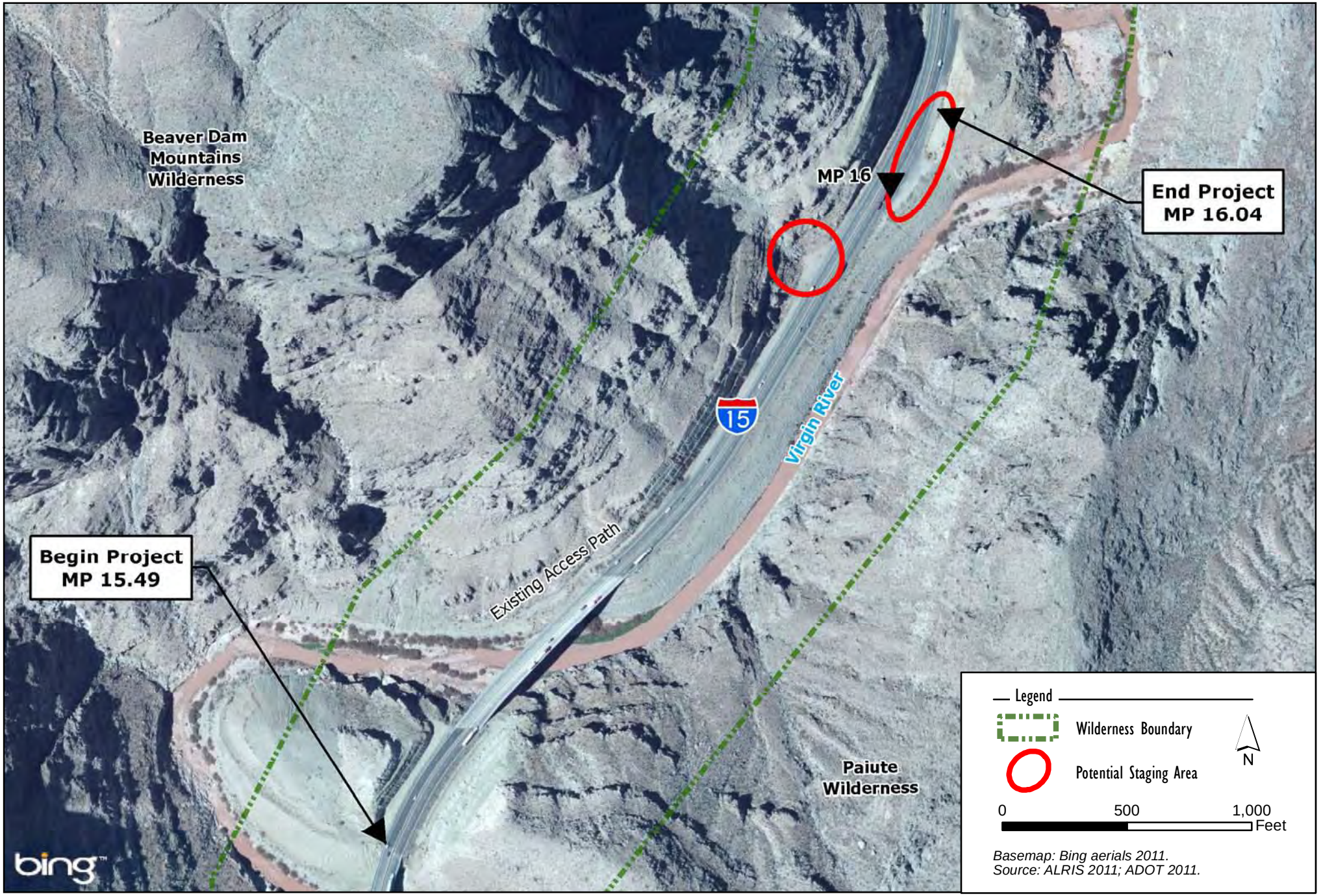


Figure 3. Project Limits



- Reconstructing the existing rockfall containment measures adjacent to the wider bridge approaches
- Signing and striping as necessary

Temporary Access and Equipment in the Floodplain. All equipment needed to operate in the floodplain, such as cranes, excavators, drill rigs, and manlifts, would use the existing access path at the northeast corner of the bridge (Figure 4–Bridge No. 6 Construction Limits). This path would be cleared and graded prior to work on the bridge, and it is likely that temporary fill would be placed to create a consistent width down into the bottom of the gorge. It is anticipated that equipment would operate and maneuver in all four quadrants beneath the bridge to access all the piers. Therefore, approximately 3.0 acres of the floodplain adjacent to the low-flow channel would be graded or otherwise disturbed during construction. Because equipment and vehicles may not drive through the Virgin River, all work south of the low-flow channel would occur after the temporary bridge is constructed. In conjunction with the access pathways, the contractor will install sediment-controlling best management practices (BMPs) such as silt fence and wattles to keep any foreign materials from entering the Virgin River.

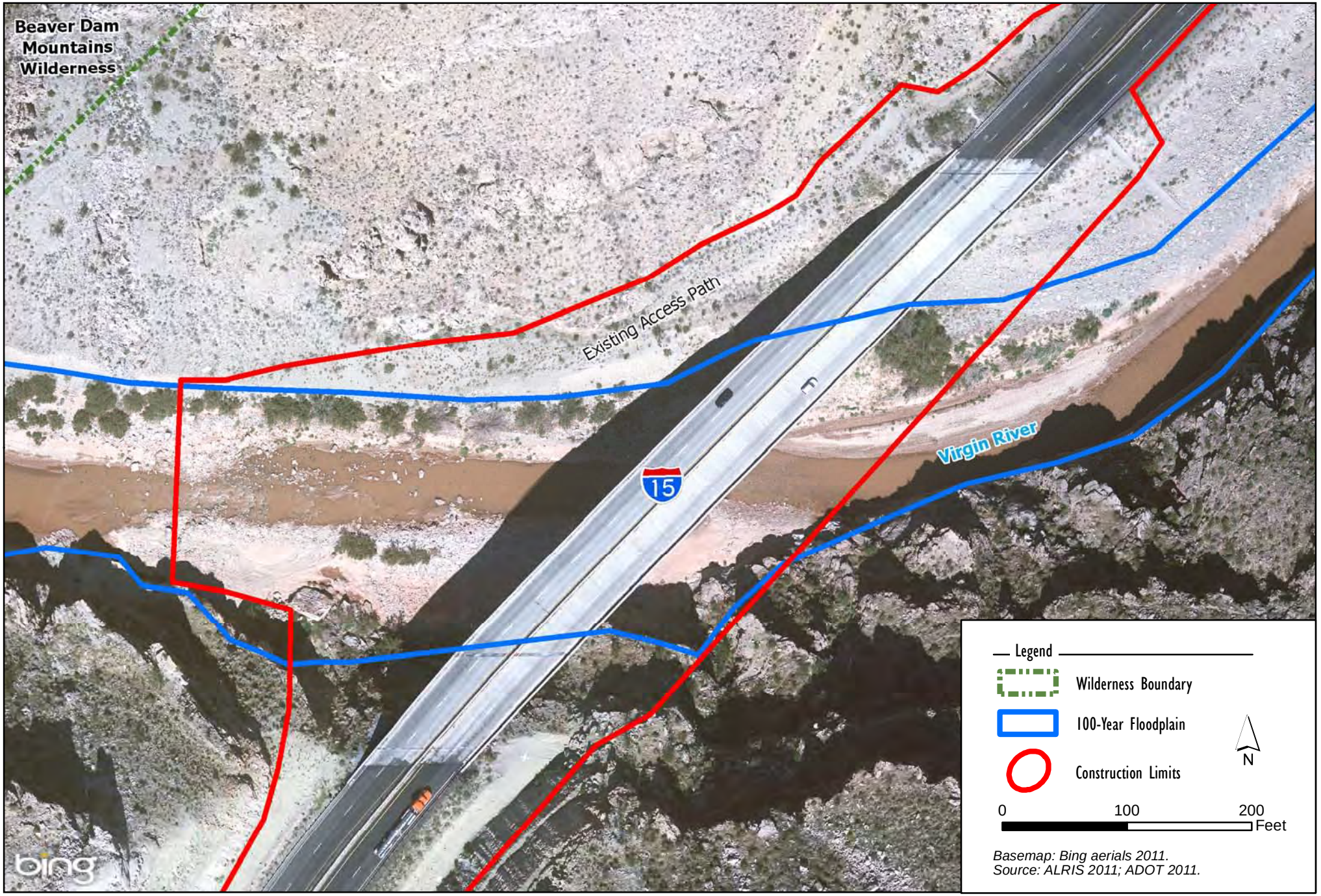
To protect the free-flowing nature of the Virgin River through the project area, no temporary culverts or other drainage structures may be installed in the low-flow channel. Therefore, a temporary bridge would be constructed in the floodplain such that it would sit above the river channel and maintain typical flows. Fill such as rip-rap would be placed beneath the north end of the bridge to match the elevation of the bottom of the access road. As part of the BMPs, this fill would be contained to prevent debris from entering the river during high flows. The bridge may be constructed at a skew, which could require a temporary pier or piling in the low-flow channel to support the center of the bridge.

Placing the new girders may require a crane. However, operating a traditional crane from on top of the bridge is not feasible due to the weight of the girders, so either a gantry crane will be constructed over the top of the bridge, or the cranes could operate in the floodplain below the bridge. With the latter option, at least two temporary crane pads would be constructed and they would be fortified to prevent debris from breaking off and entering the river during high flows. Crane pads would be constructed within dry areas of the jurisdictional limits and/or the 100-year floodplain of the Virgin River, but no crane pad construction would occur within the low-flow channel. All temporary construction and fills, including, but not limited to, crane pads, the temporary bridge, and cofferdams would be removed in their entirety and the affected areas returned to pre-construction elevations. If a pier or piling is required to support the temporary bridge, it would either be cut off flush with the river bed, leaving the bottom of the pier in the ground, or it would be removed entirely.

The mitigation measures presented in Section 7 include BMPs to protect water quality by controlling dust and spills, and preventing construction and other materials from entering the water. Examples of potential BMPs are: (1) constructing a temporary sediment basin or filter to restrict sediment from entering the water, (2) installing sediment fences between areas of disturbance and all flowing waters, and (3) regular inspection of sediment fences to maintain proper function. Temporary construction and equipment access within the 100-year floodplain is anticipated to last for the duration of the project, 24 months.

Piers and Cofferdams. Prior to reconstructing and widening the bridge deck, one new column would be constructed on either side of the existing columns (two new columns per pier) to support the added width and increase the load-bearing ability of the bridge. Piers 1 and 3 use spread

Figure 4. Bridge No. 6 Construction Limits



footings to stabilize the columns; these footings would be widened approximately 20 feet to the west and to the east to provide a foundation for the new columns. The footings would be widened using mechanical excavation equipment (likely track-excavators) and possibly finished with a backhoe-mounted hoe-ram. No blasting would occur on this, or any, phase of construction. If the foundation area requires additional anchoring, anchors would be drilled into the rock and tied to the foundations to secure the wider footings.

At Pier 2, a drilled shaft supports each column by extending beneath the river bed approximately 50-70 feet to bedrock and connecting to rock sockets drilled approximately 10 feet into the bedrock. Therefore, construction at Pier 2 would extend approximately 80 feet below the river bottom to drill a new shaft for each new column and drill extensions directly into solid rock to reinforce the foundation. As a scour countermeasure, the concrete curtain wall that connects the columns at ground-level would also be constructed between the new columns to stabilize the pier.

Depending on the water level, Pier 2 sits either in the Virgin River or immediately adjacent to (south of) the low-flow channel. Pier 2 construction would most likely require a cofferdam to be constructed around the foundation to maintain an adequately sized, dry work zone. The low-flow channel is typically located north of Pier 2 and the terrain rises up around the south side of the pier in a gravel bar. The cofferdam would be constructed as a 15-foot perimeter around the north side of the new drilled shaft columns and the existing pier and tie into the gravel bar on either side of the new pier width. The area inside the dam would be dewatered and the dam strengthened to prevent any debris from breaking off and flowing downstream. The river water would be screened as it is pumped out of the work area and then returned to the river channel. Because the dam would be pervious to some degree and groundwater could infiltrate the dry work area, dewatering would occur throughout the duration of the use of the cofferdam. Mitigation measures will be used to protect and/or remove native fish from the project limits during all in-stream activities.

The BMPs discussed in the Temporary Access description would also apply to pier and cofferdam construction. In addition, any native material(s) excavated from the floodplain would be contained so it cannot enter the river and flow downstream. Excess materials resulting from the construction of the new pier foundations or drilled shafts would be removed from the floodplain. Construction within the low-flow channel would require approximately 3 months. Cranes would be used for work on the bridge throughout the project, and thus would remain in the floodplain over the duration of the project.

Bridge Deck, Girders, and Barriers. After the new columns are constructed and the foundations are widened and strengthened, the work on the bridge deck and girders would start. To widen the bridge deck, the existing deck, girders, median barriers, and exterior barriers would be removed and replaced. Construction would occur in one section of the bridge at a time, such that the western, center, and eastern portions of the deck, girders, and barriers would be removed and replaced in separate phases. The center portion would be removed and replaced at the same width. Widening would occur when the western and eastern portions of the bridge are removed and replaced; additional girders would be installed west and east of the existing girders to support the wider deck (Appendix A-Preliminary Project Plans). Ultimately, the new bridge deck would be restriped to provide two 12-foot travel lanes in each direction, with wider inside and outside shoulders that meet current design criteria.

A containment system would be required to prevent dust, chemicals, oils, construction materials, and debris from falling into the floodplain and Virgin River below the bridge. The BMPs discussed in the Temporary Access description would also apply to construction on and around the bridge deck.

Roadway and Ancillary Construction. Following the deck reconstruction, the existing I-15 roadway approaches would be widened and restriped to match the new bridge width and lane configuration. The roadway would taper back to the existing cross-section at MP 15.49 south of the bridge and MP 16.04 north of the bridge. Widening the roadway approaches would reduce the width of the rockfall containment ditches that currently abut segments of the shoulders. New rockfall containment fencing or gabion barrier would be installed to minimize rockfall reaching the travel lanes, and the ditches would be widened where feasible to allow rockfall to be removed and the ditches maintained. This project would not include any blasting, scaling, or slope modifications.

A new retaining wall would be constructed to support the wider northbound lanes because the embankment east of I-15 slopes steeply down toward the river. Constructing the wall with geosynthetic reinforced soil would minimize the footprint because major footings would not be required. Preliminary design data estimate the size of the wall would be less than 10 feet tall and approximately 50 feet long. Finally, signing and striping would be removed, replaced, or installed as necessary.

Two locations are available for use as potential staging areas: one is located 1,200 feet north of Bridge No. 6 and west of I-15 and a second is located 1,500 feet north of Bridge No. 6 and east of I-15 (Figure 3). When traffic is shifted to one side of the bridge during construction, the closed portion of the roadway on the other side would also be used as a staging area. The staging areas would be considered part of the regulated work area, and therefore subject to BMPs to control dust and spills, including a temporary containment system that includes a berm or excavated ditches to impound potential leaks or spills.

Project construction, including potential staging areas, would exceed 1.0 acre of ground disturbance; therefore, an Arizona Pollutant Discharge Elimination System (AZPDES) General Construction permit and Stormwater Pollution Prevention Plan (SWPPP) would be required. Additional BMPs would be added as required for dust control and to minimize erosion and sedimentation to protect water quality. The project will require a Clean Water Act Section 404 permit, which is regulated by the U.S. Army Corps of Engineers (Corps). New, permanent impacts to jurisdictional waters and/or wetlands are anticipated.

Pre-finalized data from the National Wetlands Inventory indicates that riverine wetlands could be present along the Virgin River throughout the project area; however, the jurisdictional/wetland determination for this project has not yet been completed. If wetlands are present, an Individual Permit would be prepared for Corps review and approval. If project construction would not affect wetlands, the project could be permitted under a Nationwide Permit No. 14, Linear Transportation Projects. Pre-construction notification to the Corps District Engineer would be required in accordance with General Condition No. 31. This reach of the Virgin River is not impaired. However, according to Arizona Department of Environmental Quality Section 401 General Condition No. 13, an Individual Water Quality Certification may be required depending on the materials used for temporary structures within the ordinary high watermark.

No new easements would be required for project construction or operation. Vegetation removal would occur due to project construction, access, and equipment work zones, and would be restricted to areas within the existing ADOT easement. The total disturbance from access, grading, temporary structures, bridge construction, roadway widening, and ditch maintenance would be approximately 6.5 acres. The amount of vegetation that would be potentially disturbed and/or removed would be approximately 3.0 acres, primarily from the floodplain and hillside north of the low-flow channel. All disturbed soils outside the active flow channel that would not be landscaped

or otherwise permanently stabilized by construction shall be seeded using species native to the project vicinity. Project construction is anticipated to begin in fall 2013 and would last approximately 24 months.

The project described herein includes the maximum extent of construction proposed to rehabilitate Bridge No. 6, and at least one of the build alternatives evaluated in the Environmental Assessment will include all of these construction activities. By addressing the maximum extent of construction, this Biological Evaluation covers potential impacts from the range of reasonable alternatives that could be carried forward for detailed analysis in the Environmental Assessment.

3. LOCATION DESCRIPTION

The project area is located in warm temperate desertland areas within the Mojave desertscrub biotic community (Turner 1982; Brown et al. 2007). Appendix B presents ground photographs of the area around Bridge No. 6. The project area occurs within the Virgin River Gorge, which extends along I-15 from approximately MP 13.0 to MP 23.5. The Virgin River Gorge separates the two mountain ranges in the project area, the Beaver Dam Mountains to the north and the Virgin Mountains to the south. The Virgin River runs generally southwest through the project area. Elevation in the project area ranges from approximately 2,050-2,150 feet above mean sea level (amsl).

Water in the Virgin River is derived from runoff via rainfall and snowmelt, and from groundwater entering via seeps and springs. The water from snowmelt makes up the largest percentage of streamflow and usually causes the highest monthly flows to occur in March through May, while most low-flow periods occur from June through October (Glancy and Van Denburgh 1969). Consequently, water is typically present throughout the area during periods of high runoff. However, upstream areas are dry during periods of low flow except for sporadic, short segments of semi-permanent or permanent water in areas where bedrock is near the surface. These upstream areas, including those at and near Bridge No. 6, were mostly dry during site reconnaissance on June 29, 2012, but flowing water was present under Bridge No. 6 during site surveys on May 23, August 23, and October 4, 2012. In recent years, effluent has been released from the St. George, Utah, wastewater treatment plant into the Virgin River upstream of Arizona, resulting in water flowing in the Arizona segment of the river throughout most of the year. Additionally, there is a fish barrier in the Virgin River approximately 4,000 feet downstream of Bridge No. 6; this barrier functions to prevent the upstream movement of non-native fishes. The USGS maintains a gauging station approximately 0.7 river-miles downstream from Bridge No. 6; data for this station are available on the USGS web site.[1] This gauging station measures several parameters including peak flow and turbidity. In regard to turbidity, seven measures were taken from October 2000 through July 2001; turbidity was 3,070 formazin nephelometric units for all seven measurements. The turbidity scale ranges from 0-4,000, with readings of 3,070 equating to opaque. During these same measurements, peak water flow ranged from 9.7 to 12.5 cubic feet per second. These flow levels are in the range normally measured at the gauging station (range 7.3 to 12.7).

Two vegetation communities occur in the project area: (1) riparian habitat and (2) Mojave desertscrub habitat in drier upland sites away from the river. Riparian vegetation mostly consists of scattered, narrow patches of saltcedar, and several herbaceous species such as Chuckwalla's delight (*Bebbia juncea*) and cocklebur (*Xanthium* sp.). Most saltcedar in the project area were

[1] http://nwis.waterdata.usgs.gov/nwis/qwdata?begin_date=11/01/2011&end_date=10/11/2012&site_no=09413700&agency_cd=USGS&format=inventory_retrieval.

defoliated by the tamarisk leaf beetle (*Diorhabda carinulata*; released in 2001) and were brown and defoliated during field reconnaissance in June 2012. However, these saltcedar were green during the site visit on October 4, 2012. Moreover, saltcedar does not usually die from a single defoliation by the tamarisk beetles, but repeated defoliation can lead to severe dieback and death of the tree within several years. Biological control by the tamarisk beetle does not eradicate saltcedar, but it has the potential to suppress saltcedar populations by 75 to 85 percent, after which the two species usually reach equilibrium at lower levels.

The Mojave desertscrub habitat consists of a low to moderate density of various perennial plants that include creosote-bush (*Larrea tridentata*), cheesebush (*Hymenoclea salsola*), saltbush (*Atriplex* sp.), white bursage (*Ambrosia dumosa*), Mormon tea (*Ephedra* sp.), snakeweed (*Gutierrezia sarothrae*), Mohave prickly pear (*Opuntia erinacea*), silver cholla (*Cylindropuntia echinocarpa*), rabbitbrush (*Chrysothamnus* sp.), jimsonweed (*Datura* sp.), and desert straw (*Stephanomeria pauciflora*).

Bridge No. 6 was examined for evidence of use by bats or swallows during the site visits on June 29 and October 4, 2012. No evidence of bats or swallows was observed under this bridge during either visit, probably because of the abundance of adjacent cliff habitat that is available in which to nest or roost. However, a pre-construction survey to visually identify bats roosting beneath the bridge is recommended.

Substrate in and immediately adjacent to the project area consists of gravelly, rocky soils and bouldery, montane habitat with bedrock near the surface. The soil survey for the project limits yielded two soil types: (1) Hindu-Rock outcrop-Gypill complex, 35 to 70 percent slopes (24.1 percent), and (2) Riverwash-Torrifluvents complex, 1 to 3 percent slopes (75.1 percent). The Hindu-Rock outcrop-Gypill complex occurs in mountains, with the typical profile consisting of extremely gravelly loam from 0 to 7 inches and unweathered bedrock from 7 to 17 inches below the surface. The profile for the Gypill complex also occurs in mountains, with the typical profile consisting of fine sandy loam from 0 to 2 inches, loam from 2 to 6 inches, and weathered bedrock from 6 to 60 inches below the surface. The Riverwash-Torrifluvents complex occurs in floodplains, with a variable profile from 0 to 40 inches and unweathered bedrock from 40 to 50 inches below the surface (National Resource Conservation Service Web Soil Survey 2012).

The Arizona Wildlife Linkages Workgroup (AWLW) is a cooperative effort among ADOT, the U.S. Fish and Wildlife Service (USFWS), BLM, the Arizona Game and Fish Department (AGFD), and several other federal and state agencies, academic institutions, and conservation organizations. This workgroup identified 152 potential linkage zones in Arizona that are important to wildlife. The AWLW identified one potential wildlife linkage zone within the project area: the Beaver Dam – Virgin Mountains linkage, which runs from east of Littlefield to near the Utah border (approximately MP 10.0 to MP 29.4) (Arizona Wildlife Linkages Workgroup 2006). Desert habitats that typically have limited cover, such as the project area, combined with structures, roads, and the associated traffic, noise, and fencing can restrict movement by large mammals and other species seeking to disperse across the project area. Most of these species typically use corridors such as riparian areas, canyons, and washes to move across the terrain. Movement across roadways can also occur via underpasses and box culverts, but some individuals are also likely to use open roadways that lack crossing structures, which increases the potential for vehicle-wildlife collisions. Several species such as desert bighorn sheep (*Ovis canadensis*), mountain lion (*Felis concolor*), mule deer (*Odocoileus hemionus*), Mojave Desert tortoise (*Gopherus agassizii*), and several species of bats have been identified to use this linkage zone (Arizona Wildlife Linkages Workgroup 2006).

The AWLW also ranked linkages within Arizona by scoring each potential linkage zone in two dimensions – biological value versus threat and opportunity. The highest priority linkages were determined to be those that were the most biologically important that also had the highest associated threat. Twenty-eight linkages were categorized in the highest priority group, indicating that these linkages were in the highest need for more detailed planning and conservation actions prior to any roadway development or expansion. Early consideration of these linkages creates the opportunity to resolve environmental issues pertaining to wildlife connectivity and wildlife-vehicle collisions while reducing development costs for the project. The Beaver Dam – Virgin Mountains potential linkage zone was categorized in the highest priority group (Arizona Wildlife Linkages Workgroup 2006).

Within the project limits, public lands managed by the BLM are adjacent to I-15. The primary land use adjacent to the project limits is undeveloped wilderness within the Beaver Dam Mountains and Paiute Wilderness areas. BLM manages these wilderness areas for multiple uses such as habitat preservation and recreation; however, any recreational use of the Virgin River in the project area is informal. ADOT holds an easement from BLM for the I-15 roadway that varies from 550 to 1,055 feet wide. No new easements would be required for project construction or operation. Because all project activities, including potential staging areas, would remain within the ADOT easement, existing land uses and points of access would not be affected.

4. SPECIES IDENTIFICATION

The USFWS list of federally protected species for Mohave County, AGFD's Heritage Database Management System (HDMS), and the BLM Arizona Strip Field Office list of sensitive species were reviewed by a qualified biologist (Dr. Robert Johnson, Jacobs Engineering Group Inc.) to determine the potential for these species and/or suitable habitat to occur in the project area. Five federally protected species, one species protected under a Conservation Agreement, and an additional eight species listed as BLM sensitive species have the potential to occur in the project area. For this reason, the following species are analyzed in detail in this document:

Common Name	Scientific Name	Status
Virgin River chub	*Gila seminuda*	Endangered
Woundfin	*Plagopterus argentissimus*	Endangered
Virgin spinedace	*Lepidomeda mollispinis mollispinis*	Conservation Agreement
California condor	*Gymnogyps californianus*	Endangered, MBTA*
Southwestern willow flycatcher	*Empidonax traillii extimus*	Endangered, MBTA
Mojave Desert tortoise	*Gopherus agassizii*	Threatened
Silverleaf sunray	*Enceliopsis argophylla*	BLM Sensitive
Desert sucker	*Catostomus clarki*	BLM Sensitive
Flannelmouth sucker	*Catostomus latipinnis*	BLM Sensitive
Speckled dace	*Rhinichthys osculus*	BLM Sensitive
American peregrine falcon	*Falco peregrinus anatum*	BLM Sensitive, MBTA
Golden eagle	*Aquila chrysaetos*	BLM Sensitive, MBTA, BGA*
Townsend's big-eared bat	*Corynorhinus townsendii*	BLM Sensitive
Desert springsnail	*Pyrgulopsis deserta*	BLM Sensitive

*MBTA = Migratory Bird Treaty Act; BGA = Bald and Golden Eagle Protection Act

Species included in the USFWS list of protected species for Mohave County and the BLM list of sensitive species, but excluded from further evaluation, are addressed in Table 1. This project and the associated stormwater pollution prevention plan will have no effect to the species listed in this table.

Table 1. Special status species excluded from further analysis.

Species Common Name *(Scientific Name)*	**Status***	**Habitat Requirements**	**Exclusion Justification**
Federally listed species			
Arizona cliffrose (*Purshia subintegra*)	E HS	White limestone soils derived from tertiary lakebed deposits; < 4,000 feet	No white limestone soils observed in project area; outside of geographic range which is restricted to extreme southeastern Mohave County
Holmgren milk vetch (*Astragalus holmgreniorum*)	E HS BLM S	Typically on the skirt edges of hill and plateau formations slightly above or at the edge of drainage areas where the cover averages 15% of the landscape; grows in draws on gravelly clayey hills where water runoff occurs	Occurs locally along I-15 near Arizona-Utah border; no suitable habitat in project area
Bonytail chub (*Gila elegans*)	E WSC	Warm, swift, turbid mainstream rivers of the Colorado River basin, and reservoirs in lower basin; <4,000 feet	Not occurring in Virgin River; outside of species geographic range
Humpback chub (*Gila cypha*)	E WSC	Large, warm turbid rivers, especially canyon areas with deep fast water; <4,000 feet	Not occurring in Virgin River; outside of species geographic range
Razorback sucker (*Xyrauchen texanus*)	E WSC	Riverine and lacustrine areas, generally not in fast moving water and may use backwaters; <6,000 feet	No recent records in Virgin River; outside of species current geographic range
California least tern (*Sterna antillarum browni*)	E MBTA	Open, bare or sparsely vegetated sand, sandbars, gravel pits, or exposed flats along shorelines of inland rivers, lakes, reservoirs, or drainage systems; <2,000 feet	The project area consists of a narrow, rugged terrain canyon that lacks large open flats habitat; no suitable habitat in project area
Yuma clapper rail (*Rallus longirostris yumanensis*)	E WSC MBTA	Associated with dense emergent wetland vegetation; requires wet substrate (mudflat, sandbar) with dense herbaceous or woody vegetation for nesting and foraging; < 4,500 feet	Within the project area, the Virgin River is a narrow, linear corridor that does not contain marsh habitat; no suitable habitat in project area
Hualapai Mexican vole (*Microtus mexicanus hualpaiensis*)	E WSC	Moist, grass-sedge habitats along permanent or semi-permanent waters in Ponderosa pine dominated habitats (springs or seeps); 3,100-8,400 feet	Subspecies restricted to areas south of Grand Canyon; no suitable habitat and outside of subspecies geographic range
Gierisch mallow (*Sphaeralcea gierischii*)	PE	Found only on gypsum outcrops associated with Harrisburg member of Kaibab Formation; <5,000 feet	Occurs locally near the Arizona-Utah border of I-15 near the Black Rock traffic interchange at MP 28.50; no suitable habitat occurs within the project area

Table 1. Special status species excluded from further analysis.

