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FEDERAL LANDS
BIOLOGICAL ASSESSMENT AND EVALUATION

RESOLUTION COPPER MINING
WATER PIPELINE PROJECT

USDA Forest Service
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1.0 INTRODUCTION AND PURPOSE

WestLand Resources, Inc. (WestLand) was retained by Resolution Copper Mining, LLC (RCM), to conduct this Biological Assessment and Evaluation (BA&E) for a project in the Magma Arizona Railroad Company (MARRCO) Right-of-Way (ROW). The project consists of the construction, operation, and maintenance of a pipeline to deliver water from RCM's treatment plant in Superior, Arizona, to an irrigation canal operated by New Magma Irrigation and Drainage District (NMIDD) near Florence, Arizona (the Project). The pipeline will follow the existing MARRCO alignment. A portion of the alignment passes through the Tonto National Forest (TNF) for a distance of approximately 9.5 miles (Project Area; Figure 1), generally following Queen Creek westward from Superior toward the Whitlow Ranch Flood Control Basin.

The purpose of this BA&E is to evaluate the potential effects of the Project to special-status species. "Special-status species" are those species listed as threatened, endangered, or proposed/candidate by the US Fish & Wildlife Service (USFWS) under the Endangered Species Act (ESA) or listed as sensitive by the USDA Forest Service (Forest Service) on TNF. This BA&E was prepared in accordance with the requirements stated in the Forest Service Manual (FSM 2672), and includes the identification of all special-status species known or expected to occur in the Project Area, a description of their habitat requirements, and an analysis of the potential effects to each species and their habitat that would potentially result from the Project.

2.0 DESCRIPTION OF THE PREFERRED ALTERNATIVE

RCM plans to construct, operate, and maintain an 18-inch diameter, high density polyethylene (HDPE) pipeline to deliver water from its treatment plant in Superior, Arizona, to an irrigation canal operated by NMIDD near Florence, Arizona. The Project is needed to facilitate dewatering the underground workings of the inactive Magma Mine, east of Superior to allow for mineral exploration. The treated water will be combined with Central Arizona Project water and used to irrigate cotton, alfalfa and Bermuda rye grass.

The proposed pipeline will be constructed in a long-established and previously disturbed railroad corridor. The MARRCO alignment through the TNF was granted by a ROW established at the time of the railroad's construction.[2] The ROW extends to 100 feet from either side of the railroad's centerline for a total width of 200 feet. The Project Area within TNF is limited to a portion of this existing ROW. The Forest Supervisor of the TNF is the responsible official for this proposed action.

Many roads and utility lines are present within the ROW, including Hewitt Station Road, numerous informal dirt roads, a separate water supply pipeline for the Town of Superior partially buried in the railroad bed, and a buried fiber-optic line. A buried natural gas pipeline, aerial electric transmission lines, and aerial telephone lines are also present within the ROW at some locations. Figure 2 depicts the locations of these existing utility lines. Figure 3 provides a schematic depiction of the facilities located within the MARRCO ROW, along with the proposed water pipeline.

The following paragraphs describe the construction, operation, and maintenance of the pipeline.

Construction

The pipeline will be positioned to minimize impacts to existing utilities while maintaining adequate distance from the railroad so as to not impede railroad traffic. The new water pipeline will be constructed alongside the existing railroad tracks and water pipeline, generally on top of or buried within the previously disturbed area of the existing railroad bed. Efforts will be made to constrain the work to the immediate proximity of the railroad bed, and in no case will the work zone extend outside the ROW within TNF. The maximum construction area for the pipeline installation is expected to be about 19.2 acres, of which 12.7 acres have been previously disturbed by the existing railroad, access roads, and other utility lines. The existing railroad will be utilized to the fullest extent practical to mobilize construction equipment and deliver pipe along the alignment.

Within the segment passing through the TNF, no other structures or facilities (such as booster stations) directly related to the proposed water pipeline will be constructed. However, an 8-foot wide access road for maintenance purposes will be constructed within the ROW where needed.

[2] Grant serial number Phoenix 053144. The right-of-way was originally granted in 1915 for a narrow gauge railroad alignment, and amended in 1922 to accommodate changes in the alignment for a standard gauge railroad. At that time, the TNF was known as the Crook National Forest.

Descriptions of various construction activities provided by CH2M Hill, the water pipeline design engineering firm, are summarized below. Copies of the Project design plans for the segment of the water pipeline within the TNF were included as part of the Special Use Permit (SUP) application, submitted to the TNF on May 9, 2008.

As mentioned above, the work will generally be constrained to the immediate proximity of the railroad bed, and all associated disturbances would be conducted within the 200-foot wide ROW. Construction activities will include clearing vegetation, grading, trenching, and backfilling. Staging areas for construction will be placed at previously disturbed locations along the existing railroad and will be used to mobilize construction equipment and temporarily store pipe. Existing public roadways would be used by construction crews to access construction sites on a daily basis and an 8-foot wide access road would be constructed within the ROW where necessary for maintenance purposes. The construction contractor will be required to have spill control equipment at each construction site and to utilize good housekeeping and best management practices for protection of the environment.

The design goal is to bury the water pipeline wherever possible in order to limit thermal expansion and contraction of the pipe and limit its exposure to vandalism. However, in many instances pipe burial is not possible due to one or more of the following conditions: 1) difficult excavation (i.e., bedrock areas), 2) lack of a sufficient area to trench, 3) pipeline hydraulics that require above-ground placement, or 4) the need to avoid adverse effects to cultural sites. In these circumstances, alternate installation techniques are planned. There are six general pipeline installation techniques that would be used as part of this Project within or near the TNF (Figure 4).

1. Burial: In areas where it is feasible, the pipeline will be buried parallel to the railroad, typically at an offset distance between 10 feet and 30 feet from the centerline depending on field conditions. Approximately 660 linear feet (approximately 0.1 mile) of the pipeline will be constructed with this method. A typical cross section for this installation technique is provided in Figure 4, Cross Section 1. Temporary spoils piles will be placed adjacent to the trench until the pipeline is installed and the trench backfilled. Some vegetation clearing will be required within areas not previously disturbed, but these areas will be revegetated at the end of construction in a manner acceptable to TNF.

2. Partial burial on top of embankments: Where there is greater than 6 feet of separation between the edge of the railroad ballast and the outside edge of the embankment, the pipeline will be buried or partially buried (i.e., less than 2 feet of cover) within the ballast. Approximately 16,500 linear feet (approximately 3.1 miles) of the pipeline will be constructed with this method. A typical cross section for this installation technique is provided in Figure 4, Cross Section 2. Temporary spoils piles will be placed along the top of the embankment until the pipe is installed and the trench backfilled. Vegetation clearing is not anticipated along the top of the embankment.

3. Above-ground, restrained pipeline on top of narrow embankments: Where there is less than 6-feet of space between the edge of the railroad ballast and the outside edge of a narrow embankment,

the pipeline will be placed on top of the railroad ties, outside the rails. Approximately 11,720 linear feet (approximately 2.2 miles) of the water pipeline will be constructed with this method. A typical cross section for this installation technique is provided in Figure 4, Cross Section 3. The water pipeline will be physically attached to the railroad ties using mechanical restraints. To accommodate this construction, RCM will replace approximately every fourth 8-foot long railroad tie with a new, 14-foot long railroad tie to support the pipeline, and place new clean fill adjacent to the existing ballast on top of the embankment. No trenching or vegetation clearing is anticipated.

4. Partial burial in narrow passages through cut bedrock: Where the railroad is located within narrow cut areas, the pipeline will be placed as far as possible from the railroad ties along the toe of the cut. Approximately 14,730 linear feet (approximately 2.8 miles) of the water pipeline will be constructed with this method. A typical cross section for this installation technique is provided in Figure 4, Cross Section 4. Rock debris and trenching spoils will be mounded on top of the pipeline. Limited excavation and vegetation clearing are anticipated.

5. Above-ground installation, using concrete barriers as lateral pipeline restraints: Where none of the above construction techniques is suitable, the pipeline will be placed on the ground surface with no cover. For this installation technique, concrete "jersey" barriers will be used to control lateral movement of the pipeline due to expansion and contraction. Approximately 6,480 linear feet (approximately 1.2 miles) of the pipeline would be constructed with this method. A typical cross section for this installation technique is provided in Figure 4, Cross Section 5. No excavation and only limited vegetation clearing are anticipated.

6. Pipeline support structures at bridged wash crossings: At wash crossings where the railroad has been placed on a bridge (i.e., the Queen Creek trestle), a 16-inch diameter steel pipeline will be attached to the structure as a means of crossing the wash. The Queen Creek trestle is within a private in-holding not on TNF land; this construction technique is described here for completeness. Approximately 300 linear feet (approximately 0.1 mile) of the proposed water pipeline would be constructed with this method. A typical cross section for this installation technique is provided in Figure 4, Cross Section 6.

Based upon review of recent aerial photographs (Appendix A), approximately 12.7 acres of the Project Area have been previously disturbed by the railroad itself, the existing utilities, Hewitt Station Road, various unnamed dirt roads, and other disturbances. Table 1 identifies the acreages required for each of the construction techniques described above and the acreages of previously disturbed areas versus those areas that support Sonoran desertscrub vegetation. Of the 6.5 acres of Sonoran desertscrub vegetation that will be impacted by the Project, approximately 4.1 acres of disturbance will be temporary in nature (i.e., will be revegetated after construction) while 2.4 acres will be permanently disturbed (for the 8-foot-wide access road).

Table 1. Construction Areas

Construction Technique (See Figure 4)	Construction Area (acres)	Previously Disturbed Areas*	Areas with Sonoran Desertscrub Vegetation
Burial Installation (Cross Section 1, Detail 800)	0.4	0.3	0.1
Partial Burial Installation, Embankment Areas (Cross Section 2, Detail 801)	5.4	3.0	2.4
Restrained Pipeline Installation, Narrow Embankment Areas (Cross Section 3, Detail 802)	2.5	2.0	0.5
Partial Burial Installation, Narrow Cut Areas (Cross Section 4, Detail 803)	3.4	2.2	1.2
Above-Ground Installation, Concrete Barrier Restrained (Cross Section 5, Detail 804)	7.5	5.2	2.3
Pipeline Support Structures at Bridged Wash Crossings (Cross Section 6, Detail 3100)	0	0	0
Total	**19.2**	**12.7**	**6.5**

*Previously disturbed areas were identified by bare ground or the presence of vegetation that is ruderal in nature.

Operation and Maintenance

It is anticipated that the pipeline will be in operation for at least 8 to 10 years. Approximately 2 to 4 years are needed to dewater the existing Magma Mine workings. Once the mine dewatering is completed, mine exploration, shaft sinking, and ore characterization activities will be conducted for an additional approximately 2 to 6 years; the workings will be pumped to keep them dry during this period. The pipeline will be in operation continually once the dewatering effort is initiated (upon completion of the pipeline construction).

Pipeline maintenance activities will consist of periodic inspection and monitoring, and repairs as necessary, during the operation of the system. It is anticipated that either a high-rail truck or standard pick-up trucks (using the existing public roads or the 8-foot-wide access road) will be used to access the pipeline for maintenance activities.

3.0 PROJECT AREA DESCRIPTION

3.1 Existing Development and Adjacent Land Uses

The proposed water pipeline and associated areas required for construction and maintenance (the Project Area) considered in this BA&E are limited to federal land within the TNF along the 200-foot-wide MARRCO railroad alignment between Superior and Queen Valley. Portions of the pipeline that traverse private land in-holdings, particularly east of Queen Station and near Superior, are specifically excluded from this evaluation. Likewise, portions of the alignment on State Trust Lands southwest of TNF are excluded from this evaluation.

The primary use of land within the vicinity of the Project Area is low density cattle grazing. Public recreation is another common land use, and includes off-road vehicle use and recreational shooting. Wildcat dumping is another common use in the Project Area. The Arizona Trail crosses the Project Area west of Picketpost Mountain, and the Project Area is approximately 5 miles from the Superstition Wilderness.

Mining activities have been essential for the economy of the Superior vicinity for many years, and the railroad was originally built to service mining operations. Inactive ore processing facilities, waste rock dumps, tailings impoundments, and slag piles east of the Project Area are evidence of these activities. No abandoned mine shafts and adits are present within the Project Area.

Existing gravel and unmaintained dirt roads currently provide vehicular access to the Project Area; however, some portions are most easily accessed on foot or by train. The primary vehicle access route is along Hewitt Station Road, which parallels the railroad alignment from Queen Valley Road to the Boyce Thompson Arboretum.

3.2 Physical Resources

Elevations in the Project Area range from 2,680 feet above mean sea level (amsl) near Superior at the east end of the Project Area to approximately 2,120 feet amsl at the west TNF boundary. The railroad maintains a fairly constant downhill grade of about 1 percent over this distance. The Project Area is located southeast of the Superstition Mountains. Dominant topographic features in the vicinity include Apache Leap east of Superior (Photo 1, Appendix B), Picketpost Mountain about 2 miles south of the Project Area, and Comet Peak near the west end of the Project Area (Photo 2, Appendix B).

The primary drainage in the Project Area is Queen Creek, which flows generally west from Superior, through the Whitlow Ranch Flood Control Basin, and then southwest to the town of Queen Creek. The Queen Creek channel roughly parallels the railroad alignment from the US 60 bridge to the flood control basin. The eastern portion of the Project Area is north of Queen Creek and the western end is south of the creek. The railroad crosses Queen Creek on a trestle within a private in-holding (Photo 3, Appendix B).

A short reach of Queen Creek below Superior, outside of the Project Area, supports intermittent effluent dependent flow, but most of the creek supports ephemeral flow. Numerous tributaries of Queen Creek cross the railroad alignment, mainly from the north side in the western portion and from the south side in the eastern portion. The main tributaries to Queen Creek are Silver King Wash and Potts Canyon. All of the tributaries pass through culverts under the railroad and are ephemeral.

The Project Area crosses a variety of geologic formations between Superior and the west edge of TNF (Figure 5). The geology of this region has been mapped by Peterson (1969), Spencer and Richard (1995), and Ferguson and Skotnicki (1996). Recent surficial deposits are located along the corridor primarily in the vicinity of Silver King Wash (Photo 4, Appendix B) and in the valley adjacent to Queen Creek. Quaternary alluvium covers extensive areas near the east and west ends of the Project Area, in and around Superior and east of Florence Junction. Large areas of the Project Area near Silver King Wash and the portion of Queen Creek north of Picketpost Mountain are mapped as older Quaternary alluvium (Photo 5, Appendix B). The Project Area crosses a few small exposures of Middle Tertiary conglomerate northeast of Picketpost Mountain. The Project Area also crosses a few small exposures of middle Tertiary sandstone in the area north of Picketpost Mountain. This area is generally surrounded by older Quaternary alluvium. A small outcrop of this formation is also present within a portion of the alignment west of the Superior Municipal Airport.

Middle Tertiary basalt flows and breccias are present in the vicinity of Queen Creek (Spencer and Richard 1995). The Project Area crosses a small outcrop of this basalt north of Picketpost Mountain. The Project Area crosses this Tertiary Unit of Queen Creek southwest of the Whitlow Ranch Flood Control Basin. The Project Area crosses a small exposure of Comet Peak Tuff southwest of the Whitlow Ranch Flood Control Basin and south of Comet Peak.

A large area of early Precambrian (Proterozoic) Pinal Schist is exposed south of Queen Creek between Queens Station and the Whitlow Ranch Flood Control Basin (Spencer and Richard 1996; Ferguson and Skotnicki 1996). The railroad crosses the edge of this exposure several times in this vicinity (Photo 6, Appendix B). A Proterozoic granite is found in a single location of the railroad corridor, southeast of Comet Peak.

3.3 Vegetation and Wildlife

The entire Project Area has been mapped by Brown and Lowe (1980) as the Arizona Upland Subdivision of Sonoran desertscrub (Photo 7, Appendix B; Figure 6). Within this subdivision, the vegetation in the Project Area is within the Paloverde-Cacti-Mixed Scrub series, as described by Brown (1982). Vegetation within the Project Area is consistent with this designation. Common plant species in this community include foothill paloverde (*Parkinsonia microphylla*), saguaro (*Carnegiea gigantea*) (Photo 8, Appendix B), velvet mesquite (*Prosopis velutina*), and jojoba (*Simmondsia chinensis*). At the time of our site visit in March 2008, many herbaceous annuals and perennials were in bloom (Photo 9, Appendix B). As noted in Section 3.2, numerous ephemeral channels cross the Project Area (Photo 10, Appendix B). Although

plant species may be present in higher densities in some areas, these channels do not support a distinctive xeroriparian plant community. Other common plant species observed within the Project Area are listed in Appendix C.

The vegetation in the Project Area supports a wide variety of mammals, birds, and reptiles. Appendix D provides a list of animal species that were observed, including indirect evidence such as tracks and scat, during the field reconnaissance conducted in support of this Project. This list is not intended to be inclusive of all species likely to be present within the Project Area. Common mammals within the Project Area include mule deer (*Odocoileus hemionus*), collared peccary (*Pecari tajacu*), coyote (*Canis latrans*), cottontail (*Sylvilagus* sp.), rock squirrel (*Spermophilus variegatus*) and a variety of other rodents. Numerous bird species were seen within the Project Area, including Gambel's quail (*Callipepla gambelii*), mourning dove (*Zenaida macroura*), turkey vulture (*Cathartes aura*), greater roadrunner (*Geococcyx californianus*), rock wren (*Salpinctes mexicanus*), and house finch (*Carpodacus mexicanus*). Raptors observed within the Project Area include Cooper's hawk (*Accipiter cooperi*), red-tailed hawk (*Buteo jamaicensis*), and American kestrel (*Falco sparverius*). Common lizards noted within the Project Area include ornate tree lizard (*Urosaurus ornatus*), side-blotched lizard (*Uta stansburiana*), and western banded gecko (*Coleonyx variegatus*) (Photo 11, Appendix B). Scutes from desert tortoise (*Gopherus agassizii*) were found, and two western diamondback rattlesnakes (*Crotalus atrox*) were observed during our site visit (Photo 12, Appendix B).

4.0 CONSULTATION HISTORY

No formalized consultation between Forest Service and U.S. Fish & Wildlife Service (USFWS) personnel has occurred for any of the species discussed here at the time of this writing.

5.0 SPECIES IDENTIFIED AND CONSIDERED

Special-status species lists for the Project were obtained from the Arizona Ecological Field Office of the USFWS for Pinal County (USFWS 2008), the Arizona Game and Fish Department (AGFD) Heritage Database Management System (HDMS) (AGFD 2008a), and from TNF (2007). Special-status species lists obtained from these sources and used in our screening analysis are provided in Appendix E. Current taxonomic information for plants and animals was obtained from Integrated Taxonomic Information System (ITIS 2008), the Southwest Environmental Information Network (SEINet) website, and the Biota Information System of New Mexico (BISON) website. A site specific HDMS search (AGFD 2008c) completed for the Project resulted in a list of special-status species known to occur within 3 miles of the Project Area (Appendix F).

WestLand biologists completed a screening analysis of the listed species to determine which have the potential to occur within the Project Area. This analysis included a review of published documentation and available literature to determine species-specific information such as preferred habitats and known geographic, elevation, and seasonal ranges. The findings of our screening analysis are summarized in Appendix G and include: 1) federally listed endangered species, 2) federally listed threatened species, 3) federally listed proposed/candidate species, 4) Forest Service sensitive species listed from Pinal County, 5) Forest Service Sensitive Species listed from TNF, and 6) AGFD Wildlife of Special Concern in Arizona (WSCA). WestLand biologists conducted field reconnaissance on March 12 and 13, 2008, to evaluate the vegetation and habitat characteristics of the Project Area for comparison with habitats known to support the special-status species listed in Pinal County and TNF.

Ninety-one special-status species (including 14 endangered, 6 threatened, 3 candidate and 1 proposed for delisting under the Endangered Species Act, 25 federal species of concern, and 87 Forest Service sensitive species and/or WSCA were identified as potentially occurring in either: 1) Pinal County and/or 2) within the TNF boundaries. It should be noted that a single species may have multiple listing statuses.

6.0 SPECIES EVALUATIONS

Of the 91 special status species evaluated in Appendix G, 6 species were determined to occur or to have some potential to occur in the Project Area. These 6 species are listed in Table 2 and are discussed in detail in the following sections. No species listed as threatened or endangered under the ESA has any reasonable potential to be present in the Project Area.

Table 2. Special Status Species Known to Occur or With Potential to Occur within the Project Area

Species	Status
Plants	
Hohokam agave *(Agave murpheyi)*	USFWS – Species of Concern, Forest Service and TNF Sensitive, Arizona Highly Safeguarded
Mapleleaf false snapdragon *(Mabrya acerifolia)*	Forest Service and TNF Sensitive
Pima Indian mallow *(Abutilon parishii)*	USFWS – Species of Concern, Forest Service and TNF Sensitive
Reptiles	
Gila monster (*Heloderma suspectum*)	USFWS - Species of Concern, TNF Sensitive
Sonoran desert tortoise (*Gopherus agassizii*)	USFWS – Species of Concern, Forest Service and TNF Sensitive, WSCA
Maricopa leaf-nosed snake (*Phyllorhynchus browni lucidus*)	Forest Service and TNF Sensitive

6.1 Hohokam Agave *(Agave murpheyi)*

Hohokam agave is known from a number of locations in the Sonoran desertscrub of central Arizona. This species represents the first documented cultivation of agaves north of Mexico, and its distribution is limited to about 60 clones located near Hohokam sites (ARPC 2001). It was used by the prehistoric Hohokam people as a source of food and fiber. The type locality of this species is along Queen Creek near the Boyce Thompson Arboretum (AGFD 2008b; Kearney and Peebles 1960). This agave is normally found on benches or alluvial terraces on gentle bajada slopes above major drainages in desertscrub, but it is not found on steep slopes or drainage bottoms. This species was cultivated by the Hohokam and is associated with pre-Columbian agricultural settlement features (AGFD 2008b).

Data Sources – Hohokam Agave

WestLand conducted a review of available literature in order to obtain the most recent information about the habitat, range, and history of Hohokam agave (ARPC 2001; SEINet 2008; AGFD 2008b; Kearney and Peebles 1960). In addition, WestLand biologists conducted an inventory of plant species observed along the corridor during a site visit conducted on March 12 and 13, 2008 (Appendix C).

Affected Habitat Description – Hohokam Agave

The Project Area is within the geographic and elevation range for this species, and suitable habitat appears to be present in areas close to the Project Area. A Class III cultural resources survey was conducted along the alignment as part of the permitting process for the Project. Two prehistoric sites were identified during the archaeology survey that contained confirmed rock agricultural features, which could be associated with the Hohokam agave. However, no Hohokam agave were observed at these sites. The only agaves seen in this area were golden-flowered agave (Photo 14, Appendix B).

Analysis of Effect – Hohokam Agave

Construction of the pipeline will be confined to the 12.7 acres of previously disturbed portions of the ROW to the extent practicable. There will be a maximum of 6.5 acres of new disturbance of Sonoran desertscrub, potentially suitable habitat for the Hohokam agave. No individuals of this species were observed within the Project Area or immediate vicinity.

Determination of Effect and Recommended Mitigation – Hohokam Agave

Given that 1) the majority of construction will take place in previously disturbed ROW, 2) the Hohokam agave has a very limited distribution, and 3) the Hohokam agave is a conspicuous plant and none were observed during site visits to the Project Area, it is our opinion that the preferred alternative will have no impact on the Hohokam agave. No mitigation is recommended for this species.

6.2 Mapleleaf False Snapdragon *(Mabrya acerifolia)*

Mapleleaf false snapdragon is endemic to the Superstition Mountains of central Arizona, and specimens have been collected within a few miles of the Project Area. This plant is generally found in rhyolite rock crevices and overhangs, and on shaded cliffs and rock ledges. It prefers north to east facing canyon walls at elevations between 1,800 and 3,350 feet.

Data Sources – Mapleleaf False Snapdragon

WestLand conducted a review of available literature in order to obtain the most recent information about the habitat, range, and history of mapleleaf false snapdragon (SEINet 2008; AGFD 2008b; Kearney and Peebles 1960). In addition, WestLand biologists conducted an inventory of plant species observed along the corridor during a site visit conducted on March 12 and 13, 2008 (Appendix C).

Affected Habitat Description – Mapleleaf False Snapdragon

The Project Area is on the edge of the geographic range for this species in the Superstition Mountains and suitable habitat may be present in rhyolite exposures near Comet Peak which is near the western boundary of the TNF approximately 0.5 mile northwest of the Project Area. Although there are some rhyolite rock exposures in the Project Area near the ephemeral drainages and along railroad cuts, it is not anticipated that these areas will be impacted by construction activities.

Analysis of Effect – Mapleleaf False Snapdragon

Construction of the pipeline will be concentrated in the 12.7 acres of previously disturbed portions of the ROW, and there will be a maximum of 6.5 acres of new disturbance of Sonoran desertscrub. The only potentially suitable habitat in the Project Area was located along the ephemeral drainages and railroad cuts, where disturbance is not anticipated. No individuals of this species were observed during WestLand's site visit, which was conducted during their typical flowering period within the Project Area.

Determination of Effect and Recommended Mitigation – Mapleleaf False Snapdragon

Given that 1) the majority of construction will take place in previously disturbed ROW, 2) the most suitable habitat to support this species is located outside the ROW, 3) no suitable habitat (i.e., cliffs, rock ledges, overhangs) for the mapleleaf false snapdragon will be impacted by construction activities, and 4) no mapleleaf false snapdragon were observed during site visits to the Project Area, it is our opinion that the preferred alternative will have no impact on the mapleleaf false snapdragon. No mitigation is recommended for this species.

6.3 Pima Indian Mallow *(Abutilon parishii)*

Pima Indian mallow is known from about 84 populations in 17 mountain ranges of Arizona and Sonora. It is known to be present within the Superstition Mountains, but it is not specifically mapped in the Queen Creek vicinity (AGFD 2008b). This plant is found in higher elevation Sonoran desertscrub, in areas with full sun. It is typically found on rocky hillsides, cliff bases, canyon bottoms, and lower side slopes and ledges of canyons among rocks and boulders.

Data Sources – Pima Indian Mallow

WestLand conducted a review of available literature in order to obtain the most recent information about the habitat, range, and history of Pima Indian mallow (ARPC 2001; SEINet 2008; AGFD 2008b; Kearney and Peebles 1960). In addition, WestLand biologists conducted an inventory of plant species observed along the corridor during a site visit conducted on March 12 and 13, 2008 (Appendix C).

Affected Habitat Description – Pima Indian Mallow

The Project Area is within the geographic and elevation range for this species, and suitable habitat may be present on the hill slopes adjacent to the railroad alignment.

Analysis of Effect – Pima Indian Mallow

Construction of the pipeline will be concentrated in the 12.7 acres of previously disturbed portions of the ROW, and there will be a maximum of 6.5 acres of new disturbance of Sonoran desertscrub. There is potentially suitable habitat present within the alignment and it is possible that this species may be present within the Project Area. Although species specific surveys were not conducted for the Pima Indian mallow, no individuals of this species were observed during the typical flowering period within the Project Area.

Determination of Effect and Recommended Mitigation – Pima Indian Mallow

Given that 1) the majority of construction will take place in previously disturbed ROW, 2) there will be minimal disturbance to Sonoran desertscrub within the Project Area, 3) the most suitable habitat to support this species is located outside of the ROW, and 4) no Pima Indian mallow were observed in the Project Area during site visits conducted when the species is typically known to be flowering, it is our opinion that the preferred alternative may impact individuals of Pima Indian mallow, but is not likely to result in a trend toward federal listing or loss of viability. No mitigation is recommended for this species.

6.4 Gila Monster *(Heloderma suspectum)*

The Gila monster is found primarily in the Sonoran desert and extreme western edge of the Mohave desert, less frequently in desert grassland, and rarely in oak woodland. The species prefers wet, rocky paloverde-saguaro desertscrub foothills, bajadas, and canyon bottoms over more arid areas on sandy dry flats. They are typically found near washes and intermittent streams where they have access to water and damp soil (Stebbins 2003).

Two subspecies of the Gila monster are currently recognized. The banded Gila monster (*H. s. cinctum*) is found in western Arizona, southern Nevada, southeastern California, and extreme southwestern Utah. The reticulate Gila monster (*H. s. suspectum*) is found in central and southern Arizona, southwestern New Mexico, and Sonora, Mexico (Stebbins 2003). The reticulate Gila monster is the subspecies that could be present in the Project Area.

Data Sources – Gila Monster

WestLand conducted a review of available literature to obtain the most recent information about the Gila monster's preferred habitat, life history and known range in Arizona. Species descriptions obtained from AGFD (2008b), TNF (2000), Brennan and Holycross (2006), and Stebbins (2003) provide accounts of Gila monster biology, including known habitat and range. In addition, WestLand biologists walked the alignment to evaluate the habitat present within the Project Area. No specific surveys for the Gila monster were completed as part of this evaluation and no Gila monsters were observed; however, evidence of other reptile species was noted during the site visit.

Affected Habitat Description – Gila Monster

Vegetation occurring in the majority of the Project Area is generally classified as the Arizona upland subdivision of Sonoran desertscrub (Brown 1982) within the paloverde-cacti-mixed scrub series. This community type is known to support the Gila monster. Several rhyolitic pockets, suitable to provide shelter sites for this species, were identified during the field investigation along the railroad cuts and ephemeral drainages.

Analysis of Effect – Gila Monster

Construction activities will be concentrated within the 12.7 acres of previously disturbed portions of the ROW, and there will be a maximum of 6.5 acres of new disturbance to Sonoran desertscrub, potentially suitable habitat for the Gila monster.

Determination of Effect and Recommended Mitigation – Gila Monster

It is our opinion that the proposed Project may impact individual Gila monsters, but it is not likely to result in a trend toward federal listing or loss of viability. It is possible that certain construction activities, such as the movement of equipment, unmonitored open trenches, or the placement of the pipeline could crush or impact individual species. It is also possible that the Gila monster could be crushed if active burrows in undisturbed areas are impacted. If trenches are left open over night, they should be examined for Gila monsters, snakes, tortoises, or other wildlife prior to commencing work each morning. No mitigation is recommended for this species, but a handling management program should be developed.

6.5 Maricopa Leaf-Nosed Snake *(Phyllorhynchus browni lucidus)*

The Maricopa leaf-nosed snake is found primarily in the Arizona Upland subdivision of Sonoran desertscrub, in association with alluvial soils and bajadas (Brennan and Holycross 2006). It uses relatively coarse, loose, rocky soils or sandy, gravelly areas for burrowing. Its elevation range is between 1,000 and 3,000 feet, and it is reported to be present in the Superior region (Stebbins 2003). This snake is primarily nocturnal, and is most active during the summer rainy season. The Maricopa leaf-nosed snake is a foraging specialist, concentrating on lizards and eggs of lizards and snakes.

Data Sources – Maricopa Leaf-Nosed Snake

WestLand conducted a review of available literature to obtain the most recent information about the Maricopa leaf-nosed snake preferred habitat, life history and known range in Arizona. Species descriptions obtained Brennan and Holycross (2006) and Stebbins (2003) provide accounts of Maricopa leaf-nosed snake biology, including known habitat and range. In addition, WestLand biologists walked the corridor to evaluate the habitat present within the alignment. No specific surveys for the Maricopa leaf-nosed snake were completed as part of this project and no Maricopa leaf-nosed snakes were observed; however, evidence of other reptile species was noted during the site visit.

Affected Habitat Description – Maricopa Leaf-Nosed Snake

The Project Area is on the northeast edge of the geographic range for this species, and suitable habitat is present in areas close to the railroad alignment. None of these snakes were observed during our March 2008 biological investigation; however these species are nocturnal and are most active at night during the summer rainy season.

Analysis of Effect – Maricopa Leaf-Nosed Snake

Construction of the pipeline will be concentrated within the 12.7 acres of previously disturbed portions of the ROW, and there will a maximum of 6.5 acres of new disturbance of Sonoran desertscrub, potentially suitable habitat for the Maricopa leaf-nosed snake.

Determination of Effect and Recommended Mitigation – Maricopa Leaf-Nosed Snake

It is our opinion that the Project may impact individual Maricopa leaf-nosed snakes, but it is not likely to result in a trend toward federal listing or loss of viability. If construction activities are limited to daylight hours and are completed prior to the summer rainy season, an encounter with the Maricopa leaf-nosed snake would be highly unlikely. However, these snakes could be crushed in burrows if undisturbed areas are impacted. If trenches are left open over night, they should be examined for snakes, tortoises, or other wildlife prior to commencing work each morning. Particular care would be needed to avoid this snake during the summer rainy season. No mitigation is recommended for this species, but a handling management program should be developed.

6.6 Sonoran Desert Tortoise *(Gopherus agassizii)*

The Sonoran desert tortoise ranges from northern Sinoloa Mexico to southern Nevada and southwestern Utah, and from south central California east to southeastern Arizona (AGFD 2008b). Two distinct populations are recognized for the purposes of the ESA: the threatened Mojave population occurs north and west of the Colorado River, and the Sonoran population occurs south and east of the Colorado River (USFWS 1990 and 1996).

Within Arizona, Sonoran desert tortoises occur throughout much of the central and southwestern portion of the state. The northeastern-most population occurs along the Salt River in Gila County, while the eastern-most occurrences are along the middle San Pedro River drainage in Cochise County. Tortoises have been located as far southwest as the Yuma Proving Ground, Barry M. Goldwater Range, and the Cabeza Prieta National Wildlife Refuge (AGFD 2008b). Populations of Sonoran desert tortoise are known to exist on TNF, and the HDMS (AGFD 2008c) indicates their presence within three miles of the Project Area.

Sonoran desert tortoises are found in Arizona upland and Lower Colorado River subdivision of the Sonoran Desert, desert grassland, and ecotonal areas consisting of Sonoran desertscrub with elements of Mojave desertscrub and juniper woodland, interior chaparral, and desert grassland (Averill-Murray and Klug 2000). The Sonoran population of desert tortoise occurs at elevations from about 510 to 5,300 feet.

Data Sources – Sonoran Desert Tortoise

WestLand conducted a review of available literature to obtain the most recent information about preferred habitat, life history and known range of Sonoran desert tortoise in Arizona (AGFD 2008b; Brennan and Holycross 2006; Stebbins 2003). No species-specific surveys were conducted for this species.

Affected Habitat Description – Sonoran Desert Tortoise

Within the Project Area, the vegetation community is suitable for Sonoran desert tortoise. No species-specific surveys were conducted for Sonoran desert tortoise. However, WestLand biologists observed scutes from a Sonoran desert tortoise along the alignment. In addition, rhyolitic features were identified along washes and railroad cuts that could potentially provide habitat and cover for these tortoises and other reptiles.

Analysis of Effects – Sonoran Desert Tortoise

Construction of the pipeline will be concentrated within the 12.7 acres of previously disturbed portions of the ROW, and there will be a maximum of 6.5 acres of new disturbance to Sonoran desertscrub, potentially suitable habitat for the Sonoran desert tortoise.

Determination of Effect and Recommended Mitigation – Sonoran Desert Tortoise

It is our opinion that the proposed Project may impact individual Sonoran desert tortoises, but it is not likely to result in a trend toward federal listing or loss of viability. It is possible that certain construction activities, such as the movement of equipment, unmonitored open trenches, or the placement of the pipeline could impact individual species. It is also possible that the tortoise could be crushed if active burrows in undisturbed areas are impacted. If trenches are left open over night, we recommend that they be examined for snakes, tortoises, or other wildlife prior to commencing work each morning. No mitigation is recommended for this species, but a handling management program should be developed.

7.0 SUMMARY OF FINDINGS

7.1 Hohokam Agave

The proposed pipeline construction, operation, and maintenance in the TNF will have no impact on the Hohokam agave.

7.2 Mapleleaf False Snapdragon

The proposed pipeline construction, operation, and maintenance in the TNF will have no impact on the mapleleaf false snapdragon.

7.3 Pima Indian Mallow

The proposed pipeline construction, operation, and maintenance in the TNF may impact individual Pima Indian mallow, but is not likely to result in a trend toward federal listing or loss of viability.

7.4 Gila Monster

The proposed pipeline construction, operation, and maintenance in the TNF may impact individual Gila monsters, but is not likely to result in a trend toward federal listing or loss of viability.

7.5 Maricopa Leaf-nosed Snake

The proposed pipeline construction, operation, and maintenance in the TNF may impact individual Maricopa leaf-nosed snakes, but is not likely to result in a trend toward federal listing or loss of viability.

7.6 Sonoran Desert Tortoise

The proposed pipeline construction, operation, and maintenance in the TNF may impact individual Sonoran desert tortoises, but is not likely to result in a trend toward federal listing or loss of viability.

8.0 PREPARERS AND SIGNATURES

Preparers/Reviewers

The following WestLand Resources, Inc. personnel prepared and reviewed this report on behalf of Resolution Copper Mining.

Kathy Whitman, Principal

Christopher Rife, Senior Project Manager

Thomas Strong, Senior Scientist

Lynn Rae, Environmental Specialist/Scientist

Thomas Lord, Environmental Specialist/Scientist

Amanda Best, Environmental Specialist/Scientist

Signatures

This analysis of impacts on special-status species in the Project Area was prepared under my direction.

KCWhit 6-23-2008

Kathy Whitman Date

Principal, WestLand Resources, Inc.

I approved this analysis of Project impacts on special status species in the Project Area.

Mark Taylor Date
Acting Forest Minerals Biologist
Mesa Ranger District
Tonto National Forest

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Legend

Project Location

Surface Management

BLM

State

USFS

N

0 3,500 7,000

Feet

Data Source: BLM(Surface Management) and ESRI arcgisonline (USGS Quads)

R 11E R 12E

T 1S

T 2S

Superior

60

R 10E R 11E R 11E R 12E

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RESOLUTION WATER PIPELINE
TONTO NATIONAL FOREST
SPECIAL USE PERMIT APPLICATION

Project Location and
Surface Management
Figure 1

Arizona Water Co. Pipeline

Qwest Fiber Optic Line

Magma Arizona Railroad

Aerial Transmission Lines

El Paso Natural Gas Pipeline

Surface Management

BLM

State

USFS

N

0 1,500 3,000 4,500

Feet

Data Source: BLM(Surface Management) and ESRI arcgisonline (USGS Quads)

R 11E R 12E

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T 2S

R 11E R 12E

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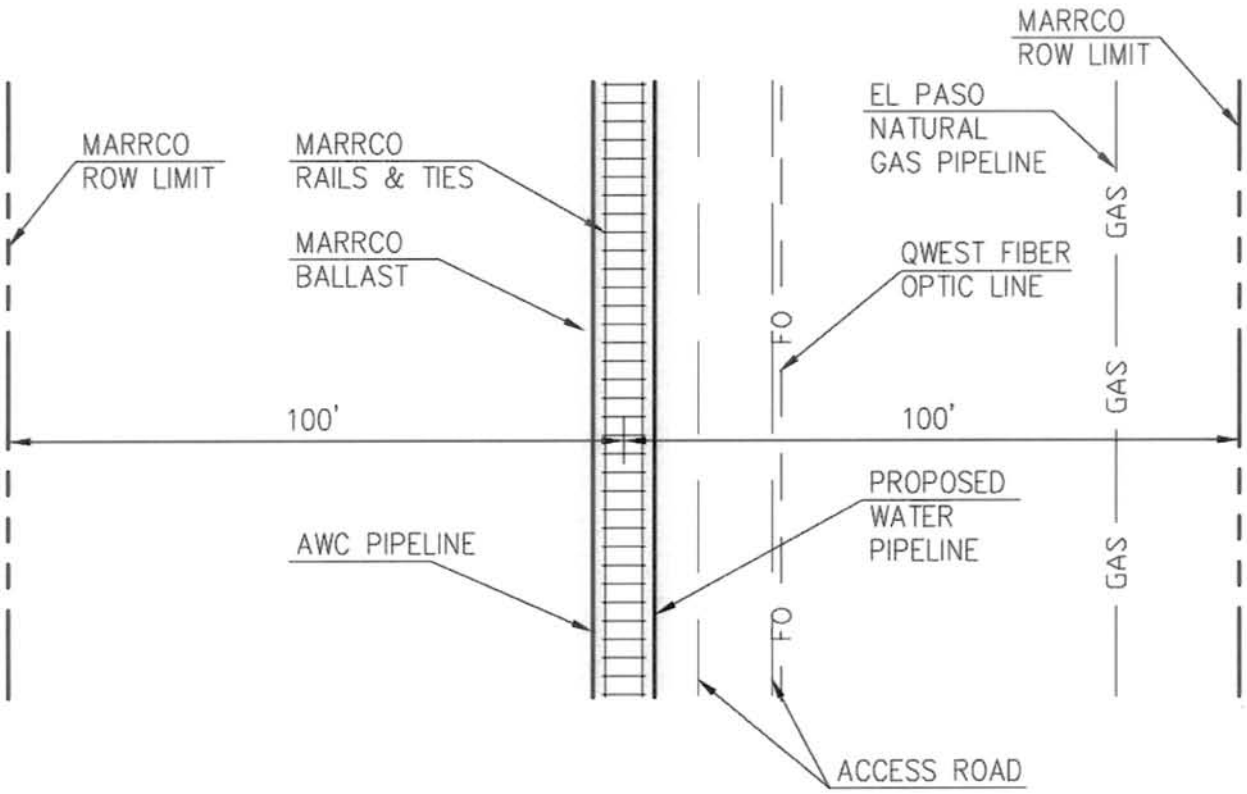
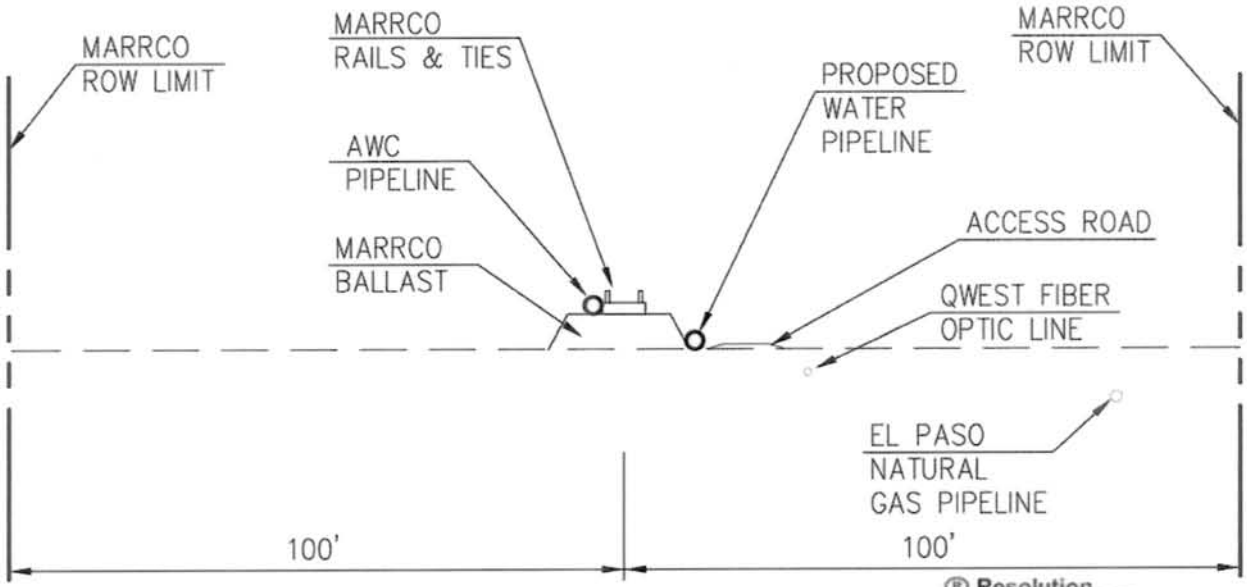
Existing Utility Alignments