Species Common Name *(Scientific Name)*	Status*	Habitat Requirements	Exclusion Justification
Jones cycladenia (*Cycladenia humilis* var. *jonesii*)	T HS	Gypsiferous, sandy silty soil on clay hills that form the steep side slopes and bases of mesas in canyons; within Great Basin desertscrub and pinyon-juniper woodland; 4,390-6,000 feet	Great Basin desertscrub is limited to relatively flat creosote habitat near the extreme northeastern portion of project area; maximum elevation in project area is below 3,000 feet
Siler pincushion cactus (*Pediocactus sileri*)	T HS BLM S	Desertscrub transitional areas of Navajo, sagebrush and Mojave Deserts; occurs on gypsiferous soils at 2,800-5,400 feet	No desertscrub transitional habitats in project area; outside of species geographic range
Mexican spotted owl (*Strix occidentalis lucida*)	T WSC MBTA	Nests in canyons and dense forests with multi-layered foliage structure; 4,100-9,000 feet	Dense forest vegetation not present in or near project area; maximum elevation in project area is below 3,000 feet
Fickeisen plains cactus (*Pediocactus peeblesianus* var. *fickeiseniae*)	C HS BLM S	Shallow soils derived from exposed layers of Kaibab limestone. Found on canyon margins, well-drained hills in Navajoan Desert, or Great Plains grassland; 4,000-5,950 feet	Maximum elevation in project area is below 3,000 feet
Roundtail chub (*Gila robusta*)	C WSC	Cool to warm waters of rivers and streams; often occupy the deepest pools and eddies of large streams; 1,000-7,500 feet	Not occurring in Virgin River; outside of species geographic range
Yellow-billed cuckoo (*Coccyzus americanus*)	C WSC MBTA	Large blocks of riparian woodlands (cottonwood, willow, or tamarisk galleries); <6,500 feet	Within the project area, the Virgin River is a narrow, linear corridor that does not contain large blocks of dense vegetation; no suitable habitat in project area
Relict leopard frog (*Lithobates* [*Rana*] *onca*)	C WSC	Permanent streams, springs, and spring-fed wetlands with open shorelines and available pools; <2,000 feet	No suitable habitat in project area. The nearest historical occurrence was near Beaver Dam Wash, but that population was extirpated during recent floods; reintroduction is unlikely because numerous bullfrogs now occur in that area
Morafka's desert tortoise (*Gopherus morafkai*) (Murphy et al. 2011)	C WSC	Primarily rocky (often steep) hillsides and bajadas of Mojave and Sonoran desertscrub but may encroach into desert grassland, juniper woodland, interior chaparral habitats, and even pine communities; washes and valley bottoms may be used in dispersal	Species restricted to areas south of Grand Canyon; outside of species geographic range

Source: USFWS 2012. http://www.fws.gov/southwest/es/arizona/Documents/CountyLists/Mohave.pdf.

* E = Listed as Endangered under the Endangered Species Act; T = Listed as Threatened under the Endangered Species Act; C = Candidate species under the Endangered Species Act; PE = Proposed Endangered under the Endangered Species Act; BLM S = Bureau of Land Management sensitive species; MBTA = Migratory Bird Treaty Act; WSC = Wildlife of Special Concern in Arizona: species whose occurrence in Arizona is or may be in jeopardy, or with known or perceived threats or population declines; HS = Highly safeguarded under Arizona Native Plant Law.

Federally designated Critical Habitat occurs in the project area for the endangered Virgin River chub, the endangered woundfin, and the endangered Southwestern willow flycatcher. In the

project vicinity, federally designated Critical Habitat for the threatened Mojave Desert tortoise is located approximately 0.80 mile northwest of Bridge No. 6 and 1.50 miles south of Bridge No. 6 (Figure 5-Designated Critical Habitat). Designated Critical Habitat consists of specific geographical areas:

- currently occupied by a species at the time it is listed; these areas include physical or biological features that:
  - are essential to the conservation of the species
  - may require special management considerations or protection
- outside areas occupied by a species at the time it is listed, upon a determination by the Secretary that such areas are essential for the conservation of the species (50 CFR 424.02[d]).

5. SPECIES EVALUATION – FEDERALLY PROTECTED SPECIES

Sections 5 and 6 present evaluations of the 14 federally protected and BLM sensitive species listed at the beginning of Section 4, Species Identification. These species are analyzed in detail as they have the potential to occur in the project area. To determine the possible effects the proposed project may have on the federally protected species in the project area, information was reviewed on historical species accounts, recent species accounts, and recent field survey data as methods of analysis. A field habitat assessment was conducted to evaluate the constituent elements required to sustain the species. The summary of those actions and an evaluation of the ecology and biology of these species are discussed below. Life history, survey history, and habitat evaluation and suitability are discussed for the Virgin River chub and woundfin, followed by a section on the analysis and effects determination for both species.

Virgin River Chub (*Gila seminuda*)

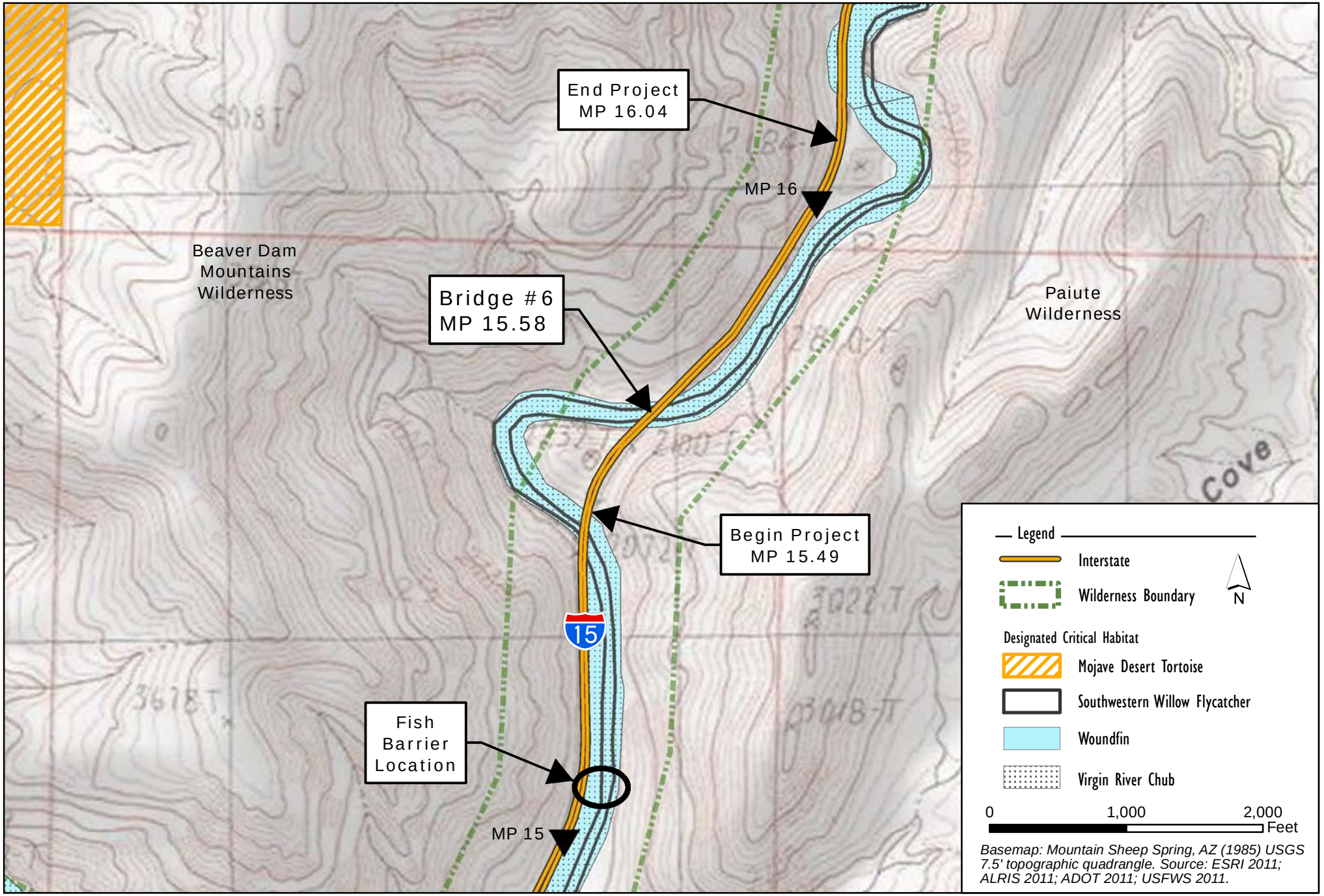
Life History

The Virgin River chub has a localized distribution that is restricted to the mainstream Virgin River in Utah, Arizona, and Nevada, and in the Moapa River, Nevada (USFWS 1989; Minckley and Marsh 2009) at elevations that range from 1,540 to 2,360 feet amsl. However, few individuals have been caught in the Virgin River in areas downstream of Mesquite, Nevada since the 1970s. Individuals do not disperse into tributaries except near their confluence with the mainstream. Virgin River chubs are always associated with flowing water, with preferred habitat consisting of the deepest available water, especially where holes have been scoured in soft sediment (AGFD 2001b; Minckley and Marsh 2009).

Little is known about reproductive biology of the Virgin River chub other than observations that females are gravid from April-June. Individuals display a gradient of habitat preference with age; small individuals up to approximately 3.1 inches total length (TL) used average depths >7 inches, medium-sized individuals (3.1 to 4.4 inches TL) used average depths >12 inches, while the largest individuals (>5.5 inches TL) used average depths >24 inches. The smallest individuals also tended to occur in areas with lower water velocities (Minckley and Marsh 2009). The diet of Virgin River chubs varies by size. The young feed almost exclusively on macroinvertebrates, while adults eat filamentous algae and debris (AGFD 2001b; Minckley and Marsh 2009).

Both the geographic range and numbers of Virgin River chub have decreased significantly since historic times. Much of the decrease occurred from 1860-1900 when many of the present water

Figure 5. Designated Critical Habitat



diversions were constructed. These diversions and the formation of Lake Mead following construction of Hoover Dam destroyed approximately 75 of the 134 miles (56 percent) of the stream habitat in which the Virgin River chub occurred historically. Virgin River chubs were listed as endangered under the Endangered Species Act (ESA) in 1989 (USFWS 1989). In 2000, USFWS designated Critical Habitat for the Virgin River chub, which included an 87.5-mile section of the Virgin River and its associated 100-year floodplain; Critical Habitat extends from Pah Tempe Hot Springs, Utah, to Halfway Wash, Nevada (USFWS 2000). Current threats to the species include modification and reduction of habitat, increased temperature, salinity, and turbidity, disease, floods, toxic spills, and competition with non-native fish (USFWS 1989; AGFD 2001b).

Survey History

Several formal surveys have been conducted for Virgin River chub downstream of the project area. Surveys were conducted near Beaver Dam Wash Bridge (approximately 8.4 river-miles downstream from the project area) during August 2010 as part of a program to monitor impacts of construction activities to endangered fish species. No Virgin River chub were captured during this effort (Liebfried 2011). Long-term monitoring of native fish (1996-2011) has also occurred from near the project area in the lower Virgin River Gorge downstream into Nevada (Golden and Holden 2004; referenced in Kegeries and Albrecht 2012). Results from more recent surveys (2009-2011) indicate that Virgin River chub were present at most sampling sites during each sampling period, though they were not captured at several sites that were further downstream (Kegeries and Albrecht 2012). The most recent surveys, in June and August 2012, sampled several reaches of the Virgin River from the Lower Gorge to Halfway Wash in Nevada.

The June survey captured a total of 464 Virgin River chub, mostly in areas upstream of Mesquite, Nevada (capture sites from upstream to downstream: 93 in Lower Gorge, 134 at Mouth of Gorge, 171 at Beaver Dam Wash, 64 in the Experimental reach [near Mesquite, Nevada], and two individuals further downstream.[2] The August survey captured a total of 16 Virgin River chub: 15 in the Experimental reach, and one individual below Bunkerville Diversion, which is immediately west of the Experimental reach (B. Wooldridge, USFWS, e-mail to K.Gade, ADOT, October 9, 2012). Relative to the project area, the closest current records for Virgin River chub are from the June 2012 surveys in the Lower Gorge, which is immediately downstream of the fish barrier (Figures 2 and 5). As mentioned previously, the fish barrier is approximately 4,000 river-feet downstream of the project area. Virgin River chubs are known to occur in the Virgin River in Utah down to the Arizona state line (Krissy Wilson, Utah Division of Wildlife Resources, Salt Lake City, UT, pers. comm. to author, October 18, 2012). No other survey data or other information (except for the map in Minckley and Marsh 2009) have been found for occurrences in upper reaches of Virgin River Gorge or further upstream in Arizona.

Habitat Evaluation and Suitability

Virgin River chubs are known to occur in the Virgin River in western Nevada, Arizona, and southern Utah (Minckley and Marsh 2009; Appendix C). No specific locale data are available, but the Heritage Data Management System (HDMS) search indicated that Virgin River chubs occur within 3.0 miles of the project limits (Appendix C); this species appears to occur throughout the Virgin River within Arizona (Minckley and Marsh 2009). Within the project area, the Virgin River does not flow continuously, but rather its flow depends on rainfall and

[2] Figure 2 shows the Lower Gorge, Mouth of Gorge, and Beaver Dam Wash monitoring segments. The Experimental reach, Bunkerville Diversion, and other downstream sites are over 8.0 river-miles downstream of Bridge No. 6 and are not depicted because they are outside of the project vicinity.

snowmelt. Effluent released upstream provides an additional source of water. During periods of low rainfall or snowmelt, the Virgin River may dry up within the project area. Virgin River chubs are likely to be present in the project area if water is present in the channel. The Virgin River, up to and including the 100-year floodplain, and portions of the project limits are designated as Critical Habitat for the Virgin River chub (USFWS 2000).

The primary constituent elements (PCEs) of Critical Habitat determined necessary for the survival and recovery of the Virgin River chub are (1) water; (2) physical habitat; and (3) biological environment.

Water – A sufficient quantity and quality of water (e.g., temperature, dissolved oxygen, contaminants, nutrients, turbidity, etc.) that is delivered to a specific location in accordance with a hydrologic regime that is identified for the particular life stage for the species. This includes the following:

1) water quality characterized by natural seasonally variable temperature, turbidity, and conductivity;
2) hydrologic regime characterized by the duration, magnitude, and frequency of flow events capable of forming and maintaining channel and in-stream habitat necessary for particular life stages at certain times of the year; and
3) flood events inundating the floodplain necessary to provide or support the nutrient and food sources for the species.

Physical Habitat – Areas of the Virgin River that are inhabited or potentially habitable by a particular life stage for the species, for use in spawning, nursing, feeding, and rearing, and corridors between such areas. For the Virgin River chub those areas include:

1) river channels, side channels, secondary channels, backwaters, and springs, and other areas that provide access to these habitats; and
2) areas with slow to moderate velocities, within deep runs or pools, with predominantly sand substrates (particularly habitats that contain boulders or other in-stream cover).

Biological Environment – Food supply, competition, and predation are important elements of the biological environment and are considered components of this constituent element. Components of this constituent element include the following:

1) seasonally flooded areas that contribute to the biological productivity of the river system by producing allochthonous organic matter (i.e., produced outside of the river and brought into the river) which provides and supports much of the food base of the Virgin River chub; and
2) few or no predatory or competitive non-native species present (USFWS 2000).

The Analysis and Determination of Effects section for both the Virgin River chub and woundfin follows the general information for the woundfin in the next sections.

Woundfin (*Plagopterus argentissimus*)

Life History

The woundfin is currently restricted to an approximately 50-mile reach of the Virgin River in Utah, Arizona, and Nevada at elevations that range from 1,900 to 3,000 feet amsl. Woundfins live in swift parts of silty streams, and appear to avoid clear waters. They are seldom found in quieter pools, but rather occupy the main channel of seasonally swift, highly turbid, and extremely warm streams, with constantly shifting sandy substrates. Adult and juvenile woundfin

are most often caught in runs and quiet water adjacent to riffles, with younger fish usually occupying slower, deeper sites than those used by adults. Woundfins occur in heavily mineralized waters, and can tolerate high turbidity (AGFD 2000; Minckley and Marsh 2009).

Woundfin become sexually mature in their second year, with longevity rarely exceeding three years. Most spawning occurs in April through July, and appears to be triggered by water temperatures of about 14.5^{o} C. After hatching, the larvae congregate in backwaters or other low-velocity areas along the shore, often in areas where there are beds of filamentous algae. The species is omnivorous, with diet appearing to shift in response to food availability. Most foraging occurs at or near the bottom, with ingested items including filamentous algae, detritus, terrestrial seeds, and numerous types of aquatic insect larvae (AGFD 2000; Minckley and Marsh 2009).

Both the geographic range and numbers of woundfin have decreased significantly since historic times. Historically, woundfin occurred in low-desert streams from central Arizona to the lower Colorado River near Yuma, Arizona, northward to the Virgin River, and presumably in the Colorado River delta in Mexico (AGFD 2000; Minckley and Marsh 2009). Human impacts, including fragmentation, dewatering for agriculture, mining, and urbanization, and the introduction of non-native species, caused historic habitat loss. In the Virgin River, flows have been depleted by municipal and agricultural withdrawals. Woundfins were listed as endangered under the ESA in 1970 (USFWS 1970). In 2000, the USFWS designated Critical Habitat for the woundfin, which included an 87.5-mile section of the Virgin River and its associated 100-year floodplain; Critical Habitat extends from Pah Tempe Hot Springs, Utah, to Halfway Wash, Nevada (USFWS 2000). Current threats to the woundfin include water withdrawal as well as non-native fish and associated parasites that were previously unknown to woundfin. Red shiners, a baitfish, is rapidly expanding its range in the Virgin River, and this species appears to be causing declines in remaining woundfin populations (AGFD 2000; Minckley and Marsh 2009).

Survey History

Several formal surveys have been conducted for woundfin downstream of the project area. Surveys were conducted near Beaver Dam Wash Bridge (approximately 8.4 river-miles downstream from the project area) during August 2010 as part of a program to monitor impacts of construction activities to endangered species of fish. No woundfin were captured during this effort (Liebfried 2011). Long-term monitoring of native fish (1996-2011) has also occurred from near the project area in the lower Virgin River Gorge downstream into Nevada (Golden and Holden 2004; referenced in Kegeries and Albrecht 2012). Results from more recent surveys (2009-2011) indicate that woundfin were only collected at one site (Beaver Dam Wash reach in the vicinity of Littlefield) during fall 2011; a total of two individuals were collected during this sampling (Kegeries and Albrecht 2012). The most recent surveys, in June and August 2012, sampled several reaches of the Virgin River from the Lower Gorge to Halfway Wash in Nevada. The June survey captured a total of 18 woundfin, mostly in areas upstream of Mesquite, Nevada (capture sites from upstream to downstream: 12 in the Lower Gorge, one at Beaver Dam Wash, three in the Experimental reach, and two below Bunkerville Diversion). The August 2012 survey captured only one woundfin in the Experimental reach (B. Wooldridge, USFWS, pers. comm., e-mail to K. Gade, ADOT, October 9, 2012). Relative to the project area, the closest current records for woundfin are from the June 2012 survey in the Lower Gorge, which is immediately downstream of the fish barrier (Figures 2 and 5). Woundfins are known to occur in the Virgin River in Utah down to the Arizona state line (Krissy Wilson, Utah Division of Wildlife Resources, Salt Lake City, UT, pers. comm. to author, October 18, 2012). No other survey data or other information (except for the map in Minckley and Marsh 2009) have been found for occurrences in upper reaches of Virgin River Gorge or further upstream in Arizona.

Habitat Evaluation and Suitability

Woundfin are known to occur in the Virgin River in western Nevada, Arizona, and into southern Utah (Minckley and Marsh 2009; Appendix C). No specific locale data are available, but the HDMS search indicated that woundfins occur within 3.0 miles of the project limits (Appendix C); this species appears to occur throughout the Virgin River within Arizona (Minckley and Marsh 2009). Within the project area, the Virgin River does not flow continuously, but rather its flow depends on rainfall and snowmelt. Effluent released upstream provides an additional source of water. During periods of low rainfall or snowmelt, the Virgin River may dry up within the project area. Moreover, woundfins are highly likely to be present in the project area if water is present in the channel. The Virgin River, up to and including the 100-year floodplain, and portions of the project limits are designated as Critical Habitat for the woundfin (USFWS 2000).

The PCEs of Critical Habitat determined necessary for the survival and recovery of the woundfin are (1) water; (2) physical habitat; and (3) biological environment.

Water – A sufficient quantity and quality of water (e.g., temperature, dissolved oxygen, contaminants, nutrients, turbidity, etc.) that is delivered to a specific location in accordance with a hydrologic regime that is identified for the particular life stage for the species. This includes the following:

1) water quality characterized by natural seasonally variable temperature, turbidity, and conductivity;
2) hydrologic regime characterized by the duration, magnitude, and frequency of flow events capable of forming and maintaining channel and in-stream habitat necessary for particular life stages at certain times of the year; and
3) flood events inundating the floodplain necessary to provide or support the nutrient and food sources for the species.

Physical Habitat – Areas of the Virgin River that are inhabited or potentially habitable by a particular life stage for the species, for use in spawning, nursing, feeding, and rearing, and corridors between such areas. For the woundfin those areas include:

1) river channels, side channels, secondary channels, backwaters, and springs, and other areas that provide access to these habitats;
2) areas inhabited by adult and juvenile woundfin include runs and pools adjacent to riffles that have sand and sand/gravel substrates;
3) areas inhabited by juvenile woundfin are generally deeper and slower. When turbidity is low, adults also tend to occupy deeper and slower habitats; and
4) areas inhabited by woundfin larvae include shoreline margins and backwater habitats associated with beds of filamentous algae.

Biological Environment – Food supply, competition, and predation are important elements of the biological environment and are considered components of this constituent element. Components of this constituent element include the following:

1) seasonally flooded areas that contribute to the biological productivity of the river system by producing allochthonous organic matter (i.e., produced outside of the river and brought into the river) which provides and supports much of the food base of the woundfin; and
2) few or no predatory or competitive non-native species present (USFWS 2000).

Analysis and Determination of Effects for Virgin River Chub and Woundfin

Direct effects: Several construction activities would involve work within the low-flow channel and the 100-year floodplain that could have direct effects to Virgin River chub and woundfin, which are assumed to be present within the project area. These activities are discussed in detail in the project description, along with conservation measures built into the construction of the project that would be used to minimize potential impacts. Specific measures which would minimize potential direct impacts to Virgin River chub and woundfin include: (1) building a temporary bridge across the channel so that vehicles and equipment do not enter the channel, (2) seining and relocating native fish prior to in-stream activities, and (3) containment measures to prevent debris from inadvertently falling into the river. No culverts will be used in the low flow channel of the Virgin River during the project, and the flow of the channel will be maintained throughout the duration of the project.

During all in-stream activities, direct impacts to native fish would be minimized by hiring a qualified fisheries biologist, permitted by AGFD and the USFWS. This biologist would install fish barrier screens upstream and downstream of the project limits during in-stream activities (both during construction and then removal of the cofferdam and temporary bridge), and would seine native fish from inside the area, relocating them downstream. Handling of fish for mitigation purposes during the seining process has the potential to directly impact individuals of Virgin River chub and woundfin that may occur in the project area. Mitigation would also include placing a fish screen on water pump intake hoses during the initial dewatering behind the cofferdam and during any pumping occurring after high flow events that overtop the cofferdam. The biologist would also monitor the integrity of the barrier screens, which would be removed upon completion of in-stream activities. Containment measures would be used to prevent debris from inadvertently falling into the river. Consequently, no direct impacts are anticipated as a result of debris falling into the water.

These mitigation measures would minimize direct impacts to the Virgin River chub and woundfin, but it is anticipated that low levels of harm or mortality may occur. Only a few individuals of Virgin River chub and woundfin are expected to be impacted because of their low numbers within the project area, their ability to swim away from disturbance, and the low probability of direct impact to any one individual.

Indirect effects: The construction activities and conservation measures described above may have indirect effects to the Virgin River chub and woundfin. The indirect effects may include: (1) erosion and scouring that would increase sediment discharge into the river as a result of project activities and loss of riparian vegetation, (2) potential changes to the stream flow and associated hydrologic processes, (3) debris falling inadvertently into the river and being carried downstream, where they could damage the fish barrier, and (4) potential spills of oil, fuel, and other materials into the river.

The potential for increased erosion would be minimized by using BMPs that would include: (1) constructing a temporary sediment basin or filter to reduce sediment entering the water, (2) installing sediment fences between areas of disturbance and all flowing waters, and (3) regular inspection of sediment fences to maintain proper function. With these BMPs, increased erosion would be a minor, temporary impact that would cease following completion of the project. In-stream construction would occur only during a small portion of this time period, and riparian vegetation (e.g. saltcedar) would re-establish following completion of the project. The cofferdams would extend approximately 15 feet into the low-flow channel, such that flow of water through that localized area would increase, as would the amount of scouring and downstream sedimentation. Cofferdams would be a temporary, indirect impact as they would be

removed after approximately three months. The increased sedimentation arising from loss or riparian vegetation and in-stream activities, including the cofferdams, is not anticipated to cause impacts to Virgin River chub or woundfin habitat because flowing water in the Virgin River is normally extremely turbid (see Section 3). Consequently, the localized, temporary increase in turbidity caused by this project (arising from areas both outside of and from within the stream channel) are anticipated to result in insignificant and discountable indirect impacts to Virgin River chub or woundfin.

Additional indirect impacts could include placing a temporary pyle to support the temporary bridge crossing, as well as placement of two columns to provide additional support for Pier 2. Placement of these structures would result in localized changes to the streamflow adjacent to these structures. The river would still flow around Pier 2 and through the low-flow channel. Because of the localized nature of the project, these structures are not anticipated to change the hydrologic regime or flood events in or near the project area. Thus, indirect effects resulting from placement of these structures are anticipated to be insignificant and discountable.

As mentioned above, mitigation would also include containment measures to prevent debris from inadvertently falling into the river and flowing downstream, where they could damage the fish barrier. Consequently, no impacts to the fish barrier, which could cause indirect impacts to native fish by allowing non-native fish to move upstream if damaged, are anticipated.

The project would also implement a vehicle fluid-leakage and spill plan to prevent water contamination by any vehicles. The plan shall include provisions for immediate clean-up of any substance, and would define how each substance would be treated in case of leakage or spill. Spilled materials are not anticipated to cause harm to any individuals of Virgin River chub or woundfin. It is anticipated that these mitigation measures would minimize indirect impacts to the Virgin River chub and woundfin, but low levels of indirect impacts might be anticipated as a result of this project. Indirect impacts to Virgin River chub and woundfin are possible even with these mitigation measures.

CRITICAL HABITAT:

As previously described, in the final rule designating Virgin River chub and woundfin Critical Habitat, the USFWS determined that Critical Habitat consists of the following PCEs: (1) water; (2) physical habitat; and (3) biological environment.

The effects to Virgin River chub and woundfin described above may also directly and indirectly affect some of the PCEs for designated Critical Habitat of these two fish species. Impacts would include: (1) erosion and increased discharge into the river that may increase turbidity over the duration of the project, (2) placement of two columns in the channel to provide additional support for Pier 2 and a temporary pyle to support the temporary bridge, and (3) potential spills of oil, fuel, or other materials into the river.

Localized erosion and increased sedimentation may occur both outside the stream channel and from within the stream channel. The potential for this will be minimized by implementing BMPs, as described above. These impacts would occur only during construction below the bridge, which is anticipated to last 3 months. Flowing water in the Virgin River is normally extremely turbid (see Section 3), such that the localized, temporary increase in turbidity caused by this project would be insignificant and discountable relative to existing conditions.

Additional impacts to Critical Habitat would include placing a temporary pyle to support the temporary bridge crossing, and placing two columns to provide additional support for Pier 2. Placement of these structures would result in localized changes to stream flow; however, the

river would still flow around Pier 2 and throughout the low-flow channel. Because of the localized nature of the project, these structures are not anticipated to change the hydrologic regime or flood events in or near the project area.

The project would also implement a vehicle fluid-leakage and spill plan to prevent water contamination related to vehicles, as described above. Consequently, long-term water quality is not anticipated to change as a result of this project. Thus, changes to PCEs of the Virgin River chub and woundfin are anticipated to be insignificant and discountable. Direct and indirect impacts to Critical Habitat for the Virgin River chub and woundfin are anticipated.

Interrelated and Interdependent Actions: The proposed project is linked to geotechnical investigation activities that are expected to occur in early 2013, prior to construction on the bridge. Impacts related to the geotechnical investigation were evaluated in an earlier BE.

Cumulative Effects: Cumulative effects include the effects of future non-federal actions (i.e., state, local, or private actions) that are reasonably certain to occur in the project area. Future federal actions are subject to the consultation requirements established under Section 7 of the ESA and, therefore, are not considered cumulative in the proposed action. Some activities on private or state lands may require federal permits, e.g., a Clean Water Act Section 404 permit, and thus will be subject to Section 7 consultation. Several other projects are planned along the Virgin River corridor of I-15 in Arizona, but none of these projects are scheduled at this time. All of these projects are likely to have a federal nexus and therefore are not considered to contribute to cumulative impacts with respect to this project. No additional habitat loss as a result of facilitation of private development is anticipated because there is no privately owned land adjacent to or near the project area. Overall, no cumulative effects on Virgin River chub or woundfin are anticipated.

Determination: This project may result in temporary direct and indirect effects to individuals of Virgin River chub and woundfin and to designated Critical Habitat for the Virgin River chub and the woundfin; therefore, the following determination statements apply:

- This project may affect the Virgin River chub and is likely to adversely affect the Virgin River chub or its habitat.
- This project may affect and is likely to adversely affect Critical Habitat of the Virgin River chub.
- This project may affect the woundfin and is likely to adversely affect the woundfin or its habitat.
- This project may affect and is likely to adversely affect Critical Habitat of the woundfin.

Virgin Spinedace (*Lepidomeda mollispinis mollispinis*)

Life History

The Virgin spinedace consists of two subspecies, but only *Lepdiomeda mollispinis mollispinis* occurs in the project area. *Lepidomeda mollispinis mollispinis* is endemic to the Virgin River and its tributaries in Arizona, Nevada, and Utah (AGFD 2001c; Minckley and Marsh 2009). Individuals are most common in clear, cool, moderate to swift currents, often in pools with a substrate that consists of sand, gravel, cobble, and boulder. Most individuals in the Virgin River mainstream have been captured near the mouths of creeks or inflowing springs (Minckley and Marsh 2009).

Spawning occurs from spring through early summer, with spawning sites usually located near the lower ends of pools. One-year and two-year-old individuals probably spawn one time per year,

while older females may spawn twice per year. However, few individuals appear to live longer than three years. The bulk of the diet of Virgin spinedace consists of insects and other invertebrates, but individuals also take plant material and organic debris when insects are unavailable. Feeding occurs throughout the day as they capture prey at the surface and those drifting in upper parts of the water column (AGFD 2001c; Minckley and Marsh 2009).

Virgin spinedace are locally common in areas where they remain. However, the historic geographic range of the Virgin spinedace has decreased by approximately 37 percent because of impoundments and other stream modifications (AGFD 2001c). Virgin spinedace are currently protected under a Conservation Agreement between the USFWS and the Utah Department of Wildlife, which currently protects this species in lieu of listing them under the ESA. Current threats to Virgin spinedace include water diversion, impoundments, channelization, degradation of water quality, and introduced species (AGFD 2001c; Minckley and Marsh 2009).