Figure 2

PLAN VIEW



CROSS SECTION VIEW



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CONCEPTUAL SCHEMATIC DIAGRAM
OF MARRCO RIGHT-OF-WAY
Figure 3

NOT TO SCALE

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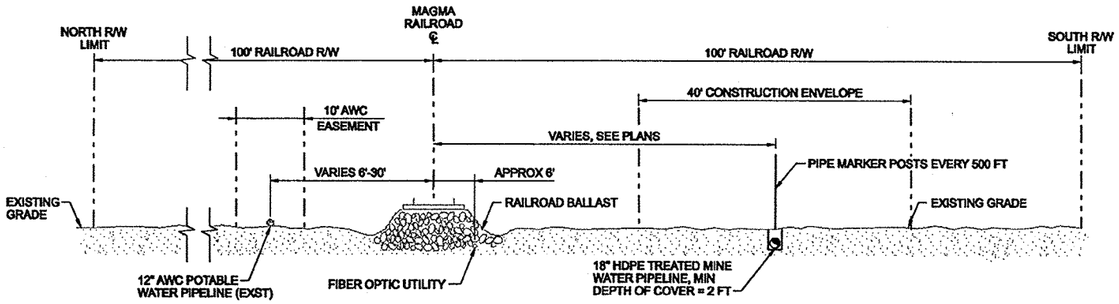

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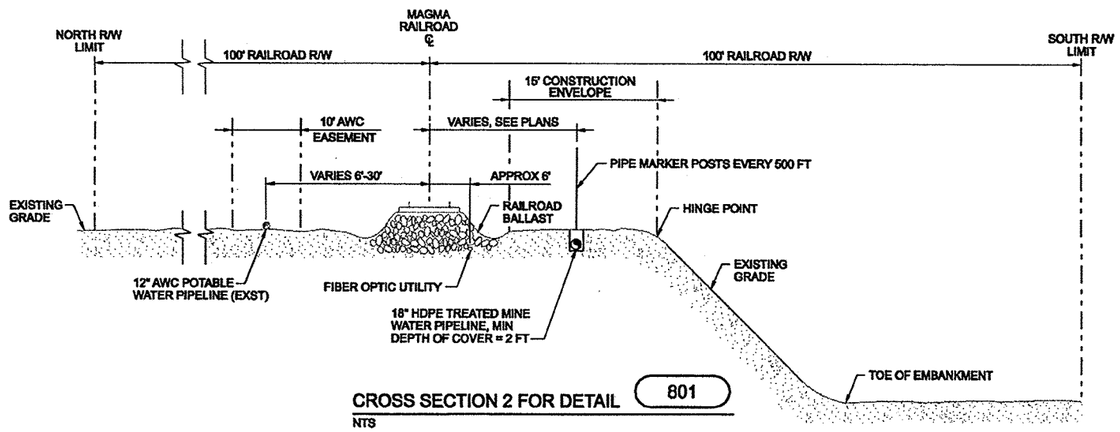
NTS



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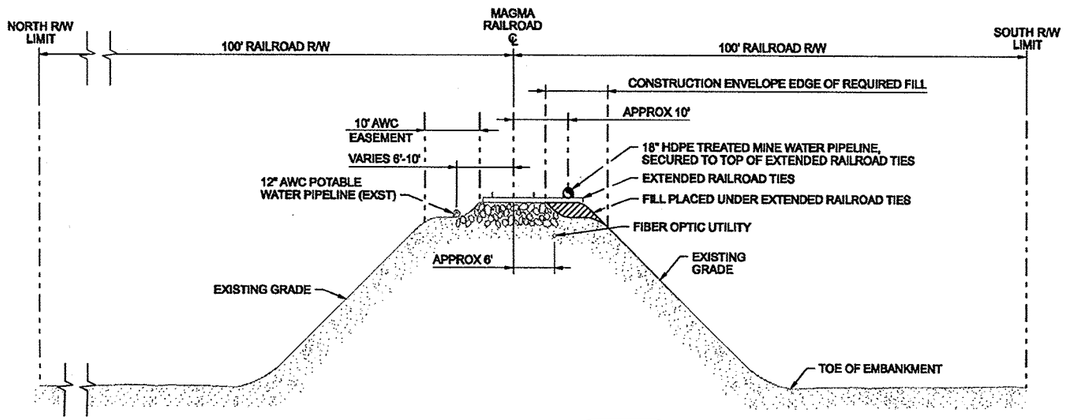

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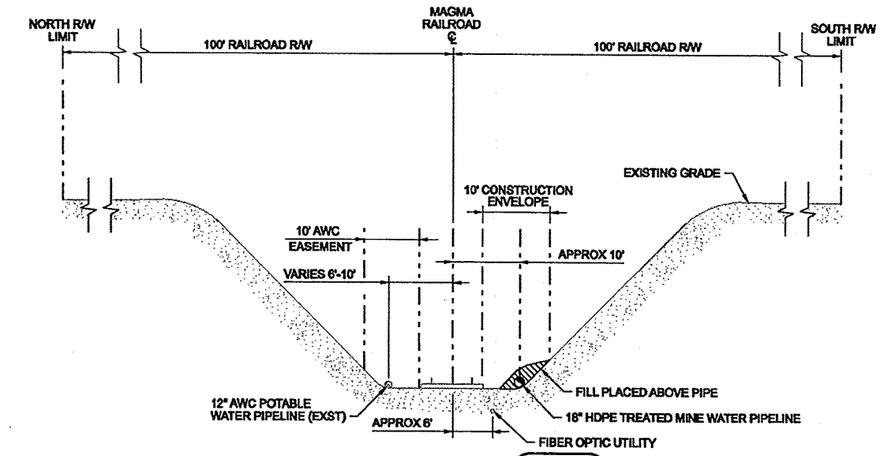
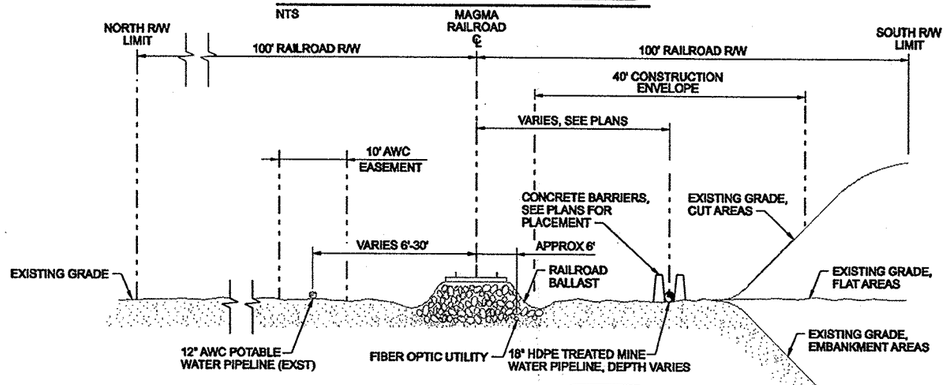


CROSS SECTION 4 FOR DETAIL 803
NTS



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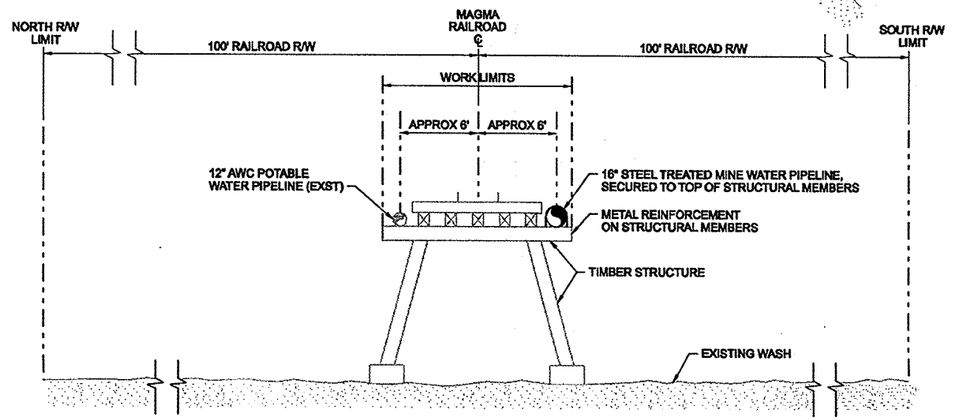

CROSS SECTION 6 FOR DETAIL 3100
NTS

FIGURE
TYPICAL CROSS SECTIONS

CH2MHILL

Figure_1B_366223.dgn

Legend

- Project Location
- Paleozoic Sedimentary Rocks
- Late And Middle Pleistocene Surficial Deposits
- Holocene Surficial Deposits
- Early Tertiary To Late Cretaceous Granitic Rocks
- Pliocene To Middle Miocene Deposits
- Middle Miocene To Oligocene Volcanic Rocks
- Early Proterozoic Granitic Rocks
- Early Proterozoic Metasedimentary Rocks
- Middle Proterozoic Metasedimentary Rocks

N

0 3,500 7,000

Feet

Data Source: BLM(Surface Management) and ESRI arcgisonline (USGS Quads)

R 11E R 12E

T 1S

T 2S

Superior

60

R 10E R 11E

R 11E R 12E

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TONTO NATIONAL FOREST
BIOLOGICAL ASSESSMENT
& EVALUATION

Geologic Map
Figure 5

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Legend

- PROJECT LOCATION
- INTERIOR CHAPARRAL
- ARIZONA UPLAND SONORAN DESERTSCRUB
- LOWER COLORADO RIVER SONORAN DESERTSCRUB

N

0 3,500 7,000
Feet

Data Source: Brown and Lowe - August 1980

R 11E R 12E

T 1S

T 2S

Superior

Florence Junction

60

R 10E R 11E

R 11E R 12E

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BIOLOGICAL ASSESSMENT
AND EVALUATION

Biotic Communities Map
Figure 6

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APPENDIX A

CONSTRUCTION AREA BOUNDARY AND PREVIOUSLY DISTURBED AREAS

TONTO NATIONAL FOREST

MATCH LINE SEE BELOW LEFT

MATCH LINE SEE ABOVE RIGHT

MATCH LINE SEE BELOW LEFT

MATCH LINE SEE ABOVE RIGHT

MATCH LINE SEE BELOW LEFT

MATCH LINE SEE ABOVE RIGHT

PRIVATELY OWNED LAND

TONTO NATIONAL FOREST

MATCH LINE SEE SHEET 2

MATCH LINE SEE ABOVE RIGHT

N
W
E
S

200' 0 200'

SCALE: 1" = 200'

NOTE: Aerial imagery provided by CH2M Hill (November 2007) and Cooper Aerial (April 2008). Previously disturbed areas were delineated within the 150-foot wide study area. Bare ground and areas supporting vegetation that is ruderal in nature are considered previously disturbed.

Legend

- Study Area Boundary
- Previously Disturbed Area
- Tonto National Forest Boundary

Construction Areas

- Cross Section 1, Detail 800
- Cross Section 2, Detail 801
- Cross Section 3, Detail 802
- Cross Section 4, Detail 803
- Cross Section 5, Detail 804

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RESOLUTION WATER PIPELINE
TONTO NATIONAL FOREST
BIOLOGICAL ASSESSMENT AND EVALUATION

CONSTRUCTION AREA BOUNDARY
AND PREVIOUSLY DISTURBED AREAS
Appendix A

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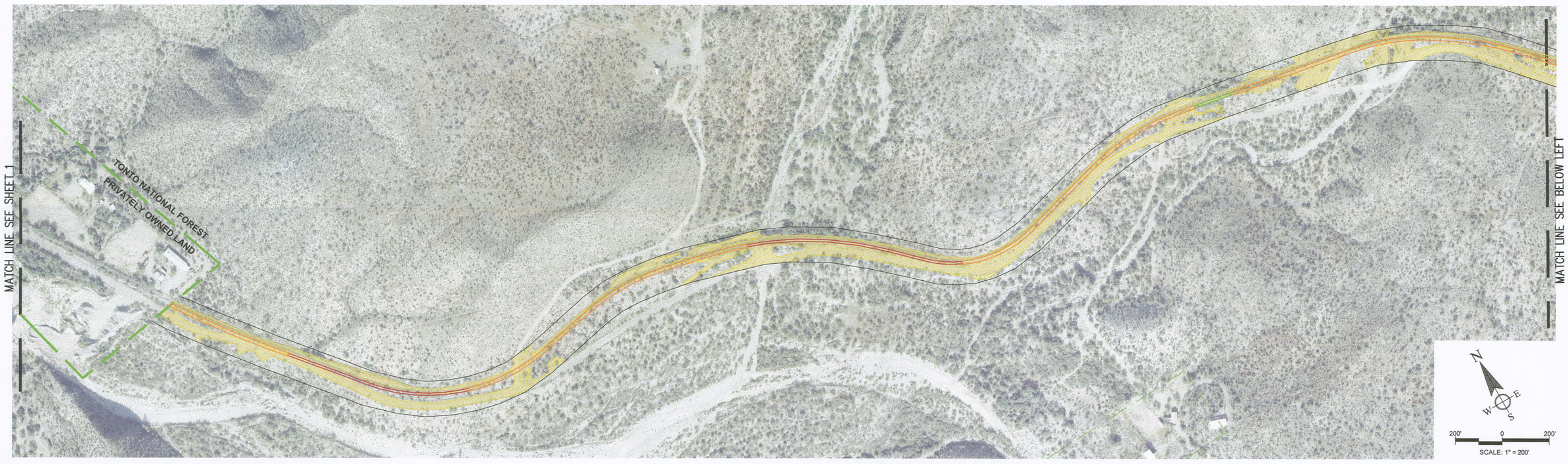

NOTE: Aerial imagery provided by CH2M Hill (November 2007) and Cooper Aerial (April 2008). Previously disturbed areas were delineated within the 150-foot wide study area. Bare ground and areas supporting vegetation that is ruderal in nature are considered previously disturbed.

Legend

- Study Area Boundary
- Previously Disturbed Area
- Tonto National Forest Boundary

Construction Areas

- Cross Section 1, Detail 800
- Cross Section 2, Detail 801
- Cross Section 3, Detail 802
- Cross Section 4, Detail 803
- Cross Section 5, Detail 804

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RESOLUTION WATER PIPELINE
TONTO NATIONAL FOREST
BIOLOGICAL ASSESSMENT AND EVALUATION

CONSTRUCTION AREA BOUNDARY
AND PREVIOUSLY DISTURBED AREAS
Appendix A

M:\projects\807.24\9A\Disturbance by construction limits -Appendix A.dwg

APPENDIX B

SITE PHOTOGRAPHS

PHOTO 1. Photo taken facing east along railroad toward Apache Leap. Existing water pipeline is on north side of the tracks.

PHOTO 2. Photo taken along railroad alignment near the western TNF boundary, facing Comet Peak.

PHOTO 3. Photo taken of Queen Creek along the trestle crossing at the private inholding. Apache Leap and Picketpost Mountain can be seen in the background.

PHOTO 4. Photo taken north of the railroad alignment in the vicinity of Silver King Wash. Photo shows evidence of recent surficial geologic deposits.

PHOTO 5. Photo taken south of the railroad alignment, and north of Picketpost Mountain, showing geologic fractures indicating Quaternary alluvium.

PHOTO 6. Photo taken near Queens Station and shows exposed Pinal schist.

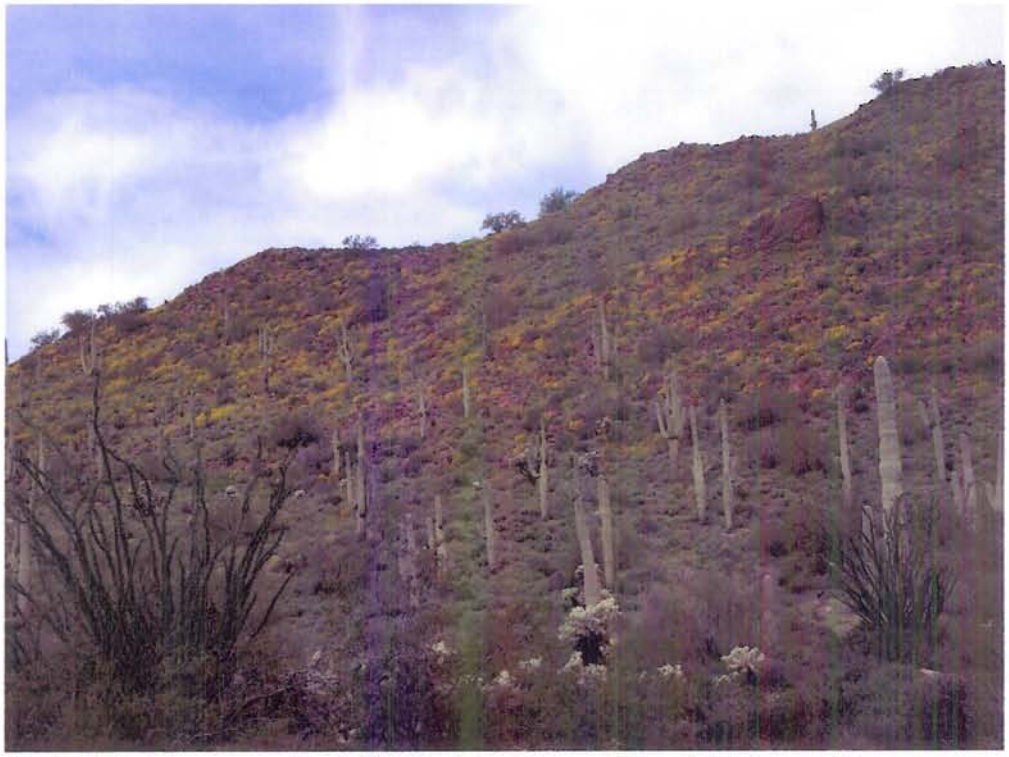

PHOTO 7. Photo taken near railroad alignment showing vegetation that is typical of Arizona upland subdivision of Sonoran desertscrub.

PHOTO 8. Photo taken near railroad showing a partially crestate form saguaro.

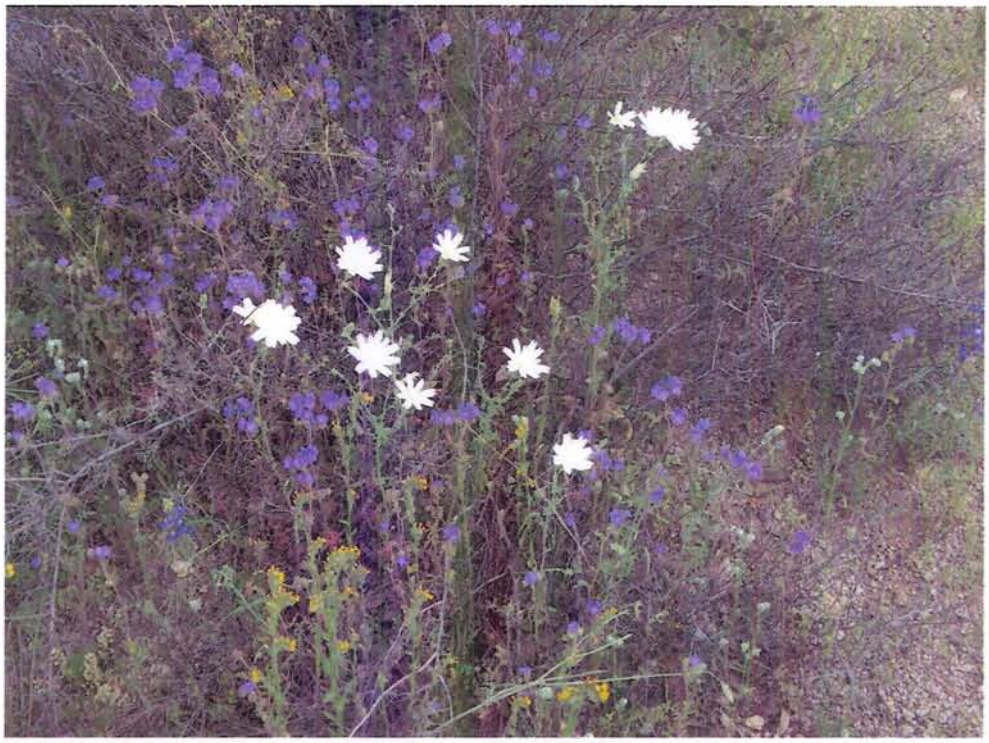

PHOTO 9. Photo taken near railroad, showing annual wildflowers.