Survey History

Several formal surveys have been conducted for Virgin spinedace downstream of the project area. Surveys were conducted near Beaver Dam Wash Bridge (about seven miles downstream from the project area) during August, 2010, as part of a program to monitor impacts of construction activities to endangered species of fish. Four individuals of Virgin spinedace were captured during this effort (Liebfried 2011). Long-term monitoring of native fish (from 1996-2011) has also occurred from near the project area in the lower Virgin River Gorge downstream into Nevada (Golden and Holden 2004; referenced in Kegeries and Albrecht 2012). Results from more recent surveys (2009-2011) indicate that only one Virgin spinedace was captured in the Beaver Dam Wash reach during one sampling period (Kegeries and Albrecht 2012). The most recent surveys, in June and August 2012, sampled several reaches of the Virgin River from the Lower Gorge to Halfway Wash in Nevada. No Virgin spinedace were captured during these sampling efforts (B. Wooldridge, USFWS, e-mail to K. Gade, ADOT, October 9, 2012). No survey data or other information (except for the map in Minckley and Marsh 2009) have been found for occurrences in upper reaches of Virgin River Gorge or further upstream.

Habitat Evaluation and Suitability

Virgin spinedace are known to occur in the Virgin River in western Nevada, Arizona, and southern Utah, but they are not known to occur within 3.0 miles of the project limits (Minckley and Marsh 2009; Appendix C). Available data indicate that Virgin spinedace are known from near the confluence of Beaver Dam Wash and in upstream areas above the Virgin River Gorge (Minckley and Marsh 2009). Within the project area, the Virgin River does not flow continuously, but rather its flow depends on rainfall and snowmelt. Effluent released upstream provides an additional source of water. During periods of low rainfall or snowmelt, the Virgin River may dry up within the project area. Moreover, Virgin spinedace are unlikely to be present in the project area, even if water is present in the channel.

Analysis and Determination of Effects

Direct effects: Virgin spinedace are not known to occur within 3.0 miles of the project limits (Appendix C), but we assume that they are present in the project area. Several construction activities would involve work within the low-flow channel and the 100-year floodplain that could have direct effects to Virgin spinedace, which are assumed to be present within the project area. These activities are discussed in detail in the project description, along with conservation measures built into the construction of the project that would be used to minimize potential impacts. Specific measures which would minimize potential direct impacts to Virgin spinedace include: (1) building a temporary bridge across the channel so that vehicles and equipment do not enter the channel, (2) seining and relocating native fish prior to in-stream activities, and

(3) containment measures to prevent debris from inadvertently falling into the river. No culverts will be used in the low flow channel of the Virgin River during the project, and the flow of the channel will be maintained throughout the duration of the project.

During all in-stream activities, direct impacts to native fish would be minimized by hiring a qualified fisheries biologist, permitted by AGFD and the USFWS. This biologist would install fish barrier screens upstream and downstream of the project limits prior to in-stream activities (both during construction and then removal of the cofferdam and temporary bridge), and would seine native fish from inside the area, relocating them downstream. Handling of fish for mitigation purposes during the seining process has the potential to directly impact individuals of Virgin spinedace that may occur in the project area. Mitigation would also include placing a fish screen on water pump intake hoses during the initial dewatering behind the cofferdam and during any pumping occurring after high flow events that overtop the cofferdam. The biologist would also monitor the integrity of the barrier screens, which would be removed upon completion of in-stream activities. Containment measures would be used to prevent debris from inadvertently falling into the river. Consequently, no direct impacts are anticipated as a result of debris falling into the water.

These mitigation measures would minimize direct impacts to the Virgin spinedace, but it is anticipated that low levels of harm or mortality may occur. Only a few individuals of Virgin spinedace are expected to be impacted because of their low numbers within the project area, their ability to swim away from disturbance, and the low probability of direct impact to any one individual.

Indirect effects: The construction activities and conservation measures described above may have indirect effects to the Virgin spinedace. The indirect effects may include: (1) erosion and scouring that would increase sediment discharge into the river as a result of project activities and loss of riparian vegetation, (2) potential changes to the stream flow and associated hydrologic processes, (3) debris falling inadvertently into the river and being carried downstream, where they could damage the fish barrier, and (4) potential spills of oil, fuel, and other materials into the river.

The potential for increased erosion would be minimized by using BMPs that would include: (1) constructing a temporary sediment basin or filter to reduce sediment entering the water, (2) installing sediment fences between areas of disturbance and all flowing waters, and (3) regular inspection of sediment fences to maintain proper function. With these BMPs, increased erosion would be a minor, temporary impact that would cease following completion of the project. In-stream construction would occur only during a small portion of this time period, and riparian vegetation (e.g. saltcedar) would re-establish following completion of the project. The cofferdams would extend approximately 15 feet into the low-flow channel, such that flow of water through that localized area would increase, as would the amount of scouring and downstream sedimentation. Cofferdams would be a temporary, indirect impact as they would be removed after approximately three months. The increased sedimentation arising from loss or riparian vegetation and in-stream activities, including the cofferdams, is not anticipated to cause impacts to Virgin spinedace habitat because flowing water in the Virgin River is normally extremely turbid (see Section 3). Consequently, the localized, temporary increase in turbidity caused by this project (arising from areas both outside of and from within the stream channel) are anticipated to result in insignificant and discountable indirect impacts to Virgin spinedace.

Additional indirect impacts could include placing a temporary pyle to support the temporary bridge crossing, as well as placement of two columns to provide additional support for Pier 2. Placement of these structures would result in localized changes to the streamflow adjacent to

these structures. The river would still flow around Pier 2 and through the low-flow channel. Because of the localized nature of the project, these structures are not anticipated to change the hydrologic regime or flood events in or near the project area. Thus, indirect effects resulting from placement of these structures are anticipated to be insignificant and discountable.

As mentioned above, mitigation would also include containment measures to prevent debris from inadvertently falling into the river and flowing downstream, where they could damage the fish barrier. Consequently, no impacts to the fish barrier, which could cause indirect impacts to native fish by allowing non-native fish to move upstream if damaged, are anticipated.

The project would also implement a vehicle fluid-leakage and spill plan to prevent water contamination by any vehicles. The plan shall include provisions for immediate clean-up of any substance, and would define how each substance would be treated in case of leakage or spill. Spilled materials are not anticipated to cause harm to any individuals of Virgin spinedace. It is anticipated that these mitigation measures would minimize indirect impacts to the Virgin spinedace, but low levels of indirect impacts might be anticipated as a result of this project. Indirect impacts to Virgin spinedace are possible even with these mitigation measures.

Interrelated and Interdependent Actions: The proposed project is linked to geotechnical investigation activities that are expected to occur in early 2013, prior to construction on the bridge. Impacts related to the geotechnical investigation were evaluated in an earlier BE.

Cumulative Effects: Cumulative effects include the effects of future non-federal actions (i.e., state, local, or private actions) that are reasonably certain to occur in the project area. Future federal actions are subject to the consultation requirements established under Section 7 of the ESA and, therefore, are not considered cumulative in the proposed action. Some activities on private or state lands may require federal permits, e.g., a Clean Water Act Section 404 permit, and thus will be subject to Section 7 consultation. Several other projects are planned along the Virgin River corridor of I-15 in Arizona, but none of these projects are scheduled at this time. All of these projects are likely to have a federal nexus and therefore are not considered to contribute to cumulative impacts with respect to this project. No additional habitat loss as a result of facilitation of private development is anticipated because there is no privately owned land adjacent to or near the project area. Overall, no cumulative effects on Virgin spinedace are anticipated.

Determination: This project may result in temporary direct and indirect effects to individuals of Virgin spinedace; therefore, the following determination statement applies:

- This project may affect Virgin spinedace and is likely to adversely affect the Virgin spinedace or its habitat.

California Condor (*Gymnogyps californianus*)

Life History

The California condor is the largest flying land bird in North America. When European settlers arrived, the geographic distribution of California condors appears to have consisted of a narrow strip along the Pacific Ocean from southern Canada to northern Mexico. By 1987, their distribution had contracted to a wishbone-shaped area in south-central and southwestern California (Southwest Condor Recovery Team 2012). In Arizona, California condors roost and nest in steep terrain with rock outcroppings, cliffs, and caves at elevations that range from 2,000 to 6,500 feet asml. Condors require high perches from which strong updrafts provide the lift needed for flight. Most foraging occurs over open grasslands or savannahs (AGFD 2008).

Nesting occurs in various types of rock formations that include crevices, overhung ledges, a sheltered cave, or a hole in a cliff with a sand bottom. Females normally lay a single egg between late January and early April. Both parents incubate the egg, which hatches after approximately 56 days. Both parents feed the nestling, with the chick fledging in about six months, and flying well at 10 months (AGFD 2008; Southwest Condor Recovery Team 2012). Individuals appear to become sexually mature after six to eight years. Pairs are monogamous for life, and individuals probably live 50 to 60 years. California condors are opportunistic scavengers that feed on the carcasses of dead animals. Food is typically found via long-distance reconnaissance flights (AGFD 2008; Southwest Condor Recovery Team 2012).

The California condor had an extensive range across much of North America in prehistoric times, but both the geographic range and the numbers of condors decreased significantly following the Pleistocene era (approximately 10,000 years ago). In recent times, the number of California condors has been consistently low, with estimates from the 1930s to 1960s usually estimating a minimum population size of about 40 to 60 individuals. Their numbers continued to decline, with minimum population estimates that were as low as nine individuals in 1985 (Southwest Condor Recovery Team 2012). Because of their low numbers, the California condor was recognized by the federal government as endangered in 1967, but the first specific federal legal protection did not occur until 1972. To enhance their recovery, all wild condors were brought into captivity to begin a captive breeding program; the last wild condor was captured in April 1987. The captive breeding program has been successful, with individuals subsequently released back into the wild in northern Arizona and southern Utah; the current number of California condors in the wild is estimated at approximately 230 individuals (Peregrine Fund 2012). Prior to the start of this reintroduction program, the reintroduced individuals were designated as a nonessential experimental population, which are not afforded protection under the ESA (USFWS 1996). In Arizona, the nonessential experimental population occurs from I-15 south to I-40 and west to the Arizona-Nevada state line; the species is listed as endangered, and thereby protected under the ESA, in areas north of I-15 (USFWS 1996). Hence, the project area includes both nonessential experimental populations and endangered protected populations. Threats to California condors include poisoning, shooting, habitat destruction, and collection of eggs.

Survey History

The Peregrine Fund monitors habitat use and nesting activities by California condors in the Virgin River Gorge area. No California condors are known to nest near the project area at this time (B. Wooldridge, USFWS, pers. comm. to author, July 16, 2012).

Habitat Evaluation and Suitability

Habitat within the project area consists of hilly, mountainous terrain of mostly open desertscrub habitat that is suitable as foraging habitat for California condors. These rugged terrain areas could also provide suitable nesting habitat for California condors.

Analysis and Determination of Effects

Direct Effects: Based on the HDMS search and coordination with USFWS, California condors are not known to occur or nest within 3.0 miles of the project area (B. Wooldridge, USFWS, pers. comm. to author, July 16, 2012; Appendix C). The project area would only be used as foraging habitat by California condors. No parts of the proposed project would directly affect foraging by California condors. Therefore, no direct impacts to California condors are anticipated.

Indirect Effects: This proposed project would involve construction in and adjacent to the Virgin River Bridge No. 6 and modifications to the approach segments. The project will not involve any

blasting. The project area would only potentially be used as foraging habitat by California condors. Foraging by California condors is not associated with water, but rather involves hunting terrestrial animals in open country. Construction activities would be localized along the Virgin River over a period of about two years. Construction activities over this time period are likely to generate trash that could potentially attract condors to the project area. The project would not otherwise affect foraging by California condors. Additional mitigation measures would include a vehicle fluid-leakage and spill plan to prevent water contamination for all vehicles. The plan would include provisions for immediate clean-up of any substance, and would define how each substance will be treated in case of leakage or spill. Consequently, the proposed construction activities would not affect baseline conditions for California condors that might occur in the project area. Therefore, it is unlikely that indirect effects such as habitat degradation or temporary loss of habitat would result from this project. No indirect impacts to California condors are anticipated.

Interrelated and Interdependent Actions: The proposed project is linked to geotechnical investigation activities that are expected to occur in early 2013, prior to construction on the bridge. Impacts related to the geotechnical investigation were evaluated in an earlier BE.

Cumulative Effects: Cumulative effects include the effects of future non-federal actions (i.e., state, local, or private actions) that are reasonably certain to occur in the project area. Future federal actions are subject to the consultation requirements established under Section 7 of the ESA and, therefore, are not considered cumulative in the proposed action. Some activities on private or state lands may require federal permits, e.g., a Clean Water Act Section 404 permit, and thus will be subject to Section 7 consultation. Several other projects are planned along the Virgin River corridor of I-15 in Arizona, but none of these projects are scheduled at this time. All of these projects are likely to have a federal nexus and therefore are not considered to contribute to cumulative impacts with respect to this project. No additional habitat loss associated with facilitation of private development is anticipated because there is no privately owned land adjacent to or near the project area. Overall, no cumulative effects on California condors are anticipated.

Determination: No direct, indirect, or cumulative effects are anticipated as result of this project. Therefore, this project will have no effect to the California condor or its habitat.

Southwestern Willow Flycatcher (*Empidonax traillii extimus*)

Life History

The willow flycatcher consists of several difficult to identify subspecies, but *E. traillii extimus* is the only subspecies that breeds in Arizona. The geographic distribution for this subspecies includes southern Nevada, southern Utah, and from southern California east to western Texas. The Southwestern willow flycatcher has a restricted distribution in Arizona, as they only occur in mature riparian habitats such as along parts of the Little Colorado, Colorado, Salt, Gila, Verde, San Pedro, and San Francisco rivers (AGFD 2002c). These flycatchers have also been recorded along the Virgin River at the confluence with Beaver Dam Wash.

Southwestern willow flycatchers are migratory, arriving in Arizona by late April to early May, and then migrate south in August and September. Preferred nesting habitat is mature riparian habitat that consists of cottonwood-willow forests or saltcedar thickets along still or slow-moving watercourses at elevations that range from 75-9,180 feet amsl. Nests consist of a compact cup built of various types of vegetation. Females lay eggs from May through July. Incubation lasts 12 to 13 days, and the nestlings fledge at 12 to 14 days. Only one brood is usually produced per year. Southwestern willow flycatchers are aerial insectivores that typically

fly out from a perch to capture their prey, though other foraging methods are used occasionally (AGFD 2002c).

Both the geographic range and numbers of southwestern willow flycatchers have decreased significantly since historic time because of the loss of suitable riparian habitats. Because of habitat loss and population declines, the southwestern willow flycatcher was listed as endangered under the ESA in 1995 (USFWS 1995). Critical Habitat was designated in 2002, and the most recent revisions to Critical Habitat were made in 2011 (USFWS 2011a). The most recent revisions include the 100-year floodplain of the Virgin River from the Utah border to Nevada border, including the project area (USFWS 2011a). Current threats to Southwestern willow flycatchers include loss of riparian habitat and brood parasitism by brown-headed cowbirds.

Survey History

No known formal surveys have been conducted for Southwestern willow flycatchers in the project area, but surveys have been conducted downstream near Beaver Dam Wash. Individuals were absent from these areas during 2011 surveys, probably because of flooding during 2010 that scoured the understory vegetation such that it no longer resembled typical Southwestern willow flycatcher breeding habitat (McLeod and Pellegrini 2012).

Habitat Evaluation and Suitability

The project area contains small, scattered linear patches of saltcedar that have been partially defoliated by the tamarisk leaf beetle. These saltcedar were observed to be defoliated during field reconnaissance on June 29, 2012, and did not provide suitable breeding habitat for Southwestern willow flycatcher. However, these same saltcedar were observed to be green during the October 4, 2012, site visit. Regardless of the condition of these saltcedar, these small, linear, scattered patches of habitat do not provide suitable nesting habitat for Southwestern willow flycatchers. Within the project area, the Virgin River does not flow continuously, but rather its flow depends on rainfall and snowmelt. Effluent released upstream provides an additional source of water. However, during periods of low rainfall or snowmelt, the Virgin River may dry up within the project area. The HDMS search indicated that there are no records of Southwestern willow flycatcher occurring within 3.0 miles of the project limits (Appendix C). However, the Virgin River up to and including the 100-year floodplain, which includes the project limits, is designated as Critical Habitat for the Southwestern willow flycatcher (USFWS 2011a). The nearest record for Southwestern willow flycatchers is in native cottonwood-willow-saltcedar habitat near Beaver Dam Wash, but individuals were absent from these areas during 2011, likely as a result of flooding that scoured the understory vegetation (McLeod and Pellegrini 2012). Return of breeding pairs of flycatchers to the area will depend on regrowth of saltcedar or other appropriate riparian habitat.

PCEs for the Southwestern willow flycatcher Critical Habitat comprise: (1) dense riparian vegetation with thickets of trees and shrubs, or dense patches of riparian forests that are interspersed with small openings of open water or marsh areas with shorter and sparser vegetation, and (2) habitats that support a high availability of their flying insect prey (USFWS 2011a). These are further defined as:

1) Riparian habitat in a dynamic successional riverine environment (for nesting, foraging, migration, dispersal, and shelter) that comprises:
    a) Trees and shrubs that include, but are not limited to, willow species, box elder, tamarisk, Russian olive, cottonwood, stinging nettle, alder, ash, poison hemlock, blackberry, oak, rose, false indigo, Pacific poison ivy, grape, Virginia creeper, Siberian elm, and walnut;

b) Dense riparian vegetation with thickets of trees and shrubs ranging in height from 2 to 30 meters (m) (6 to 98 ft). Lower-stature thickets (2 to 4 m or 6 to 13 ft tall) are found at higher elevation riparian forests, and tall-stature thickets are found at middle- and lower-elevation riparian forests;
c) Areas of dense riparian foliage at least from the ground level up to approximately 4 m (13 ft) above ground or dense foliage only at the shrub level, or as a low, dense tree canopy;
d) Sites for nesting that contain a dense tree and/or shrub canopy (the amount of cover provided by tree and shrub branches measured from the ground) (i.e., a tree or shrub canopy with densities ranging from 50 percent to 100 percent); or
e) Dense patches of riparian forests that are interspersed with small openings of open water or marsh, or shorter/sparser vegetation that creates a mosaic that is not uniformly dense. Patch size may be as small as 0.1 hectare (0.25 acre) or as large as 70 hectare (175 acres).

2) A variety of insect prey populations found within or adjacent to riparian floodplains or moist environments, including: flying ants, wasps, and bees; dragonflies; flies; true bugs; beetles; butterflies/moths and caterpillars; and spittlebugs.

A variety of river features are identified as the physical or biological features of critical habitat such as broad floodplains, water, saturated soil, hydrologic regimes, elevated groundwater, fine sediments, etc., which help develop and maintain these constituent elements (USFWS 2011a).

Analysis and Determination of Effects

Direct effects: Project construction activities would involve work within the 100-year floodplain. These activities are discussed in the project description, along with conservation measures that would be used to minimize potential impacts within these areas. The project area consists of isolated, linear patches of saltcedar that grow along a narrow terrace; within the project area, these saltcedar patches total approximately 0.4 acre (Figure 4). Approximately 0.05 acre of saltcedar habitat would be removed during geotechnical activities, and the remaining 0.35 acre would be removed during other activities described herein.

The Virgin River streambed and floodplain and the quality of riparian vegetation in the project area do not support conditions that would allow development of the expansive and dense vegetation that flycatchers seek for nesting and foraging, such that flycatchers are not anticipated to occur in the project area. The small, isolated, linear patches of saltcedar in the area reflect habitat constraints both closer to and further away from the channel. Nearer the water, saltcedar growth is constrained by frequent flooding and scouring, while growth away from the water is constrained by lack of water because the floodplain ascends to dry terrace soils where saltcedar does not grow. In addition, during the 2012 breeding season, saltcedar in the project area had been defoliated by the tamarisk leaf beetle, such that there was not suitable habitat for nesting.

Based on the current distribution records for Southwestern willow flycatchers, no direct effects are anticipated as a result of this project. No flycatchers are known to nest within 3.0 miles of the project area (Appendix C). Additionally, the approximately 0.35 acres of saltcedar habitat would be removed at the start of the project in fall 2013, while flycatchers are on their wintering grounds in Central and South America. Therefore, no direct impacts to Southwestern willow flycatchers are anticipated.

Indirect effects: Potential indirect effects of project activities to the Southwestern willow flycatcher include: (1) removal of approximately 0.35 acres of saltcedar that occur as several small, isolated patches, (2) noise and high levels of activity by vehicles and equipment over the two year construction period, and (3) localized changes in the stream flow and path. First, the

removal of 0.35 acre of saltcedar habitat is not expected to harm flycatchers, because of the small amount of habitat removed, the low quality that it provides for flycatchers (see above), and because it is greater than 3.0 miles from the nearest known flycatcher territories. The nearest known territories were located near Beaver Dam Wash, but that habitat is currently unavailable because of flooding and scouring during 2010. Second, noise is not expected to increase significantly in the project area because construction would occur within and immediately adjacent to the I-15 corridor, where large numbers of vehicles continually pass and generate significant levels of noise. Consequently, construction related noise would not be elevated about the baseline conditions, and therefore is not expected to affect any flycatchers. Construction activities will take approximately two years to complete, such that activities could affect how individuals choose to use the area during migration or foraging. Because of the lack of dense riparian vegetation in and adjacent to the project area, flycatchers are not expected to occur in or rely on resources within the project area. Consequently, construction activities are not anticipated to harm or harass any flycatchers. Any impacts that did occur would be temporary because the noise level and vehicle activity would return to pre-construction levels after completion of the project. Lastly, the small, localized changes in the stream flow path resulting from this bridge project are not expected to affect hydrologic regime, number of potential insect prey, or the pattern or density of riparian vegetation that would re-establish following completion of the project. Therefore, no indirect impacts to Southwestern willow flycatchers are anticipated.

CRITICAL HABITAT:

As previously described, in the final rule designating Southwestern willow flycatcher Critical Habitat, the USFWS determined that Southwestern willow flycatcher habitat consists of the following PCEs: (1) Riparian habitat in a dynamic successional riverine environment (for nesting, foraging, migration, dispersal, and shelter); and (2) A variety of insect prey populations found within or adjacent to riparian floodplains or moist environments, including: flying ants, wasps, and bees; dragonflies; flies; true bugs; beetles; butterflies/moths and caterpillars; and spittlebugs.

A variety of river features are identified as the physical or biological features of critical habitat such as broad floodplains, water, saturated soil, hydrologic regimes, elevated groundwater, fine sediments, etc., which help develop and maintain these constituent elements (USFWS 2011a).

The effects to Southwestern willow flycatcher habitat described above could also potentially have direct effects to the listed PCEs for Southwestern willow flycatcher Critical Habitat. These impacts would include removing approximately 0.35 acre of saltcedar habitat along the access route to the bridge span, as well as activities within the channel. Although riparian habitat exists in the impact area, it consists of small, isolated patches of saltcedar in relatively poor condition, and thus does not qualify as the “dense riparian vegetation” listed as a PCE for Southwestern willow flycatchers. Dense riparian vegetation supports high populations of insects that might be used as food by foraging flycatchers. By comparison, the small, isolated patches of saltcedar in the project area would support few insects, such that the project area does not contain high numbers of a “variety of insect prey populations”, which is also listed as a PCE for the flycatcher. Lastly, the small, localized nature of this project is not expected to affect hydrologic regime, or the pattern or density of riparian vegetation that would re-establish following completion of the project. Consequently, features that help develop and maintain these constituent elements are not expected to change. Therefore, direct impacts to Critical Habitat for the Southwestern willow flycatcher are anticipated, but it is anticipated that these impacts will be insignificant and discountable.

Interrelated and Interdependent Actions: The proposed project is linked to geotechnical investigation activities that are expected to occur in early 2013, prior to construction on the bridge. Impacts related to the geotechnical investigation were evaluated in an earlier BE.

Cumulative Effects: Cumulative effects include the effects of future non-federal actions (i.e., state, local, or private actions) that are reasonably certain to occur in the project area. Future federal actions are subject to the consultation requirements established under Section 7 of the ESA and, therefore, are not considered cumulative in the proposed action. Some activities on private or state lands may require federal permits, e.g., a Clean Water Act Section 404 permit, and thus will be subject to Section 7 consultation. Several other projects are planned along the Virgin River corridor of I-15 in Arizona, but none of these projects are scheduled at this time. All of these projects are likely to have a federal nexus and therefore are not considered to contribute to cumulative impacts with respect to this project. No additional habitat loss associated with facilitation of private development is anticipated because there is no privately owned land adjacent to or near the project area. Overall, no cumulative effects on Southwestern willow flycatchers are anticipated.

Determination: No direct, indirect, or cumulative effects to Southwestern willow flycatchers are anticipated as result of this project. However, this project may result in direct effects to designated Critical Habitat for the Southwestern willow flycatcher; therefore, the following determination statements apply:

- This project will have no effect to the Southwestern willow flycatcher or its habitat.
- This project may affect, but is not likely to adversely affect Critical Habitat of the Southwestern willow flycatcher.

Mojave Desert Tortoise (*Gopherus agassizii*)

Life History

The desert tortoise was recently split into two species, *Gopherus morafkai* in the Sonoran Desert and *G. agassizii* in the Mojave Desert (Murphy et al. 2011). The distribution of the Mojave Desert tortoise includes the Mojave Desert in areas west and north of the Colorado River in California, Nevada, and Arizona, including the Virgin River area. The species occupies various habitats that include flats and slopes that are often characterized by creosotebush and white bursage at lower elevations and rocky slopes in blackbrush scrub and juniper habitat at higher elevations. However, they are most common on gently sloping terrain with sandy-gravelly soils where sparse cover allows growth of herbaceous plants. Occupied areas have soils that are friable enough to dig burrows, but firm enough so that the burrows do not collapse (USFWS 1994a).

Mojave Desert tortoises maintain home ranges that vary in size depending on location and habitat conditions. Territories can range up to 200 acres, and individuals can use up to 1.5 square miles over their lifetime. Females lay up to three clutches of from 1-10 eggs per year in the soil. The young often have low survival rates because of high predation rates. Mojave Desert tortoises are active from spring through late fall, and hibernate in burrows during the winter. Their diet consists of winter annuals and herbaceous perennials that are present after they emerge from winter hibernation (USFWS 1994a).

The numbers of Mojave Desert tortoise have decreased significantly since historic times. Most of the decline has resulted from vandalism, raven predation, habitat loss or modification, and disease. As a result, Mojave Desert tortoise was listed as threatened under the ESA in 1990 (USFWS 1990). In 1994, the USFWS designated Critical Habitat for the Mojave Desert tortoise,

which included areas running from approximately 0.8 mile northwest of the project area to the Arizona-Nevada border and areas running from approximately 1.5 miles south of the project area to the Arizona-Nevada border (USFWS 1994b).

Survey History

No formal surveys are known for the project area, but there have been numerous studies on tortoises along the slopes of Beaver Dam Wash in Arizona and Utah (Grover and DeFalco 1995).

Habitat Evaluation and Suitability

Mojave Desert tortoises typically occupy flats and gently sloping terrain. Habitat in the project area consists of rugged, rocky terrain with steep slopes and very shallow soils that are unsuitable for occurrence by Mojave Desert tortoise. Mojave Desert tortoise are not known to occur near the project area (B. Wooldridge, USFWS, pers. comm. to author, October 3, 2012).

Analysis and Determination of Effects

Direct Effects: The HDMS search indicated that Mojave Desert tortoise are known to occur within 3.0 miles of the project limits (Appendix C), but the rugged, rocky terrain makes it highly unlikely that they are present in the project area. Therefore, no direct impacts to Mojave Desert tortoise are anticipated.

Indirect Effects: This proposed project would involve construction in and adjacent to the Virgin River Bridge No. 6. These construction activities would not affect baseline conditions for Mojave Desert tortoise because the project area does not provide suitable habitat for this species. Therefore, no indirect effects such as habitat degradation or temporary loss of habitat would result from this project. No indirect effects to Mojave Desert tortoise are anticipated.

Interrelated and Interdependent Actions: The proposed project is linked to geotechnical investigation activities that are expected to occur in early 2013, prior to construction on the bridge. Impacts related to the geotechnical investigation were evaluated in an earlier BE.

Cumulative Effects: Cumulative effects include the effects of future non-federal actions (i.e., state, local, or private actions) that are reasonably certain to occur in the project area. Future federal actions are subject to the consultation requirements established under Section 7 of the ESA and, therefore, are not considered cumulative in the proposed action. Some activities on private or state lands may require federal permits, e.g., a Clean Water Act Section 404 permit, and thus will be subject to Section 7 consultation. Several other projects are planned along the Virgin River corridor of I-15 in Arizona, but none of these projects are scheduled at this time. All of these projects are likely to have a federal nexus and therefore are not considered to contribute to cumulative impacts with respect to this project. No additional habitat loss associated with facilitation of private development is anticipated because there is no privately owned land adjacent to or near the project area. Overall, no cumulative effects on Mojave Desert tortoise are anticipated.

Determination: No direct, indirect, or cumulative effects are anticipated as a result of this project. Therefore, this project will have no effect to the Mojave Desert tortoise or its habitat.

6. SPECIES EVALUATION – SENSITIVE SPECIES

Silverleaf Sunray (*Enceliopsis argophylla*)

Life History

The silverleaf sunray has a restricted distribution in southern Nevada, southwestern Utah, and northwestern Arizona, including near the Virgin River in the Virgin River Gorge. This plant

species occurs in various habitats that include dry slopes, gravelly slopes, sandy washes, and clay and gypsum cliffs at elevations that range from 705–3,400 feet amsl. Little is known about the biology of this species other than that flowering occurs from April to June (AGFD 2005). Common associates of silverleaf sunray include saltbush, creosotebush, Chuckwalla's delight, and Mormon tea. The silverleaf sunray is listed as a BLM sensitive species, and the HDMS search indicated that this species is known to occur within 3.0 miles of the project limits (Appendix C). In Nevada, the silverleaf sunray is threatened by recreational use of state and national lands (AGFD 2005).

Survey History

No formal surveys for silverleaf sunrays are known to have been conducted in or near the project area.

Habitat Evaluation and Suitability

The project area provides potential habitat for the silverleaf sunray given that the area consists of gravelly slopes with Mojave desertscrub vegetation. However, no individuals of silverleaf sunray were observed in the project area during site visits on June 29 or on October 4, 2012.

Analysis and Determination of Effects

Direct Effects: The HDMS search indicated that silverleaf sunrays are known to occur within 3.0 miles of the project limits (Appendix C), but no individuals were observed in the project area during two site visits during 2012. Therefore, no direct impacts to silverleaf sunrays are anticipated.

Indirect Effects: This project would result in disturbance of up to 6 acres of land during construction, use of staging areas and a specified route for vehicles to access the work area. Activities in these areas willresult in soil disturbance that could change baseline conditions for the silverleaf sunray in the project area. This project may have indirect effects to silverleaf sunray.

Interrelated and Interdependent Actions: The proposed project is linked to geotechnical investigation activities that are expected to occur in early 2013, prior to construction on the bridge. Impacts related to the geotechnical investigation were evaluated in an earlier BE.

Cumulative Effects: Cumulative effects include the effects of future non-federal actions (i.e., state, local, or private actions) that are reasonably certain to occur in the project area. Future federal actions are subject to the consultation requirements established under Section 7 of the Endangered Species Act (ESA) and, therefore, are not considered cumulative in the proposed action. Some activities on private or state lands may require federal permits, e.g., a Clean Water Act Section 404 permit, and thus will be subject to Section 7 consultation. Several other projects are planned along the Virgin River corridor of I-15 in Arizona, but none of these projects are scheduled at this time. All of these projects are likely to have a federal nexus and therefore are not considered to contribute to cumulative impacts with respect to this project. No additional habitat loss associated with facilitation of private development is anticipated because there is no privately owned land adjacent to or near the project area. Overall, no cumulative effects on silverleaf sunrays are anticipated.

Determination: This project may have indirect effects to the silverleaf sunray. Therefore, this project may impact individuals of silverleaf sunray, but is not likely to result in a trend toward federal listing or loss of viability.

Desert Sucker (*Catostomus clarki*)

Life History

The desert sucker occurs in several drainage basins in Arizona and New Mexico, including the lower Colorado River downstream from the Grand Canyon, the Virgin River, and the Bill Williams, Salt, Gila, San Francisco, and Verde river systems. The species is most common in small to moderately large streams at elevations from about 480 to 8,840 feet amsl (AGFD 2002b). Desert suckers are most common in riffles, rapids, and flowing pools, primarily in areas where the stream bottom consists of gravel-rubble with sandy silt in the interstices. Desert suckers are highly adaptable and can survive in a wide range of water temperatures and relatively low oxygen levels. However, the species does not occur in reservoirs.

Spawning occurs on riffles from late winter to early spring. The adults congregate in large numbers during spawning, and the females bury their adhesive eggs in a depression in loose gravelly substrate. The young congregate in quiet waters near the streambank, and progressively move into mainstream areas as they grow. Juveniles mature by their second year at a length of about four to five inches, and individuals can grow to about 31 inches in length. Chironomid (midge) larvae are the primary dietary items for juveniles. Adults are herbivorous, and use their cartilaginous-sheathed mouth to scrape diatoms and algae from rocks; they also ingest plant detritus (AGFD 2002b, Minckley and Marsh 2009).

The desert sucker is listed as a BLM sensitive species, and the HDMS search indicated that this species is known to occur within 3.0 miles of the project limits (Appendix C). Desert suckers are generally common throughout areas where they remain extant. However, the species does not occur in reservoirs, such that the building of numerous dams and diversions has decreased the geographic range of this species from historic times. Stocking of non-native fish has also increased competition for desert suckers (AGFD 2002b).

Survey History

Several formal surveys have been conducted for desert suckers downstream of the project area. Surveys were conducted near Beaver Dam Wash Bridge (approximately 8.4 river-miles downstream from the project area) during August 2010 as part of a program to monitor impacts of construction activities to endangered species of fish. No desert suckers were captured during this effort (Liebfried 2011). Long-term monitoring of native fish (1996-2011) has also occurred from near the project area in the lower Virgin River Gorge downstream into Nevada (Golden and Holden 2004; referenced in Kegeries and Albrecht 2012). Results from more recent surveys (2009-2011) indicate that desert suckers were present at most sampling sites during each sampling period (Kegeries and Albrecht 2012). The most recent surveys, in June and August 2012, sampled several reaches of the Virgin River from the Lower Gorge to Halfway Wash in Nevada. The June survey captured a total of 2,824 desert suckers, mostly in areas upstream of Mesquite, Nevada (capture sites from upstream to downstream: 1,379 in Lower Gorge, 433 at Mouth of the Gorge, 652 at Beaver Dam Wash, 336 in the Experimental reach, and 23 individuals below Bunkerville Diversion; only one individual was captured at Riverside). The August survey captured 27 desert suckers, all of which were in the Experimental reach (B. Wooldridge, USFWS, e-mail to K. Gade, ADOT, October 9, 2012). Relative to the project area, the closest current records for desert sucker are from the June 2012 surveys in the Lower Gorge, which is immediately downstream of the fish barrier (Figures 2 and 5). No survey data or other information (except for the map in Minckley and Marsh 2009) have been found for occurrences in upper reaches of Virgin River Gorge or further upstream.

Habitat Evaluation and Suitability

Desert suckers are known to occur in the Virgin River in western Nevada, Arizona, and into southern Utah (Minckley and Marsh 2009; Appendix C). No specific locale data are available, but the HDMS search indicated that desert suckers were reported within 3.0 miles of the project limits (Appendix C); this species appears to occur throughout the Virgin River within Arizona (Minckley and Marsh 2009). Additionally, effluent released upstream provides an additional source of water to the intermittent flows through the project area. The Virgin River has water most of the year; however, during periods of low rainfall or snowmelt, the river channel may dry up within the project area. Desert suckers are highly likely to be present in the project area if water is present in the channel.

Analysis and Determination of Effects

Direct effects: Desert suckers are known to occur within 3.0 miles of the project limits (Appendix C), and they are assumed to be present in the project area. Several construction activities would involve work within the low-flow channel and the 100-year floodplain that could have direct effects to desert suckers, which are assumed to be present within the project area. These activities are discussed in detail in the project description, along with conservation measures built into the construction of the project that would be used to minimize potential impacts. Specific measures which would minimize potential direct impacts to desert suckers include: (1) building a temporary bridge across the channel so that vehicles and equipment do not enter the channel, (2) seining and relocating native fish prior to in-stream activities, and (3) containment measures to prevent debris from inadvertently falling into the river. No culverts will be used in the low flow channel of the Virgin River during the project, and the flow of the channel will be maintained throughout the duration of the project.

During all in-stream activities, direct impacts to native fish would be minimized by hiring a qualified fisheries biologist, permitted by AGFD and the USFWS. This biologist would install fish barrier screens upstream and downstream of the project limits prior to in-stream activities (both during construction and then removal of the cofferdam and temporary bridge), and would seine native fish from inside the area, relocating them downstream. Handling of fish for mitigation purposes during the seining process has the potential to directly impact individuals of desert sucker that may occur in the project area. Mitigation would also include placing a fish screen on water pump intake hoses during the initial dewatering behind the cofferdam and during any pumping occurring after high flow events that overtop the cofferdam. The biologist would also monitor the integrity of the barrier screens, which would be removed upon completion of in-stream activities. Containment measures would be used to prevent debris from inadvertently falling into the river. Consequently, no direct impacts are anticipated as a result of debris falling into the water.

These mitigation measures would minimize direct impacts to the desert sucker, but it is anticipated that low levels of harm or mortality may occur. Desert sucker are likely to be common in the project area, and several individuals may be impacted during these project activities; however these impacts are expected to be minor due to their ability to swim away from disturbance, and the low probability of direct impact to any one individual.

Indirect effects: The construction activities and conservation measures described above may have indirect effects to the desert sucker. The indirect effects may include: (1) erosion and scouring that would increase sediment discharge into the river as a result of project activities and loss of riparian vegetation, (2) potential changes to the stream flow and associated hydrologic processes, (3) debris falling inadvertently into the river and being carried downstream, where

they could damage the fish barrier, and (4) potential spills of oil, fuel, and other materials into the river.

The potential for increased erosion would be minimized by using BMPs that would include: (1) constructing a temporary sediment basin or filter to reduce sediment entering the water, (2) installing sediment fences between areas of disturbance and all flowing waters, and (3) regular inspection of sediment fences to maintain proper function. With these BMPs, increased erosion would be a minor, temporary impact that would cease following completion of the project. In-stream construction would occur only during a small portion of this time period, and riparian vegetation (e.g. saltcedar) would re-establish following completion of the project. The cofferdams would extend approximately 15 feet into the low-flow channel, such that flow of water through that localized area would increase, as would the amount of scouring and downstream sedimentation. Cofferdams would be a temporary, indirect impact as they would be removed after approximately three months. The increased sedimentation arising from loss or riparian vegetation and in-stream activities, including the cofferdams, is not anticipated to cause impacts to desert sucker habitat because flowing water in the Virgin River is normally extremely turbid (see Section 3). Consequently, the localized, temporary increase in turbidity caused by this project (arising from areas both outside of and from within the stream channel) are anticipated to result in insignificant and discountable indirect impacts to desert suckers.

Additional indirect impacts could include placing a temporary pyle to support the temporary bridge crossing, as well as placement of two columns to provide additional support for Pier 2. Placement of these structures would result in localized changes to the streamflow adjacent to these structures. The river would still flow around Pier 2 and through the low-flow channel. Because of the localized nature of the project, these structures are not anticipated to change the hydrologic regime or flood events in or near the project area. Thus, indirect effects resulting from placement of these structures are anticipated to be insignificant and discountable.

As mentioned above, mitigation would also include containment measures to prevent debris from inadvertently falling into the river and flowing downstream, where they could damage the fish barrier. Consequently, no impacts to the fish barrier, which could cause indirect impacts to native fish by allowing non-native fish to move upstream if damaged, are anticipated.

The project would also implement a vehicle fluid-leakage and spill plan to prevent water contamination by any vehicles. The plan shall include provisions for immediate clean-up of any substance, and would define how each substance would be treated in case of leakage or spill. Spilled materials are not anticipated to cause harm to any desert sucker individuals. It is anticipated that these mitigation measures would minimize indirect impacts to the desert sucker, but low levels of indirect impacts might be anticipated as a result of this project. Indirect impacts to desert suckers are possible even with these mitigation measures.

Interrelated and Interdependent Actions: The proposed project is linked to geotechnical investigation activities that are expected to occur in early 2013, prior to construction on the bridge. Impacts related to the geotechnical investigation were evaluated in an earlier BE.

Cumulative Effects: Cumulative effects include the effects of future non-federal actions (i.e., state, local, or private actions) that are reasonably certain to occur in the project area. Future federal actions are subject to the consultation requirements established under Section 7 of the ESA and, therefore, are not considered cumulative in the proposed action. Some activities on private or state lands may require federal permits, e.g., a Clean Water Act Section 404 permit, and thus will be subject to Section 7 consultation. Several other projects are planned along the Virgin River corridor of I-15 in Arizona, but none of these projects are scheduled at this time.

All of these projects are likely to have a federal nexus and therefore are not considered to contribute to cumulative impacts with respect to this project. No additional habitat loss as a result of facilitation of private development is anticipated because there is no privately owned land adjacent to or near the project area. Overall, no cumulative effects on desert sucker are anticipated.

Determination: This project may result in temporary direct and indirect effects to the desert sucker. Therefore, this project may impact individual desert suckers, but is not likely to result in a trend toward federal listing or loss of viability.

Flannelmouth Sucker (*Catostomus latipinnis*)

Life History

The flannelmouth sucker is most common in moderately large to large rivers that include the Virgin River, the mainstream Colorado and its tributaries in Grand-Marble Canyon upstream from Lake Mead, the San Juan River in New Mexico and Colorado, and the Green and Colorado Rivers upstream of Lake Powell (Minckley and Marsh 2009). Moreover, this species is characteristic of large, strongly flowing rivers, but it does poorly in reservoirs. The species occurs at elevations that range from 1,540-3,160 feet amsl. In turbid water, flannelmouth suckers occupy runs and strongly flowing reaches, and sometimes riffles or rapids, whereas in clear water, it stays near obstructions or debris or in deeper eddies and locations along banks during the day, but at night they move to shallows to feed (AGFD 2001a; Minckley and Marsh 2009).

Spawning occurs from April through early June at the upstream end of shallow cobble bars, gravel-cobble substrates in riffles and along the margins of rapids, and in low gradient mouths of tributaries. The larvae and young fish remain in and near tributary mouths to feed and grow, often using shallows and slow-flowing nearshore areas. The larvae primarily feed on Chironomid larvae (midges), cladocerans, copepods, and inorganic material. The juveniles have a similar diet that also includes ostracods and vascular plants, while the diet of adults includes the freshwater shrimp (*Gammarus lacustris*), immature dipterans and other macroinvertebrates, filamentous algae, and debris and detritus (AGFD 2001a; Minckley and Marsh 2009).

The flannelmouth sucker is listed as a BLM sensitive species and has been reported to AGFD to occur within 3.0 miles of the project limits (Appendix C). The geographic range of flannelmouth sucker has decreased significantly from historic times. The most common threats to this species include altering the hydrologic and thermal regime of river habitats, predation by and competition with introduced species, and genetic isolation of populations (AGFD 2001a).

Survey History

Several formal surveys have been conducted for flannelmouth suckers downstream of the project area. Surveys were conducted near Beaver Dam Wash Bridge (approximately 8.4 river-miles downstream from the project area) during August 2010 as part of a program to monitor impacts of construction activities to endangered species of fish. No flannelmouth suckers were captured during this effort (Liebfried 2011). Long-term monitoring of native fish (from 1996-2011) has also occurred from near the project area in the lower Virgin River Gorge downstream into Nevada (Golden and Holden 2004; referenced in Kegeries and Albrecht 2012). Results from more recent surveys (2009-2011) indicate that flannelmouth suckers were present at most sampling sites during each sampling period (Kegeries and Albrecht 2012). The most recent surveys, in June and August 2012, sampled several reaches of the Virgin River from the Lower Gorge to Halfway Wash in Nevada. The June survey captured a total of 5,674 flannelmouth suckers, mostly in areas upstream of Mesquite, Nevada (capture sites from upstream to downstream: 2,955 in Lower Gorge, 479 at Mouth of the Gorge, 1,165 at Beaver Dam Wash,

781 in the Experimental reach, 271 below Bunkerville Diversion, one individual in the Nevada Department of Wildlife Burn site, and 22 individuals in the Riverside reach). The August survey captured a total of 568 flannelmouth suckers (527 in Experimental, 18 below Bunkerville Diversion, and 23 at Mesquite) (B. Wooldridge, USFWS, e-mail to K. Gade, ADOT, October 9, 2012). Relative to the project area, the closest current records for flannelmouth sucker are from the June 2012 surveys in the Lower Gorge, immediately downstream of the fish barrier (Figures 2 and 5). No survey data or other information (except for the map in Minckley and Marsh 2009) have been found for occurrences in upper reaches of Virgin River Gorge or further upstream.

Habitat Evaluation and Suitability

Flannelmouth suckers are known to occur in the Virgin River in western Nevada, Arizona, and into southern Utah (Minckley and Marsh 2009, Appendix C). No specific locale data are available, but the HDMS search indicated that desert suckers occur within 3.0 miles of the project limits (Appendix C); this species appears to occur throughout the Virgin River within Arizona (Minckley and Marsh 2009). Additionally, effluent released upstream provides an additional source of water to the intermittent flows through the project area. The Virgin River has water most of the year; however, during periods of low rainfall or snowmelt, the river channel may dry up within the project area. Flannelmouth suckers are highly likely to be present in the project area if water is present in the channel.

Analysis and Determination of Effects

Direct effects: Flannelmouth suckers are known to occur within 3.0 miles of the project limits (Appendix C), and they are assumed to be present in the project area. Several construction activities would involve work within the low-flow channel and the 100-year floodplain that could have direct effects to flannelmouth suckers, which are assumed to be present within the project area. These activities are discussed in detail in the project description, along with conservation measures built into the construction of the project that would be used to minimize potential impacts. Specific measures which would minimize potential direct impacts to flannelmouth suckers include: (1) building a temporary bridge across the channel so that vehicles and equipment do not enter the channel, (2) seining and relocating native fish prior to in-stream activities, and (3) containment measures to prevent debris from inadvertently falling into the river. No culverts will be used in the low flow channel of the Virgin River during the project, and the flow of the channel will be maintained throughout the duration of the project.

During all in-stream activities, direct impacts to native fish would be minimized by hiring a qualified fisheries biologist, permitted by AGFD and the USFWS. This biologist would install fish barrier screens upstream and downstream of the project limits prior to in-stream activities (both during construction and then removal of the cofferdam and temporary bridge), and would seine native fish from inside the area, relocating them downstream. Handling of fish for mitigation purposes during the seining process has the potential to directly impact individuals of flannelmouth sucker that may occur in the project area. Mitigation would also include placing a fish screen on water pump intake hoses during the initial dewatering behind the cofferdam and during any pumping occurring after high flow events that overtop the cofferdam. The biologist would also monitor the integrity of the barrier screens, which would be removed upon completion of in-stream activities. Containment measures would be used to prevent debris from inadvertently falling into the river. Consequently, no direct impacts are anticipated as a result of debris falling into the water.

These mitigation measures would minimize direct impacts to the flannemouth sucker, but it is anticipated that low levels of harm or mortality may occur. Flannelmouth sucker are likely to be

common in the project area, and several individuals may be impacted during these project activities; however these impacts are expected to be minor due to their ability to swim away from disturbance, and the low probability of direct impact to any one individual.

Indirect effects: The construction activities and conservation measures described above may have indirect effects to the flannelmouth sucker. The indirect effects may include: (1) erosion and scouring that would increase sediment discharge into the river as a result of project activities and loss of riparian vegetation, (2) potential changes to the stream flow and associated hydrologic processes, (3) debris falling inadvertently into the river and being carried downstream, where they could damage the fish barrier, and (4) potential spills of oil, fuel, and other materials into the river.

The potential for increased erosion would be minimized by using BMPs that would include: (1) constructing a temporary sediment basin or filter to reduce sediment entering the water, (2) installing sediment fences between areas of disturbance and all flowing waters, and (3) regular inspection of sediment fences to maintain proper function. With these BMPs, increased erosion would be a minor, temporary impact that would cease following completion of the project. In-stream construction would occur only during a small portion of this time period, and riparian vegetation (e.g. saltcedar) would re-establish following completion of the project. The cofferdams would extend approximately 15 feet into the low-flow channel, such that flow of water through that localized area would increase, as would the amount of scouring and downstream sedimentation. Cofferdams would be a temporary, indirect impact as they would be removed after approximately three months. The increased sedimentation arising from loss or riparian vegetation and in-stream activities, including the cofferdams, is not anticipated to cause impacts to flannelmouth sucker habitat because flowing water in the Virgin River is normally extremely turbid (see Section 3). Consequently, the localized, temporary increase in turbidity caused by this project (arising from areas both outside of and from within the stream channel) are anticipated to result in insignificant and discountable indirect impacts to flannelmouth suckers.

Additional indirect impacts could include placing a temporary pyle to support the temporary bridge crossing, as well as placement of two columns to provide additional support for Pier 2. Placement of these structures would result in localized changes to the streamflow adjacent to these structures. The river would still flow around Pier 2 and through the low-flow channel. Because of the localized nature of the project, these structures are not anticipated to change the hydrologic regime or flood events in or near the project area. Thus, indirect effects resulting from placement of these structures are anticipated to be insignificant and discountable.

As mentioned above, mitigation would also include containment measures to prevent debris from inadvertently falling into the river and flowing downstream, where they could damage the fish barrier. Consequently, no impacts to the fish barrier, which could cause indirect impacts to native fish by allowing non-native fish to move upstream if damaged, are anticipated.

The project would also implement a vehicle fluid-leakage and spill plan to prevent water contamination by any vehicles. The plan shall include provisions for immediate clean-up of any substance, and would define how each substance would be treated in case of leakage or spill. Spilled materials are not anticipated to cause harm to any flannelmouth sucker individuals. It is anticipated that these mitigation measures would minimize indirect impacts to the flannelmouth sucker, but low levels of indirect impacts might be anticipated as a result of this project. Indirect impacts to flannelmouth suckers are possible even with these mitigation measures.

Interrelated and Interdependent Actions: The proposed project is linked to geotechnical investigation activities that are expected to occur in early 2013, prior to construction on the bridge. Impacts related to the geotechnical investigation were evaluated in an earlier BE.

Cumulative Effects: Cumulative effects include the effects of future non-federal actions (i.e., state, local, or private actions) that are reasonably certain to occur in the project area. Future federal actions are subject to the consultation requirements established under Section 7 of the ESA and, therefore, are not considered cumulative in the proposed action. Some activities on private or state lands may require federal permits, e.g., a Clean Water Act Section 404 permit, and thus will be subject to Section 7 consultation. Several other projects are planned along the Virgin River corridor of I-15 in Arizona, but none of these projects are scheduled at this time. All of these projects are likely to have a federal nexus and therefore are not considered to contribute to cumulative impacts with respect to this project. No additional habitat loss as a result of facilitation of private development is anticipated because there is no privately owned land adjacent to or near the project area. Overall, no cumulative effects on flannelmouth sucker are anticipated.

Determination: This project may result in temporary direct and indirect effects to the flannelmouth sucker. Therefore, this project may impact individual flannelmouth suckers, but is not likely to result in a trend toward federal listing or loss of viability.

Speckled Dace (*Rhinichthys osculus*)

Life History

The speckled dace is one of the most widespread and common native fish in the western United States as it occurs in all major drainages and also in most internal basins that are known to support fish (Minckley and Marsh 2009). Speckled dace are most common in shallow water (<2 feet deep), where they often congregate in pools below riffles and eddies. Within Arizona, speckled dace occur at elevations that range from about 1,550 to 8,920 feet amsl (AGFD 2002e). The species occurs throughout the Virgin River, including the project area (Minckley and Marsh 2009; Appendix C), where it is typically the most common native fish species (Kegeries and Albrecht 2012). Speckled dace have a proclivity to invade tiny headwater streams, as well as to disperse throughout and thrive in desert rivers, which has resulted in their occurring in most springs and streams (Minckley and Marsh 2009).

Breeding occurs in spring and late summer. Reproductive behavior is poorly known, but individuals apparently spawn over coarse substrate using the broadcast spawn method. Speckled dace are mostly omnivorous, as they have been recorded to take aquatic insects, algae, detritus, and occasional terrestrial invertebrates. However, in the Virgin River, plant material was virtually absent from their diet, such that individuals were more insectivorous, with dipteran (fly) larvae comprising the bulk of the diet (Minckley and Marsh 2009).

The speckled dace is listed as a BLM sensitive species that has been reported to AGFD to occur within 3.0 miles of the project limits (Appendix C). Speckled dace are generally common throughout their range. There are few threats to the species other than that they do poorly in the presence of non-native predatory fish. The BMP for this species is to promote land use practices that maintain natural aquatic habitats (AGFD 2002e).

Survey History

Several formal surveys have been conducted for speckled dace downstream of the project area. Surveys were conducted near Beaver Dam Wash Bridge (approximately 8.4 river-miles downstream from the project area) during August 2010 as part of a program to monitor impacts

of construction activities to endangered species of fish. Speckled dace was the most common native fish species captured during this effort (Liebfried 2011). Long-term monitoring of native fish (1996-2011) has also occurred from near the project area in the lower Virgin River Gorge downstream into Nevada (Golden and Holden, 2004; referenced in Kegeries and Albrecht 2012). Results from more recent surveys (2009-2011) indicate that speckled dace were present, and were the most common native fish species at most sampling sites during each sampling period (Kegeries and Albrecht 2012). The most recent surveys, in June and August 2012, sampled several reaches of the Virgin River from the Lower Gorge to Halfway Wash in Nevada. The June 2012 survey captured 360 speckled dace, mostly in areas upstream of Mesquite, Nevada (capture sites from upstream to downstream: 6 in Lower Gorge, 137 at Mouth of the Gorge, 192 at Beaver Dam Wash, 24 in the Experimental reach, and one individual below Bunkerville Diversion). The August 2012 survey captured a total of 19 speckled dace (18 in the Experimental reach and 1 individual below Bunkerville Diversion) (B. Wooldridge, USFWS, e-mail to K. Gade, ADOT, October 9, 2012). Relative to the project area, the closest current records for speckled dace are from the June 2012 surveys in the Lower Gorge, which is immediately downstream of the fish barrier (Figures 2 and 5). No survey data or other information (except for the map in Minckley and Marsh 2009) have been found for occurrences in upper reaches of Virgin River Gorge or further upstream.

Habitat Evaluation and Suitability

Speckled dace are known to occur in the Virgin River in western Nevada, Arizona, and into southern Utah (Minckley and Marsh 2009, Appendix C). No specific locale data are available, but the HDMS search indicated that speckled dace occur within 3.0 miles of the project limits (Appendix C); this species appears to occur throughout the Virgin River within Arizona (Minckley and Marsh 2009). Within the project area, the Virgin River does not flow continuously, but rather its flow depends on rainfall and snowmelt. Effluent released upstream provides an additional source of water. However, during periods of low rainfall or snowmelt, the Virgin River may dry up within the project area. Speckled dace are highly likely to be present in the project area if water is present in the channel.

Analysis and Determination of Effects

Direct effects: Speckled dace are known to occur within 3.0 miles of the project limits (Appendix C), and they are assumed to be present in the project area. Several construction activities would involve work within the low-flow channel and the 100-year floodplain that could have direct effects to speckled dace, which are assumed to be present within the project area. These activities are discussed in detail in the project description, along with conservation measures built into the construction of the project that would be used to minimize potential impacts. Specific measures which would minimize potential direct impacts to speckled dace include: (1) building a temporary bridge across the channel so that vehicles and equipment do not enter the channel, (2) seining and relocating native fish prior to in-stream activities, and (3) containment measures to prevent debris from inadvertently falling into the river. No culverts will be used in the low flow channel of the Virgin River during the project, and the flow of the channel will be maintained throughout the duration of the project.

During all in-stream activities, direct impacts to native fish would be minimized by hiring a qualified fisheries biologist, permitted by AGFD and the USFWS. This biologist would install fish barrier screens upstream and downstream of the project limits prior to in-stream activities (both during construction and then removal of the cofferdam and temporary bridge), and would seine native fish from inside the area, relocating them downstream. Handling of fish for mitigation purposes during the seining process has the potential to directly impact individuals of

speckled dace that may occur in the project area. Mitigation would also include placing a fish screen on water pump intake hoses during the initial dewatering behind the cofferdam and during any pumping occurring after high flow events that overtop the cofferdam. The biologist would also monitor the integrity of the barrier screens, which would be removed upon completion of in-stream activities. Containment measures would be used to prevent debris from inadvertently falling into the river. Consequently, no direct impacts are anticipated as a result of debris falling into the water.

These mitigation measures would minimize direct impacts to the speckled dace, but it is anticipated that low levels of harm or mortality may occur. Speckled dace are likely to be common in the project area, and several individuals may be impacted during these project activities; however these impacts are expected to be minor due to their ability to swim away from disturbance, and the low probability of direct impact to any one individual.

Indirect effects: The construction activities and conservation measures described above may have indirect effects to the speckled dace. The indirect effects may include: (1) erosion and scouring that would increase sediment discharge into the river as a result of project activities and loss of riparian vegetation, (2) potential changes to the stream flow and associated hydrologic processes, (3) debris falling inadvertently into the river and being carried downstream, where they could damage the fish barrier, and (4) potential spills of oil, fuel, and other materials into the river.

The potential for increased erosion would be minimized by using BMPs that would include: (1) constructing a temporary sediment basin or filter to reduce sediment entering the water, (2) installing sediment fences between areas of disturbance and all flowing waters, and (3) regular inspection of sediment fences to maintain proper function. With these BMPs, increased erosion would be a minor, temporary impact that would cease following completion of the project. In-stream construction would occur only during a small portion of this time period, and riparian vegetation (e.g. saltcedar) would re-establish following completion of the project. The cofferdams would extend approximately 15 feet into the low-flow channel, such that flow of water through that localized area would increase, as would the amount of scouring and downstream sedimentation. Cofferdams would be a temporary, indirect impact as they would be removed after approximately three months. The increased sedimentation arising from loss or riparian vegetation and in-stream activities, including the cofferdams, is not anticipated to cause impacts to speckled dace habitat because flowing water in the Virgin River is normally extremely turbid (see Section 3). Consequently, the localized, temporary increase in turbidity caused by this project (arising from areas both outside of and from within the stream channel) are anticipated to result in insignificant and discountable indirect impacts to speckled dace.

Additional indirect impacts could include placing a temporary pyle to support the temporary bridge crossing, as well as placement of two columns to provide additional support for Pier 2. Placement of these structures would result in localized changes to the streamflow adjacent to these structures. The river would still flow around Pier 2 and through the low-flow channel. Because of the localized nature of the project, these structures are not anticipated to change the hydrologic regime or flood events in or near the project area. Thus, indirect effects resulting from placement of these structures are anticipated to be insignificant and discountable.

As mentioned above, mitigation would also include containment measures to prevent debris from inadvertently falling into the river and flowing downstream, where they could damage the fish barrier. Consequently, no impacts to the fish barrier, which could cause indirect impacts to native fish by allowing non-native fish to move upstream if damaged, are anticipated.

The project would also implement a vehicle fluid-leakage and spill plan to prevent water contamination by any vehicles. The plan shall include provisions for immediate clean-up of any substance, and would define how each substance would be treated in case of leakage or spill. Spilled materials are not anticipated to cause harm to any speckled dace individuals. It is anticipated that these mitigation measures would minimize indirect impacts to the speckled dace, but low levels of indirect impacts might be anticipated as a result of this project. Indirect impacts to speckled dace are possible even with these mitigation measures.

Interrelated and Interdependent Actions: The proposed project is linked to geotechnical investigation activities that are expected to occur in early 2013, prior to construction on the bridge. Impacts related to the geotechnical investigation were evaluated in an earlier BE.

Cumulative Effects: Cumulative effects include the effects of future non-federal actions (i.e., state, local, or private actions) that are reasonably certain to occur in the project area. Future federal actions are subject to the consultation requirements established under Section 7 of the ESA and, therefore, are not considered cumulative in the proposed action. Some activities on private or state lands may require federal permits, e.g., a Clean Water Act Section 404 permit, and thus will be subject to Section 7 consultation. Several other projects are planned along the Virgin River corridor of I-15 in Arizona, but none of these projects are scheduled at this time. All of these projects are likely to have a federal nexus and therefore are not considered to contribute to cumulative impacts with respect to this project. No additional habitat loss as a result of facilitation of private development is anticipated because there is no privately owned land adjacent to or near the project area. Overall, no cumulative effects on speckled dace are anticipated.