PHOTO 10. Photo taken from a culvert outlet of an ephemeral channel flowing under the railroad.

PHOTO 11. Western banded gecko.

PHOTO 12. Western diamondback rattlesnake.

PHOTO 13. Photo taken of cottonwoods on private land near east end of the Project Area.

PHOTO 14. Golden-flowered agave, and flowering stem from previous year.

APPENDIX C

PLANT SPECIES OBSERVED ALONG RESOLUTION WATER PIPELINE PROJECT AREA

Appendix C. Plant Species Observed along Resolution Water Pipeline Project Area

Scientific Name	Common Name
Abutilon incanum	Indian Mallow
Acacia constricta	Whitethorn Acacia
Acacia greggii	Catclaw Acacia
Agave chrysantha	Golden-flowered Agave
Allionia incarnata	Trailing Four O'Clock
Ambrosia ambrosioides	Canyon Ragweed
Ambrosia deltoidea	Triangle Bursage
Amsinckia menziesii var. *intermedia*	Fiddleneck
Anemone tuberosa	Desert Anemone
Aristida purpurea	Purple Three-awn
Atriplex canescens	Four-Wing Saltbush
Baccharis sarothroides	Desert Broom
Bahia absinthifolia	Bahia
Baileya multiradiata	Desert Marigold
Bebbia juncea	Chuckwalla's Delight
Bothriochloa barbinodis	Cane Beardgrass
Bowlesia incana	Hoary Bowlesia
Brassica sp.	Mustard
Brickellia sp.	Brickellbush
Calliandra eriophylla	Fairy Duster
Camissonia micrantha	Camissonia
Carnegiea gigantea	Saguaro
Castilleja exserta	Owl Clover
Celtis pallida	Desert Hackberry
Celtis laevigata var. *reticulata*	Netleaf Hackberry
Chamaesyce albomarginata	Rattlesnake Weed
Cirsium vulgare	Bull Thistle
Cryptantha angustfolia	Narrow-Leaved Popcorn Flower
Cynodon dactylon	Bermudagrass
Dasyochloa pulchellus	Fluffgrass
Descurania pinnata	Laceleaf Mustard
Dichelostemma capitatum	Blue Dicks
Dodonaea viscosa	Hopbush
Echinocereus engelmannii	Hedgehog Cactus
Encelia farinosa	Brittlebush
Encelia frutescens	Rayless Encelia
Ephedra trifurca	Longleaf Ephedra
Eriastrum diffusum	Miniature Woolstar
Ericameria laricifolia	Turpentine Bush
Eriogonum corymbosum	Flat-top Buckwheat
Eriogonum inflatum	Desert Trumpet
Erodium cicutarium	Filaree
Erodium texanum	Texas Stork's Bill
Eschscholzia mexicana	Mexican Gold Poppy
Ferocactus wislizenii	Barrel Cactus
Fouquieria splendens	Ocotillo
Funastrum cynanchoides	Climbing Milkweed
Gutierrezia sarothrae	Snakeweed
Herissantia crispa	Herissantia
Ipomopsis longiflora	Blue Gilia
Janusia gracilis	Slender Janusia
Krameria grayi	White Ratany
Larrea tridentata	Creosote Bush

Appendix C. Plant Species Observed along Resolution Water Pipeline Project Area

Scientific Name	Common Name
Lepidium thurberi	Thurber's Pepperweed
Lotus rigidus	Wiry Lotus
Lotus wrightii	Wright's Deervetch
Lupinus concinnus	Bajada Lupine
Lupinus sparsiflorus	Coulter's Lupine
Lycium sp.	Wolfberry
Malva parviflora	Cheeseweed
Mammillaria grahamii	Pincushion Cactus
Marina parryi	Parry's Indigobush
Melilotus officinalis	Yellow Sweet Clover
Mentzelia pumila	Desert Blazing Star
Mirabalis sp.	Four O' Clock
Nicotiana glauca	Tree Tobacco
Nicotiana obtusifolia	Desert Tobacco
Nuttallanthus texanus	Blue Toadflax
Oenothera primiveris	Desert Evening Primrose
Olneya tesota	Ironwood
Opuntia bigelovii	Teddy Bear Cholla
Opuntia engelmannii	Engelmann's Prickly Pear
Opuntia fulgida	Chain-Fruit Cholla
Opuntia versicolor	Staghorn Cholla
Parkinsonia florida	Blue Paloverde
Parkinsonia microphylla	Foothill Paloverde
Phacelia campanularia	Desert Bell
Phacelia crenulata	Scorpionweed
Phacelia distans	Compound Leaf Phacelia
Phoradendron californicum	Desert Mistletoe
Plantago purshii	Pursh Plantain
Populus fremontii	Fremont Cottonwood
Porophyllum gracile	Odora
Prosopis velutina	Velvet Mesquite
Rafinesquia neomexicana	Desert Chicory
Rumex hymenosepalus	Canaigre
Salsola tragus	Russian Thistle
Salvia columbariae	Chia
Senna covesii	Desert Senna
Simmondsia chinensis	Jojoba
Sisymbrium irio	London Rocket
Solanum elaeagnifolium	Silver-Leaf Nightshade
Sphaeralcea ambigua	Desert Globemallow
Tamarix sp.	Salt Cedar
Thysanocarpus sp.	Lacepod
Tragopogon dubius	Yellow Salsify
Trixis californica	Trixis
Xanthium strumarium	Common Cocklebur
Ziziphus obtusifolia	Gray Thorn

APPENDIX D

ANIMAL SPECIES (OR SIGN OF) OBSERVED ALONG RESOLUTION WATER PIPELINE PROJECT AREA

Appendix D. Animal (or sign of) Species Observed along Resolution Water Pipeline Project Area

Scientific Name	Common Name
Mammals	
Lepus califonicus	Black-tailed Jackrabbit
Sylvilagus audubonii	Desert Cottontail
Ammospermophilus harrisii	Harris's Antelope Squirrel
Spermophilus variegatus	Rock Squirrel
Neotoma albigula	White-throated Woodrat
Canis latrans	Coyote
Mephitis mephitis	Striped Skunk
Urocyon cinereoargentus	Gray Fox
Odocoileus hemionus	Mule Deer
Pecari tajacu	Collared Peccary
Birds	
Callipepla gambelii	Gambel's Quail
Cathartes aura	Turkey Vulture
Accipiter cooperi	Cooper's Hawk
Buteo jamaicensis	Red-tailed Hawk
Falco sparverius	American Kestrel
Charadrius vociferus	Killdeer
Zenaida macroura	Mourning Dove
Geococcyx californianus	Greater Roadrunner
Melanerpes uropygialis	Gila Woodpecker
Picoides scalaris	Ladder-backed Woodpecker
Colaptes chrysoides	Gilded Flicker
Sayornis saya	Say's Phoebe
Pyrocephalus rubinus	Vermilion Flycatcher
Myiarchus cinerascens	Ash-throated Flycatcher
Corvus corax	Common Raven
Auriparus flaviceps	Verdin
Campylorhynchus brunneicapillus	Cactus Wren
Salpinctes obsoletus	Rock Wren
Mimus polyglottos	Northern Mockingbird
Toxostoma curvirostre	Curve-billed Thrasher
Sturnus vulgaris	European Starling
Phainopepla nitens	Phainopepla
Pipilo fuscus	Canyon Towhee
Amphispiza bilineata	Black-throated Sparrow
Zonotrichia leucophrys	White-crowned Sparrow
Cardinalis cardinalis	Northern Cardinal
Cardinalis sinuatus	Pyrrhuloxia
Carpodacus mexicanus	House Finch
Carduelis psaltria	Lesser Goldfinch
Reptiles	
Gopherus agassizii	Desert Tortoise
Coleonyx variegatus	Western Banded Gecko
Urosaurus ornatus	Ornate Tree Lizard
Uta stansburiana	Common Side-blotched Lizard
Crotalus atrox	Western Diamondback Rattlesnake

APPENDIX E

AGENCY LISTS OF SPECIAL STATUS SPECIES

Pinal County

COMMON NAME	SCIENTIFIC NAME	STATUS	DESCRIPTION	COUNTY	ELEVATION	HABITAT	COMMENTS
Arizona hedgehog	*Echinocereus triglochidiatus var. arizonicus*	Endangered	Dark green cylindroid 2.5-12 inches tall, 2-10 inches in diameter, single or in clusters. 1-3 gray or pinkish central spines largest deflexed and 5-11 shorter radial spines. Flower: brilliant red, side of stem in April-May.	Gila, Pinal	3,700-5,200 ft	Ecotone between interior chapparal and madrean evergreen woodland.	Open slopes, in narrow cracks between boulders, and in understory of shrubs. Additional genetic studies have determined that the species does not occur outside of the type locality.
Bald eagle	*Haliaeetus leucocephalus*	Threatened	Large, adults have white head and tail. Height 28-38 inches; wingspan 66-96 inches. Dark with varying degrees of mottled brown plumage. Feet bare of feathers.	Gila, Graham, La Paz, Maricopa, Mohave, Pinal, Yavapai, Yuma	Varies	Large trees or cliffs near water (reservoirs, rivers, and streams) with abundant prey.	Some birds are nesting residents while a larger number winters along rivers and reservoirs. Once endangered (32 FR 4001, 03-11-1967; 43 FR 6233, 02-14-78) because of reproductive failures from pesticide poisoning and loss of habitat, this species was downlisted to threatened on August 11, 1995, and delisted August 8, 2007. Threatened status reinstated for Desert nesting bald eagles.
California Brown pelican	*Pelecanus occidentalis californicus*	Proposed delisted	Large dark gray-brown water bird with a pouch underneath long bill and webbed feet. Adults have a white head and neck, brownish black breast, and silver gray upper parts.	Apache, Cochise, Coconino, Gila, Graham, Greenlee, La Paz, Maricopa, Mohave, Navajo, Pima, Pinal, Santa Cruz, Yavapai, Yuma	Varies	Coastal land and islands; species found around many Arizona lakes and rivers.	Subspecies is found on Pacific Coast and is endangered due to pesticides. It is an uncommon transient in Arizona on many Arizona lakes and rivers. Individuals wander up from Mexico in summer and fall. No breeding records in Arizona.
Desert pupfish	*Cyprinodon macularius*	Endangered	Small (2 inches) smoothly rounded body shape with narrow vertical bars on the sides. Breeding males blue on head and sides with yellow on tail. Females and juveniles tan to olive colored back and silvery sides.	Cochise, Graham, La Paz, Maricopa, Pima, Pinal, Santa Cruz, Yavapai	< 5,000 ft	Shallow springs, small streams, and marshes. Tolerates saline and warm water.	Critical habitat includes Quitobaquito Springs, Pima County, portions of San Felipe Creek, Carrizo Wash, and Fish Creek Wash, Imperial County, California. Two subspeices are recognized: Desert Pupfish (C.m.macularis) and Quitobaquito Pupfish (C.m.eremus).

COMMON NAME	SCIENTIFIC NAME	STATUS	DESCRIPTION	COUNTY	ELEVATION	HABITAT	COMMENTS
Gila chub	*Gila intermedia*	Endangered	Deep compressed body, flat head. Dark olive-gray color above, silver sides. Endemic to Gila River Basin.	Cochise, Coconino, Gila, Graham, Greenlee, Maricopa, Pima, Pinal, Santa Cruz, Yavapai	2,000 - 5,500 ft	Pools, springs, cienegas, and streams.	Found on multiple private lands, including the Nature Conservancy, the Audubon Society, and others. Also occurs on Federal and state lands and in Sonora, Mexico. Critical habitat occurs in Cochise, Gila, Graham, Greenlee, Pima, Pinal, Santa Cruz and Yavapai counties.
Gila topminnow	*Poeciliopsis occidentalis occidentalis*	Endangered	Small (2 inches), guppy-like, live bearing, lacks dark spots on its fins. Breeding males are jet black with yellow fins.	Cochise, Gila, Graham, La Paz, Maricopa, Pima, Pinal, Santa Cruz, Yavapai	< 4,500 ft	Small streams, springs, and cienegas vegetated shallows.	Species historically occurred in backwaters of large rivers but is currently isolated to small streams and springs.
Lesser long-nosed bat	*Leptonycteris curasoae yerbabuenae*	Endangered	Elongated muzzle, small leaf nose, and long tongue. Yellowish brown or gray above and cinnamon brown below. Tail minute and appears to be lacking. Easily disturbed.	Cochise, Gila, Graham, Greenlee, Pima, Pinal, Maricopa, Santa Cruz, Yuma	< 6,000 ft	Desert scrub habitat with agave and columnar cacti present as food plants.	Day roosts in caves and abandoned tunnels. Forages at night on nectar, pollen, and fruit of paniculate agaves and columnar cacti. This species is migratory and is present in Arizona usually from April to September and south of the border the remainder of the year.
Loach minnow	*Tiaroga cobitis*	Threatened	Small (<3 inches) slender, elongated fish, olive colored with dirty white spots at the base of the dorsal and caudal fins. Breeding males vivid red on mouth and base of fins.	Apache, Cochise, Graham, Greenlee, Pinal, Navajo, Gila	<8,000 ft	Benthic species of small to large perennial streams with swift shallow water over cobble and gravel. Recurrent flooding and natural hydrograph important.	Presently found in Aravaipa Creek, Deer Creek, Turkey Creek, Blue River, Campbell Blue Creek, San Francisco River, Eagle Creek, North Fork East Fork Black River, and White River in Arizona, and Dry Blue Creek, Pace Creek, Frieborn Creek, the Tularosa River, West Fork Gila River, and the mainstem upper Gila River in New Mexico. Populations have been recently reintroduced in Hot Springs and Redfield canyons in Cochise and Graham counties, and Fossil Creek in Gila County, Arizona. Critical habitat (72 FR 13356-13422, March 21, 2007) found in Apache, Graham, Greenlee, and Pinal counties, Arizona, as well as portions of the Blue River, San Francisco River, Tularosa River, Negrito Creek, Pace Creek, Dry Blue Creek, Frieborn Creek, Whitewater Creek, Gila River, and its West, Middle, and East Forks in Catron, Grant, and Hidalgo counties in New Mexico.

COMMON NAME	SCIENTIFIC NAME	STATUS	DESCRIPTION	COUNTY	ELEVATION	HABITAT	COMMENTS
Mexican spotted owl	*Strix occidentalis lucida*	Threatened	Medium sized with dark eyes and no ear tufts. Brownish and heavily spotted with white or beige.	Apache, Cochise, Coconino, Gila, Graham, Greenlee, Maricopa, Mohave, Navajo, Pima, Pinal, Santa Cruz, Yavapai	4,100-9,000 ft	Nests in canyons and dense forests with multi-layered foliage structure.	Generally nest in older forests of mixed conifer or ponderosa pine/gambel oak type, in canyons, and use variety of habitats for foraging. Sites with cool microclimates appear to be of importance or are preferred. Critical habitat was finalized on August 31, 2004 (69 FR 53182) in Arizona in Apache, Cochise, Coconino, Gila, Graham, Greenlee, Maricopa, Navajo, Pima, Pinal, Santa Cruz, and Yavapai counties.
Nichol Turk's head cactus	*Echinocactus horizonthalonius var. nicholii*	Endangered	Blue-green to yellowish-green, columnar, 18 inches tall, 8 inches in diameter. Spine clusters have 5 radial and 3 central spines; one downward short; 2 spines upward and red or vasally gray. Flower: pink fruit: woolly white.	Pima, Pinal	2,400-4,100 ft	Sonoran desertscrub.	Found in unshaded microsites in Sonoran desertscrub on dissected alluvial fans at the foot of limestone mountains and on inclined terraces and saddles on limestone mountain sides.
Razorback sucker	*Xyrauchen texanus*	Endangered	Large, up to 3 feet long and up to 6 lbs, high sharp-edged keel-like hump behind the head. Head flattened on top. Olive-brown above to yellowish below.	Coconino, Gila, Graham, Greenlee, La Paz, Maricopa, Mohave, Pinal, Yavapai, Yuma	< 6,000 ft	Riverine and lacustrine areas, generally not in fast moving water and may use backwaters.	Big River fish also found in Horseshoe reservoir (Maricopa County). Critical habitat includes the 100-year floodplain of the river through the Grand Canyon from confluence with Paria River to Hoover Dam; Hoover Dam to Davis Dam; Parker Dam to Imperial Dam. Also Gila River from Arizon/New Mexico border to Coolidge Dam; and Salt River from Hwy 60/SR77 Bridge to Roosevelt Dam; Verde River from FS boundary to Horseshoe Lake.

COMMON NAME	SCIENTIFIC NAME	STATUS	DESCRIPTION	COUNTY	ELEVATION	HABITAT	COMMENTS
Southwestern willow flycatcher	*Empidonax traillii extimus*	Endangered	Small passerine (about 6 inches) grayish-green back and wings, whitish throat, light olive-gray breast and pale yellowish belly. Two wingbars visible. Eye-ring faint or absent.	Apache, Cochise, Coconino, Gila, Graham, Greenlee, La Paz, Maricopa, Mohave, Navajo, Pima, Pinal, Santa Cruz, Yavapai, Yuma	<8,500 ft	Cottonwood/willow and tamarisk vegetation communities along rivers and streams.	Migratory riparian-obligate species that occupies breeding habitat from late April to September. Distribution within its range is restricted to riparian corridors. Difficult to distinguish from other members of the Empidonax complex by sight alone. Training seminar required for those conducting flycatcher surveys. Critical habitat was finalized on October 19, 2005 (50 CFR 60886). In Arizona there are critical habitat segments in Apache, Cochise, Gila, Graham, Greenlee, Maricopa, Mohave, Pima, Pinal, and Yavapai counties.
Spikedace	*Meda fulgida*	Threatened	Small (<3 inches) slim with silvery sides and "spine" on dorsal fin. Breeding males brassy golden color.	Cochise, Graham, Greenlee, Gila, Navajo, Pinal, Yavapai	< 6,000 ft	Moderate to large perennial streams with gravel cobble substrates and moderate to swift velocities over sand and gravel substrates. Recurrent flooding and natural hydrograph important.	Presently found in Aravaipa Creek, Eagle Creek, Verde River, and the Gila River form the San Pedro River to Ashurst-Hayden Dam in Arizona, and the Gila River and its East and West Forks in New Mexico. Populations have recently been reintroduced in Hot Springs and Redfield Canyons in Cochise and Graham counties and in Fossil Creek in Gila County, Arizona. Critical habitat (72 FR 13356-13422, March 21, 2007) in Graham, Greenlee, Pinal, and Yavapai counties in Arizona, and in Catron, Grant, and Hidalgo counties in New Mexico.
Yuma clapper rail	*Rallus longirostris yumanensis*	Endangered	Water bird with long legs and short tail. Long, slender decurved bill. Mottled brown or gray on its rump. Flanks and undersides are dark gray with narrow vertical stripes producing a barring effect.	Gila, La Paz, Maricopa, Mohave, Pinal, Yuma	< 4,500 ft	Fresh water and brackish marshes.	Species is associated with dense emergent riparian vegetation. Requires wet substrate (mudflat, sandbar) with dense herbaceous or woody vegetation for nesting and foraging. Channelization and marsh destruction are primary sources of habitat loss.
Acuna cactus	*Echinomastus erectocentrus var. acunensis*	Candidate	<12 inches high; spine clusters borne on tubercles, each with a groove on the upper surface. 2-3 central spines and 12 radial spines. Flowers pink to purple.	Pima, Pinal	1,300-2,000 ft	Well drained knolls and gravel ridges in Sonoran desertscrub.	Immature plants distinctly different from mature plants. They are disc-shaped or spherical and have no central spines until they are about 1.5 inches. Radial spines are dirty white with maroon tips.

COMMON NAME	SCIENTIFIC NAME	STATUS	DESCRIPTION	COUNTY	ELEVATION	HABITAT	COMMENTS
Yellow-billed cuckoo	*Coccyzus americanus*	Candidate	Medium-sized bird with a slender, long-tailed profile, slightly down-curved bill, which is blue-black with yellow on the lower half of the bill. Plumage is grayish-brown above and white below, with rufous primary flight feathers.	Apache, Cochise, Coconino, Gila, Graham, Greenlee, La Paz, Maricopa, Mohave, Navajo, Pima, Pinal, Santa Cruz, Yavapai, Yuma	< 6,500 ft	Large blocks of riparain woodlands (cottonwood, willow, or tamarisk galleries).	Yellow-billed cuckoos are a neotropical migrant, wintering in primarily South America and breeding primarily in the United States (but also in southern Canada and northern Mexico). As a migrant it is rarely detected, but can occur outside of riparian areas. Cuckoos are found nesting statewide in Arizona below 7000 feet in elevation, but are mostly found below 5000 feet in central, western, and southeastern Arizona. Concern for cuckoos are primarily focused upon alterations to its nesting and foraging habitat. Nesting cuckoos are associated with relatively dense wooded streamside riparian habitat, with varying combinations of Fremont cotttonwood, willow, velvet ash, Arizona walnut, mesquite, and tamarisk. Some cuckoos have also been detected nesting in velvet mesquite, netleaf hackberry, Arizona sycamore, Arizona alder, and some exotic neighborhood shade trees.

Special Status Species by County, Taxon, Scientific Name

Arizona Game and Fish Department, Heritage Data management System

Updated: **February 19, 2008**

COUNTY	TAXON	SCIENTIFIC NAME	COMMON NAME	ELCODE	ESA	BLM	USFS	NESL	MEXFED	STATE	GRANK	S RANK
Pinal	AMPHIBIAN	Gastrophryne olivacea	Great Plains Narrow-mouthed Toad	AAABE01020					PR	WSC	G5	S3
Pinal	AMPHIBIAN	Rana yavapaiensis	Lowland Leopard Frog	AAABH01250	SC		S		PR	WSC	G4	S3
Pinal	BIRD	Ardea alba	Great Egret	ABNGA04040						WSC	G5	S1B,S4N
Pinal	BIRD	Athene cunicularia hypugaea	Western Burrowing Owl	ABNSB10012	SC	S		4	A		G4T4	S3
Pinal	BIRD	Buteo nitidus maxima	Northern Gray Hawk	ABNKC19011	SC		S		PR	WSC	G5T4Q	S3
Pinal	BIRD	Buteogallus anthracinus	Common Black-Hawk	ABNKC15010			S		A	WSC	G4G5	S3
Pinal	BIRD	Coccyzus americanus occidentalis	Western Yellow-billed Cuckoo	ABNRB02022	C		S	2		WSC	G5T3Q	S3
Pinal	BIRD	Dendrocygna autumnalis	Black-bellied Whistling-Duck	ABNJB01040						WSC	G5	S3
Pinal	BIRD	Empidonax traillii extimus	Southwestern Willow Flycatcher	ABPAE33043	LE		S	2		WSC	G5T1T2	S1
Pinal	BIRD	Falco peregrinus anatum	American Peregrine Falcon	ABNKD06071	SC		S	4	A	WSC	G4T4	S4
Pinal	BIRD	Glaucidium brasilianum cactorum	Cactus Ferruginous Pygmy-owl	ABNSB08041	SC				A	WSC	G5T3	S1
Pinal	BIRD	Haliaeetus leucocephalus	Bald Eagle	ABNKC10010	SC		S		P	WSC	G5	S2S3B,S4N
Pinal	BIRD	Haliaeetus leucocephalus (wintering pop.)	Bald Eagle	ABNKC10012	LT,PDL		S		P	WSC	G5	S4N
Pinal	BIRD	Ictinia mississippiensis	Mississippi Kite	ABNKC09010					A	WSC	G5	S3
Pinal	BIRD	Ixobrychus exilis	Least Bittern	ABNGA02010					A	WSC	G5	S3
Pinal	BIRD	Rallus longirostris yumanensis	Yuma Clapper Rail	ABNME0501A	LE				P	WSC	G5T3	S3
Pinal	BIRD	Strix occidentalis lucida	Mexican Spotted Owl	ABNSB12012	LT		S	3	A	WSC	G3T3	S3S4
Pinal	BIRD	Tyrannus crassirostris	Thick-billed Kingbird	ABPAE52040						WSC	G5	S2
Pinal	BIRD	Tyrannus melancholicus	Tropical Kingbird	ABPAE52010						WSC	G5	S3
Pinal	FISH	Agosia chrysogaster chrysogaster	Gila Longfin Dace	AFCJB37151	SC	S			A		G4T3T4	S3S4
Pinal	FISH	Catostomus clarki	Desert Sucker	AFCJC02040	SC	S					G3G4	S3S4
Pinal	FISH	Catostomus insignis	Sonora Sucker	AFCJC02100	SC	S			P		G3	S3
Pinal	FISH	Cyprinodon macularius	Desert Pupfish	AFCNB02060	LE				P	WSC	G1	S1
Pinal	FISH	Gila robusta	Roundtail Chub	AFCJB13150	SC		S	2	PR	WSC	G3	S2
Pinal	FISH	Meda fulgida	Spikedace	AFCJB22010	LT		S			WSC	G2	S1
Pinal	FISH	Poeciliopsis occidentalis occidentalis	Gila Topminnow	AFCNC05021	LE				A	WSC	G3T3	S1S2
Pinal	FISH	Rhinichthys osculus	Speckled Dace	AFCJB37050	SC	S			P		G5	S3S4
Pinal	FISH	Tiaroga cobitis	Loach Minnow	AFCJB37140	LT		S		P	WSC	G2	S1
Pinal	INVERTEBRATE	Cicindela oregona maricopa	Maricopa Tiger Beetle	IICOL02362	SC	S	S				G5T3	S3
Pinal	MAMMAL	Choeronycteris mexicana	Mexican Long-tongued Bat	AMACB02010	SC				A	WSC	G4	S3
Pinal	MAMMAL	Corynorhinus townsendii pallescens	Pale Townsend's Big-eared Bat	AMACC08014	SC			4			G4T4	S3S4
Pinal	MAMMAL	Eumops perotis californicus	Greater Western Bonneted Bat	AMACD02011	SC						G5T4	S3
Pinal	MAMMAL	Lasiurus blossevillii	Western Red Bat	AMACC05060						WSC	G5	S3
Pinal	MAMMAL	Lasiurus xanthinus	Western Yellow Bat	AMACC05070						WSC	G5	S2S3
Pinal	MAMMAL	Leptonycteris curasoae yerbabuenae	Lesser Long-nosed Bat	AMACB03030	LE		S		|	WSC	G4	S2S3
Pinal	MAMMAL	Macrotus californicus	California Leaf-nosed Bat	AMACB01010	SC					WSC	G4	S3
Pinal	MAMMAL	Myotis ciliolabrum	Western Small-footed Myotis	AMACC01140	SC	S					G5	S3S4
Pinal	MAMMAL	Myotis velifer	Cave Myotis	AMACC01050	SC	S					G5	S3S4
Pinal	MAMMAL	Myotis yumanensis	Yuma Myotis	AMACC01020	SC						G5	S3S4
Pinal	MAMMAL	Nyctinomops femorosaccus	Pocketed Free-tailed Bat	AMACD04010		S					G4	S3

COUNTY	TAXON	SCIENTIFIC NAME	COMMON NAME	ELCODE	ESA	BLM	USFS	NESL	MEXFED	STATE	GRANK	S RANK
Pinal	PLANT	Abutilon parishii	Pima Indian Mallow	PDMAL020E0	SC	S	S			SR	G2	S2
Pinal	PLANT	Agave murpheyi	Hohokam Agave	PMAGA010F0	SC	S	S			HS	G2	S2
Pinal	PLANT	Agave toumeyana var. bella	Toumey Agave	PMAGA010R1						SR	G3T3	S3
Pinal	PLANT	Carex ultra	Arizona Giant Sedge	PMCYP03E50		S	S				G3?	S2
Pinal	PLANT	Echinocactus horizonthalonius var. nicholii	Nichol Turk's Head Cactus	PDCAC05022	LE					HS	G4T2	S2
Pinal	PLANT	Echinocereus triglochidiatus var. arizonicus	Arizona Hedgehog Cactus	PDCAC060K1	LE		S			HS	G5T2	S2
Pinal	PLANT	Echinomastus erectocentrus var. acunensis	Acuna Cactus	PDCAC0J0E1	C				P	HS	G3T1Q	S1
Pinal	PLANT	Echinomastus erectocentrus var. erectocentrus	Needle-spined Pineapple Cactus	PDCAC0J0E2	SC		S			SR	G3T3Q	S3
Pinal	PLANT	Erigeron anchana	Mogollon Fleabane	PDAST3M580	SC		S				G2	S2
Pinal	PLANT	Eriogonum capillare	San Carlos Wild-buckwheat	PDPGN08100	SC					SR	G4	S4
Pinal	PLANT	Euphorbia gracillima	Mexican Broomspurge	PDEUP0D110			S				G4?	S3
Pinal	PLANT	Ferocactus cylindraceus var. eastwoodiae	Golden Barrel Cactus	PDCAC08084						SR	G5T1	S1
Pinal	PLANT	Fremontodendron californicum	Flannel Bush	PDSTE03010		S				SR	G4	S2S3
Pinal	PLANT	Hedeoma dentatum	Mock-pennyroyal	PDLAM0M0M0			S				G3	S3
Pinal	PLANT	Lilaeopsis schaffneriana var. recurva	Huachuca Water Umbel	PDAPI19051	LE					HS	G4T2	S2
Pinal	PLANT	Lotus alamosanus	Alamos Deer Vetch	PDFAB2A020			S				G3G4	S1
Pinal	PLANT	Mabrya acerifolia	Mapleleaf False Snapdragon	PDSCR2L010			S				G2	S2
Pinal	PLANT	Mammillaria thornberi	Thornber Fishhook Cactus	PDCAC0A0C0						SR	G4	S4
Pinal	PLANT	Mammillaria viridiflora	Varied Fishhook Cactus	PDCAC0A0D0						SR	G4	S4
Pinal	PLANT	Opuntia versicolor	Stag-horn Cholla	PDCAC0D1K0						SR	G4	S2S3
Pinal	PLANT	Penstemon discolor	Catalina Beardtongue	PDSCR1L210			S			HS	G2	S2
Pinal	PLANT	Perityle gilensis var. gilensis	Gila Rock Daisy	PDAST700D1			S				G2?T2?	S2?
Pinal	PLANT	Salvia amissa	Aravaipa Sage	PDLAM1S020	SC	S	S				G2	S2
Pinal	PLANT	Stenocereus thurberi	Organ Pipe Cactus	PDCAC10020						SR	G5	S4
Pinal	PLANT	Thelypteris puberula var. sonorensis	Aravaipa Wood Fern	PPTHE05192		S					G5T3	S2
Pinal	PLANT	Tumamoca macdougalii	Tumamoc Globeberry	PDCUC0S010		S	S			SR	G4	S3
Pinal	REPTILE	Aspidoscelis burti stictogrammus	Giant Spotted Whiptail	ARACJ02011	SC	S	S				G4T4	S2
Pinal	REPTILE	Aspidoscelis burti xanthonota	Red-back Whiptail	ARACJ02012	SC		S				G4T2	S2
Pinal	REPTILE	Chionactis occipitalis klauberi	Tucson Shovel-nosed Snake	ARADB05012		S					G5T3Q	S1
Pinal	REPTILE	Gopherus agassizii (Sonoran Population)	Sonoran Desert Tortoise	ARAAF01013	SC				A	WSC	G4T4	S4
Pinal	REPTILE	Lampropeltis getula nigrita	Western Black Kingsnake	ARADB19026			S		A		G5T3T4Q	S1S2
Pinal	REPTILE	Phyllorhynchus browni lucidus	Maricopa Leaf-nosed Snake	ARADB25012			S		PR		G5T2Q	S2
Pinal	REPTILE	Thamnophis eques megalops	Northern Mexican Gartersnake	ARADB36061	SC		S		A	WSC	G5T5	S1
Pinal	REPTILE	Xantusia arizonae	Arizona Night Lizard	ARACK01050			S				G3	S1

Appendix E. Tonto National Forest Federally Listed Species Last Updated October 2007

Common Name	*Scientific Name*	Status	Tonto Occurrence
Arizona Hedgehog Cactus	*Echinocereus triglochidiatus var. arizonicus*	E	Y
Arizona Cliffrose	*Purshia subintegra*	E	Y
Bald Eagle - Desert Nesting	*Haliaeetus leucocephalus (G5/S2/S1/S3/NR)*	T, WC	Y
Southwestern Willow Flycatcher	*Empidonax traillii extimus*	E, WC	Y, CH
Chiricahua Leopard Frog	*Rana chiricahuensis*	T, WC	Y
Mexican Spotted Owl	*Strix occidentalis lucida*	T, WC	Y, CH
Gila Chub	*Gila intermedia*	E, WC	Y, CH
Yuma Clapper Rail	*Rallus longirostris yumanensis*	E, WC	H
Bonytail Chub	*Gila elegans*	E, WC	H
Desert Pupfish	*Cyprinodon macularius macularius*	E, WC	Y
Colorado Pikeminnow (squawfish)	*Ptychocheilus lucius*	E, WC	Y – some ENE
Loach minnow	*Tiaroga cobitis*	T, WC	H, PCH
Spikedace	*Meda fulgida*	T, WC	H, PCH
Woundfin	*Plagopterus argentissimus*	E, WC	H, some ENE
Razorback Sucker	*Xyrauchen texanus*	E, WC	Y, CH
Gila Topminnow	*Poeciliposis occidentalis occidentalis*	E, WC	Y
Gila Trout	*Oncorhynchus gilae gilae*	T, WC	Y
Lesser Long-nosed Bat	*Leptonycteris curasoae yerbabuenae*	E, WC	
Mexican Gray Wolf*	*Canis lupis baileyi*	E, WC	

* = may be dropped from list; need to clarify
E = Federally Listed as Endangered, under Endangered Species Act (ESA)
T = Federally Listed as Threatened, under ESA
WC = Wildlife of Special Concern in Arizona (AZ Game and Fish Dept. Draft 3/16/96)
Y = Known to occur on Tonto NF
H = Historically known from Tonto NF
CH = Critical Habitat designated on Tonto NF
PCH = Proposed Critical Habitat designated on Tonto NF
ENE = Reintroduced populations designated as Experimental - Nonessential, under ESA.

Appendix E. Tonto National Forest Sensitive Species List Last Updated October 2007

Common Name	*Scientific Name*	Heritage Global Rank	Heritage State Rank AZ/NM
Amphibians (4)			
Arizona Toad	*Bufo microscaphus*	G3/G4	S3S4/S2
Western Barking Frog	*Eleutherodactylus augusti cactorum*	G4T3	S1
Lowland Leopard Frog	*Rana yavapaiensis*	G4	S4/S1
Northern Leopard Frog	*Rana pipiens*	G5	S2/S1/S1
Birds (9)			
Clark's Grebe	*Aechmophorus clarkii*	G5	S2/S4
Zone-Tailed Hawk	*Buteo albonotatus*	G4	S4/S3/S3
Northern Goshawk	*Accipiter gentilis*	G5	S3/S2
Northern Gray Hawk	*Asturina nitida maximus*	G4T4Q	S3/SAB,S1N
Common Black-Hawk	*Buteogallus anthracinus*	G4G5	S3/S2
American Peregrine Falcon	*Falco peregrinus anatum*	G4T3	S4/S2
Western Yellow Billed Cuckoo	*Coccyzus americanus occidentalis*	G5T3	S3/S3/S5/S4
Abert's Towhee	*Pipilo aberti*	G3G4	S3/S1
Fish (5)			
Desert Sucker	*Catostomus clarki*	G3	S3/S2
Headwater Chub	*Gila nigra*	UNK	UNK
Longfin Dace	*Agosia chrysogaster*	G4	S3/SNA
Roundtail Chub	*Gila robusta*	G3	S2/S2
Sonora Sucker	*Catostomus insignis*	G3	S3/S2
Insects (2)			
Parker's Cylloepus Riffle Beetle	*Cylloepus parkeri*	G1	S1
Netwing Midge	*Agathon arizonicus*	G1	SNR
Mammals (10)			
California Leaf-Nosed Bat	*Macrotus californicus*	G4N3N4	S3
Western Red Bat	*Lasiurus blossevillii*	G5N4	S2/S2
Spotted Bat	*Euderma maculatum*	G4N3N4	S2/S3
Allen's Lappet-Browed Bat	*Idionycteris phyllotis*	G3G4N3	S2/S2
Pale Townsend's Big-Eared Bat	*Corynorhinus townsendii pallescens*	GTN4	S3/S3
Pocketed Free-Tailed Bat	*Nyctinomops femorosaccus*	G4	S2S3/S1/S3
Greater Western Mastiff Bat	*Eumops perotis californicus*	G5T4N3	S1S2
White-Nosed Coati	*Nasua narica*	G5N4	S4/S2
Rocky Mountain Bighorn Sheep	*Ovis canadensis canadensis*	G4	S1/S4
Desert Bighorn Sheep	*Ovis canadensis mexicana*	G3	S1/S3
Reptiles (5)			
Reticulate Gila Monster	*Heloderma suspectum suspectum*	G4T4	S4
Sonoran Desert Tortoise	*Gopherus agassizii (Sonoran Population)*	G4T4	S4
Maricopa Leaf-Nosed Snake	*Phyllorhynchus browni lucidus*	G5T2	S2

G = Heritage Global Ranking
G1 = Globally critically imperiled
G2 = Globally imperiled
G3 = Globally vulnerable to extirpation or extinction
G4 = Globally apparently secure
G5 = Globally demonstrably widespread, abundant, secure
S = Heritage subnational ranking
S1 = subnationally critically imperiled
S2 = sensationally imperiled
S3 = subnationally vulnerable to extirpation or extinction
SNR = subnationally not ranked yet
UNK = Unknown ranking

Appendix E. Tonto National Forest Sensitive Species List Last Updated October 2007

Common Name	*Scientific Name*	Heritage Global Rank	Heritage State Rank AZ/NM
Reptiles (continued)			
Mexican Gartersnake	*Thamnophis eques megalops*	G3T3	S2S3/S1S2
Narrow-Headed Gartersnake	*Thamnophis rufipunctatus*	G3G4	S3/S3
Snails (1)			
Fossil Springsnail	*Pyrgulopsis simplex*	G1	S1
Plants (22)			
Pima Indian Mallow	*Abutilon parishii*	G2	S2
Tonto Basin Agave	*Agave delamateri*	G1G2	S1
Hohokam Agave	*Agave murpheyi*	G2	S2
Mt. Dellenbaugh Sandwort	*Arenaria aberrans*	G3?	SNR
Chihuahuan Sedge	*Carex chihuahuensis*	G2G4	S2S3
Cochise Sedge	*Carex ultra (=C.spissa var. ultra)*	G3?	S2,S3?
Arizona Bugbane	*Cimicifuga arizonica*	G2	S2
Mogollon Fleabane	*Erigeron anchana*	G2	S2
Fish Creek Fleabane	*Erigeron piscaticus*	G1	S1
Ripley Wild Buckwheat	*Eriogonum ripleyi*	G2	S2
Eastwood Alum Root	*Heuchera eastwoodiae*	G3	S3
Arizona Alum Root	*Heuchera glomerulata*	G3	S3,S1
Horseshoe Deer Vetch	*Lotus mearnsii var. equisolensis*	G3T1	S1
Mapleleaf False Snapdragon	*Mabrya acerifolia (=Maurandya a.)*	G2	S2
Toumey Groundsel	*Packera neomexicana var. toumeyi (=Senecio n. var. t.)*	G5T2Q	S2
Salt River Rockdaisy	*Perityle gilensis var. salensis*	G2?T2?	S2?
Fish Creek Rockdaisy	*Perityle saxicola*	G1	S1
Arizona Phlox	*Phlox amabilis*	G2	S2
Hualapai Milkwort	*Polygala rusbyi*	G3	S3
Blumer's Dock	*Rumex orthoneurus*	G3	S3,S2?
Galiuro Sage	*Salvia amissa*	G2	S2
Aravaipa Woodfern	*Thelypteris puberula var. sonorensis*	G5T3	S2

G = Heritage Global Ranking
G1 = Globally critically imperiled
G2 = Globally imperiled
G3 = Globally vulnerable to extirpation or extinction
G4 = Globally apparently secure
G5 = Globally demonstrably widespread, abundant, secure
S = Heritage subnational ranking
S1 = subnationally critically imperiled
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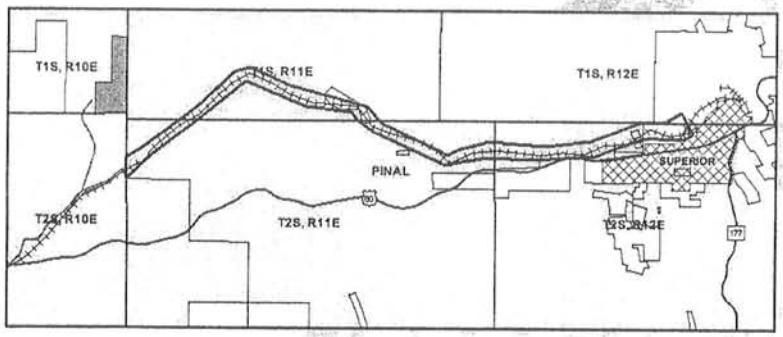
S3 = subnationally vulnerable to extirpation or extinction
SNR = subnationally not ranked yet
UNK = Unknown ranking

APPENDIX F

AGFD HDMS
SPECIAL STATUS
SPECIES RESULTS

Arizona's On-line Environmental Review Tool
Search ID: 20080328005626
Project Name: Pipeline
Date: 3/28/2008 10:32:55 AM

Project Location



Project Name: Pipeline
Submitted By: Lynn Rae
On behalf of: CONSULTING
Project Search ID: 20080328005626
Date: 3/28/2008 10:32:46 AM
Project Category: Water Use, Transfer, and Channel Activities,Water delivery and supply line or effluent delivery line (operated by municipality or water company),New lines or expansion of existing lines
Project Coordinates (UTM Zone 12-NAD 83): 482515.256, 3683555.739 meter
Project Length: 34003.393 meter
County: PINAL
USGS 7.5 Minute Quadrangle ID: 1357
Quadrangle Name: FLORENCE JUNCTION
Project locality is currently being scoped

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	ESA	USFS	BLM	State
Bat Colony					
Buteogallus anthracinus	Common Black-Hawk		S		WSC
Chionactis occipitalis klauberi	Tucson Shovel-nosed Snake			S	
Coccyzus americanus occidentalis	Western Yellow-billed Cuckoo	C	S		WSC
Cyprinodon macularius	Desert Pupfish	LE			WSC
Empidonax traillii extimus	Southwestern Willow Flycatcher	LE	S		WSC
Eumops perotis californicus	Greater Western Bonneted Bat	SC			
Falco peregrinus anatum	American Peregrine Falcon	SC	S		WSC
Gopherus agassizii (Sonoran Population)	Sonoran Desert Tortoise	SC			WSC
Lasiurus blossevillii	Western Red Bat				WSC
Myotis yumanensis	Yuma Myotis	SC			
Nyctinomops femorosaccus	Pocketed Free-tailed Bat			S	
Phyllorhynchus browni lucidus	Maricopa Leaf-nosed Snake		S		
Poeciliopsis occidentalis occidentalis	Gila Topminnow	LE			WSC
Rana yavapaiensis	Lowland Leopard Frog	SC	S		WSC

 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: Water Use, Transfer, and Channel Activities,Water delivery and supply line or effluent delivery line (operated by municipality or water company),New lines or expansion of existing lines

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 State Historic Preservation Office may be required http://www.pr.state.az.us/partnerships/shpo/shpo.html#anchor561695

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.