Determination: This project may result in temporary direct and indirect effects to the speckled dace. Therefore, this project may impact individual speckled dace, but is not likely to result in a trend toward federal listing or loss of viability.

American Peregrine Falcon (*Falco peregrinus anatum*)

Life History

The peregrine falcon consists of several subspecies. Three of these subspecies occur in North America. Two of the subspecies may occur in the area during migration, but *F. peregrinus anatum* is the only subspecies that breeds in the project area. This subspecies occurs throughout contiguous North America from central Canada to central Mexico (USFWS 1999). In Arizona, peregrine falcons are known to utilize areas that range from elevations of 400 to 9,000 feet amsl, and they breed wherever sufficient prey is available near cliffs. Consequently, densities are highest in areas such as the Mogollon Rim, Grand Canyon, and Colorado Plateau (AGFD 2002d). Preferred habitat for peregrine falcons consists of steep, sheer cliffs that overlook woodlands, riparian areas, and other habitats that support a high density of their avian prey species. Expansive open areas are also considered to be critical.

Nesting sites, also called eyries, usually consist of a shallow depression scraped into a ledge on the side of a cliff. In Arizona, peregrine falcons lay eggs from mid-March through mid-May and sometimes into June. Incubation lasts approximately 32 days, and nestlings fledge at about six weeks. Individuals are usually sexually mature at two years of age, and the females usually lay eggs every year until they die. The pairs are typically monogamous for several years or more, and individuals can live up to 10 to 12 years. Peregrine falcons are aerial predators that usually kill their prey in the air. Birds comprise the most common prey item, but bats are also taken (AGFD 2002d).

Peregrine falcons underwent large population declines in the United States following World War II. The declines were linked to the use of organochlorine insecticides, which caused mortality and adversely affected reproduction. One of the major culprits was dichlorodiphenyltrichloroethane (DDT), which caused eggshell thinning and subsequent reproductive failure. As a result of these declines, the peregrine falcon was listed as endangered under the ESA in 1970. Cessation of the use of DDT resulted in an increased reproductive success, and subsequent population increases, which resulted in the species being delisted in 1999 (USFWS 1999). In Arizona, peregrine falcons now occur in areas that had previously been considered marginal habitat, suggesting that populations in optimal habitats are approaching saturation (AGFD 2002d). The American peregrine falcon is protected under the Migratory Bird Treaty Act (MBTA), as well as being listed as a BLM sensitive species; peregrine falcons have been reported to occur within 3.0 miles of the project limits (Appendix C).

Survey History

The Peregrine Fund, BLM and AGFD monitor habitat use and nesting activities by American peregrine falcons in the Virgin River Gorge area. One peregrine falcon eyrie occurs approximately 0.7 mile from the project area (S. Langston, BLM, pers. comm. to author, October 11, 2012). No evidence of white-washed cliff ledges that typify a falcon eyrie was observed during a survey of surrounding habitats during the October 4, 2012, site visit.

Habitat Evaluation and Suitability

Habitat within the project area consists of hilly, mountainous terrain of mostly open desertscrub habitat that is suitable as foraging habitat for American peregrine falcons. Higher elevation areas in the adjacent mountains could also provide suitable nesting habitat for peregrine falcons.

Analysis and Determination of Effects

Direct Effects: American peregrine falcons have been reported to AGFD to occur within 3.0 miles of the project limits (Appendix C), with an eyrie approximately 0.7 mile from the project area (S. Langston, BLM, pers. comm. to author, October 11, 2012). No parts of the proposed project would directly affect American peregrine falcons. Therefore, no direct impacts to American peregrine falcons are anticipated.

Indirect Effects: This proposed project would involve construction in and adjacent to the Virgin River Bridge No. 6 and modifications to the approach segments. The project will not involve any blasting. The project area would only be used as foraging habitat by American peregrine falcons. Birds, their most common prey item, are typically attacked in the air. Optimal foraging habitat is considered to be areas that support a high abundance of birds, such as riparian habitats. Riparian habitat in the project area consists of small, scattered patches of saltcedar that provide very low quality habitat for breeding birds. However, the riverine area provides potential habitat for ducks, which also are a common prey item for American peregrine falcons. Ducks are likely to be present in the project area except during their breeding season. Consequently, disturbances resulting from the proposed construction activities may result in temporary restrictions on foraging by American peregrine falcons. Therefore, indirect effects that include temporary loss of foraging habitat would result from this project. Therefore, this project may have indirect effects to the American peregrine falcon.

Interrelated and Interdependent Actions: The proposed project is linked to geotechnical investigation activities that are expected to occur in early 2013, prior to construction on the bridge. Impacts related to the geotechnical investigation were evaluated in an earlier BE.

Cumulative Effects: Cumulative effects include the effects of future non-federal actions (i.e., state, local, or private actions) that are reasonably certain to occur in the project area. Future

federal actions are subject to the consultation requirements established under Section 7 of the ESA and, therefore, are not considered cumulative in the proposed action. Some activities on private or state lands may require federal permits, e.g., a Clean Water Act Section 404 permit, and thus will be subject to Section 7 consultation. Several other projects are planned along the Virgin River corridor of I-15 in Arizona, but none of these projects are scheduled at this time. All of these projects are likely to have a federal nexus and therefore are not considered to contribute to cumulative impacts with respect to this project. No additional habitat loss associated with facilitation of private development is anticipated because there is no privately owned land adjacent to or near the project area. Overall, no cumulative effects on American peregrine falcons are anticipated.

Determination: This project may have temporary indirect effects to the American peregrine falcon. Therefore, this project may impact individuals of the American peregrine falcon, but it is not likely to result in a trend toward federal listing or loss of viability.

Golden Eagle (*Aquila chrysaetos*)

Life History

The golden eagle consists of several subspecies, but only one of these, *A. chrysaetos canadensis*, occurs in North America. This subspecies occurs throughout contiguous North America from Canada south to central Mexico. Golden eagles occur throughout Arizona, where they are usually found in open country that includes prairies, tundra, and open wooded habitats, but they seem to be most common in hilly or montane regions. Golden eagles usually avoid urban areas (AGFD 2002a; USFWS 2011b).

In most western states, the territories of golden eagles ranges from about 22 to 55 square miles, depending on topography and prey availability. Nests, which are constructed from sticks and other soft material, are usually placed on cliffs or in large trees that afford an unobstructed view of their surroundings. In the southwest, one to three eggs (usually two) are laid from about late February to March. Incubation lasts 40 to 45 days, and juveniles can fly after two months. Breeding begins at 4 to 5 years of age, and pairs are often monogamous for life. Golden eagles are aerial predators that eat various vertebrates, including reptiles, birds, and small to medium-sized mammals; insects and carrion are also eaten occasionally (AGFD 2002a; USFWS 2011b).

The number of golden eagles appears to be stable throughout most of the United States, with the exception of a possible decline in the number of juveniles in the southern Rockies. Populations are thought to undergo a roughly ten-year cycle (USFWS 2011b). The golden eagle is protected by the MBTA and Bald and Golden Eagle Protection Act (BGA), as well as being a BLM sensitive species, with identified threats including habitat alteration and conversion, power-line electrocution, and poisons intended for other species. They are also very sensitive to human disturbance during nesting (AGFD 2002a). The HDMS search indicated that golden eagles are known to occur within 3.0 miles of the project limits (Appendix C).

Survey History

The BLM and AGFD monitor habitat use and nesting activities by golden eagles in the Virgin River Gorge area. No golden eagles are known to nest near the project area at this time (J. Gist, AGFD, pers. comm. to author, September 25, 2012). Additionally, no large stick nests were observed in surrounding areas during the October 4, 2012, site visit.

Habitat Evaluation and Suitability

Habitat within the project area consists of hilly, mountainous terrain of mostly open desertscrub habitat that is suitable as foraging habitat for golden eagles. Higher elevation areas in the adjacent mountains could also provide suitable nesting habitat.

Analysis and Determination of Effects

Direct Effects: Golden eagles are not known to currently occur within 3.0 miles of the project limits (J. Gist, AGFD, pers. comm. to author, September 25, 2012). The project area would only be used as foraging habitat by golden eagles. No activities of the proposed project would directly affect foraging by golden eagles. Therefore, no direct impacts to golden eagles are anticipated.

Indirect Effects: This proposed project would involve construction in and adjacent to the Virgin River Bridge No. 6 and modifications to the approach segments. The project will not involve any blasting. The project area would only potentially be used as foraging habitat by golden eagles. Foraging by golden eagles is not associated with water, but rather involves hunting terrestrial animals in open country. Construction activities would be localized along the Virgin River such that they would not affect foraging by golden eagles. Consequently, the proposed construction activities would not affect baseline conditions for golden eagles that might occur in the project area. Therefore, it is unlikely that indirect effects such as habitat degradation or temporary loss of habitat would result from this project. No indirect impacts to golden eagles are anticipated.

Interrelated and Interdependent Actions: The proposed project is linked to geotechnical investigation activities that are expected to occur in early 2013, prior to construction on the bridge. Impacts related to the geotechnical investigation were evaluated in an earlier BE.

Cumulative Effects: Cumulative effects include the effects of future non-federal actions (i.e., state, local, or private actions) that are reasonably certain to occur in the project area. Future federal actions are subject to the consultation requirements established under Section 7 of the ESA and, therefore, are not considered cumulative in the proposed action. Some activities on private or state lands may require federal permits, e.g., a Clean Water Act Section 404 permit, and thus will be subject to Section 7 consultation. Several other projects are planned along the Virgin River corridor of I-15 in Arizona, but none of these projects are scheduled at this time. All of these projects are likely to have a federal nexus and therefore are not considered to contribute to cumulative impacts with respect to this project. No additional habitat loss associated with facilitation of private development is anticipated because there is no privately owned land adjacent to or near the project area. Overall, no cumulative effects on golden eagles are anticipated.

Determination: No direct or indirect effects or cumulative effects are anticipated as result of this project. Therefore, the project would have no impact on the golden eagle.

Townsend's Big-eared Bat (*Corynorhinus townsendii*)

Life History

The Townsend's big-eared bat has a widespread distribution that includes northern Mexico, and southern California east to the Edwards Plateau of Texas, with additional populations in South Dakota, Kansas, and Oklahoma. This species occurs throughout Arizona at elevations that range from 550 to 7,520 feet amsl in habitats that include desertscrub, oak woodland, oak-pine, pinyon-juniper, and coniferous forests. However, the species occurs infrequently in the desert mountains at elevations below 3,000 feet amsl (Hoffmeister 1986; AGFD 2003).

Individuals spend days mostly in caves or mine tunnels, but they often rest in abandoned buildings at night. These bats typically hang from open ceilings and do not use cracks or

crevices. During winter, individuals hibernate in cold caves, lava tubes, and mines. Summer colonies can contain up to 100 individuals, while this number is much lower for the same colony in winter (Hoffmeister 1986). Pregnant females congregate in nursery or maternity colonies during the summer, with males typically remaining separate. Females are pregnant in April and likely give birth in June; the young are usually flying within six to eight weeks (AGFD 2003).

Townsend's big-eared bats are insectivorous, with small moths comprising the bulk of their diet; other insects, such as beetles, flies, and bees, are also eaten occasionally. Individuals typically forage up to four to five miles from their roost.

The numbers of Townsend's big-eared bats are thought to be declining, primarily due to loss of cave and mine habitat. Human disturbance and vandalism at maternity and hibernating sites also pose a threat to this species. The Townsend's big-eared bat is listed as a BLM sensitive species, with the closest known location at Beaver Dam Wash; therefore it is likely that they occur in the project area (S. Langston, BLM, pers. comm. to author, September 14, 2012).

Survey History

No known formal surveys have been conducted for Townsend's big-eared bats in or near the project area.

Habitat Evaluation and Suitability

Cave and mine habitat is likely present in the general project vicinity. Townsend's big-eared bats are likely to occur in the project vicinity (S. Langston, BLM, pers. comm. to author, September 14, 2012). Individuals are likely to occur in the project area during summer, but they are probably absent during winter given that winter populations are only known from areas south of the Grand Canyon (Hoffmeister 1986).

Analysis and Determination of Effects

Direct Effects: Townsend's big-eared bats are likely to occur in the project vicinity (S. Langston, BLM, pers. comm. to author, September 14, 2012). Construction activity might have direct effects on individuals of this species if they were roosting under the bridge. However, no evidence of roosting bats was observed under the bridge during field reconnaissance on June 29 or on October 4, 2012, and a pre-construction survey for bats will be conducted. Additionally, Townsend's big-eared bats are not expected to occur under the bridge in the future because this species rarely roosts under bridges, and because of the high availability of suitable roosting habitat in adjacent areas. No direct impacts to Townsend's big-eared bats are anticipated.

Indirect Effects: This proposed project would involve construction in and adjacent to the Virgin River Bridge No. 6. These construction activities would not affect baseline conditions for Townsend's big-eared bats that might occur in the project area. Therefore, it is unlikely that indirect effects such as habitat degradation or temporary loss of habitat would result from this project. No indirect effects to Townsend's big-eared bats are anticipated.

Interrelated and Interdependent Actions: The proposed project is linked to geotechnical investigation activities that are expected to occur in early 2013, prior to construction on the bridge. Impacts related to the geotechnical investigation were evaluated in an earlier BE.

Cumulative Effects: Cumulative effects include the effects of future non-federal actions (i.e., state, local, or private actions) that are reasonably certain to occur in the project area. Future federal actions are subject to the consultation requirements established under Section 7 of the ESA and, therefore, are not considered cumulative in the proposed action. Some activities on private or state lands may require federal permits, e.g., a Clean Water Act Section 404 permit, and thus will be subject to Section 7 consultation. Several other projects are planned along the

Virgin River corridor of I-15 in Arizona, but none of these projects are scheduled at this time. All of these projects are likely to have a federal nexus and therefore are not considered to contribute to cumulative impacts with respect to this project. There is no privately owned land adjacent to or near the project area, such that there will be no additional habitat loss associated with facilitation of private development. Overall, no cumulative effects on Townsend's big-eared bats are anticipated.

Determination: No direct, indirect, or cumulative effects are anticipated as result of this project. Therefore, the project will have no impact on the Townsend's big-eared bat.

Desert Springsnail (*Pyrgulopsis deserta*)

Life History

Pyrgulopsis is a North American genus of snails that consists of about 65 described species; the genus is diagnosed by their small size (approximately 0.04 to 0.08 inches in length) and an ovate to ovate-conic shell (Hershler 1994). Most species in the genus, including the desert springsnail, appear to have very restricted geographic distributions. The known distribution of the desert springsnail is restricted to the Virgin River drainage from near St. George, Utah, to below the Virgin River Gorge near Littlefield, Arizona. The distribution appears to consist of isolated populations that inhabit springs that flow into the Virgin River (Hershler 1994; AGFD 2004). Nothing is known about the biology, food habits, or population dynamics of the desert springsnail (AGFD 2004).

The desert springsnail is listed as a BLM sensitive species and has been reported to AGFD to occur within 3.0 miles of the project limits (Appendix C). Threats to the desert springsnail include water projects such as spring capping and development, highway construction, and land exchanges that allow development of habitat (AGFD 2004).

Survey History

No known formal surveys have been conducted for desert springsnails in or near the project area.

Habitat Evaluation and Suitability

No springs or seeps were observed in the project area during field reconnaissance on June 29 and October 4, 2012. The nearest verified locale for this species is about 1.9 miles downstream from Bridge No. 6. BLM records indicate there are 27 undeveloped springs in the Virgin River Gorge downstream of the project area (the closest is 0.9 mile downstream from Bridge No. 6) (S. Langston, BLM, pers. comm. to author, September 21, 2012). All of these springs provide potential habitat for the desert springsnail.

Analysis and Determination of Effects

Direct Effects: The HDMS search indicated that desert springsnails are known to occur within 3.0 miles of the project limits (Appendix C). No springs or seeps were observed in the project area during site visits on June 29 and October 4, 2012. The only construction activity that is likely to directly affect this species involves individuals that might be harmed or killed during construction activities that occur within the channel of the Virgin River. However, this species is only known to occur in seeps and springs downstream of the project area; the nearest spring is located approximately 0.9 mile downstream from the project area. Therefore, no direct impacts to desert springsnails are anticipated.

Indirect effects: Indirect effects from project activities may include: (1) erosion and scouring and loss of riparian vegetation that would increase discharge into the river, and (2) potential spills of oil, fuel, and other materials into the river.

The potential for increased erosion would be minimized by using BMPs that would include: (1) constructing a temporary sediment basin or filter to reduce sediment from entering the water, (2) installing sediment fences between areas of disturbance and all flowing waters, and (3) regular inspection of sediment fences to maintain proper function. Due to these BMPs, increased erosion would be a minor, temporary impact that would cease following completion of the project. In-stream construction would occur only during a small portion of this time period, and riparian vegetation would re-establish following completion of the project. The increased sedimentation arising from loss or riparian vegetation and in-stream activities including the cofferdams is not anticipated to cause impacts to desert springsnail habitat because this species inhabits seeps and springs outside of the channel.

The project would also implement a vehicle fluid-leakage and spill plan to prevent water contamination by all vehicles. The plan shall include provisions for immediate clean-up of any substance, and would define how each substance would be treated in case of leakage or spill. Materials are not anticipated to cause harm to any individuals of desert springsnail. Indirect impacts to the desert springsnail are not anticipated.

Interrelated and Interdependent Actions: The proposed project is linked to geotechnical investigation activities that are expected to occur in early 2013, prior to construction on the bridge. Impacts related to the geotechnical investigation were evaluated in an earlier BE.

Cumulative Effects: Cumulative effects include the effects of future non-federal actions (i.e., state, local, or private actions) that are reasonably certain to occur in the project area. Future federal actions are subject to the consultation requirements established under Section 7 of the ESA and, therefore, are not considered cumulative in the proposed action. Some activities on private or state lands may require federal permits, e.g., a Clean Water Act Section 404 permit, and thus will be subject to Section 7 consultation. Several other projects are planned along the Virgin River corridor of I-15 in Arizona, but none of these projects are scheduled at this time. All of these projects are likely to have a federal nexus and therefore are not considered to contribute to cumulative impacts with respect to this project. There is no privately owned land adjacent to or near the project area, such that there will be no additional habitat loss associated with facilitation of private development. Overall, no cumulative effects on desert springsnail are anticipated.

Determination: No direct, indirect, or cumulative effects are anticipated as result of this project. Therefore, the project will have no impact on the desert springsnail.

7. MITIGATION MEASURES

District Responsibilities

General

- At least 10 days prior to construction, the Engineer will contact the Environmental Planning Group to arrange for a qualified biologist to produce a handout and present an environmental awareness program to personnel who will be on-site, including, but not limited to, contractors, contractors' employees, supervisors, inspectors, and subcontractors. This program will contain, at a minimum, information concerning the biology and distribution of the Virgin River chub (*Gila seminuda*), woundfin (*Plagopterus argentissimus*), Southwestern willow flycatcher (*Empidonax traillii extimus*), California condor (*Gymnogyps californianus*), and Mojave Desert tortoise (*Gopherus agassizii*) legal status and occurrence in the project area, measures to avoid impacts to California condor and Mojave Desert

tortoise, and procedures to be implemented in case of California condor and Mojave Desert tortoise encounters.

- At least 10 days prior to construction, the Engineer will contact the Environmental Planning Group to arrange for a general biological construction monitor. The biological monitor shall monitor mitigation related to sensitive species for the duration of the project. The monitor will submit weekly reports to the Environmental Planning Group Biologist (602.712.7649 or 602.712.7767).
- At least 10 days prior to construction, the Engineer will contact the Environmental Planning Group to arrange for a qualified biologist to conduct a visual preconstruction survey of the underside of the bridge to look for bats potentially roosting on the bridge structure. The biologist shall provide a memo with results of the preconstruction survey, and a follow-up memo(s) after any additional surveys/monitoring required, to the Arizona Department of Transportation Environmental Planning Group Biologist (602.712.7649 or 602.712.7767).

California condor

- Ten days prior to construction, the Engineer will contact The Peregrine Fund (928.355.2270 or 928.355.2277 or 928.606.5155) to determine the locations and status of any condors in or near the project area. The Engineer will then contact the Department Environmental Planning Group Biologist (602.712.7649) to discuss the results, review project actions for any condor concerns, and discuss any actions necessary to avoid impacts to condors.

Virgin River chub and woundfin

- At least 21 days prior to initiation of work in the active stream channel, the Engineer will contact the Environmental Planning Group to arrange for a qualified fish biologist with a U.S. Fish and Wildlife Service Recovery Permit for handling Virgin River chub and woundfin to be present on-site to monitor environmental effects during activities that have the potential disturb that active stream channel.
- At least 21 days prior to initiation of work in the active stream channel, the Engineer will contact the Environmental Planning Group to arrange for a qualified fish biologist with a U.S. Fish and Wildlife Service Recovery Permit for handling Virgin River chub and woundfin to install barriers or block screens in the Virgin River upstream and downstream of the construction area 7 days prior to initiation of work in the active stream channel. The qualified fish biologist will oversee the process of capturing all native fish and frogs within the construction area by seine, and relocating them downstream of the barriers or block screens. Barrier screens shall be removed upon completion of in-stream construction activities. If barrier screens are removed following construction of an in-stream structure, such as a cofferdam, the fish removal process must be repeated prior to removal of in-stream structures at the completion of in-stream construction activities.

Contractor Responsibilities

General

- Construction activities and equipment shall be confined to the designated construction work areas. The Contractor shall mark the designated construction areas with lathes and flagging prior to commencement of any construction or ground-disturbing activities. Construction activities will be contained in these areas. Work in new areas must be approved by the District Engineer.
- The Contractor shall mark the 100-year floodplain with lathes and flagging prior to commencement of any construction or ground-disturbing activities.

- There shall be no disturbance to native vegetation outside designated construction areas.
- Prior to construction, the contractor shall develop a Storm Water Pollution Prevention Plan. The plan shall be approved by the Engineer prior to commencement of any ground disturbing activities. The Contractor shall implement the plan during construction.
- Prior to construction, the contractor shall develop a Spill Prevention, Control, and Countermeasures plan. The plan shall be approved by the Engineer prior to commencement of any ground disturbing activities. The Contractor shall implement the plan during construction.
- Temporary staging areas shall be considered part of the regulated work area, and therefore subject to best management practices to control dust and spills, including a temporary containment system that includes a berm or excavated ditches to impound potential leaks or spills.
- Concrete, grout, cement mortar, solid and source site materials, and hazardous materials (including petroleum materials) shall be stored in the staging area and outside of the 100-year floodplain. In addition, all equipment maintenance and refueling shall occur in the staging area and outside of the 100-year floodplain. A hazardous materials spill kit shall be kept onsite during construction that is appropriate for the solvents involved in operation and maintenance of vehicles and machinery used during the project.
- Containment measures shall be used to prevent inadvertent spills of uncured concrete.
- Water for construction shall not be withdrawn from the Virgin River. Wastewater shall be contained and disposed of at an approved off-site location.
- To prevent the introduction of invasive species seeds, all hauling and construction equipment shall be washed at the contractor's storage facility prior to entering the construction site.
- To prevent invasive species seeds from leaving the site, the contractor shall inspect all construction equipment and remove all attached plant/vegetation and soil/mud debris prior to leaving the construction site.
- No construction, including ground disturbing activities, shall begin until a qualified biologist has presented an environmental awareness program to personnel who will be on-site, including, but not limited to, contractors, contractors' employees, supervisors, inspectors, and subcontractors. This program will contain, at a minimum, information concerning the biology and distribution of the Virgin River chub (*Gila seminuda*), woundfin (*Plagopterus argentissimus*), Southwestern willow flycatcher (*Empidonax traillii extimus*), California condor (*Gymnogyps californianus*), and Mojave Desert tortoise (*Gopherus agassizii*) legal status and occurrence in the project area, measures to avoid impacts to California condor and Mojave Desert tortoise, and procedures to be implemented in case of California condor and Mojave Desert tortoise encounters.

California condor

- The contractor shall keep a regulated work area free of litter and trash and shall implement dust control and spill containment measures within the project limits for all activities and for all vehicles. The construction site shall be cleaned up at the end of each day that work is being conducted (for example, trash removed, scrap materials picked up) to minimize the likelihood of condors visiting the site.
- The contractor shall avoid any interaction with condors and shall immediately contact the Peregrine Fund (928.355.2270 or 928.355.2277 or 928.606.5155) and the Engineer, if a condor is present at the construction site. Any activity that could result in harm to condors shall cease and shall not resume until the condor leaves on its own accord or as a result of techniques employed by permitted Peregrine Fund personnel.

Virgin River chub and woundfin

- No work of any kind shall be permitted anywhere in the flowing river channel, unless specifically authorized by the Engineer.
- Material shall be stored or stockpiled outside of the 100-year floodplain if possible. Any material stored or stockpiled within the 100-year floodplain shall be protected using best management practices to prevent it from entering the flowing river channel.
- Containment measures shall be installed below the bridge where it crosses the active flow channel during the deck removal work to prevent debris from removal operations from dropping into the river inadvertently.
- The contractor shall not conduct activities that have the potential to disturb the active stream channel unless a qualified fish biologist with a USFWS Recovery Permit for handling Virgin River chub and woundfin is present on-site to monitor environmental effects.
- The contractor shall not conduct activities that have the potential to disturb the active stream channel until a qualified fish biologist has cleared the stream for work by removing native species from the in-stream construction area. Removal of native species shall be accomplished by installing barriers or block screens upstream and downstream of the construction area and capturing all native fish and frogs within the construction area by seine, and relocating them downstream of the barriers or block screens. Any native fish present in within the construction area shall be relocated to areas below the barriers. Barrier screens shall be removed upon completion of in-stream construction activities. If barrier screens are removed following construction of an in-stream structure, such as a cofferdam, the fish removal process must be repeated prior to removal of in-stream structures at the completion of in-stream construction activities.
- A temporary bridge shall be built that would sit above and span the flowing river channel. All vehicles and equipment shall use this bridge to cross the channel during all construction activities.
- Pile driving shall be accomplished using a vibratory driver. Impact drivers shall be used only to proof piles, or if geologic conditions make vibratory installation infeasible.
- To reduce the effects to aquatic species, in-water work shall be conducted behind cofferdams.
- After construction of the cofferdam, initial de-watering from behind the cofferdam shall include placing fish screens on pump intake hoses to protect aquatic species. Fish screens shall also be used during de-watering following a high flow event, but will not be required during regular cofferdam maintenance pumping. Mesh screen 0.25 inch or smaller shall be used during de-watering activities when fish may be present.
- In order to protect the downstream fish barriers, any cofferdam that would be constructed shall be constructed such that it can (1) withstand high stream flows or (2) be removed before high stream flows. Cofferdams shall be constructed from materials that are approved for use in Waters of the U.S. per Section 404 of the Clean Water Act.
- After construction, cofferdams shall be removed incrementally to minimize pulses of sediment downstream.
- Construction-related activities that have potential to affect the active river channel shall be suspended during high flow events, as determined by the Engineer, and in flood conditions.
- Cast-in-place concrete for new bridge infrastructure not contained within a cofferdam shall be poured in a manner to prevent the spill of wet concrete into waters below. Concrete for overwater infrastructure use shall be provided using spill prevention and control measures.

- The contractor shall complete the work in the low flow channel of the Virgin River in as short of a timeframe as possible so as to minimize the potential for damage to the altered channel during high flows caused by storm events.
- Fill materials shall be free of fines, waste, pollutants, and noxious weeds.

8. COORDINATION

Applicable agencies were contacted for species concerns during the National Environmental Policy Act agency scoping process to obtain information or comments on the project, with the contacts including Ms. Laura Canaca with AGFD, Ms. Brenda Smith, Mr. Steve Spangle, and Mr. Brian Wooldridge with USFWS, and Ms. Laurie Ford, Mr. Jeff Young, and Mr. Shawn Langston with BLM. The agency scoping letters and comments are presented in Appendix D.

ADOT and FHWA have coordinated extensively to solicit information about sensitive resources from potentially affected agencies with species concerns (BLM, AGFD, and USFWS). Under the auspices of two proposed projects along I-15, ADOT and FHWA held the following meetings and conference calls:

- May 17, 2012 – Virgin River Bridges Feasibility Study agency scoping meeting
- July 16, 2012 – Virgin River Bridges Feasibility Study biology and water resources technical meeting
- August 21, 2012 – Virgin River Bridges Feasibility Study update meeting
- September 6, 2012 – I-15, Bridge No. 6 BLM coordination meeting
- September 25, 2012 – I-15, Bridge No. 6 National Park Service coordination meeting
- October 3, 2012 – I-15, Bridge No. 6 USFWS Section 7 pre-consultation meeting
- October 24, 2012 – I-15, Bridge No. 6 USFWS Section 7 pre-consultation conference call

While some of the meetings were held for ADOT's Virgin River Bridges Feasibility Study, agencies shared resource information pertinent to the Bridge No. 6 project area at all the meetings.

Brian Wooldridge provided information on threatened and endangered species and their current status in the project area. The USFWS specifically asked if they needed to submit a scoping comment, and ADOT offered that USFWS had already provided their concerns regarding the project, and that continuing coordination would meet the intent of the agency scoping process.

Jessica Gist and Jeff Gagnon (AGFD) provided information on AGFD sensitive species and wildlife connectivity in the project area, especially related to desert bighorn sheep and raptors. In regard to condors, the agencies know the location of all individuals, and they indicated that no individuals are currently nesting in the project area. However appropriate mitigation measures, such as construction site hygiene and personnel training, should be included in the environmental clearance documents. Jessica Gist also indicated that AGFD should be contacted as the project proceeds so that AGFD can provide information on nesting raptors and condors that may be in the project area. She also mentioned the potential for bats to occur under bridges in the project area, and Justin White (ADOT Natural Resources) indicated that pre-construction surveys for bats are typically included in the mitigation measures for most ADOT projects involving bridges.

The BLM Arizona Strip Field Office provided a comment letter on September 21, 2012, that included an extensive list of Resource Management Plan decisions applicable to sensitive biological resources (Appendix D). Shawn Langston (BLM) also provided information on several BLM sensitive species via telephone conversations and email correspondence.

Coordination with BLM and the National Park Service (NPS) on September 25, 2012 regarding the Wild and Scenic River status of the Virgin River focused on issues related to the regulatory status of the Virgin River, BLM and NPS responsibilities, the consultation process, environmental documentation, and information from the NPS on what types of construction would have an adverse effect on the Virgin River. BLM has determined that the Virgin River is suitable to include as a Wild and Scenic River, but congress has not yet authorized its inclusion. The Virgin River is also part of the Nationwide Rivers Inventory (NRI) because of values that include scenery, fish and wildlife, geology, and aquatic. NPS administers the NRI, so agencies must coordinate and consult with NPS on potential project impacts. Two of BLM's primary concerns are fish and hydrology impacts. BLM also noted that adverse effects can be avoided by implementing mitigation measures that maintain a free-flowing river and protect the fish species. It was noted that these mitigation measures would be in the biology documents. In terms of the project, BLM is viewed as the lead regulatory agency and they would like to review the Biological Evaluations; NPS would like to review mitigation measures as they develop.

Brian Wooldridge (USFWS) provided information regarding threatened and endangered species and the consultation process during an ESA Section 7 pre-consultation meeting and conference call with ADOT and FHWA on October 3 and October 24, 2012, respectively. USFWS will accept two separate Biological Evaluations for the geotechnical investigation and for the bridge project, and will conduct two Section 7 consultations. Brian Wooldridge also discussed mitigation measures and the time table for submitting biological documents to obtain a biological opinion so that project deadlines can be met.

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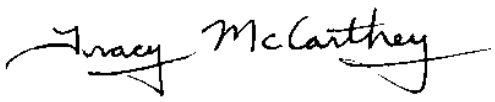
10. ADDITIONAL INFORMATION

Field notes, data sheets, and photographs are in the project file at the Jacobs Engineering Group Inc. office and at the ADOT Environmental Planning Group office.

11. SIGNATURE

Prepared By:  Date: November 20, 2012

Dr. Robert A. Johnson
Jacobs Engineering Group Inc.

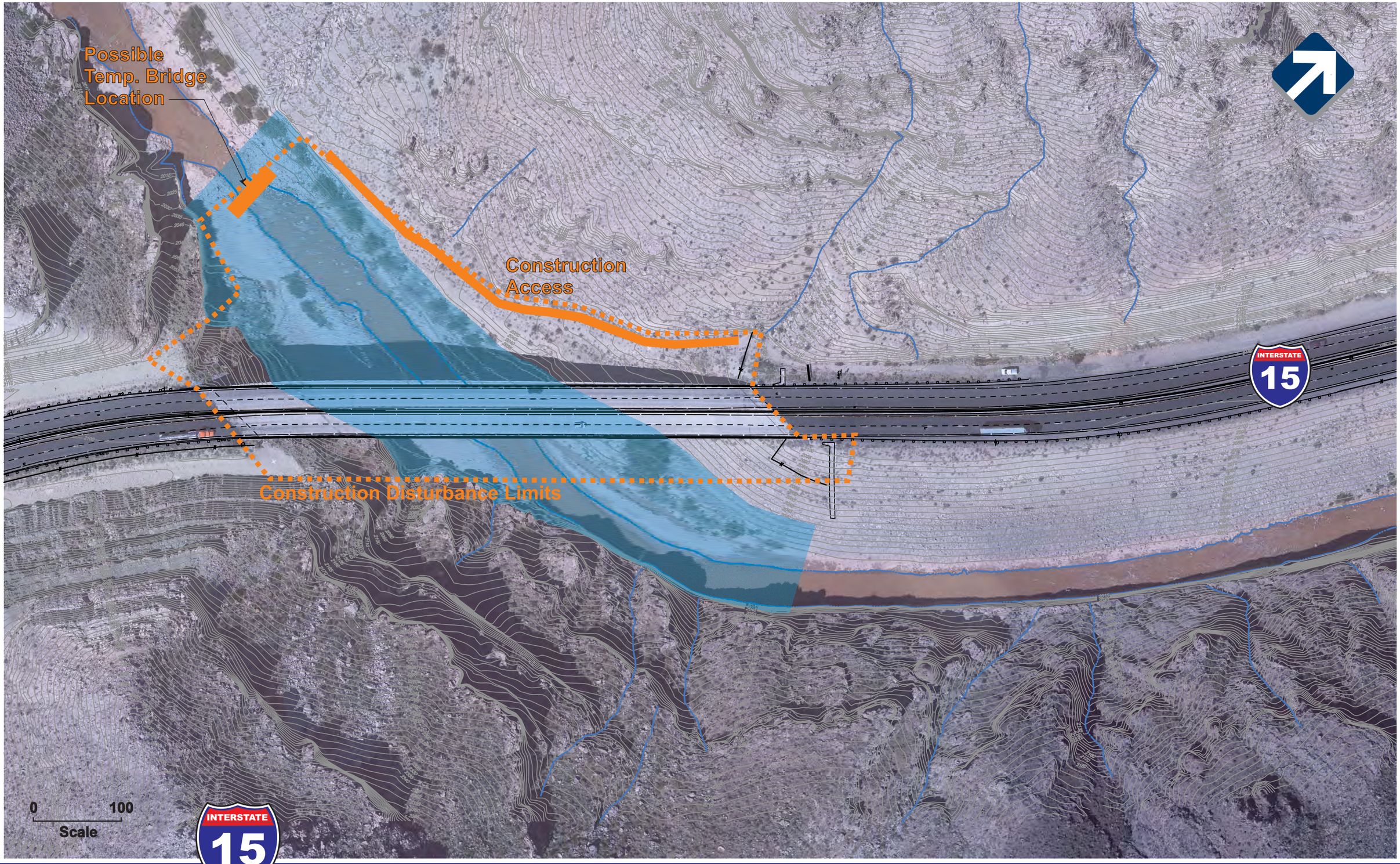
Reviewed By:  Date: November 20, 2012

Tracy McCarthey
Archaeological Consulting Services, Ltd.

APPENDIX A

Preliminary Project Plans

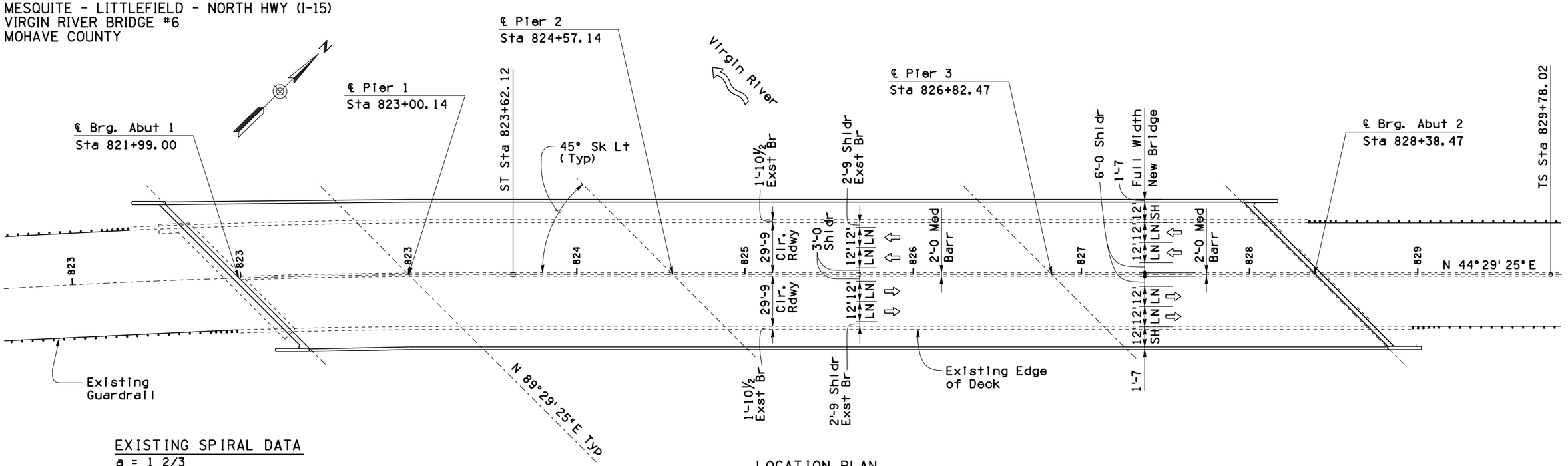
JACOBS



ADOT

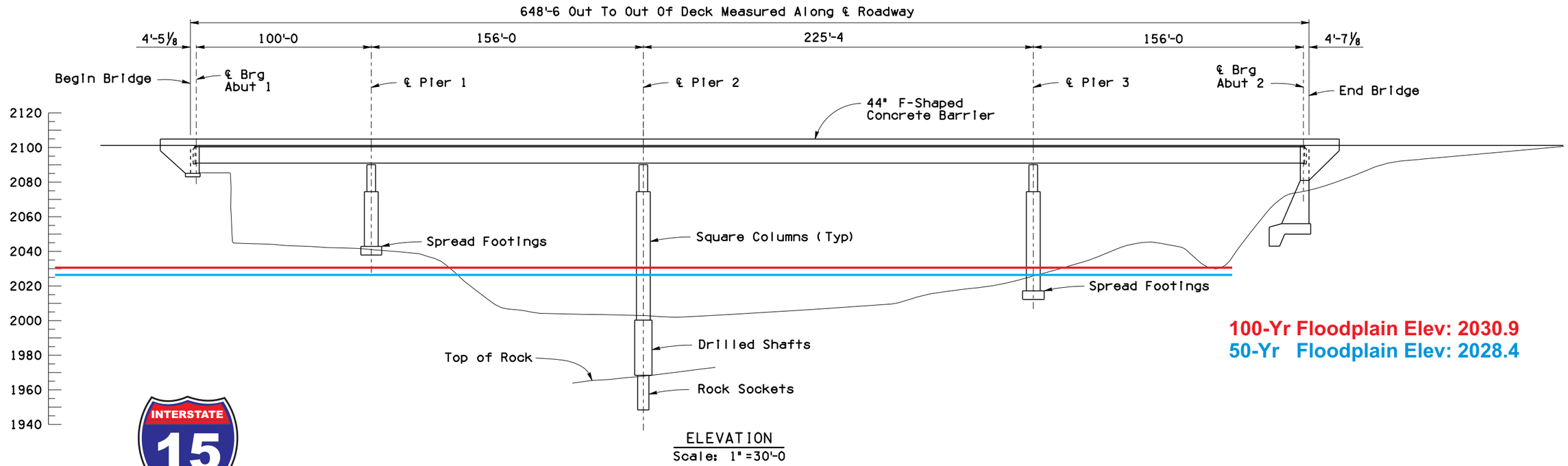
Virgin River Bridge #6 - 100-year Floodplain

MESQUITE - LITTLEFIELD - NORTH HWY (I-15)
VIRGIN RIVER BRIDGE #6
MOHAVE COUNTY



EXISTING SPIRAL DATA
a = 1 2/3
Δ = 7°30'00"
L = 300.00'
0 = 3.27'
† = 149.91'

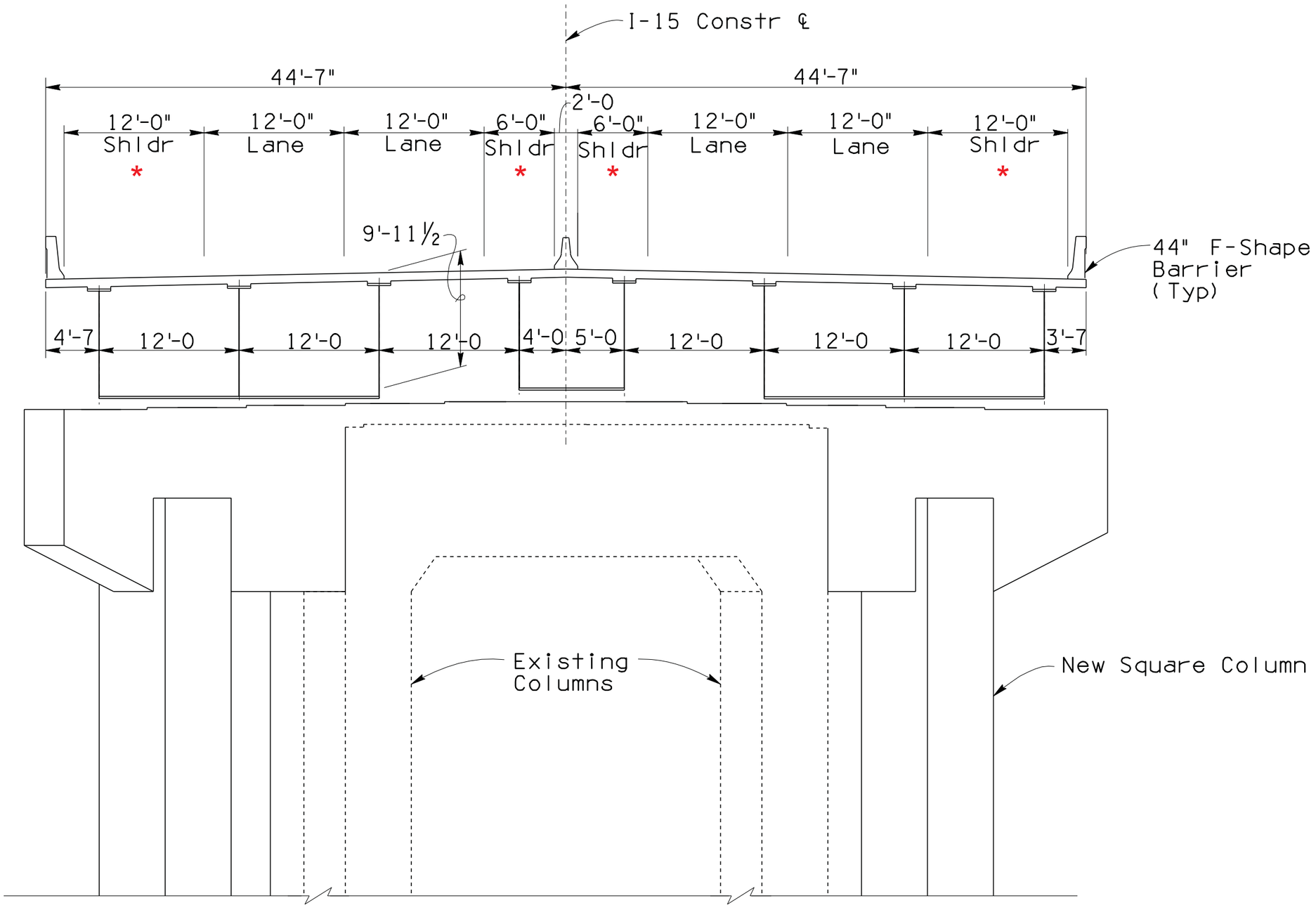
LOCATION PLAN
Skew = 45°00'00"
Scale: 1"=30'-0



ELEVATION
Scale: 1"=30'-0

Virgin River Bridge #6 - General Plan View

* Shoulders are shown using the maximum, desired width. The final design widths may be smaller, pending final reviews.



TYPICAL SECTION

APPENDIX B

Project Area Ground Photographs

Photo 1. West side of I-15 at Bridge No. 6, approaching Virgin River from the north.

Photo 2. West side of I-15 at Bridge No. 6, from north side of Virgin River looking northeast.

Photo 3. Virgin River Bridge No. 6 along west side of I-15 looking southwest.

Photo 4. Virgin River Bridge No. 6 along east side of I-15 looking southwest.

Photo 5. Virgin River Bridge No. 6 from north side of Virgin River looking southwest.

Photo 6. Virgin River Bridge No. 6 from north side of Virgin River looking southwest.

APPENDIX C

State Sensitive Species and Migratory Bird Treaty Act

APPENDIX C

I State Sensitive Species

The Arizona Game and Fish Department (AGFD) on-line environmental review tool was accessed to determine special status species known to occur in the project vicinity. As part of the environmental review process a letter describing the project was sent to the AGFD to inform them of the project and to solicit comments. The letter requested any specific concerns, suggestions or recommendations the agency may have related to the project.

AGFD sent a response letter and included a list of special status species known to occur within the project vicinity. The agency also included specific concerns related to the project, which included wildlife connectivity, hydrology, and water quality. Additionally, based on previous coordination meetings, AGFD has expressed concerns regarding wildlife connectivity given that the project would occur within Potential Wildlife Linkage Zone No. 2 (Beaver Dam – Virgin Mountains). AGFD has also shared concerns over nesting raptors (golden eagle, American peregrine falcon, California condors) and desert bighorn sheep.

The AGFD on-line environmental tool included a standard response regarding local or regional needs for wildlife movement, connectivity, access to habitat needs and design of various roadway features such as culverts and bridges. ADOT, AGFD, the Federal Highway Administration and representatives from other agencies have completed a Wildlife Linkages Assessment to address important wildlife movement corridors in Arizona. ADOT is planning to continue working with partners involved, including AGFD, and has considered wildlife movement patterns during the planning of this project. In addition, ADOT has provided an opportunity for the AGFD to be involved with the design of roadway features and has considered AGFD recommendations during project development. Desert bighorn sheep may respond to construction by avoiding or shifting their activity patterns in the project area. It is unlikely that noise would have a significant impact on desert bighorn sheep, given the constant existing high level of roadway noise in the project area. However, the equipment and activity in the river channel may alter daily activity patterns of desert bighorn sheep for activities such as when they obtain water. In previous studies, it was determined that bighorn sheep obtained water during cool parts of the day, mostly in early morning. To avoid construction activities, individuals shifted their schedule to obtain water at dawn or they watered late in the evening (Leslie and Douglas 1980; Campbell and Remington 1981). No accommodations are necessary for desert bighorn sheep.

The following mitigation measures will be implemented to address bats:

- At least 10 days prior to construction, a qualified biologist shall conduct a visual preconstruction survey of the underside of the bridge to look for bats potentially roosting on the bridge structure. The biologist shall provide a memo with results of the preconstruction survey, and a follow-up memo(s) after any additional surveys/monitoring required, to the Arizona Department of Transportation Environmental Planning Group Biologist (602.712.7649 or 602.712.7767).

II. Migratory Bird Treaty Act

This project involves construction on the Virgin River Bridge No. 6 and modifications to the roadway approaches. Several construction activities would involve work within the 100-year floodplain where there is potential habitat for nesting birds. These activities are discussed in the project description, along with conservation measures that would be used to minimize potential impacts within these areas. Small amounts of riparian and floodplain vegetation would be

removed to conduct these activities. Removal of riparian vegetation would amount to approximately 0.35 acres of saltcedar. An additional 0.05 acre of saltcedar would be removed during the previous geotechnical activities. During the June 29, 2012, site visit, this patch of saltcedar had been defoliated by the tamarisk leaf beetle and did not provide suitable nesting habitat for birds. However, the same saltcedar had leafed out and was green during field reconnaissance on October 4, 2012. Floodplain vegetation that would be removed consists of scattered small herbaceous plants and small shrubs that do not provide nesting habitat for birds. In addition, no swallow nests or evidence of bats were observed under the bridge during field visits on June 29 and October 4, 2012. Thus, this proposed project and modifications to the roadway approaches are not anticipated to result in impacts to nesting birds, and no mitigation measures are necessary.

APPENDIX D

Agency Scoping Comments

THE STATE OF ARIZONA
GAME AND FISH DEPARTMENT
5000 W. CAREFREE HIGHWAY
PHOENIX, AZ 85086-5000
(602) 942-3000 • WWW.AZGFD.GOV

October 3, 2012

ADOT
c/o Ms. Betsi Phoebus, Jacobs Engineering Group, Inc.
101 North 1st Avenue, Suite 3100
Phoenix, Arizona 85003

Re: 015-A(208)S
015 MO 015 H8574 01C
Virgin River Bridge #6 (STR #1619)

Dear Ms. Phoebus:

The Arizona Game and Fish Department (Department) has reviewed your letter dated September 10, 2012, regarding the proposed bridge rehabilitation project located on Interstate 15 in the Virgin River Gorge at milepost 15.58. The Department would like to reemphasize the comments that were expressed in the letter from Andi Rogers (c/o Jessica Gist) on July 20, 2012, "RE: Interstate 15 Virgin River Bridges Feasibility Study". Please contact Ms. Jessica Gist, Region II Habitat Program, at (928) 214-1274 with any questions or for further discussion.

We have reviewed the information packet provided to us in the letter. The Department's Heritage Data Management System has identified the special status species that have been documented within 3 miles of the project site. The attached receipt from the On-Line Environmental Review Tool should provide general recommendations and additional contact information. The Department appreciates the opportunity to provide an evaluation of impacts to wildlife or wildlife habitats associated with the project activities. If you have any questions regarding this letter, please contact me at (623) 236-7486.

Sincerely,

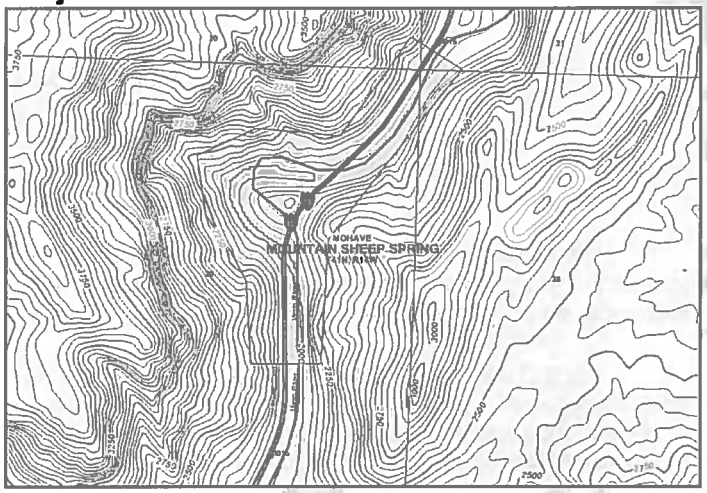
Chip Young
Project Evaluation Specialist, Habitat Branch

cc: Laura Canaca, Project Evaluation Program Supervisor
Sarah Reif, Habitat Program Manager, Region II

AGFD #M12-09110549

Arizona's On-line Environmental Review Tool
Search ID: 20120910018662
Project Name: I-15, Bridge #6
Date: 9/10/2012 9:39:59 AM

Project Location



Project Name: I-15, Bridge #6
Submitted By: betsi phoebus
On behalf of: ADOT
Project Search ID: 20120910018662
Date: 9/10/2012 9:39:53 AM
Project Category: Transportation & Infrastructure,Bridge replacement/New Construction,In-stream geotech boring, abutments, stream crossing, realignment, channelization, rip rap, vegetation removal
Project Coordinates (UTM Zone 12-NAD 83): 247803.496, 4090610.285 meter
Project Area: 97.240 acres
Project Perimeter: 3320.554 meter
County: MOHAVE
USGS 7.5 Minute Quadrangle ID: 34
Quadrangle Name: MOUNTAIN SHEEP SPRING
Project locality is not anticipated to change

Location Accuracy Disclaimer

Project locations are assumed to be both precise and accurate for the purposes of environmental review. The creator/owner of the Project Review Receipt is solely responsible for the project location and thus the correctness of the Project Review Receipt content.

The Department appreciates the opportunity to provide in-depth comments and project review when additional information or environmental documentation becomes available.

Special Status Species Occurrences/Critical Habitat/Tribal Lands within 3 miles of Project Vicinity:

Name	Common Name	FWS	USFS	BLM	State
Anaxyrus microscaphus	Arizona Toad	SC	S		
Aquila chrysaetos	Golden Eagle	BGA		S	
Bat Colony					
CH for Empidonax traillii extimus	Designated Critical Habitat for southwestern willow flycatcher				
CH for Gila seminuda	Designated Critical Habitat for Virgin River chub				
CH for Gopherus agassizli	Designated Critical Habitat for Mohave desert tortoise				
CH for Plagopterus argentissimus	Designated Critical Habitat for woundfin				
Camissonia brevipes	Golden Suncup	SC			
Catostomus clarkii	Desert Sucker	SC	S	S	
Catostomus latipinnis	Flannelmouth Sucker	SC	S	S	
Enceliopsis argophylla	Silverleaf Sunray			S	
Falco peregrinus anatum	American Peregrine Falcon	SC	S	S	WSC
Gila seminuda	Virgin River Chub	LE			WSC
Gopherus agassizli (Mohave Population)	Mohave Desert Tortoise	LT			WSC
Gymnogyps californianus	10J area for California condor				
Myotis yumanensis	Yuma Myotis	SC			
Plagopterus argentissimus	Woundfin	LE,XN			WSC
Pyrgulopsis deserta	Desert Springsnail			S	
Rhinichthys osculus	Speckled Dace	SC		S	

 APPLICATION INITIALS: _____

Please review the entire receipt for project type recommendations and/or species or location information and retain a copy for future reference. If any of the information you provided did not accurately reflect this project, or if project plans change, another review should be conducted, as this determination may not be valid.

Arizona's On-line Environmental Review Tool:

1. This On-line Environmental Review Tool inquiry has generated recommendations regarding the potential impacts of your project on Special Status Species (SSS) and other wildlife of Arizona. SSS include all U.S. Fish and Wildlife Service federally listed, U.S. Bureau of Land Management sensitive, U.S. Forest Service sensitive, and Arizona Game and Fish Department (Department) recognized species of concern.
2. These recommendations have been made by the Department, under authority of Arizona Revised Statutes Title 5 (Amusements and Sports), 17 (Game and Fish), and 28 (Transportation). These recommendations are preliminary in scope, designed to provide early considerations for all species of wildlife, pertinent to the project type you entered.
3. This receipt, generated by the automated On-line Environmental Review Tool does not constitute an official project review by Department biologists and planners. Further coordination may be necessary as appropriate under the National Environmental Policy Act (NEPA) and/or the Endangered Species Act (ESA).

The U.S. Fish and Wildlife Service (USFWS) has regulatory authority over all federally listed species under the ESA. Contact USFWS Ecological Services Offices: http://arizonaes.fws.gov/.

Phoenix Main Office
2321 W. Royal Palm Road, Suite 103
Phoenix, AZ 85021
Phone 602-242-0210
Fax 602-242-2513

Tucson Sub-Office
201 North Bonita, Suite 141
Tucson, AZ 85745
Phone 520-670-6144
Fax 520-670-6154

Flagstaff Sub-Office
323 N. Leroux Street, Suite 101
Flagstaff, AZ 86001
Phone 928-226-0614
Fax 928-226-1099

Disclaimer:

1. This is a preliminary environmental screening tool. It is not a substitute for the potential knowledge gained by having a biologist conduct a field survey of the project area.
2. The Department's Heritage Data Management System (HDMS) data is not intended to include potential distribution of special status species. Arizona is large and diverse with plants, animals, and environmental conditions that are ever changing. Consequently, many areas may contain species that biologists do not know about or species previously noted in a particular area may no longer occur there.
3. Not all of Arizona has been surveyed for special status species, and surveys that have been conducted have varied greatly in scope and intensity. Such surveys may reveal previously undocumented population of species of special concern.
4. HDMS data contains information about species occurrences that have actually been reported to the Department.

Arizona Game and Fish Department Mission

To conserve, enhance, and restore Arizona's diverse wildlife resources and habitats through aggressive protection and

 APPLICATION INITIALS: _____

management programs, and to provide wildlife resources and safe watercraft and off-highway vehicle recreation for the enjoyment, appreciation, and use by present and future generations.

Project Category: Transportation & Infrastructure,Bridge replacement/New Construction,In-stream geotech boring, abutments, stream crossing, realignment, channelization, rip rap, vegetation removal

Project Type Recommendations:

Based on the project type entered; coordination with Arizona Department of Environmental Quality may be required (http://www.azdeq.gov/).

Based on the project type entered; coordination with County Flood Control districts may be required.

Based on the project type entered; coordination with State Historic Preservation Office may be required http://azstateparks.com/SHPO/index.html

Based on the project type entered; coordination with U.S. Army Corps of Engineers may be required (http://www.spl.usace.army.mil/regulatory/phonedir.html)

During planning and construction, minimize potential introduction or spread of exotic invasive species. Invasive species can be plants, animals (exotic snails), and other organisms (e.g. microbes), which may cause alteration to ecological functions or compete with or prey upon native species and can cause social impacts (e.g. livestock forage reduction, increase wildfire risk). The terms noxious weed or invasive plants are often used interchangeably. Precautions should be taken to wash all equipment utilized in the project activities before and after project activities to reduce the spread of invasive species. Arizona has noxious weed regulations (Arizona Revised Statutes, Rules R3-4-244 and R3-4-245). See Arizona Department of Agriculture website for restricted plants http://www.azda.gov/PSD/quarantine5.htm. Additionally, the U.S. Department of Agriculture has information regarding pest and invasive plant control methods including: pesticide, herbicide, biological control agents, and mechanical control: http://www.usda.gov/wps/portal/usdahome. The Department regulates the importation, purchasing, and transportation of wildlife and fish (Restricted Live Wildlife), please refer to the hunting regulations for further information http://www.azgfd.gov/h_f/hunting_rules.shtml.

During the planning stages of your project, please consider the local or regional needs of wildlife in regards to movement, connectivity, and access to habitat needs. Loss of this permeability prevents wildlife from accessing resources, finding mates, reduces gene flow, prevents wildlife from re-colonizing areas where local extirpations may have occurred, and ultimately prevents wildlife from contributing to ecosystem functions, such as pollination, seed dispersal, control of prey numbers, and resistance to invasive species. In many cases, streams and washes provide natural movement corridors for wildlife and should be maintained in their natural state. Uplands also support a large diversity of species, and should be contained within important wildlife movement corridors. In addition, maintaining biodiversity and ecosystem functions can be facilitated through improving designs of structures, fences, roadways, and culverts to promote passage for a variety of wildlife.

 APPLICATION INITIALS: _____

Hydrological considerations: design culverts to minimize impacts to channel geometry, or design channel geometry (low flow, overbank, floodplains) and substrates to carry expected discharge using local drainages of appropriate size as templates. Aquatic wildlife considerations: reduce/minimize barriers to migration of amphibians or fish (e.g. eliminate falls). Terrestrial wildlife: washes and stream corridors often provide important corridors for movement. Overall culvert width, height, and length should be optimized for movement of the greatest number and diversity of species expected to utilize the passage. Culvert designs should consider moisture, light, and noise, while providing clear views at both ends to maximize utilization. For many species, fencing is an important design feature that can be utilized with culverts to funnel wildlife into these areas and minimize the potential for roadway collisions. Guidelines for culvert designs to facilitate wildlife passage can be found at http://www.azgfd.gov/hgis/guidelines.aspx.

Minimization and mitigation of impacts to wildlife and fish species due to changes in water quality, quantity, chemistry, temperature, and alteration to flow regimes (timing, magnitude, duration, and frequency of floods) should be evaluated. Minimize impacts to springs, in-stream flow, and consider irrigation improvements to decrease water use. If dredging is a project component, consider timing of the project in order to minimize impacts to spawning fish and other aquatic species (including spawning seasons), and to reduce spread of exotic invasive species. We recommend early direct coordination with Project Evaluation Program for projects that could impact water resources, wetlands, streams, springs, and/or riparian habitats.