Trenches should be covered or back-filled as soon as possible. Incorporate escape ramps in ditches or fencing along the perimeter to deter small mammals and herptefauna (snakes, lizards, tortoise) from entering ditches.

Project Location and/or Species recommendations:

HDMS 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

HDMS records indicate that Sonoran desert tortoise have been documented within the vicinity of your project area (refer to the species list on page 1 of the receipt). Please review the Tortoise Handling Guidelines found on the Environmental Review Home Page.

http://www.azgfd.gov/hgis/guidelines.azpx

 APPLICATION INITIALS: _____

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: _____

City, State, Zip: _____

Phone: _____

E-mail: _____

Person Conducting Search (if not applicant)

Agency/organization:_____

Contact Name: _____

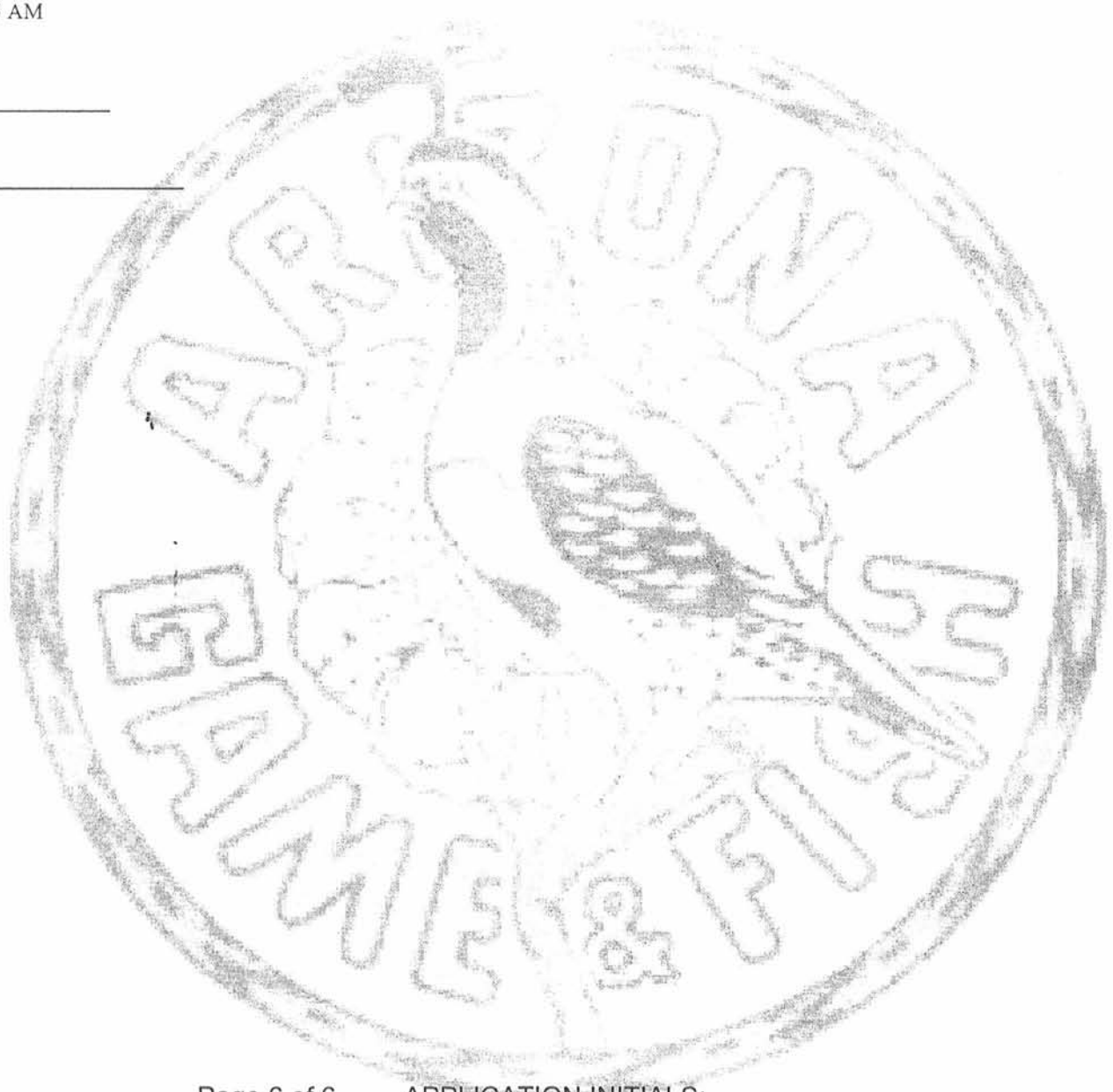
Address: _____

City, State, Zip: _____

 APPLICATION INITIALS: _____

Phone: _____

E-mail: _____



 APPLICATION INITIALS: _____

APPENDIX G

SPECIAL STATUS SPECIES SCREENING ANALYSIS

Appendix G. Special –Status Species Screening Analysis for the Resolution Water Pipeline Project – Species Known to Occur in Tonto National Forest and Pinal County			
Species	**Status**	**Known Distribution and Habitat Needs**	**Likelihood of Occurrence in the Project Area**
USFWS ENDANGERED SPECIES			
Arizona cliffrose *(Purshia subintegra)*	TNF-E	This species is known to occur on the TNF. The species prefers rolling limestone hills within Sonoran desertscrub, usually on white Tertiary (Miocene and Pliocene) lacustrine deposits high in lithium, nitrates, and magnesium from 2,500-4,000 ft. elevation (AGFD 2008b).	No reasonable potential for this species to occur. The Project Area does not contain suitable limestone substrate to support this species. Given that the Project Area lacks suitable habitat for this species, it is our opinion that the proposed Project and associated construction activities will not affect the Arizona cliffrose or its habitat. This species is not considered further in this BA&E.
Arizona hedgehog cactus (*Echinocereus triglochidiatus* var. *arizonicus*)	E, USFS-S, HS	This species is known to occur on the TNF. Ecotone between interior chapparal and madrean evergreen woodland. Open slopes, in narrow cracks between boulders, and in understory of shrubs. Elevation range 3,700 – 5,200 ft. (AGFD 2008b).	No reasonable potential for this species to occur. The Project Area is below the elevation range for this species. Genetic studies have determined that this species does not occur outside the type locality between Superior and Miami. Given that the Project Area lacks suitable habitat for this species, it is our opinion that the Project and associated construction activities will not affect the Arizona hedgehog or its habitat. This species is not considered further in this BA&E.
Bonytail chub (*Gila elegans*)	TNF-E, WSCA, H	Historically known to occur on the TNF. Primarily found in backwaters and eddies away from strong currents preferring waters with high levels of total dissolved solids. It also survives in lakes and ponds, including lakes Mohave and Havasu (TNF 2000).	No potential for occurrence. The Project Area lacks perennial, intermittent surface flows or aquatic habitat. Given that the Project Area lacks suitable habitat for this species, it is our opinion that the Project and associated construction activities will not affect the bonytail chub or its habitat. This species is not considered further in this BA&E.
Colorado pikeminnow (*Ptychocheilus lucius*)	TNF-E, WSCA, ENE	This species is known to occur on the TNF. Habitat includes turbid, deep, and strongly flowing water. Small individuals occupy shallow backwater areas with little or no current and sand/silt substrates. During flood events this species may occupy flooded bottomlands adjacent to rivers (TNF 2000).	No potential for occurrence. The Project Area does not contain aquatic habitat to support this species. Given that the Project Area lacks suitable habitat for this species, it is our opinion that the Project and associated construction activities will not affect the Colorado pikeminnow or its habitat. This species is not considered further in this BA&E.

Status Key:

E = Federally Listed as Endangered, under Endangered Species Act (ESA), listed for Pinal County
T = Federally Listed Threatened, under ESA, listed for Pinal County
C = Federal Candidate Species for Listing, under ESA, listed for Pinal County
PDL = Proposed Delisted, under ESA, listed for Pinal County
SC = Species of Concern, under ESA, listed for Pinal County
USFS-S = USFS Regional Forester's Sensitive Species List, AZ Game and Fish Department Heritage Data Management System (2/19/2008)
TNF-S = Tonto National Forest Sensitive Species List (10/2007)
TNF-T = Tonto National Forest Threatened Species (TNF Species List 10/2007)
TNF-E = Tonto National Forest Endangered Species (TNF Species List 10/2007)
WSCA = Wildlife of Special Concern in Arizona, AZ Game and Fish Department Heritage Data Management System (2/19/2008)
HS = Arizona Highly Safeguarded plant species: no collection allowed
HP = High Priority Species; Western Bat Species Regional Priority Matrix
MIS = Tonto National Forest Management Indicator Species
H = Historically known from the Tonto
CH = Critical Habitat designated on the Tonto
ENE = Reintroduction populations designated as experimental-nonessential, under ESA

Appendix G. Special –Status Species Screening Analysis for the Resolution Water Pipeline Project – Species Known to Occur in Tonto National Forest and Pinal County			
Species	**Status**	**Known Distribution and Habitat Needs**	**Likelihood of Occurrence in the Project Area**
Desert pupfish *(Cyprinodon macularius)*	E, WSCA	There are no natural populations of this subspecies remaining in Arizona. Reintroduced populations exist at Cold Springs in Graham County, AD Wash in Maricopa County, and Finley Tank in Santa Cruz County. There are also nine refugia populations in private ponds and aquariums (AGFD 2008b). Natural habitat for this small fish includes desert springs, small streams, and marshes. It can also tolerate warm saline water (USFWS 2008).	No potential for occurrence. Although the species is known to occur within 3 miles of the Project Area, the site does not contain perennial or intermittent surface water to support the species. The Project Area is not within critical habitat for the species. Given that the Project Area lacks suitable habitat for this species, it is our opinion that the Project and associated construction activities will not affect the desert pupfish or its habitat. This species is not considered further in this BA&E.
Gila chub (*Gila intermedia*)	E, USFS-S, WSCA	This species is known to occur on the TNF. Typically occupies pools in small streams, marshes, cienegas, and other quiet waters, although it may have occurred in larger, more complex habitats. It occurs in Fish and Mineral Creeks on TNF (TNF 2000).	No potential for occurrence. The Project Area does not contain perennial or intermittent surface water and does not occur within designated critical habitat for the species. Given that the Project Area lacks suitable habitat for this species, it is our opinion that the Project and associated construction activities will not affect the Gila chub or its habitat. This species is not considered further in this BA&E.
Gila topminnow *(Poeciliopsis occidentalis occidentalis)*	E, WSCA	This species is known to occur on the TNF. The topminnow requires small streams, or cienegas with vegetated shallows at elevations below 4,500 ft. (USFWS 2008). It prefers shallow, warm and fairly quiet waters but will adjust to a wide range, living in quiet to moderate currents, depths to 3 ft., and water temperatures from constant 26.7°C (80°F) springs to streams fluctuating from 6.1-37.2°C (43-99°F) (TNF 2000).	No potential for occurrence. Although this species is known to occur within 3 miles of the Project Area, the Project Area lacks perennial, intermittent surface flows or aquatic habitat to support the species. Given that the Project Area lacks suitable habitat for this species, it is our opinion that the Project and associated construction activities will not affect the Gila topminnow or its habitat. This species is not considered further in this BA&E.

Status Key:

E = Federally Listed as Endangered, under Endangered Species Act (ESA), listed for Pinal County
T = Federally Listed Threatened, under ESA, listed for Pinal County
C = Federal Candidate Species for Listing, under ESA, listed for Pinal County
PDL = Proposed Delisted, under ESA, listed for Pinal County
SC = Species of Concern, under ESA, listed for Pinal County
USFS-S = USFS Regional Forester's Sensitive Species List, AZ Game and Fish Department Heritage Data Management System (2/19/2008)
TNF-S = Tonto National Forest Sensitive Species List (10/2007)
TNF-T = Tonto National Forest Threatened Species (TNF Species List 10/2007)
TNF-E = Tonto National Forest Endangered Species (TNF Species List 10/2007)
WSCA = Wildlife of Special Concern in Arizona, AZ Game and Fish Department Heritage Data Management System (2/19/2008)
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Appendix G. Special –Status Species Screening Analysis for the Resolution Water Pipeline Project – Species Known to Occur in Tonto National Forest and Pinal County			
Species	**Status**	**Known Distribution and Habitat Needs**	**Likelihood of Occurrence in the Project Area**
Lesser long-nosed bat (*Leptonycteris curasoae yerbabuenae*)	E, USFS-S, WSCA	This species is migratory and present in Arizona from April to September and south of the border the remainder of the year. Desertscrub with agave and columnar cacti available for food supply; roosts in caves and abandoned mines. Elevation range below 6,000 ft. (USFWS 2008).	No reasonable potential to occur. The Project Area is located on the boundary of the northern edge of the expanded late summer geographic range of this species (Hoffmeister 1986). The Project Area does not contain suitable roosting habitat to support this species. Although there are abandoned mines and adits near Superior, there is no known lesser long-nosed bat (LLB) maternity roost in this area. Records indicate that the LLB distribution is marginal for the northern part of the range and is limited to juvenile bats, occurring only in late summer after maternity roosts have dispersed (Cockrum 1991). The Project Area contains potential foraging habitat (saguaro cactus and agave) for the species. However, agave populations are limited to a few in the Project Area, and should the LLB occur near the site (if at all), it would be in late summer or early fall, after saguaro flowers and fruits are gone (Cockrum 1991). Given that the Project Area is located on the edge of the known late summer geographic range, the recorded LLBdistribution is limited in the region, and the alignment lacks suitable roosting habitat for the species, it is our opinion that the Project and associated construction activities will not affect the LLB or its habitat. This species is not considered further in this BA&E.
Mexican gray wolf *(Canis lupis baileyi)*	TNF-E, USFS-S, WSCA	The most common habitat for this species is chaparral, woodland, and forested areas, as well as Upper Sonoran grasslands. Elevation range is from 3,000 and 12,000 ft.. This species was reintroduced in the Blue Primitive Area of Greenlee and Apache counties, consisting of rugged topography bisected by the Mogollon Rim. The wolf typically avoids desert areas, but may use these areas as a corridor (AGFD 2008b).	No reasonable potential for this species to occur. The Project Area lacks suitable habitat and is below the elevation range for this species. Given that the Project Area lacks suitable habitat for this species, it is our opinion that the Project and associated construction activities will not affect the Mexican gray wolf or its habitat. This species is not considered further in this BA&E.

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Nichol Turk's head cactus *(Echinocactus horizonthalonius* var. *nicholii)*	E, HS	This species is known to occur in Sonoran desertscrub, within unshaded sites on dissected alluvial fans at the foot of limestone mountains, and on inclined terraces and saddles on limestone mountainsides. Elevation range 2,400 to 4,100 ft. (USFWS 2008).	No reasonable potential for this species to occur. The Project Area does not contain suitable limestone substrate. Given that the Project Area lacks suitable habitat for this species, it is our opinion that the Project and associated construction activities will not affect the Nichol Turk's head cactus or its habitat. This species is not considered further in this BA&E.
Southwestern willow flycatcher *(Empidonax traillii extimus)*	E, USFS-S, WSCA	This species is known to occur in dense stands of cottonwood, willow, and tamarisk vegetation communities along rivers and streams. Elevation range below 8,500 ft. (USFWS 2008).	No reasonable potential for this species to occur. Although the species is known to occur within a 3-mile radius of the Project Area and it is possible that it may fly over the Project Area during migratory periods, there is no suitable riparian habitat on or immediately adjacent to the site to support breeding and nesting of this species. The Project Area is located outside of designated critical habitat for this species. Given that the Project Area lacks suitable habitat for this species, it is our opinion that the Project and associated construction activities will not affect the Southwestern willow flycatcher or its habitat. This species is not considered further in this BA&E.
Razorback sucker *(Xyrauchen texanus)*	E, USFS-S, WSCA	This species is known to occur on the TNF. The species is found in river and lacustrine areas, not in fast moving water (USFWS 2008). It tends to occupy strong, uniform currents over sandy bottoms, eddies, and backwaters lateral to river channels and sometimes concentrating in deep places near cut banks and fallen trees (TNF 2000).	No potential for occurrence. The Project Area lacks perennial or intermittent surface water and lies outside of the designated critical habitat boundary for the species. Given that the Project Area lacks suitable habitat for this species, it is our opinion that the Project and associated construction activities will not affect the razorback sucker or its habitat. This species is not considered further in this BA&E.
Woundfin (*Plagopterus argentissimus*)	TNF-E, WSCA, ENE	Historically known to occur on the TNF. This riverine species is often found adjacent to riffles in runs and quiet waters over sand or sand/gravel substrates (TNF 2000).	No potential for this species to occur. The Project Area lacks perennial or intermittent surface water. Given that the Project Area lacks suitable habitat for this species, it is our opinion that the Project and associated construction activities will not affect the woundfin or its habitat. This species is not considered further in this BA&E.

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Yuma clapper rail *(Rallus longirostris yumanensis)*	E, WSCA	This species is found in fresh water and brackish marshes. Species is associated with dense emergent riparian vegetation. Elevation range is 5,000 to 10,000 ft.. Requires wet substrate (mudflat, sandbar) with dense herbaceous or woody vegetation for nesting and foraging (USFWS 2008).	No reasonable potential for this species to occur. The Project Area is below the elevation range and lacks suitable riparian habitat. No critical habitat has been proposed or designated for this species. Given that the Project Area lacks suitable habitat for this species, it is our opinion that the Project and associated construction activities will not affect the Yuma clapper rail or its habitat. This species is not considered further in this BA&E.
USFWS THREATENED SPECIES			
Bald eagle *(Haliaeetus leucocephalus)* – Sonoran Desert nesting population	T, USFS-S, WSCA	This species is known to occur on the TNF. Bald eagles nest in tall trees, snags, or cliffs near water (reservoirs, rivers, and streams) with abundant prey (USFWS 2008). In Arizona, eagles are found along the larger river systems and near reservoirs that offer suitable nesting and foraging opportunities (AGFD 2008b). Wide elevation range.	No reasonable potential for this species to occur. The species may migrate through the area, but the Project Area has no suitable roosting or foraging habitat (large trees or cliffs near water with abundant prey). USFWS and AGFD have recorded breeding territories within the region of the Project Area. The closest documented breeding area is located approximately 20 miles northwest of the site near the Salt River (SWBEMC 2008). The bald eagle was delisted on August 8, 2007. Threatened status was reinstated on May 5, 2008, for desert nesting bald eagles. No critical habitat has been proposed or designated for this species. Given that the Project Area lacks suitable foraging or nesting habitat for this species, it is our opinion that the Project and associated construction activities will not affect the bald eagle desert nesting population or its habitat. This species is not considered further in this BA&E.
Chiricahua leopard frog (*Rana chiricahuensis)*	TNF-T, USFS-S, WSCA	Inhabits streams with deep, rock-bound pools, but may also occur in springs and stock tanks that support aquatic or herbaceous vegetation; only documented occurrences on the TNF are from Payson and Pleasant Valley Ranger Districts; generally at elevations above 3,500 ft. on the TNF (TNF 2000).	No reasonable potential to occur. The Project Area is below the elevation range for this species. No perennial water or suitable aquatic habitat (i.e., perennial tanks) exists at this site. No critical habitat has been proposed or designated for this species. Given that the Project Area lacks suitable habitat for this species, it is our opinion that the Project and associated construction activities will not affect the Chiricahua leopard frog or its habitat. This species is not considered further in this BA&E.