Preconstruction - Consider design structures and construction plans that minimize impacts to channel geometry (i.e. width/depth ratio, sinuosity, allow overflow channels) to avoid alteration of hydrological function. Identify whether wildlife species use the structure for roosting or nesting during anticipated construction period. Plan the timing of construction/maintenance to minimize impacts to wildlife species. In addition to the species list generated by the Arizona's On-line Environmental Review Tool, the Department recommends that surveys be conducted at the bridge and in the vicinity of the bridge to identify additional or currently undocumented bat, bird, or aquatic species in the project area. To minimize impacts to birds and bats, as well as aquatic species, consider conductlng maintenance and construction activitles outside the breeding/maternity season (breeding seasons for birds and bats usually occur spring - summer). Examining the crevices for the presence of bats prior to pouring new paving materials. When bats are present, the top of the crevices should be sealed to prevent material from dripping or falling through the cracks and potentially onto bats. If bats are present, maintenance and construction (including paving and milling) activities should be conducted during nighttime hours, if possible, when the fewest number of bats will be roosting. Consider incorporating roosting habitat for bats into bridge designs. Minimize impacts to the vegetation community. A revegetation plan should be developed to replace impacted communities. Unavoidable impacts to vegetation should be mitigated on-site whenever possible. During construction: Erosion control structures and drainage features should be used to prevent introduction of sediment laden runoff into the waterway. Minimize instream construction activity. If culverts are planned, mitigate impacts to wildlife and fish movement. Guidelines for bridge designs to facilitate wildlife passage can be found at http://www.azgfd.gov/hgis/guidelines.aspx.

Recommendations will be dependant upon goals of the fence project and the wildlife species expected to be impacted by the project. General guidelines for ensuring wildlife-friendly fences include: barbless wire on the top and bottom with the maximum fence height 42", minimum height for bottom 16". Modifications to this design may be considered for fencing anticipated to be routinely encountered by elk, bighorn sheep or pronghorn (e.g., Pronghorn fencing would require 18" minimum height on the bottom). Please refer to the Department's Fencing Guidelines located at http://www.azgfd.gov/hgis/guidelines.aspx.

 APPLICATION INITIALS: _____

The Department recommends that wildlife surveys are conducted to determine if noise-sensitive species occur within the project area. Avoidance or minimization measures could include conducting project activities outside of breeding seasons.

The Department requests further coordination to provide project/species specific recommendations, please contact Project Evaluation Program directly.

Project Location and/or Species recommendations:

Heritage Data Management System records indicate that one or more listed, proposed, or candidate species or Critical Habitat (Designated or Proposed) have been documented in the vicinity of your project (refer to page 1 of the receipt). Please contact:
Ecological Services Office
US Fish and Wildlife Service
2321 W. Royal Palm Rd.
Phoenix, AZ 85021-4951
Phone: 602-242-0210
Fax: 602-242-2513

Recommendations Disclaimer:

1. Potential impacts to fish and wildlife resources may be minimized or avoided by the recommendations generated from information submitted for your proposed project.
2. These recommendations are proposed actions or guidelines to be considered during **preliminary project development**.
3. Additional site specific recommendations may be proposed during further NEPA/ESA analysis or through coordination with affected agencies.
4. Making this information directly available does not substitute for the Department's review of project proposals, and should not decrease our opportunity to review and evaluate additional project information and/or new project proposals.
5. The Department is interested in the conservation of all fish and wildlife resources, including those Special Status Species listed on this receipt, and those that may have not been documented within the project vicinity as well as other game and nongame wildlife.
6. **Further coordination requires the submittal of this initialed and signed Environmental Review Receipt with a cover letter and project plans or documentation that includes project narrative, acreage to be impacted, how construction or project activity(s) are to be accomplished, and project locality information (including site map).**
7. Upon receiving information by AZGFD, please allow 30 days for completion of project reviews. Mail requests to:

Project Evaluation Program, Habitat Branch
Arizona Game and Fish Department
5000 West Carefree Highway
Phoenix, Arizona 85086-5000
Phone Number: (623) 236-7600
Fax Number: (623) 236-7366

Terms of Use

By using this site, you acknowledge that you have read and understand the terms of use. Department staff may revise these terms periodically. If you continue to use our website after we post changes to these terms, it will mean that you accept such changes. If at any time you do not wish to accept the Terms, you may choose not to use the website.

1. This Environmental Review and project planning website was developed and intended for the purpose of screening projects for potential impacts on resources of special concern. By indicating your agreement to the terms of use for this website, you warrant that you

 APPLICATION INITIALS: _____

will not use this website for any other purpose.
2. Unauthorized attempts to upload information or change information on this website are strictly prohibited and may be punishable under the Computer Fraud and Abuse Act of 1986 and/or the National Information Infrastructure Protection Act .
3. The Department reserves the right at any time, without notice, to enhance, modify, alter, or suspend the website and to terminate or restrict your access to the website.
4. This Environmental Review is based on the project study area that was entered. The review must be redone if the project study area, location, or the type of project changes. If additional information becomes available, this review may need to be reconsidered.
5. A signed and initialed copy of the Environmental Review Receipt indicates that the entire receipt has been read by the signer of the Environmental Review Receipt.

Security:

The Environmental Review and project planning web application operates on a complex State computer system. This system is monitored to ensure proper operation, to verify the functioning of applicable security features, and for other like purposes. Anyone using this system expressly consents to such monitoring and is advised that if such monitoring reveals possible evidence of criminal activity, system personnel may provide the evidence of such monitoring to law enforcement officials. Unauthorized attempts to upload or change information; to defeat or circumvent security measures; or to utilize this system for other than its intended purposes are prohibited.

This website maintains a record of each environmental review search result as well as all contact information. This information is maintained for internal tracking purposes. Information collected in this application will not be shared outside of the purposes of the Department.

If the Environmental Review Receipt and supporting material are not mailed to the Department or other appropriate agencies within six (6) months of the Project Review Receipt date, the receipt is considered to be null and void, and a new review must be initiated.

Print this Environmental Review Receipt using your Internet browser's print function and keep it for your records. Signature of this receipt indicates the signer has read and understands the information provided.

Signature:_____

Date: _____

Proposed Date of Implementation: _____

Please provide point of contact information regarding this Environmental Review.

Application or organization responsible for project implementation

Agency/organization:_____

Contact Name: _____

Address: _____

 APPLICATION INITIALS: _____

City, State, Zip: _____

Phone: _____

E-mail: _____

Person Conducting Search (if not applicant)

Agency/organization:_____

Contact Name: _____

Address: _____

City, State, Zip: _____

Phone: _____

E-mail: _____

 APPLICATION INITIALS: _____

THE STATE OF ARIZONA
GAME AND FISH DEPARTMENT
5000 W. CAREFREE HIGHWAY
PHOENIX, AZ 85086-5000
(602) 942-3000 • WWW.AZGFD.GOV
REGION II, 3500 S. LAKE MARY ROAD, FLAGSTAFF, AZ 86001

July 20, 2012

Mackenzie Kirby
Flagstaff District Office
1801 South Milton Rd.
Flagstaff, Arizona 86001
(928) 774-1491

Dear Ms. Kirby,

RE: Interstate 15 Virgin River Bridges Feasibility Study

The Arizona Game & Fish Department (Department) appreciates the opportunity to comment as part of the scoping process for the I-15 Virgin River Bridges feasibility study. We understand that staff at Archaeological Consulting Services, Ltd. will be organizing a meeting among the natural resource experts involved in this project. We look forward to that meeting in July as an opportunity to more closely examine the issues highlighted below and to clarify our recommendations for avoiding, minimizing, and/or mitigating potential impacts to wildlife. Until that time, we will limit our recommendations to those general issues raised during the agency scoping meeting on May 17th and in emails to Dr. Robert Johnson of ASU. Those comments are summarized below:

The Department is very concerned with habitat connectivity for Arizona's wildlife populations, which can be threatened by fragmentation of roadways and development. Bighorn sheep, in part because of their unique habitat requirements, are particularly vulnerable to habitat fragmentation. They are also an important game species and iconic native species that the Department is responsible for managing. In the project area, bighorn sheep are known, at least anecdotally, to move across I-15. We are very interested in creating opportunities to research and improve habitat connectivity for this species in association with the I-15 bridges feasibility study and implementation.

We provided you with a Heritage Database Management System (HDMS) list of Special Status Species known to occur in the general project area. These species are given various degrees of legal protection or management attention by the responsible agency and may require special attention and/or conservation measures during this project. If you have not already, we recommend you contact the US Fish & Wildlife Service Arizona Ecological Services Office to discuss potential impacts to federally protected species.

Impacts to HDMS Special Status species will largely be addressed by our more general concerns for aquatic species and stream habitat. We are also interested in pursuing conservation measures

for any known bat roosting sites associated with the bridges. We will be working with the Bureau of Land Management to assess opportunities for bats and to determine whether seasonal construction restrictions might be necessary for nesting raptors or other special status species.

The Department greatly appreciates this opportunity to be involved in the feasibility study for I-15 bridge improvements at this early stage. We look forward to working with ADOT and your contractors not only to minimize potential negative impacts to wildlife, but also to seize opportunities to improve this portion of the Virgin River Gorge area for the unique species and habitats found there.

Please contact Jessica Gist, Region II Habitat Program, at (928) 214-1274 or jgist@azgfd.gov with any questions or for further discussion.

Sincerely,

Andi Rogers, Habitat Specialist II
Arizona Game & Fish Department, Region II
3500 S. Lake Mary Rd.
Flagstaff, AZ 86001
(928) 214-1251
arogers@azgfd.gov

CC: Brenda Smith, Arizona Ecological Services Office – Flagstaff
Brian Wooldridge, Arizona Ecological Services Office – Flagstaff
Chip Young, Arizona Game & Fish Department, Habitat Branch
Jeff Gagnon, Arizona Game & Fish Department, Wildlife Contracts Branch
Luke Thompson, Arizona Game & Fish, Region II

Re: I-15 Bridge 6 H8574 USFWS scoping letter

Brian_Wooldridge@fws.gov [Brian_Wooldridge@fws.gov]

Sent: Tuesday, September 11, 2012 2:23 PM

To: Phoebus, Elizabeth (Betsi)

Cc: cbeck@azdot.gov; gwallace@azdot.gov; kgade@azdot.gov; rebecca.swiecki@dot.gov; rellis@azdot.gov

---

Good Afternoon, Betsi.

I have read the scoping letter and look forward to our continued coordination on this project. In reviewing the meeting notes that you recently sent, I am comfortable that all of our meaningful comments and concerns regarding our Federal trust resources have been expressed and will be addressed accordingly. As we have discussed, we anticipate a formal consultation as a result of adverse effects to listed species and critical habitat. Throughout the consultation process, I anticipate that we will all be working closely together and providing meaningful comments and feedback. Unless you or ADOT needs an actual letter on letterhead from our office, I will assume that all of our comments and concerns thus far have been adequately expressed. I look forward to continuing our current coordination level as well as our meeting planned for October 3rd; however, if I return from my trip early, I will do my best to let everyone know immediately and see if the meeting can be moved up as soon as possible.

Regards,

Brian

Brian J. Wooldridge
Fish and Wildlife Biologist
U.S. Fish & Wildlife Service
Arizona Ecological Services Field Office
Southwest Forest Science Complex
2500 South Pine Knoll Drive
Flagstaff, AZ 86001-6381
(928) 556-2106

WE HAVE MOVED OFFICES. PLEASE NOTE NEW ADDRESS AND PHONE NUMBERS ABOVE EFFECTIVE IMMEDIATELY

"Phoebus, Elizabeth (Betsi)" <Elizabeth.Phoebus@jacobs.com>

09/10/2012 11:53 AM

To "brian_wooldridge@fws.gov" <brian_wooldridge@fws.gov>

cc "cbeck@azdot.gov" <cbeck@azdot.gov>, "rellis@azdot.gov" <rellis@azdot.gov>, "kgade@azdot.gov" <kgade@azdot.gov>, "gwallace@azdot.gov" <gwallace@azdot.gov>, '"rebecca.swiecki@dot.gov"' <rebecca.swiecki@dot.gov>

Subject I-15 Bridge 6 H8574 USFWS scoping letter

Hi Brian...

Attached for your use is ADOT's biology scoping letter for the I-15, Bridge 6 project. We put a

hard copy in the mail today, but that probably won't reach you before you head out on vacation.

Thanks for your continued assistance and we'll talk to you when you return, Betsi

Betsi Phoebus | Jacobs | Environmental Planning Manager, Phoenix | 602.650.4004 | fax 602.253.1202 | elizabeth.phoebus@jacobs.com

[attachment "I-15 bridge 6 H8574 USFWS wooldridge scoping letter.pdf" deleted by Brian Wooldridge/R2/FWS/DOI]

United States Department of the Interior

BUREAU OF LAND MANAGEMENT
Arizona Strip Field Office
345 East Riverside Drive
St. George, Utah 84790
www.blm.gov/az/
Phone (435) 688-3200 • Fax (435) 688-3258

September 21, 2012

In Reply Refer To:
2800 (A010)
AZA 01885

Karla S. Petty, Division Administrator
Arizona Division
Federal Highway Administration
4000 North Central Avenue, Suite 1500
Phoenix, Arizona 85012-3500

Dear Ms. Petty:

RE: Interstate 15 Bridge No. 6 Rehabilitation Project; 015 MO 015 H8574 01C, 015-A(208)S, Virgin River Bridge #6 (STR #1619), HOP-AZ

Thank you for your letter dated August 27, 2012, regarding the above referenced proposed Bridge No. 6 rehabilitation project located at milepost 15.58 of Interstate 15 in the Virgin River Gorge (BLM Serial Number AZA 01885). The proposed project with mitigation of identified impacts would be in conformance with the Arizona Strip Field Office Resource Management Plan (RMP), dated January 29, 2008 (http://www.blm.gov/az/st/en/prog/planning/reports.html). Special designations, land use allocations, and management decisions identified in the RMP that are applicable to this proposed project are identified in the enclosed table. The primary resources of concern associated with this proposed project include: public safety, access, recreational uses, special status species (including Virgin River fishes), potential wild and scenic rivers designation, visual resources, Virgin River area of critical environmental concern, bighorn sheep wildlife habitat area, water quality/stormwater runoff, and historic trails (Old Spanish National Historic Trail and Jedediah Smith Historic Trail).

In accordance with the Memorandum of Understanding between the Arizona Department of Transportation, the Federal Highway Administration, Arizona, and the Bureau of land Management (BLM), Arizona, as amended and supplemental Operating Agreement, the BLM Arizona Strip Field Office agrees to participate in this project as a cooperating agency with special expertise. The BLM Serial Number for this project is AZA 01885.

The following individuals will be the BLM contacts for the resources/programs listed:

Laurie Ford	435-688-3271	lford@blm.gov	BLM Project Lead/Lands & Realty/Minerals/Hazmat
Ken Mahoney	602-417-9238	kmahoney@blm.gov	Wilderness/Wild & Scenic Rivers/Historic Trails/Visual
Jon Jasper	435-688-3264	jjasper@blm.gov	Wilderness/Wild & Scenic Rivers/Historic Trails/Visual
Jeff Young	435-688-3373	j8young@blm.gov	Wildlife/Special Status Species
Shawn Langston	435-688-3239	slangston@blm.gov	Wildlife/Special Status Species
John Herron	435-688-3262	jherron@blm.gov	Archaeology/Cultural Resources
Todd Calico	435-688-3212	tcalico@blm.gov	Geographic Information Systems Data

We look forward to working with you on this project. If you have any questions, please contact Laurie Ford at (435) 688-3271 or lford@blm.gov.

Sincerely,

Lorraine M. Christian

Lorraine M. Christian
Field Manager

Enclosure: RMP Decisions Applicable to the Virgin River Bridge #6 Project (AZA 01885)

cc: Elizabeth Phoebus, Jacobs – Elizabeth.Phoebus@jacobs.com

RMP DECISIONS APPLICABLE TO THE VIRGIN RIVER BRIDGE #6 PROJECT (AZA 01885)

TABLE 2.1. AIR, WATER, SOILS (WATERSHED: WS)

Decision No.	Decision Text
MA-WS-01	Impacts to air quality will be prevented or reduced through the application of specific mitigation measures identified in activity level planning and NEPA review.
MA-WS-02	Impacts to water quality will be prevented or reduced through the application of specific mitigation measures identified in activity level planning and NEPA review.
MA-WS-04	Natural values associated with floodplains and wetlands will be restored and preserved by avoiding floodplain occupancy and development. If development or occupancy is necessary, impacts will be mitigated through consulting and permitting with appropriate agencies.
MA-WS-06	Surface disturbance and reclamation activities will proceed consistent with current permits and subject to the following: • Arizona Standards for Rangeland Health will be followed to maintain or improve soil conditions. (See Grazing Management decisions). • Activities will be the minimum necessary to accomplish the task. • Reclamation will be required for road realignments. • Measures to stabilize soils and minimize surface water runoff will be required, both during project activities and following project completion. • Reclamation of all surface disturbances will be initiated during or immediately upon completion of the authorized project. Reclamation can include re-contouring the disturbed area to blend with the surrounding terrain, ripping compacted areas, replacement of topsoil, seeding, planting, and/or providing effective ground cover. • All temporary roads will be closed and reclaimed immediately upon completion of the project. Reclaimed roads can be barricaded or signed until reclamation objectives are achieved. • Facilities or improvements no longer necessary will be removed and the sites will be reclaimed, provided no historic properties are affected.
MA-WS-07	Restoration and reclamation actions will be consistent with vegetation management decisions for each Ecological Zone.

TABLE 2.2. GEOLOGY AND PALEONTOLOGY (GL)

Decision No.	Decision Text
MA-GL-02	Should paleontological resources be discovered within the Arizona Strip FO, the sites will be evaluated for sensitivity. The sites will then be classified and managed consistent with the land use allocation classifications described in Table 2.3.
MA-GL-04	Adverse impacts to vertebrate and/or uncommon invertebrate paleontological resources will be mitigated.

TABLE 2.3. VEGETATION AND FIRE AND FUELS MANAGEMENT (VM, FM, RP)

Decision No.	Decision Text
	ALL ECOLOGICAL ZONES (See Map 2.2)
DFC-VM-05	Invasive plant species will be contained, controlled, or eliminated and native species restored to meet desired plant community (DPC) objectives.
	RIPARIAN ECOLOGICAL ZONE (See Map 2.2)
DFC-RP-10	Riparian communities will provide habitat for common species such as rush, cottonwood, willow, and yellow-breasted chat, as well as rare species such as southwestern willow (SW) flycatcher, common black hawk, Lucy's warbler, and speckled dace where consistent with site potential.
DFC-RP-11	Invasive plants and animals such as tamarisk, Russian olive, and brown-headed cowbird will be reduced or eliminated.

TABLE 2.4. WILDLIFE AND FISHERIES (WF)	
Decision No.	**Decision Text**
GENERAL WILDLIFE AND FISHERIES	
DFC-WF-01	Ecological conditions will be within the range of natural variability and will be functional for dependant animal species.
DFC-WF-02	Native wildlife communities will be protected. A complete range of diverse, healthy, and self-sustaining populations of native animal species will occupy all available suitable habitats.
DFC-WF-04	All waters will be safely accessible to wildlife.
DFC-WF-05	Fences will be the minimum necessary for effective livestock control or other administrative purposes. Fences will be wildlife passable, consistent with the species found in the area.
DFC-WF-06	Habitat connectivity and wildlife movement between ecological zones will be maintained.
DFC-WF-07	Adverse impacts to wildlife and wildlife resources will be avoided or mitigated.
DFC-WF-09	Human/wildlife conflicts will be avoided, resolved, or mitigated.
DFC-WF-11	The natural biological diversity of fish, wildlife, and plant species will be maintained or, where necessary and feasible, restored throughout the Arizona Strip FO. Habitats will be managed on an ecosystem basis, ensuring that all parts of the ecosystem and natural processes are functional.
Priority Species and Habitats	
MA-WF-01	Management emphasis and priority will be given to priority species and habitats in conflict resolution. Priority species include the following: • All special status wildlife species known or suspected to occur in the area. Special status species include those that are federally listed, proposed, or candidate species; species for which there is a signed conservation agreement or strategy; all species referenced in AGFD's Wildlife Species of Concern in Arizona document; and species included on the Arizona BLM sensitive list. • All species of migratory birds known or suspected to occur within the Arizona Strip FO. • All game mammals including: mule deer, pronghorn antelope, desert bighorn sheep, mountain lion, Kaibab squirrel, and desert cottontail rabbit. • Game birds including Merriam's turkey, Gambel's quail, white-winged dove, mourning dove, band-tailed pigeon, chukar partridge, and waterfowl. • The following carnivores: kit fox, gray fox, and long-tailed weasels. Priority habitats include the following: • All aquatic and/or riparian areas, including springs, seeps, and man-made waters. These areas are important for all wildlife species, particularly native fish and migratory birds. • All portions of the ponderosa pine ecological zone. This habitat is important for Merriam's turkey and a variety of bats and migratory birds. It is also crucial summer range for mule deer. • All areas considered crucial mule deer winter range, including the Buckskin Mountains, Whitmore Canyon, Grey Points/Low Mountain, north, and eastern slopes of Seegmiller Mountain, Bull Rush Point, Andrus Point, and the western slope of the Kaibab Plateau. • All bighorn sheep habitat areas, including the Virgin Mountains, Hurricane Cliffs, and Kanab Creek Wildlife Habitat Management Area (WHA; see Map 2.4). • House Rock Valley. The only known habitat for an endemic kangaroo rat and includes several special status plant species.
MA-WF-02	Decisions and specific actions from this RMP intended to benefit fish and wildlife resources will be implemented through the development and implementation of three interdisciplinary wildlife Habitat Management Plans (HMPs). These plans will be developed and maintained cooperatively with AGFD, U.S. Fish and Wildlife Service (USFWS), and other interested participants. HMP area boundaries will follow AGFD Game Management Units 12B, 13A, and 13B. Implementation accomplishments will be monitored and reviewed annually and documented in HMP files. The HMPs will be amended or revised, as necessary, and will incorporate existing and new BLM and state strategies as applicable.
MA-WF-03	Activities that adversely affect breeding, feeding, or sheltering activities of priority wildlife species may be modified, mitigated, or otherwise restricted to minimize disturbance to the species.

TABLE 2.4. WILDLIFE AND FISHERIES (WF)	
Decision No.	**Decision Text**
DESERT BIGHORN SHEEP	
LA-WF-01	172,110 acres will be allocated as the Virgin Mountains, Hurricane Cliffs, Kanab Creek, and Vermilion Cliffs WHAs for desert bighorn sheep (see Map 2.4). The majority of Vermilion Cliffs WHA is located in Vermilion Cliffs National Monument.
MA-WF-24	Desert bighorn sheep will be managed for healthy, self-sustaining populations in accordance with population goals and objectives established in the AGFD Strategic Plan for the species.
MA-WF-27	Activities that will adversely affect the lambing or rearing of newborn bighorn sheep will generally not be authorized in WHAs for desert bighorn sheep between December 1 and May 31.
MIGRATORY BIRDS	
MA-WF-33	Adverse effects to breeding bird populations caused by disturbances from authorized activities will be minimized through stipulations and other mitigation.
MA-WF-34	Migratory birds will be managed through implementation of Executive Order 13186. Additional restrictions on surface disturbing activities will be developed on a case-by-case basis through NEPA analysis.

TABLE 2.5. SPECIAL STATUS SPECIES (TE)	
Decision No.	**Decision Text**
ALL SPECIAL STATUS SPECIES	
DFC-TE-02	Management of discretionary activities in the Arizona Strip FO will not contribute to the need to list proposed, candidate, state, or BLM sensitive species, and will include conservation measures and stipulations benefiting special status species.
DFC-TE-04	There will be no net loss in the quality or quantity of special status species habitat throughout the Arizona Strip FO.
MA-TE-01	Priority for the application of management actions will be for: • Species Federally listed under the ESA as endangered or threatened, • Species proposed for Federal listing, • Species that are candidates for Federal listing, • Species included in the Wildlife Species of Concern in Arizona document, • Species for which a conservation strategy/agreement has been developed, and • Species included on the BLM Sensitive Species Lists.
MA-TE-02	Specific actions and direction for managing special status species will be guided by the use of interdisciplinary wildlife HMPs produced cooperatively with the AGFD, USFWS, and other interested participants. Implementation accomplishments will be monitored and reviewed annually and documented in HMP files. HMPs will be amended or revised as necessary to incorporate new information and adjust management.
MA-TE-03	Management of special status species will be consistent with biological opinions, recovery plans, conservation strategies, BLM policies, and the ESA, and will be consistent with achieving all DFCs, to the extent possible
MA-TE-05	The BLM will continue to cooperate with USFWS to ensure specific actions comply with the ESA. The BLM will continue to undertake active management programs to inventory, monitor, restore, and maintain listed species habitats, control detrimental non-native species, control detrimental public access, and re-establish extirpated populations as necessary to maintain the species and their habitats.
MA-TE-06	Where actions authorized or permitted may adversely affect a listed or proposed species, or adversely modify designated or proposed critical habitat, the BLM will work cooperatively with USFWS to resolve or mitigate these impacts through implementation of species-specific conservation measures (See Appendix F).
Surface Disturbing Actions	
MA-TE-14	Prior to surface disturbing activity, a special status species review will be conducted by a qualified specialist.
MA-TE-15	Special status species habitat surveys will be required whenever surface disturbances occur within an area of known or suspected occupancy by special status species.

TABLE 2.5. SPECIAL STATUS SPECIES (TE)	
Decision No.	**Decision Text**
	NATIVE FISH
DFC-TE-15	Essential habitats, important migration routes, required flows, and water quality will be protected and maintained in lentic and lotic systems in the Arizona Strip FO.
DFC-TE-17	Populations of woundfin minnow and Virgin chub in the Arizona Strip FO will be recovered and delisted.
DFC-TE-18	Virgin spinedace habitat will support viable populations sufficient to preclude the need for Federal listing.
SD-TE-12	The Virgin River Corridor ACEC for protection of Virgin River fishes and threatened desert tortoise will be modified to include only the 100-year floodplain (approx. 2,065 acres). Boundary adjustments will eliminate areas outside of the 100-year floodplain previously included in the ACEC. Desert tortoise habitat previously included within the Virgin River Corridor ACEC will be incorporated into and managed as a part of the Beaver Dam Slope or Virgin Slope ACEC. The ACEC will be managed for Virgin River fishes and riparian values.
MA-TE-56	• Active participation in the recovery of Virgin River fishes will continue. • Assistance will be provided in implementing recovery tasks identified in the recovery plan. • Protection from threats will be provided and sufficient habitat will be created/secured to assure maintenance of these populations and/or habitats over time. • Applications for instream flow rights with the Arizona Department of Water Resources in rivers supporting native fish species will continue to be supported. • Riparian area river channels, floodplains, and terraces will be retained in Federal ownership. All exchanges that can affect water flows (either groundwater or surface water) will be carefully examined to ensure that development on those lands will not adversely affect riparian habitats. • In cooperation with the USFWS, AGFD, and the Virgin River Fishes Recovery Team, assistance will be provided in efforts to reduce or eradicate non-native fish populations. • In cooperation with the USFWS, AGFD, and the Virgin River Fishes Recovery Team, assistance will be provided with construction and installation of habitat improvement projects to benefit native fish species. The BLM will assist in location and construction of non-native fish barriers at suitable locations along the Virgin River in the Arizona Strip FO. • Employees and public users will be educated about Virgin River fishes.
	Vegetation Management
MA-TE-58	• Native riparian vegetation in floodplains and channels will be retained. • A temporally staged approach will be used in habitats where exotic species are to be removed through chemical or mechanical means, so that some mature habitat remains throughout the restoration period for cover and shade for Virgin River fishes. • Riparian and aquatic habitats for Virgin River fishes will be maintained or enhanced. The establishment of areas of slow/back waters will be promoted. • Regeneration of native species will be promoted in regenerating riparian habitats. Natural reaches of riparian habitat will be restored by restoring intervening degraded segments. In accordance with guideline 3-1 of Standard 3 of the Arizona Standards and Guidelines, habitat restoration in riparian areas shall not include planting or seeding of nonnative plants. • Vegetation management actions within the Virgin River Corridor ACEC will include conservation measures for native fishes as described in Appendix F.
	Watershed Activities
MA-TE-60	• Impact of pesticide use on Virgin River fishes will be determined. • The use of harmful pesticides adjacent to riparian areas will be limited or eliminated. If used, application will be in a manner that avoids drift, according to directions (i.e. not broad applications). • Water diversions and groundwater withdrawals will be managed to maintain streamside vegetation. • Where possible and practicable, physical stresses, such as high salinity or reduced stream flows that favor exotic plants, will be reduced or eliminated. Actions that do not allow for natural stream flow regimes including periodic flood events will not be allowed.
MA-TE-61	Actions that degrade riparian habitat or reduce the potential of the area to support riparian vegetation will be modified, restricted, or prohibited.