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Species	**Status**	**Known Distribution and Habitat Needs**	**Likelihood of Occurrence in the Project Area**
Mexican spotted owl *(Strix occidentalis lucida)*	T, USFS-S, WSCA	This species nests in canyons and dense forests with multilayered foliage structure, generally older forests of mixed conifer or ponderosa pine/Gambel oak. Elevation range 4,100–9,000 ft. (USFWS 2008).	No reasonable potential for this species to occur. The Project Area is below the elevation range for this species and is outside designated critical habitat boundary. The Project Area does not contain suitable woodland habitat to support this species. Given that the Project Area lacks suitable habitat for this species, it is our opinion that the Project and associated construction activities will not affect Mexican spotted owl or its habitat. This species is not considered further in this BA&E.
Gila trout (*Oncorhynchus gilae*)	TNF-T, USFS-S, WSCA	This species is known to occur on the TNF. It occurs in small headwater streams on the TNF where water temperatures seldom exceed 21°C (70°F) (TNF 2000).	No potential for occurrence. The Project Area lacks perennial or intermittent streams to support this species. Given that the Project Area lacks suitable habitat for this species, it is our opinion that the Project and associated construction activities will not affect the Gila trout or its habitat. This species is not considered further in this BA&E.
Loach minnow *(Tiaroga cobitis)*	T, USFS-S, WSCA	Historically known to occur on the TNF. It inhabits turbulent, rocky riffles or mainstream rivers and tributaries up to about 7,200 ft. elevation; it typically occupies interstices of cobble-size substrate occasionally with dense growths of filamentous algae (TNF 2000).	No potential for occurrence. The Project Area lacks any perennial or intermittent surface flows to support this species. The Project Area is not within designated critical habitat for this species. Given that the Project Area lacks suitable habitat for this species, it is our opinion that the Project and associated construction activities will not affect the loach minnow or its habitat. This species is not considered further in this BA&E.
Spikedace *(Meda fulgida)*	T, USFS-S, WSCA	Historically known to occur on the TNF. It occupies midwater habitats of runs, pools, and swirling eddies that are typically less than 1 foot deep (TNF 2000).	No potential for occurrence. The Project Area is not within designated critical habitat for this species. The Project Area lacks perennial or intermittent surface flows to support this species. Given that the Project Area lacks suitable aquatic habitat for this species, it is our opinion that the Project and associated construction activities will not affect the spikedace or its habitat. This species is not considered further in this BA&E.

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Species	**Status**	**Known Distribution and Habitat Needs**	**Likelihood of Occurrence in the Project Area**
USFWS PROPOSED SPECIES			
California brown pelican *(Pelecanus occidentalis californicus)*	PDL	Pelicans are coastal birds that inhabit near shore habitats such as beaches, estuaries, and near shore islands in Mexico and the United States. This species is sometimes dislocated by storms and transiently found on lakes and rivers in Arizona (USFWS 2008).	No reasonable potential to occur. This species feeds exclusively on fish and the Project Area lacks suitable aquatic habitat. No perennial waters are present in the Project Area. No critical habitat has been proposed of designated for this species. Given that the Project Area lacks suitable habitat for this species, it is our opinion that the Project and associated construction activities will not affect the California brown pelican or its habitat. This species is not considered further in this BA&E.
USFWS CANDIDATE SPECIES			
Acuna cactus *(Echinomastus erectoncentrus* var. *acunensis)*	C, HS	Well-drained knolls and gravel ridges in Sonoran desertscrub. Elevation range 1,300 – 2,000 ft. (USFWS 2008).	No reasonable potential for this species to occur. Given that the Project Area is north of the known distribution range and above the elevation range for this species, it is our opinion that the Project and associated construction activities will not affect the acuna cactus or its habitat. This species is not considered further in this BA&E.
Western yellow-billed cuckoo *(Coccyzus americanus occidentalis)*	C, USFS-S, TNF-S, WSCA	This species is known to occur on the TNF. Records indicate that the species is found in association with perennial riparian woodland habitats (cottonwood, willow, or tamarisk galleries) (USFWS 2008). Elevation range below 6,500 ft..	No reasonable potential for this species to occur. This species has been known to occur within the vicinity of the Project Area (Queen Creek, near Superior). Although it is possible that the bird may fly over the Project Area, the site lacks suitable riparian woodland habitat to support this species. No critical habitat has been proposed or designated for this species. Given that the Project Area lacks suitable habitat for this species, it is our opinion that the Project and associated construction activities will not affect the western yellow-billed cuckoo or its habitat. This species is not considered further in this BA&E.
Headwater chub (*Gila nigra*)	C, TNF-S	This species is known to occur on the TNF. It is restricted to the Gila River basin, in middle to headwater reaches of middle-sized streams. It prefers pools associated with cover such as deep places near obstructions, large pools, or undercut banks (TNF 2000).	No potential for this species to occur. Given that the Project Area is outside the known geographic range and lacks suitable surface water habitat to support this species, it is our opinion that the Project and associated construction activities will not affect the headwater chub or its habitat. This species is not considered further in this BA&E.

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TNF OR US FOREST SERVICE SENSITIVE SPECIES			
Alamos deer vetch *(Lotus alamosanus)*	USFS-S	Semi-aquatic perennial, occurring in wet soil or sand in springs, seeps and streams of canyons or meadows (TNF 2000). Elevation range at least 2,950-7,220 ft..	No reasonable potential for this species to occur. Given that the Project Area is below the elevation range and lacks suitable aquatic habitat for this species, it is our opinion that the Project and associated construction activities will have no impact on the Alamos deer vetch or its habitat. This species is not considered further in this BA&E.
Abert's towhee *(Pipilo aberti)*	TNF-S	Abert's towhees are primarily a species of the lowlands of central and southwest Arizona and adjacent areas where it is a permanent resident along desert rivers and streams. It uses riparian thickets and similar habitats. Abert's towhees inhabit riparian and adjacent shrublands at lower elevations (2800-5500 ft.). Also found in Sonoran desertscrub with dense vegetation of shrubs, low trees, and succulents; Chihuahuan Desert Scrub consisting of open stands of creosote bush and large succulents; and, desert riparian deciduous woodlands, and marshes where desert streams provide sufficient moisture for a narrow band of trees and shrubs along the margins (BISON-M 2008).	No reasonable potential for this species to occur. Although it is possible that the species may fly over the alignment, the Project Area lacks large stands of dense shrubs, trees and succulents to support this species. Given that the Project Area does not contain suitable dense desertscrub habitat for this species and that the majority of construction activities will not require the removal of Sonoran desertscrub vegetation, it is our opinion that the Project and associated construction activities will have no impact on the Abert's towhee. This species is not considered further in this BA&E.
Allen's big-eared bat (*Idionycteris phyllotis*)	SC, TNF-S, HP	This species is known to occur on the TNF. It is typically associated with mountainous areas from the southern Colorado Plateau, the Mogollon Rim and adjacent mountain ranges. Habitat consists of ponderosa pine, pinyon-juniper, Mexican woodland, and riparian areas with sycamores, cottonwoods, and willows. It has mostly been collected in proximity to boulder piles, cliffs, rocky outcrops, or lava flows, often above water. Elevation range for this species is between 1,320 and 9,800 ft., but it is most common above 3,500 ft. (AGFD 2008b).	No reasonable potential for this species to occur. Although there are nearby cliffs and there is some potential for this species to forage for insects in the Project Area or vicinity, there is no suitable roosting, woodland, or aquatic habitat along the Project corridor. Given that the Project Area does not contain suitable habitat for this species, it is our opinion that the Project and associated construction activities will have no impact on the Allen's big-eared bat or its habitat. This species is not considered further in this BA&E.

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American Peregrine Falcon *(Falco peregrinus anatum)*	SC, USFS-S, TNF-S, WSCA	Wide variety of habitats, from Sonoran desertscrub to mixed conifer forests, most often in ponderosa pine areas. Primary requirement is topographic relief (cliffs) and available prey, often near or overlooking woodlands rivers or other water sources. Elevation range 400-9,000 ft. (AGFD 2008b).	No reasonable potential for this species to occur. Nearby cliffs outside the Project Area are available for nesting and the species is known to occur within 3 miles of the Project Area. Although it is possible that the species may fly over the alignment, the Project Area lacks the preferred woodland and riparian habitat suitable for prey. Given that the Project Area does not contain suitable nesting and optimal foraging habitat for this species, it is our opinion that the Project and associated construction activities will have no impact on the American peregrine falcon or its habitat. This species is not considered further in this BA&E.
Aravaipa sage (aka Galiuro sage) *(Salvia amissa)*	SC, USFS-S, TNF-S	Upper floodplain terraces in shady canyon bottoms near streams in understory of mature sycamore, ash, walnut and mesquite. Has been reported from Superstition Mtns., but current status of that population unknown. Elevation range 1,500-5,000 ft. (AGFD 2008b).	No reasonable potential for this species to occur. Given that the Project Area does not contain suitable riparian woodland habitat for this species, it is our opinion that the Project and associated construction activities will have no impact on the Aravaipa sage or its habitat. This species is not considered further in this BA&E.
Aravaipa woodfern *(Thelpteris puberula* var. *sonorensis)*	TNF-S, USFS-S	This species is known to occur on the TNF. The perennial fern is found on riverbanks, seepage areas, and meadow habitats between 2,200 and 4,500 ft.. It can also be found in moist shaded soil in mesic canyons (AGFD 2008b).	No reasonable potential for this species to occur. Given that the Project Area does not contain suitable riparian habitat for this species, it is our opinion that the Project and associated construction activities will have no impact on the Aravaipa woodfern or its habitat. This species is not considered further in this BA&E.
Arizona alum root *(Heuchera glomerulata)*	TNF-S, USFS-S	This species is known to occur on the TNF. This perennial herb is found on north-facing shaded rocky slopes near seeps, springs, and riparian areas (often in humus soil). It is typically associated with oak and pine woodland, ponderosa pine, and mixed conifer vegetative communities between 4,000-9,000 ft. elevation (AGFD 2008b).	No reasonable potential for this species to occur. Given that the Project Area is below the elevation range and does not contain suitable riparian woodland habitat for this species, it is our opinion that the Project and associated construction activities will have no impact on the Arizona alum root or its habitat. This species is not considered further in this BA&E.

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Arizona bugbane *(Cimicifuga arizonica)*	TNF-S, USFS-S	The species is found in moist loamy soil in riparian deciduous forest between 6,000 and 8,300 ft. elevation (TNF 2000).	No reasonable potential for this species to occur. Given that the Project Area is below the elevation range and does not contain suitable riparian woodland habitat for this species, it is our opinion that the Project and associated construction activities will have no impact on the Arizona bugbane or its habitat. This species is not considered further in this BA&E.
Arizona giant sedge (*Carex ultra*) aka *Carex spissa* var. *ultra*	USFS-S, TNF-S	This species is associated with saturated soils near or in perennial seeps, streams, and springs from 2,500-6,000 ft. elevation. Found in aquatic riparian woodland or oak/pinyon woodland habitat (AGFD 2008b).	No potential for this species to occur. Given that the Project Area does not contain suitable aquatic or riparian woodland habitat to support this species, it is our opinion that the Project and associated construction activities will have no impact on the Arizona giant sedge or its habitat. This species is not considered further in this BA&E.
Arizona night lizard *(Xantusis arizonae)*	USFS-S	This species is known to occur in pinyon-juniper and chaparral-oak, arid and semi-arid granite outcroppings and rocky areas, among fallen leaves, trunks of agaves, rocks or under vegetative debris. Elevation range 3,000-3,800 ft. (AGFD 2008b).	No reasonable potential for this species to occur. Given that the Project Area is below the elevation range and does not contain suitable habitat to support this species, it is our opinion that the Project and associated construction activities will have no impact on the Arizona night lizard or its habitat. This species is not considered further in this BA&E.
Arizona phlox *(Phlox amabilis)*	TNF-S, USFS-S	The species is endemic to central Arizona and is known to occur near Prescott and Payson, Arizona. Habitat consists of exposed limestone and rocky slopes, occurring near ponderosa pine and pinyon juniper woodlands. Elevation range is between 3,500 and 7,800 ft.. The known locality in the TNF is an opening in a ponderosa pine forest (AGFD 2008b).	No reasonable potential for this species to occur. Given that the Project Area is below the elevation range and does not contain suitable substrate or habitat to support this species, it is our opinion that the Project and associated construction activities will have no impact on the Arizona phlox or its habitat. This species is not considered further in this BA&E.

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Species	**Status**	**Known Distribution and Habitat Needs**	**Likelihood of Occurrence in the Project Area**
Arizona toad (*Bufo microscaphus microscaphus*)	TNF-S, USFS-S	In Arizona this species is reported to occur in east to west central Arizona, canyons and flood plains south of the Mogollon Rim, but also found in East Clear Creek. It has been reported from Apache, Coconino, Gila, Graham, Greenlee, La Paz, Maricopa, Mohave, Navajo, and Yavapai counties (AGFD 2008b). This species is known to occur on the TNF. Found in association with permanent pools, rocky streams and canyons, appearing to select for shallow water flowing over sandy or rocky bottoms; found in close proximity to unaltered, late serial riparian areas within desert grasslands, piñon-juniper, pine-oak, and ponderosa pine communities south of Mogollon Rim between 2,000-6,000 ft. elevation (TNF 2000).	No reasonable potential for this species to occur. Given that the Project Area is outside the geographic range and does not contain suitable aquatic or riparian woodland habitat to support this species, it is our opinion that the Project and associated construction activities will have no impact on the Arizona toad or its habitat. This species is not considered further in this BA&E.
Blumer's dock *(Rumex orthoneurus)*	TNF-S, USFS-S	This species is known to occur on the TNF. The species is a southwest endemic in high elevation riparian and cienega habitats in moist loamy soils or shallowly inundated areas between 6,500 and 11,500 ft. elevation (TNF 2000).	No reasonable potential for this species to occur. Given that the Project Area is below the elevation range and does not contain suitable riparian habitat to support this species, it is our opinion that the Project and associated construction activities will have no impact on the blumer's dock or its habitat. This species is not considered further in this BA&E.

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California leaf-nosed bat (*Macrotus californicus*)	SC, TNF-S, WSCA, HP	This species is known to occur on the TNF. Colonies of this species were identified in 1916 and 1960 in the Mazatzal Mountains on the Tonto Basin Ranger District. Another colony was reported near Seven Mile Wash on the Globe Ranger District. Primary habitat for this species includes Sonoran and Mohave desertscrub and roosts are typically located in mines and caves. Forage consists of insects and fruits of cacti (TNF 2000).	No reasonable potential for this species to occur. There are abandoned mine shafts and adits present in Superior; however there is no suitable roosting habitat in the Project Area. Although there is cactus located along the alignment and there is some potential for this species to forage in the Project Area or vicinity, this species a year-round inhabitant of the region and is known to feed on a variety of insects. Given that the Project Area does not contain suitable roosting habitat for this species and that the majority of construction activities will not require the removal of Sonoran desertscrub vegetation, it is our opinion that the Project and associated construction activities will have no impact on the California leaf-nosed bat. This species is not considered further in this BA&E.
Catalina beardtongue *(Penstemon discolor)*	USFS-S, HS	Bedrock openings in chaparral or pine-oak woodland. Elevation range 4,400–7,200 ft. (ARPC 2001).	No reasonable potential for this species to occur. Given that the Project Area is below the elevation range and does not contain suitable woodland habitat to support this species, it is our opinion that the Project and associated construction activities will have no impact on the Catalina beardtongue or its habitat. This species is not considered further in this BA&E.
Chihuahuan sedge *(Carex chihuahuaensis)*	USFS-S, TNF-S	This species is known to occur on the TNF. The species typically occupies north and northwest-facing slopes in wet soils in streambeds, wet meadows, cienegas, marshy areas, shallower draws in pine-oak forest and riparian woodland between 1,100 and 8,000 ft. elevation (TNF 2000).	No reasonable potential for this species to occur. Given that the Project Area does not contain suitable riparian woodland or aquatic habitat to support this species, it is our opinion that the Project and associated construction activities will have no impact on the Chihuahuan sedge or its habitat. This species is not considered further in this BA&E.
Clark's grebe *(Aechmophorus clarkii)*	TNF-S	This species is associated with marshes, lakes and bays between 440 and 480 ft. and nests among tall vegetation growing along the edges of open water. The species is known to occur in Mohave and La Paz counties along the Colorado River, and breeds in portions of the Havasu National Wildlife Refuge (AGFD 2008b).	No reasonable potential for this species to occur. Given that the Project Area is above the elevation range and does not contain suitable aquatic habitat to support this species, it is our opinion that the Project and associated construction activities will have no impact on the Clark's grebe or its habitat. This species is not considered further in this BA&E.

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Common Black-Hawk *(Buteogallus anthracinus)*	USFS-S, TNF-S WSCA	This species is known to occur on the TNF. This raptor is associated with aquatic systems year-round in association with perennial streams with mature gallery forest with cottonwoods, willows and sycamore in the overstory (TNF 2000). Elevation range 1,750-7,080 ft. (AGFD 2008b).	No reasonable potential for this species to occur. The species is known to occur within 3 miles of the Project Area. Although the species may fly over the site, the Project Area lacks suitable riparian habitat for foraging and nesting. Given that the Project Area does not contain suitable habitat to support this species, it is our opinion that the Project and associated construction activities will have no impact on the common black hawk or its habitat. This species is not considered further in this BA&E.
Desert bighorn sheep *(Ovis canadensis mexicana)*	USFS-S, TNF-S	This species is known to occur on the TNF. Habitat for this species is found between 3,000-4,000 ft.. in jojoba communities with galleta as the dominant grass (TNF 2000).	No reasonable potential for this species to occur. Given that the Project Area is below the elevation range and does not contain suitable habitat to support this species, it is our opinion that the Project and associated construction activities will have no impact on the desert bighorn sheep or its habitat. This species is not considered further in this BA&E.
Desert sucker (*Catostomus clarki*)	SC, TNF-S	This species is known to occur on the TNF. Found in rapids and flowing pools of streams, primarily over bottoms of gravel-rubble with sandy silt in the interstices; adults live in pools, moving at night to swift. riffles and runs (TNF 2000).	No potential for occurrence. Given that the Project Area does not contain suitable aquatic habitat to support this species, it is our opinion that the Project and associated construction activities will have no impact on the desert sucker or its habitat. This species is not considered further in this BA&E.
Eastwood alum root *(Heuchera eastwoodiae)*	TNF-S, USFS-S	This species is known to occur on the TNF. This perennial herb is found only in central Arizona on moist slopes in ponderosa pine forests and canyons between 3,500 and 8,000 ft. elevation (TNF 2000; AGFD2008b).	No reasonable potential for this species to occur. Given that the Project Area is below the elevation range and does not contain suitable woodland habitat to support this species, it is our opinion that the Project and associated construction activities will have no impact on the eastwood alum root or its habitat. This species is not considered further in this BA&E.

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Species	**Status**	**Known Distribution and Habitat Needs**	**Likelihood of Occurrence in the Project Area**
Fish Creek fleabane *(Erigeron piscaticus)*	TNF-S, USFS-S	This species is known to occur on the TNF. The species is associated with perennial streams and is found on upper floodplain terraces in moist, shady canyon bottoms, growing in sand/silt alluvium under mature walnut, alder, and hackberry between 2,250 and 3,500 ft. elevation. The historic distribution of the species is Fish Creek Canyon, Turkey Creek, and Oak Grove canyons (TNF 2000).	No reasonable potential for this species to occur. Given that the Project Area does not contain suitable aquatic habitat to support this species, it is our opinion that the Project and associated construction activities will have no impact on the fish creek fleabane or its habitat. This species is not considered further in this BA&E.
Fish Creek rock daisy *(Perityle saxicola)*	TNF-S, USFS-S	This species is known to occur on the TNF. The species grows from cracks and crevices on cliff faces, large boulders, and rocky outcrops in canyons and on buttes composed of Barnes conglomerate and Mescal limestone in very xeric east and northeast exposures in Sonoran desertscrub between 2,000 and 3,500 ft. elevation (TNF 2000).	No reasonable potential for this species to occur. The proposed Project Area lacks suitable limestone substrate to support this species. Given that the Project Area does not contain suitable habitat to support this species, it is our opinion that the Project and associated construction activities will have no impact on the fish creek rock daisy or its habitat. This species is not considered further in this BA&E.
Fossil springsnail (*Pyrgulopsis simplex*)	SC, TNF-S, USFS-S	This species is known to occur on the TNF. Habitat requirements are not well understood, but the genus is typically found on rock or aquatic macrophytes in moderate current. The species is restricted to a number of springs, including Fossil Springs, that form the perennial portion of Fossil Creek (Gila and Yavapai Counties), which flows into the Verde River south of Childs, Arizona (TNF 2000).	No potential for occurrence Given that the Project Area does not contain suitable aquatic habitat to support this species and is outside the geographic range, it is our opinion that the Project and associated construction activities will have no impact on the fossil springsnail or its habitat. This species is not considered further in this BA&E.
Giant spotted whiptail *(Aspidoscelis burti stictogrammus)*	SC, USFS-S	This species is known to occur in mountain canyons or near permanent or intermittent water sources in lowland desert areas consisting of riparian habitat dominated by sycamore, cottonwood, ash, and various grasses and forbs (AGFD 2008b).	No reasonable potential for this species to occur. Given that the Project Area does not contain suitable riparian habitat to support this species and is outside the reported geographic range, it is our opinion that the Project and associated construction activities will have no impact on the giant spotted whiptail or its habitat. This species is not considered further in this BA&E.