TABLE 2.5. SPECIAL STATUS SPECIES (TE)	
Decision No.	**Decision Text**
AMPHIBIANS AND AQUATIC INVERTEBRATES	
DFC-TE-19	Essential habitats, important migration routes, required flows, and water quality will be protected and maintained in lentic and lotic systems in the Arizona Strip FO.
DFC-TE-20	No net loss will occur in the quality and quantity of suitable habitat for endemic amphibians and aquatic invertebrate species within the Arizona Strip FO.
MA-TE-64	Actions that degrade riparian habitat or reduce the potential of the area to support riparian vegetation will be modified, restricted, or prohibited.
SPECIAL STATUS RAPTORS (ALL SPECIAL STATUS RAPTORS)	
MA-TE-65	• Priority special status raptors will include bald eagles, California condors, Mexican spotted owls, peregrine falcon, burrowing owls, ferruginous hawks, northern goshawks, and common black hawks. • Special status raptor habitats in the Arizona Strip FO will be preserved, protected, and managed for population maintenance and expansion. • A policy of "no net loss" of special status raptor habitat will be maintained. • Occupied special status raptor habitats will be protected as a first priority. • The BLM and AGFD will determine population numbers, distribution, and trends of special status raptors. • The effects of pesticide and herbicide use on special status raptors in the Arizona Strip FO will be assessed.
Surface Disturbing Activities	
MA-TE-67	Actions that adversely affect special status raptors during their nesting period may be subject to stipulations, mitigation, or may not be approved.
MA-TE-70	• The BLM can limit, modify, or relocate authorized and/or permitted activities within 0.5 miles of active bald eagle wintering roosts. • Projects and activities causing disturbance to roosting bald eagles shall be avoided from October 15 to April 15. • The BLM will implement conservation measures for protection of bald eagles as defined in Appendix F.
SPECIAL STATUS RAPTORS (CALIFORNIA CONDOR)	
California Condor Habitat Management	
MA-TE-74	• The BLM will continue to actively participate in the recovery of the California condor. • The BLM will assist in implementation of recovery tasks identified in the recovery plan. • Restoration of California condor into historic habitats in northern Arizona will continue in cooperation with the Peregrine Fund, AGFD, USFWS, California Condor Recovery Program, and others. Supplemental releases will be authorized. • The population objective for California condor will be to maintain a self-sustaining population with a positive growth rate of at least 150 individuals with at least 15 breeding pairs. Population objectives will be modified or changed in accordance with the recovery plan for the species. • The BLM will identify and, where possible, reduce or eliminate sources of lead contamination for condors within the Arizona Strip FO. The BLM will encourage voluntary use of non-lead ammunition in the Arizona Strip FO.
Surface Disturbing Activities	
MA-TE-76	• The BLM will implement conservation measures for protection of California condors as defined in Appendix F.
MA-TE-77	• Within the 10(j) area, the BLM will not restrict authorized and/or permitted activities solely for the benefit of California condors. Persons engaged in authorized or permitted actions that encounter a condor will be requested not to haze the birds, but to notify the BLM or the Peregrine Fund. Administrative or other actions implemented may be subject to additional stipulations and conservation measures as described in Appendix F.
SPECIAL STATUS RAPTORS (PEREGRINE FALCON)	
Peregrine Falcon Habitat Management	
MA-TE-78	• Active participation will continue in the post-delisting recovery monitoring of peregrine falcons in the Arizona Strip FO. • Actions that adversely affect nesting peregrines (between March 1 and August 1) may be subject to stipulations, mitigation, or may not be approved

TABLE 2.5. SPECIAL STATUS SPECIES (TE)	
Decision No.	**Decision Text**
	Surface Disturbing Activities
MA-TE-79	• Authorized actions, including construction projects, will be limited, modified, or relocated to areas more than 0.5 miles of known peregrine falcon during the active nesting season (between April 15 and August 15). • The BLM will implement conservation measures for protection of peregrine falcon as defined in Appendix F.
	RIPARIAN DEPENDENT SPECIAL STATUS BIRDS (ALL RIPARIAN-DEPENDENT SPECIAL STATUS BIRD SPECIES)
DFC-TE-33	No net loss will occur in the quality and quantity of suitable habitat for riparian-dependent special status bird species within the Arizona Strip FO.
DFC-TE-34	Occupied habitats will be protected as a first priority.
	Riparian-Dependent Special Status Bird Species and Habitat Management
MA-TE-81	• Protection from threats will be provided and sufficient habitat to assure maintenance of populations and/or habitats over time will be created/secured. • Water diversions and groundwater withdrawals will be managed to maintain streamside vegetation. • Impacts of pesticide use on riparian-dependent special status bird species' reproduction adjacent to riparian areas will be determined. • The BLM and AGFD will determine population numbers, distribution, and trends of riparian-dependent special status bird species. • The use of harmful pesticides adjacent to riparian areas will be limited or eliminated. If used, application will occur in a manner that avoids drift, according to directions (i.e. not broad applications).
	Vegetation Management
MA-TE-82	• Riparian areas will be managed to achieve and/or maintain proper functioning condition in accordance with prescriptions described in the vegetation management section of this document (See Vegetation Management and Fire Management decisions). • Suitable nesting riparian habitats for riparian-dependent special status bird species will be maintained or increased. Suitable structural characteristics may be achieved through restoring, maintaining, enhancing, and creating habitat. Management will aim for large, contiguous blocks of habitat rather than for small fragmented areas. Connectivity to currently isolated suitable sites will be enhanced. The use of buffer zones between riparian habitats and adjacent upland areas will be encouraged. Establishment of areas of slow/back waters will be promoted. • Regeneration of native vegetation in restoring riparian habitats will be promoted. Natural reaches of riparian habitat will be restored by restoring intervening degraded segments. • Occupied, suitable, and potential breeding habitat will be increased and improved. • Restoration of native riparian vegetation will continue in sites that have the potential to support future breeding habitat for riparian-dependent special status bird species. • Support will continue for applications for instream flow rights with the AZ Department of Water Resources in rivers supporting riparian-dependent species. • Native riparian vegetation in floodplains or channels will be retained. • Protective measures for riparian-dependent special status bird species that are contained in the July 2004 "Recommended Protection Measures for Pesticide Applications in The Southwest Region of the USFWS" will be implemented when conducting chemical treatments. • The BLM will implement conservation measures for protection of riparian-dependent special status bird species as defined in Appendix F.
	Surface Disturbing Activities
MA-TE-86	• Where possible and practicable, physical stresses, such as high salinity or reduced stream flows that favor exotic plants, will be reduced or eliminated. Actions that do not allow for natural stream flow regimes, including periodic flood events, will not be authorized. • Direct impacts that topple or otherwise destroy nests of special status species will be reduced.
	RIPARIAN DEPENDENT SPECIAL STATUS BIRDS (SOUTHWESTERN WILLOW FLYCATCHER)
	Vegetation Management
MA-TE-89	• Suitable SW flycatcher habitat shall be managed so that its suitable characteristics are not eliminated or degraded. Management will be for large, contiguous blocks of habitat rather than for small fragmented areas. Connectivity to currently isolated suitable sites will be enhanced. The use of buffer zones between

TABLE 2.5. SPECIAL STATUS SPECIES (TE)	
Decision No.	**Decision Text**
	riparian habitats and adjacent upland areas will be encouraged. Establishment of areas of slow/back waters will be promoted. • Potential habitat will be managed to achieve structural and vegetation characteristics necessary to support increasing numbers of breeding SW flycatcher pairs within 5-20 years. Potential flycatcher habitat shall be managed to allow natural regeneration (through natural processes) into suitable habitat as rapidly as possible. • The use vs. availability of invasive exotic species, such as tamarisk, by SW flycatcher at occupied nesting sites will be determined. • Native riparian vegetation will be retained in floodplains or channels. • At native dominated sites, tamarisk will be retained in occupied SW flycatcher habitat and, where appropriate, in suitable but unoccupied habitat, unless there is a trend for steady increase of tamarisk. • The BLM will implement conservation measures for protection of SW flycatcher as defined in Appendix F.
RIPARIAN-DEPENDENT SPECIAL STATUS BIRDS (YELLOW-BILLED CUCKOO)	

TABLE 2.6. CULTURAL RESOURCES (CL)	
Decision No.	**Decision Text**
ARCHAEOLOGICAL AND HISTORIC RESOURCES	
DFC-CL-01	Significant cultural resources will be identified, conserved, protected, stabilized, or restored, and maintained in good or better condition to ensure they are available for appropriate uses by present and future generations.
DFC-CL-02	Imminent threats and potential conflicts from natural or human-caused deterioration or potential conflict with other resource uses will be reduced (Federal Land Policy and Management Act [FLPMA] Sec. 103, National Historic Preservation Act (NHPA), Sections 106 and 110 (a) (2)) by ensuring that all land uses and resource uses initiated or authorized by the BLM comply with Section 106 of the NHPA in accordance with the BLM's National Cultural Resources Programmatic Agreement and Arizona Protocol.
LA-CL-02	The following additional sites will be allocated to public use: • Old Spanish NHT

TABLE 2.7. VISUAL RESOURCES (VR)	
Decision No.	**Decision Text**
DFC-VR-01	Public lands will be managed in a manner, which will protect the quality of the scenic (visual) values of these lands. (43 U.S. Code [USC] 1701, Section 102 (a) (8))
DFC-VR-02	Esthetically pleasing surroundings will be assured for all Americans (43 USC 4321, Section 101 (b)).
DFC-VR-03	The region's scenic beauty, open space landscapes, and other high-quality visual resources will be maintained within the Arizona Strip FO.
DFC-VR-04	The existing "footprint" of cultural landscapes (facilities, projects, and improvements) will generally be maintained.
DFC-VR-06	There are four visual resource management (VRM) classes. The objectives for each class, which provide visual management standards for the design and development of future projects and for rehabilitation of existing projects in the Arizona Strip FO are as follows (see Appendix I: VRM Classes; see Map 2.6). Class 1 - The objective of this class is to preserve the existing character of the landscape. This class provides for natural ecological changes; however, it does not preclude very limited management activity. The level of change of the characteristic landscape should be very low and must not attract attention. Class 2 - The objective of this class is to retain the existing character of the landscape. The level of change to the characteristic landscape should be low. Management activities may be seen, but should not attract the attention of the casual observer. Any changes must repeat the basic elements of form, line, color, and texture found in the predominant natural features of the characteristic landscape. Class 3 - The objective of this class is to partially retain the existing character of the landscape. The level of change to the characteristic landscape should be moderate. Management activities may attract attention but should not dominate the view of the casual observer. Changes should repeat the basic

TABLE 2.7. VISUAL RESOURCES (VR)	
Decision No.	**Decision Text**
	elements found in the predominant natural features of the characteristic landscape. Class 4 - The objective of this class is to provide for management activities that require major modification of the existing character of the landscape. The level of change to the characteristic landscape can be high. These management activities may dominate the view and be the major focus of viewer attention. However, every attempt should be made to minimize the impact of these activities through careful location, minimal disturbance, and repeating the basic elements.
LA-VR-01	The following VRM classes will be designated to support management of the various other resources, such as designated wilderness, NHT segments, primary travel corridors, areas where wilderness characteristics are to be maintained, Virgin River Gorge Recreation Withdrawal, certain special recreation management areas (SRMAs), Great Western and Arizona Trail Corridors, various ACECs, and important watershed and wetland areas (Map 2.6).
	Class I: 80,760 acres Class II: 368,032 acres Class III: 1,459,374 acres Class IV: 72,897 acres
LA-VR-02	During the life of this RMP, any areas designated as wilderness or classified as "wild" as part of a national W&SR designation will, upon designation, be re-designated as VRM Class I.
MA-VR-01	• To the extent opportunities are practicable, extreme visual contrast created by past management practices or human activities will be minimized. Examples include ROW amendments, mineral material sites, abandoned mines, and areas impacted by unauthorized off-road driving, etc. • Basic criteria for "practicality" include: 1) location (is the site in an area with high visual sensitivity and in a foreground/middleground distance zone as mapped in the visual resource inventory?); 2) feasibility (is it physically possible to achieve a desired level of restoration success, as measured by use of the contrast rating process?); and 3) cost (will the cost be reasonable and is funding obtainable?).
New Projects and Activities	
MA-VR-03	All new surface disturbing projects or activities, regardless of size or potential impact, will incorporate visual design considerations during project design as a reasonable attempt to meet the VRM class objectives for the area and minimize the visual impacts of the proposal. Visual design considerations will be incorporated by: • Using the VRM contrast rating process (required for proposed projects in highly sensitive areas, high impact projects, or for other projects where it appears to be the most effective design or assessment tool), or by • Providing a brief narrative visual assessment for all other projects that require an environmental assessment (EA) or environmental impact statement (EIS). Measures to mitigate potential visual impacts include the use of natural materials, screening, painting, project design, location, or restoration (see Appendix I; BLM Handbook H-8431-1, Visual Resource Contrast Rating; or online at http://www.blm.gov/nstc/VRM/8431.html, for information about the contrast rating process).

TABLE 2.13. RECREATION & VISITOR SERVICES/INTERPRETATION & ENVIRONMENTAL EDUCATION (RR)	
Decision No.	**Decision Text**
RECREATION & VISITOR SERVICES	
DFC-RR-05	In Backways and Specialized TMAs, recreation opportunities associated with somewhat remote settings, such as exploring backcountry roads, vehicle camping, hunting, sightseeing, recreation aviation, and picnicking will be maintained/enhanced on existing roads, provided they will be compatible with the protection and enhancement of sensitive resource values, where appropriate.
DFC-RR-06	In the Primitive TMA, high quality recreation opportunities associated more with primitive recreation experience opportunities and non-motorized uses such as camping, sightseeing, hiking, horseback riding, and hunting, will be maintained/enhanced, provided they will be compatible with the protection and enhancement of sensitive resource values, where appropriate.
DFC-RR-08	The Virgin River Gorge Recreation Lands Withdrawal (PLO 5263) will be managed for the values listed in the withdrawal application (A-6451).

TABLE 2.13. RECREATION & VISITOR SERVICES/INTERPRETATION & ENVIRONMENTAL EDUCATION (RR)	
Decision No.	**Decision Text**
	Recreation Management Area
DFC-RR-11	The specific DFCs for each SRMA are described in the DFC decisions numbered DFC-RR-14 to DFC-RR-26 Each SRMA will target a distinct, primary recreation-tourism market as well as a corresponding and distinguishing recreation management strategy, such as Community, Destination, or Undeveloped (see Glossary). In identifying SRMAs and prescribing the management regime for each, a benefits-based management (BBM) approach will be utilized. BBM or "beneficial outcomes" focuses on the desired outcomes of recreation and leisure activities tied to experiences and benefits.
DFC-RR-12	Within each SRMA, one or more potential Recreation Management Zones (RMZs) has been identified, with each zone providing for a particular recreation niche (see Glossary) within the overall SRMA (See Map 2.13 for SRMAs and Map 2.14 for RMZs). Each RMZ will be characterized by a description of its own DFCs in the form of outcomes (management objective(s), benefits, experiences, activities) and the setting prescriptions (physical, social, and administrative conditions) required to produce the outcomes.
DFC-RR-16	The primary strategy for the Virgin River SRMA will be to target a demonstrated destination recreation-tourism market demand from mainly local community residents and regional visitors for day-use and overnight hiking, family outings, rock climbing, school group field outings, and white water activities. Similarly, there is market demand from local, regional, and national visitors for sightseeing, appreciation of geologic resources, rest from travel and escaping the cold winter weather of other locations. This demand is supported by the area's distinctive location along high traffic volume Interstate Highway 15, its place in the Grand Canyon-like landscape of Virgin River Gorge, and ease of access for day and overnight recreation. National, regional, and local recreation-tourism visitors value these public lands as recreation-tourism destinations (See Appendix N for more information).
DFC-RR-17	The Virgin River RMZ will be managed for: • Group-oriented white-water and climbing adventures amidst rugged and stunning geologic features. • By the year 2010, manage this zone to produce opportunities for visitors to enjoy white-water boating adventure for social group affiliation, water-play for family affiliation, and challenging rock climbing within a naturally-appearing 'mini Grand Canyon' landscape, providing no less than 75% of responding visitors and affected community residents at least a "moderate" realization of these benefits (i.e., 3.0 on a probability scale where 1=not at all, 2=somewhat, 3=moderate, 4= total realization). • Kayaking, river floating, water play, viewing geology, rock climbing. • Enjoying the closeness of friends and family; enjoying participating in group outdoor events; enjoying strenuous physical exercise • *Personal Benefits*: Greater personal enrichment through involvement with other people; confirmation/development of one's own values; improved muscle strength; improved cardiovascular health; a more holistic sense of wellness. • *Household & Community Benefits*: Stronger ties with one's family and friends. • *Economic Benefits*: Reduced health maintenance costs. • The RMZ will be managed to produce recreation opportunities in the following essential settings: • *Physical Benefits*: Semi-Primitive Non-Motorized to Rural, with regard to remoteness; Primitive to Roaded Natural, with regard to naturalness; and Semi-Primitive Non-Motorized to Roaded Natural, with regard to recreation facilities. • *Social Benefits*: Semi-Primitive Motorized to Roaded Natural, with regard to group size; Primitive to Rural, with regard to contacts; and Primitive to Semi-Primitive Non-Motorized, with regard to evidence of use. • *Administrative Benefits*: Semi-Primitive Non-Motorized to Roaded Natural, with regard to visitor services; Semi-Primitive Non-Motorized to Semi-Primitive Motorized, with regard to management controls; and Primitive to Urban, with regard to mechanized/ motorized uses (See Travel Management decisions regarding administrative uses).
DFC-RR-19	The Motorways RMZ will be managed for: • Interpretive respites for travelers at pullout sites along primary highways. • By the year 2015, collaborating with ADOT and Mohave County, manage this zone to produce safe day-use opportunities for primarily regional and national travelers along Interstate Highway 15 and community residents along Old Highway 91 to enjoy roadside access to geologic and riparian resource appreciation and education recreation, providing no less than 75% of responding visitors and affected community residents at least a "moderate" realization of

TABLE 2.13. RECREATION & VISITOR SERVICES/INTERPRETATION & ENVIRONMENTAL EDUCATION (RR)	
Decision No.	**Decision Text**
	these benefits (i.e., 3.0 on a probability scale where 1=not at all, 2=somewhat, 3=moderate, 4=total realization). • Viewing geology, viewing wildlife, viewing nature, viewing roadside exhibits. • Learning more about things here/releasing or reducing some built-up mental tensions. • *Personal Benefits*: Enhanced awareness and understanding of nature; closer relationship with the natural world; restored body from fatigue; diminished mental anxiety. • *Household & Community Benefits*: Increased compassion for others. • *Environmental Benefits*: Increased awareness and protection of natural landscapes. The RMZ will be managed to produce recreation opportunities in the following essential settings: • *Physical Benefits*: Semi-Primitive Non-Motorized to Rural, with regard to remoteness; Roaded Natural to Rural, with regard to naturalness; and Semi-Primitive Motorized to Roaded Natural, with regard to recreation facilities. • *Social Benefits*: Primitive to Semi-Primitive Motorized, with regard to group size; Primitive to Rural, with regard to contacts; and Roaded Natural to Rural, with regard to evidence of use. • *Administrative Benefits*: Roaded Natural, with regard to visitor services; Semi-Primitive Non-Motorized to Semi-Primitive Motorized, with regard to management controls; and Primitive to Urban, with regard to mechanized/motorized uses (See Travel Management decisions regarding access for administrative uses).
LA-RR-01	The RMAs (both Special and Extensive), and accompanying RMZs within each SRMA, are identified as follows (See Appendix N for more information about RMAs and Map 2.14 for locations): **Virgin River SRMA: 4,955 acres** Virgin River RMZ: 2,110 acres Virgin River Gorge Scenic Gateway RMZ: 135 acres The Motorways: 2,710 acres
Recreation Management Actions	
MA-RR-01	To the extent practicable, the natural or "remote" settings in Specialized and Primitive TMAs will be restored and/or maintained using a combination of projects and natural processes as the need or opportunity arises.
MA-RR-06	Sign material and design will be unobtrusive in order to blend with local landscape settings and retain the natural and/or historic integrity of the site.

TABLE 2.14. TRAVEL MANAGEMENT (TM)	
Decision No.	**Decision Text**
Travel Management Areas	
DFC-TM-06	Backways TMA (see Map 2.18) • Objectives: The Backways TMA will provide for a variety of motorized, non-motorized, and mechanical travel modes to serve existing and future recreational, traditional, casual, commercial, educational, and private needs, but not to the detriment or exclusion of the protection of resources. It will also supply the primary travel system that will provide public entry from communities to the more remote and semi-primitive TMAs. • Primary Travelers: The Backways TMA will serve the day-to-day needs of those with permits for the use of resources, such as grazing, fuelwood, and mineral materials, as well as private, state, and other land ownership needs and a variety of local, state, and Federal agency resource management needs. It will also serve the motorized and non-motorized needs of local, regional, national, and international visitors engaged in activities such as viewing scenery, visiting cultural resources and interpretive sites, exploring by vehicle, camping, picnicking, hunting; studying nature, and participating in organized events. It will also provide the best opportunities for day-use recreation activities related to motor touring. • Setting Characteristics: Settings will be maintained within the Backways TMA that typically provide entry to more remote areas, interpretive developments, and administrative facilities in mostly natural-appearing areas with motorized and mechanized use.

TABLE 2.14. TRAVEL MANAGEMENT (TM)	
Decision No.	**Decision Text**
DFC-TM-08	Primitive TMA (see Map 2.18) • Objectives: The Primitive TMA will provide for adequate, but limited motorized travel to serve existing and future traditional, casual, some commercial, private, and emergency needs and for non-motorized, non-mechanized travel to serve existing and future recreational needs in the most remote, rustic settings, for the enhancement and protection of important resource values. It will also range from large areas containing no routes to areas characterized by low densities of primitive roads that will provide entry to authorized management facilities for administrative users. • Primary Travelers: The Primitive TMA will serve the occasional needs of those with permits for the use of resources, such as grazing or research, as well as private, state, and other land ownership needs and a variety of local, state, and Federal agency resource management needs. It will also serve the non-motorized/non-mechanized needs of primarily local, regional, and national visitors engaged in activities such as viewing scenery and cultural resources, backcountry exploring, and hunting. • Setting Characteristics: Settings will be maintained within the Primitive TMA that provide for limited motorized entry for administrative users on a small number of primitive roads in the most remote areas. Few and widely scattered, rustic management facilities can be present in mostly natural-appearing areas where they will be necessary to protect and/or administer important resources. Remote settings, natural landscapes, solitude, and opportunities for primitive recreation will be minimally impacted by human activity.
Trail Systems Designation	
IMPL-TM-04	**National Historic Trails:** Old Spanish Trail will continue to be managed as a NHT.

TABLE 2.15. SPECIAL DESIGNATIONS (AC, WM, HT, WR)	
Decision No.	**Decision Text**
WILD AND SCENIC RIVERS (WR)	
Wild and Scenic Rivers Interim Management	
DFC-WR-01	The viability of W&SR candidates for congressional consideration will be ensured through effective interim management.
DFC-WR-02	Until Congress acts to designate or release from further consideration rivers determined to be eligible and suitable through the previous RMP process and the subsequent Arizona Statewide W&SR Legislative EIS, the following desired conditions will be maintained: • Preservation of the stream's free-flowing nature. • Preservation, protection, and, to the greatest extent practicable, enhancement of identified outstandingly remarkable values. ▪ Virgin River: scenic, geologic, aquatic, and riparian values • Preservation of characteristics that establish the potential classifications as Wild, Scenic, or Recreational: ▪ Wild: free of impoundments, generally inaccessible except by trail, with shorelines essentially primitive and waters unpolluted. ▪ Scenic: free of impoundments and generally inaccessible except by trail. However, shoreline disturbance from highway construction is apparent at several points. • Recreational: several access points and noticeable human developments.
Congressional Release	
DFC-WR-03	Should the Virgin River study area lands not be included by Congress in the National W&SRs System but instead be released from further consideration and/or interim management, those lands will be managed using the goals, guidance and prescriptions described for the corresponding land use allocations (see Map 2.22).
SD-WR-01	The Virgin River will retain its tentative classification as wild from the Utah state line to the first I-15 bridge, scenic from the I-15 bridge to the Virgin River Campground, and recreational from the campground to the Nevada state line (see Map 2.22).
SD-WR-02	The Virgin River will retain its designation as the Virgin River Corridor ACEC to protect important W&SR characteristics.
SD-WR-03	The Virgin River study area will retain its suitability determination for inclusion in the National W&SRs System.

TABLE 2.15. SPECIAL DESIGNATIONS (AC, WM, HT, WR)	
Decision No.	**Decision Text**
SD-WR-04	The Virgin River study area will retain its recommendation for designation as a Study River under Section 5(a) of the W&SRs Act (Public Law [PL] 90-542).
MA-WR-01	Implementation of the recommendations for the Virgin River will continue the protective status (interim management) associated with the eligibility findings defined in the Arizona Strip District RMP until Congress makes a decision about W&SR designations.
MA-WR-02	The Virgin River will be studied in conjunction with Utah and Nevada to determine suitability under the W&SR Act.
MA-WR-03	The recommendation for designation of the Virgin River study area to be designated as a study river will preclude there being any W&SR management actions associated with implementation.
Restrictions of Uses Under Interim Management	
MA-WR-04	Potential actions that may affect Virgin River wild and scenic values will be subject to interim protection. Management activities will not be allowed to damage the existing eligibility, classification, or suitability. The free-flowing characteristics of the river segments cannot be modified.
NATIONAL HISTORIC TRAIL (HT)	
DFC-HT-01	The following DFCs will apply to the Old Spanish NHT: • Visitors seeking to experience the NHT will understand and appreciate the trail's history and significance. • Visitors will appreciate and respect the rights of landowners in the area. • High-potential NHT segments and historic sites will be protected from over-use, inappropriate use, and vandalism. • Scenic values related to historical resources will be protected. • The viability of NHT resources for comprehensive planning will be ensured through effective interim management. • Maximum protection of historic and prehistoric properties within the trail corridor will be provided. • The trail will be managed using the interim provisions of this RMP until a Comprehensive Management Plan/EIS is produced by the Old Spanish NHT planning team.
Visitor Information and Education	
MA-HT-01	Trail resources (natural, cultural, and historical) will be identified, recorded, and protected on Federal land. The BLM will gather new information on known or additional high-potential historic sites and segments and cooperate with other Federal managers, trail associa-tions, trail scholars, and state historic preservation offices (SHPOs) in adding, deleting, or modifying the list of sites and trail segments.
MA-HT-02	The following criteria, based on the NRHP and the National Trails System Act, will be used to begin to identify high-potential sites or high-potential route segment resources on public lands: • Significance to the trail (based on documentation and/or archeological research). • Integrity of the physical remains. • Integrity and quality of the setting including scenic quality and relative freedom from intrusion. • Opportunity for high-quality recreation evoking the historic trail experience. • Opportunity to interpret the primary period of trail use.
Resource Protection	
MA-HT-03	Where significant trail corridor segments and associated sites are documented, viewsheds, as observed from these areas, will be maintained.
MA-HT-04	When high potential trail sites and/or trail segments are documented, existing routes that may adversely affect these resources may be limited or closed.
MA-HT-05	Any changes to the characteristic landscape must be low in the Old Spanish NHT corridor on public lands (See Visual Resource Management decisions).
MA-HT-06	Recreational development of the trail will not occur prior to the development of the Comprehensive Management Plan/EIS.
Allowable Uses	
MA-HT-07	Valid existing rights and existing land use authorizations will be recognized on public lands.

TABLE 2.15. SPECIAL DESIGNATIONS (AC, WM, HT, WR)	
Decision No.	**Decision Text**
AREAS OF CRITICAL ENVIRONMENTAL CONCERN (AC)	
DFC-AC-01	ACECs will provide protection for special status plant and animal species, scenic values, riparian values, and significant cultural resources.
DFC-AC-02	ACECs will be managed for information, protection, conservation, interpretation, and education (see Map 2.23).
SD-AC-04	The Virgin River Corridor ACEC for protection of Virgin River fishes and threatened desert tortoise will be modified to include only the 100-year floodplain (approx. 2,065 acres). Boundary adjustments will eliminate areas outside of the 100-year floodplain previously included in the ACEC. Desert tortoise habitat previously included within this ACEC will be incorporated into and managed as a part of the Beaver Dam Slope or Virgin Slope ACEC. The Virgin River Corridor ACEC will then be managed for Virgin River fishes and riparian values only (see Map 2.23).
MA-AC-01	Vegetation diversity will be maintained or improved in accordance with ecosite guides.
MA-AC-03	Restoration and vegetation treatments will be authorized only where doing so will result in benefits for resources and values protected by the ACEC.
Virgin River Corridor ACEC (VG)	
MA-AC-02(VG)	Suitable flycatcher habitat will be managed so that its suitable characteristics are not eliminated or degraded.
MA-AC-03(VG)	Potential flycatcher habitat will be managed to allow natural regeneration (through natural processes) into suitable habitat as rapidly as possible.
MA-AC-06(VG)	Vegetation management within the Virgin River Corridor ACEC will include conservation measures for SW flycatchers and native fishes as described in Appendix F.
MA-AC-07(VG)	The Virgin River Gorge Scenic Withdrawal area (6,741 acres) will continue on lands outside wilderness.
MA-AC-10(VG)	Riparian areas will be managed to achieve and/or maintained in proper functioning condition in accordance with prescriptions described in the vegetation management section of this document.

ADMINISTRATIVE ACTIONS

Although the BLM's intent and commitment to accomplish administrative actions is generally addressed in EIS- or EA-level documents, such activities are not management decisions at either the land use plan level or implementation level. Administrative actions do not require NEPA analysis or a written decision by a responsible official in order to be accomplished. Instead, administrative actions (and standard operating procedures) are day-to-day activities conducted by the BLM, often required by FLPMA, which outline the objectives, basic management policy, and program direction. Examples of administrative actions include mapping, surveying, inventorying, monitoring, and collecting information needed such as research and studies. Some specific administrative actions associated with the management of the Arizona Strip FO are presented below. This is, however, not a complete list of all standard operating procedures required by law or policy that the BLM will use in administering the resources and uses in this FO.

Special Status Species (All Special Status Species)

- To the extent practicable, inventory and monitoring of special status species will be conducted in accordance with accepted survey protocols.

Cultural Resources (Archaeological and Historic Resources)

- Geographic and archaeological scientific inventories will be continued based on imminent threats from natural or human-caused deterioration, potential conflict with other resource uses, and the probability for unrecorded significant resources.
- All implementation actions will be contingent upon the outcome of Sec 106 consultation with the Arizona SHPO and will not proceed until that process is completed.

Cultural Resources (Resources of Importance to American Indians)

- Tribes and individual members of tribes with cultural and historic ties to the Arizona Strip will be consulted, according to the provisions specified in Native American Grave Protection and Repatriation Act, Archaeological Resources Protection Act, NHPA, and pertinent Executive Orders.
- Mutually acceptable methods of protecting and preserving areas of sacred and traditional importance will be adopted.

Lands and Realty

- Existing land use authorizations (ROWs, permits, leases, etc.) will be administered in accordance with the terms and conditions of the authorizations.

Special Designations (Areas of Critical Environmental Concern)

- Virgin River Corridor ACEC
  - In cooperation with the USFWS, AGFD, and the Virgin River Fishes Recovery Team, the BLM will assist in monitoring efforts for native Virgin River fish populations.
  - The BLM will continue to maintain updated maps of SW flycatcher habitat in the Arizona Strip FO, which will include:
    - Location, size, shape, and spacing of habitat areas.
    - Habitat stage with respect to SW flycatchers (suitable occupied, suitable unoccupied, suitable unsurveyed, potential or regenerating).
    - Status of SW flycatcher surveys for each area of suitable habitat.
  - The BLM will continue to maintain a database of SW flycatcher observations.

Public Health and Safety

- All authorized or permitted activities will adhere to hazardous materials regulations for storage, use, and disposal.