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Gila monster (*Heloderma suspectum*)	SC, TNF-S	This species is known to occur on the TNF. This reptile is found in the Sonoran Desert and along the western edge of the Mohave Desert at an elevation of approximately 4,100 ft.. Preferred habitat for this species is primarily associated with Arizona upland subdivision vegetation such as palo verde-saguaro scrub on hillsides, bajadas and canyon bottoms to creosote-bursage dominated flats. Within these habitats they are typically found in the wetter, rocky arroyos, which provide protection, moisture, and a concentrated prey base (TNF 2000; Brennan and Holycross 2006).	Potential for this species to occur. The Project Area is within the known range and contains suitable habitat to support this species. This species is considered in greater detail in this BA&E.
Gila rock daisy (aka Salt River rock daisy) (*Perityle gilensis* var. *salensis)*	TNF-S, USFS-S	The species is found near seeps on cliff faces, ledges, and rock outcrops between 3,000 and 4,000 ft. elevation. It is only known from the type locality on the San Carlos Indian Reservation on sandstone with a north-facing aspect on the Salt River between Show Low and Globe (TNF 2000).	No reasonable potential for this species to occur. Given that the Project Area does not contain suitable habitat to support this species and is outside the known geographic and elevation ranges, it is our opinion that the Project and associated construction activities will have no impact on the Gila rock daisy (Salt River rock daisy) or its habitat. This species is not considered further in this BA&E.
Gila rock daisy *(Perityle gilensis* var. *gilensis)*	USFS-S	The plant is restricted to steep and generally inaccessible rock canyons and cliff faces. The only known occurrences in Arizona are in the Coconino National Forest, near the Mogollon Rim (TNF 2000).	No reasonable potential for this species to occur. Given that the Project Area does not contain suitable habitat (canyons and cliffs) to support this species, it is our opinion that the Project and associated construction activities will have no impact on the Gila rock daisy or its habitat. This species is not considered further in this BA&E.
Greater western mastiff bat *(Eumops perotis californicus)*	SC, TNF-S	This species is known to occur on the TNF. This species is found in lower and upper Sonoran desertscrub near cliffs and prefers rugged rocky canyons with abundant crevices. Found throughout Arizona, with the exception of Yavapai, Navajo, Apache, and Santa Cruz counties. Forage consists of a variety of insects (moths, bees, and crickets) (AGFD 2008b).	No reasonable potential for this species to occur. Although the Project Area is located near cliffs and it is possible that the bat may fly over or forage for insects in or near the Project Area, the site does not contain suitable roosting habitat. Given that the Project Area does not contain suitable habitat for this species, it is our opinion that the Project and associated construction activities will have no impact on the greater western mastiff bat. This species is not considered further in this BA&E.

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Hohokam agave ***(Agave murpheyi)***	SC, USFS-S, TNF-S, HS	Benches or alluvial terraces on gentle bajada slopes (not steep slopes or drainage bottoms) above major drainages in desert scrub. Associated with pre-Columbian agricultural and settlement features (AGFD 2008b).	Potential for this species to occur. The Project Area contains suitable habitat and the species has been reported near Superior along Queen Creek. This species is considered in greater detail in this BA&E.
Horseshoe deer vetch *(Lotus mearnsii* var. *equisolensis)*	TNF-S	This species is found on late Tertiary lacustrine deposits of interbedded white limestone and ash at an elevation of 2,100 ft.. The only known range for this species is near the Horseshoe Reservoir area along the Verde River (ARPC 2001).	No reasonable potential for this species to occur. Given that the Project Area is outside the known geographic range and does not contain suitable substrate to support this species, it is our opinion that the Project and associated construction activities will have no impact on the horseshoe deer vetch or its habitat. This species is not considered further in this BA&E.
Hualapai milkwort *(Polygala rusbyi)*	TNF-S, USFS-S	Generally on limey or gypsiferous substrates in central Arizona. Most specimens are from Mohave and Yavapai Counties, a few from Maricopa County, and no specimens from Pinal County. Elevation range 2,000 - 4,700 ft.(SEINet 2008).	No reasonable potential for this species to occur. Given that the Project Area is outside the known geographic range and does not contain suitable limestone substrate for this species, it is our opinion that the Project and associated construction activities will have no impact on the Hualapai milkwort or its habitat. This species is not considered further in this BA&E.
Longfin dace (*Agosia chrysogaster*)	SC, TNF-S	This species is known to occur on the TNF. Usually found in waters less than 0.6 ft. deep, with moderate velocities over pebble/gravel/sand substrate; during desiccating conditions, individuals persist beneath moist debris and algal mats throughout the day and become active at night when meager flows return (TNF 2000).	No potential for this species to occur. The Project Area lacks perennial or intermittent surface water to support this species. Given that the Project Area does not contain suitable aquatic habitat for this species, it is our opinion that the Project and associated construction activities will have no impact on the longfin dace or its habitat. This species is not considered further in this BA&E.
Lowland leopard frog (*Rana yavapaiensis*)	TNF-S, USFS-S, WSCA	This species is known to occur on the TNF. In Arizona the species is found on the Colorado River near Yuma, and in west, central, and southeast Arizona, south of the Mogollon Rim. Lowland leopard frogs are habitat generalists, inhabiting and breeding in a variety of natural and man-made aquatic systems located in habitat ranging from desert grasslands to pinyon-juniper between 800-5,500 ft.. (AGFD 2008b).	No reasonable potential to occur. The Project Area is within the geographic and elevation range and the species is known to occur within 3 miles of the site; however, no perennial water or suitable aquatic habitat (perennial tanks) exists within the corridor. Given that the Project Area does not contain suitable aquatic habitat for this species, it is our opinion that the Project and associated construction activities will have no impact on the lowland leopard frog or its habitat. This species is not considered further in this BA&E.

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Mapleleaf false snapdragon *(Mabrya acerifolia)*	USFS-S, TNF-S	Rhyolite rock crevices and overhangs, on shaded cliffs and rock ledges, north to east facing canyon walls. Elevation range 1,800 – 3,350 ft.. (AGFD 2008b).	Potential for this species to occur. Suitable habitat is present for this species and the Project Area is within the known geographic range. This species is considered in greater detail in this BA&E.
Maricopa leaf-nosed snake (*Phyllorhynchus browni lucidus*)	TNF-S, USFS-S	This species is known to occur on the TNF. Found in upland rocky or sandy desert dominated by desertscrub including mesquite, saltbush, creosote bush, saguaro and palo verde between 1,000 and 3,000 ft. elevation (TNF 2000).	Potential for this species to occur. The species is known to occur within 3 miles of the Project Area. The Project Area is within the known geographic range and contains suitable habitat to support this species. This species is considered in greater detail in this BA&E.
Maricopa Tiger Beetle *(Cicindela oregona maricopa)*	SC, USFS-S	Most commonly on sandy stream banks and less commonly on gravels and clays along stream banks. May occur near seeps or reservoir banks. Substrate utilized by larval stages is a major factor determining presence, absence and abundance of this subspecies throughout its range. Substrate appears to be a sand/silt material capable of holding together around a burrow throughout larval stage development, and capable of retaining sufficient moisture to prevent larval desiccation and capable of being burrowed into by larval stages. Elevation range 1,092 - 6,940 ft.. (AGFD 2008b).	No reasonable potential to occur. The Project Area lacks suitable substrate to support this species. Given that the Project Area does not contain suitable habitat for this species, it is our opinion that the Project and associated construction activities will have no impact on the Maricopa tiger beetle or its habitat. This species is not considered further in this BA&E.
Mexican broomspurge *(Euphorbia gracillima)*	USFS-S	Sonoran desertscrub, altered soils, stream banks, stony desert pavement, and gravelly or rocky slopes, in relatively bare areas with shallow soils. Elevation range 2,200–2,910 ft.. Limited to areas west of Tucson in Pima County (AGFD 2008b).	No reasonable potential for this species to occur. Given that the Project Area is outside the reported geographic range for this species, it is our opinion that the Project and associated construction activities will have no impact on the Mexican broomspurge or its habitat. This species is not considered further in this BA&E.

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Mexican gartersnake (*Thamnophis eques megalops*)	SC, TNF-S, USFS-S, WSCA	This species is known to occur on the TNF. Associated with permanent streams, marshes, rich springs, and headwaters between 914 and 1,890 m (3,000 and 6,200 ft.) elevation in riparian habitat associations which include pine and oak woodlands, mesquite grasslands, with cottonwood and willow occurrences (TNF 2000).	No reasonable potential for this species to occur. Given that the Project Area is outside the geographic range and does not contain suitable habitat to support this species, it is our opinion that the Project and associated construction activities will have no impact on the Mexican gartersnake or its habitat. This species is not considered further in this BA&E.
Mock pennyroyal *(Hedeoma dentatum)*	USFS-S	Oak woodland, oak-pine forest, pine forest, open roadcuts, steep rocky outcrops, and gravelly slopes in wooded canyons. Elevation range 3,850–8,200 ft.. (AGFD 2008b).	No reasonable potential for this species to occur. Given that the Project Area does not contain suitable woodland habitat and is below the elevation range for this species, it is our opinion that the Project and associated construction activities will have no impact on the mock pennyroyal or its habitat. This species is not considered further in this BA&E.
Mogollon fleabane *(Erigeron anchana)*	SC, USFS-S, TNF-S	Granite cliff faces, chaparral through pine forests, rock crevices or ledges on boulders and vertical rock faces, usually in canyons. Elevation range 3,500-7,000 ft.. (TNF 2000).	No reasonable potential for this species to occur. Given that the Project Area does not contain suitable habitat and is below the elevation range for this species, it is our opinion that the Project and associated construction activities will have no impact on the Mogollon fleabane or its habitat. This species is not considered further in this BA&E.
Mt. Dellenbaugh sandwort *(Arenaria aberrans)*	TNF-S, USFS-S	This species is known to occur on the TNF. The species is known to occur in north and north-central Arizona in Coconino, Mohave, and Yavapai Counties – possibly Gila County The species is found mainly in oak and pine forests, often in open pine and pine-pinyon woodlands, and among junipers between 5,500 and 9,000 ft.. (AGFD 2008b).	No reasonable potential for this species to occur. Given that the Project area is below the elevation range, outside the known geographic range, and does not contain suitable woodland habitat, it is our opinion that the Project and associated construction activities will have no impact on the Mt. Dellenbaugh or its habitat. This species is not considered further in this BA&E.
Narrow-headed gartersnake (*Thamnophis rufipunctatus*)	SC, TNF-S, USFS-S, WSCA	This species is known to occur on the TNF. It is restricted to aquatic habitat in montane and immediately adjacent regions between 3,000 and 8,000 ft. elevation. It generally occurs in shallow, swift.-moving, rocky rivers and streams with headwaters along the Mogollon Rim (TNF 2000).	No reasonable potential for this species to occur. Given that the Project Area is below the elevation range and does not contain suitable aquatic habitat, it is our opinion that the Project and associated construction activities will have no impact on the narrow-headed gartersnake or its habitat. This species is not considered further in this BA&E.

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Needle-spined pineapple cactus *(Echinomastus erectocentrus* var. *erectocentrus)*	SC, USFS-S	Sonoran desertscrub or semidesert grassland, light-colored gravel on gentle slopes, hills and alluvial fans. Elevation range 2,850–4,960 ft.. Mainly south and east of Tucson (AGFD 2008b).	No reasonable potential for this species to occur. Given that the Project Area is below the elevation range and outside the known geographic range for this species, it is our opinion that the Project and associated construction activities will have no impact on the needle-spined pineapple cactus or its habitat. This species is not considered further in this BA&E.
Netwinged midge (*Agathon arizonicus*)	TNF-S, USFS-S	This species is known to occur on the TNF. It requires swift.-moving streams typically with waterfalls that support larvae. Adults do not leave the riparian corridors. The only known TNF site is at Workman Creek (TNF 2000).	No potential for occurrence. Given that the Project Area is outside the recorded geographic range and lacks aquatic habitat to support this species, it is our opinion that the Project and associated construction activities will have no impact on netwinged midge or its habitat. This species is not considered further in this BA&E.
Northern goshawk *(Accipiter gentilis)*	TNF-S, USFS-S, WSCA, MIS	This species is known to occur on the TNF. Known habitat requirements for the goshawk consist primarily of ponderosa pine, mixed-species forest, spruce-fir woodlands, and some riparian areas. Elevation range is between 4,750 and 9,120 ft. (AGFD 2008b).	No reasonable potential for this species to occur. Given that the Project Area is below the known elevation range and lacks suitable riparian or woodland habitat to support this species, it is our opinion that the Project and associated construction activities will have no impact on northern goshawk or its habitat. This species is not considered further in this BA&E.
Northern Gray Hawk *(Asturina nitidus maxima)*	SC, USFS-S, TNF-S, WSCA	Perennial and intermittent drainages with tall groves of Fremont cottonwood and Goodding willow, typically with adjacent stands of velvet mesquite (TNF 2000).	No reasonable potential for this species to occur. Although it is possible that the bird may fly over the Project Area, the site lacks suitable aquatic habitat. Given that the Project Area lacks suitable riparian habitat to support this species, it is our opinion that the Project and associated construction activities will have no impact on northern gray hawk or its habitat. This species is not considered further in this BA&E.
Northern leopard frog *(Rana pipiens)*	USFS-S, TNF-S, WSCA	This species is found in a variety of habitats, including grassland, woodland, brush land, and forested mountain ranges near a permanent surface water source (pond, marsh, spring, or stream) and aquatic vegetation. May forage far from water (Brennan and Holycross 2006). Elevation ranges from 0 to 11,000 ft. (AGFD 2008b).	No reasonable potential for this species to occur. Given that the Project Area lacks perennial surface flows or aquatic vegetation to support this species, it is our opinion that the Project and associated construction activities will have no impact on northern leopard frog or its habitat. This species is not considered further in this BA&E.

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Species	**Status**	**Known Distribution and Habitat Needs**	**Likelihood of Occurrence in the Project Area**
Pale Townsend's big-eared bat (*Plecotus townsendii*)	SC, TNF-S, HP	This species is known to occur on the TNF. This species ranges throughout western North America down to southern Mexico. In Arizona this bat prefers caves and old mine workings, and population concentrations have been located around substantial areas of cavity forming rocks in old mining districts. However, this species is known to occur in a wide range of biotic communities. Elevation range is from 1,200 to 5,600 ft., but it is generally found around 3,000 ft.. (TNF 2000).	No reasonable potential for this species to occur. There are abandoned mine shafts and adits present in Superior. Although there is some potential for this species to forage for insects in the Project Area or vicinity, there is no suitable roosting habitat along the Project corridor. Given that the Project Area does not contain suitable roosting habitat for this species, it is our opinion that the Project and associated construction activities will have no impact on the Pale Townsend's big-eared bat or its habitat. This species is not considered further in this BA&E.
Parker's cylloepus riffle beetle (*Cylloepus parkeri*)	SC, TNF-S, USFS-S	This species is known to occur on the TNF. It is associated with stream riffles and is only known from Roundtree Canyon on the TNF (TNF 2000).	No potential for occurrence. Given that the Project Area is outside the known geographic range and lacks aquatic habitat to support this species, it is our opinion that the Project and associated construction activities will have no impact on the Parker's cylloepus riffle beetle or its habitat. This species is not considered further in this BA&E.
Pima Indian mallow *(Abutilon parishii)*	SC, USFS-S, TNF-S	Higher elevation Sonoran desertscrub. Rocky hillsides, cliff bases, canyon bottoms, lower side slopes and ledges of canyons among rocks and boulders. Elevation range 1,720–4,900 ft.. There are known occurrences of this species in the Superstition Mountains (AGFD 2008b).	Potential for this species to occur. The Project Area contains suitable habitat and is within the known geographic and elevation range for the species. This species is considered in greater detail in this BA&E.
Pocketed free-tailed bat *(Nyctinomops femorosaccus)*	TNF-S	This species is known to occur on the TNF. This species is found in arid lower elevations (190 to 7,520 ft.) usually near high cliffs and rugged outcrops. Habitat is wide-ranging, including desert shrub and pine-oak forests. Forage consists of a variety of insects such as large moths, flying ants, and crickets (AGFD 2008b).	No reasonable potential for this species to occur. There are nearby cliffs that may provide suitable roosting habitat and this species is known to occur within 3-miles of the Project Area. Although there is some potential for this species to forage for insects in the Project Area or vicinity, there is no suitable roosting or woodland habitat in the Project Area. Given that the Project Area does not contain suitable habitat for this species, it is our opinion that the Project and associated construction activities will have no impact on the pocketed free-tailed bat or its habitat. This species is not considered further in this BA&E.

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Species	**Status**	**Known Distribution and Habitat Needs**	**Likelihood of Occurrence in the Project Area**
Red-back whiptail *(Aspidoscelis burti xanthonota)*	SC, USFS-S	This species is known to occur in mountainous areas in juniper-oak woodlands, to Arizona Upland desertscrub near permanent streams or arroyos. Elevation range 1,070-3,500 ft. (AGFD 2008b).	No reasonable potential for this species to occur. Given that the Project Area is outside the known geographic area and does not contain suitable woodland or aquatic habitat to support this species, it is our opinion that the Project and associated construction activities will have no impact on the red-back whiptail or its habitat. This species is not considered further in this BA&E.
Ripley wild buckwheat *(Eriogonum ripleyi)*	TNF-S, USFS-S	This species is known to occur on the TNF. The species grows in Tertiary lakebeds on well-drained powdery soils derived from limestone, sandstone, or volcanic tuffs and ashes between 2,000 and 6,000 ft. elevation (AGFD 2008b).	No reasonable potential for this species to occur. Given that the Project Area does not contain suitable substrate to support this species, it is our opinion that the Project and associated construction activities will have no impact on the Ripley wild buckwheat or its habitat. This species is not considered further in this BA&E.
Rocky mountain bighorn sheep *(Ovis canadensis canadensis)*	TNF-S	This species prefers the precipitous, rocky desert ranges in Arizona. The mountains they occupy are of broken rock, scarred with numerous gullies. Bighorns inhabit rugged cliffs and crags or other extremely rocky areas adjacent to suitable feeding sites, which include grass as well as forbs. Elevation can vary from 3,000 to 12,000 ft. (BISON-M 2008).	No reasonable potential for this species to occur. Given that the Project Area lacks suitable habitat for this species and is below the elevation range, it is our opinion that the Project and associated construction activities will have no impact on the rocky mountain bighorn sheep or its habitat. This species is not considered further in this BA&E.
Roundtail chub (*Gila robusta*)	SC, TNF-S, USFS-S, WSCA	This species is known to occur on the TNF. It occupies cool to warm water, mid-elevation streams and rivers where typical adult microhabitat consists of pools 8 ft. deep adjacent to swifter riffles and runs. Cover is usually present as large boulders, tree rootwads, submerged large trees and branches, undercut cliff walls, or deep water (TNF 2000).	No potential for this species to occur. Given that the Project Area lacks suitable aquatic habitat to support this species, it is our opinion that the Project and associated construction activities will have no impact on the roundtail chub or its habitat. This species is not considered further in this BA&E.
Sonoran desert tortoise (*Gopherus agassizii*)	SC, TNF-S, USFS-S, WSCA	This species is known to occur on the TNF. Normal distribution is at elevations below 4,000 ft. in desert rocky foothills, lower bajadas and semi-desert grassland (TNF 2000).	Potential for this species to occur. This species is known to occur within 3 miles of the site and the Project Area contains suitable habitat to support the species. Scutes from tortoise were found in the Project Area during the site visit. This species is considered in greater detail in this BA&E

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Species	**Status**	**Known Distribution and Habitat Needs**	**Likelihood of Occurrence in the Project Area**
Sonora sucker (*Catostomus insignis*)	SC, TNF-S	This species is known to occur on the TNF. Characteristic of gravelly or rocky pools of creeks and rivers in a variety of habitats from warm rivers to trout streams. Individuals are sedentary, exhibiting little seasonal movement and resisting downstream displacement during floods (TNF 2000).	No potential for this species to occur. Given that the Project Area lacks suitable aquatic habitat to support this species, it is our opinion that the Project and associated construction activities will have no impact on the Sonora sucker or its habitat. This species is not considered further in this BA&E.
Spotted bat (*Euderma maculatum*)	SC, TNF-S, WSCA, HP	Historically, this bat was widely distributed throughout the western United States, northern Mexico, and into Canada. Habitat requirements are not well documented, but these bats appear to roost singly in cracks and crevices on rocky cliffs near surface water. Forage consists of a variety of insects such as moths, beetles, and grasshoppers (TNF 2000).	No reasonable potential for this species to occur. There are nearby cliffs that may provide suitable roosting habitat. Although there is some potential for this species fly over the site or forage for insects in the Project Area or vicinity, there is no suitable roosting habitat in the Project corridor. Given that the Project Area does not contain suitable roosting habitat for this species, it is our opinion that the Project and associated construction activities will have no impact on the spotted bat or its habitat. This species is not considered further in this BA&E.
Tonto Basin agave *(Agave delamateri)*	TNF-S, USFS- S	This species is known to occur on the TNF. The species is usually found in close proximity to major drainage systems on open hilly slopes in the Arizona upland subdivision of the Sonoran Desert between 2,350 and 5,100 ft.. elevation. The greatest concentration of species occurs along the south end of Tonto Creek near Roosevelt Lake in the Tonto Basin, between the Sierra Ancha and Mazatzal Mountains. Less than 100 specimens are known to exist in the wild and all are in direct or indirect association with Mogollon or Salado (pre-Columbian) agricultural and settlement features, suggesting cultivation by pre-Columbian people (AGFD 2008b).	No reasonable potential for this species to occur. Given that the Project Area is outside the known geographic range for this species, it is our opinion that the Project and associated construction activities will have no impact on the Tonto Basin agave or its habitat. This species is not considered further in this BA&E.

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Toumey groundsel *(Packera neomexicana* var. *toumeyi* aka *Senecio n.* var. *t.)*	TNF-S	This species is known to occur on the TNF. This perennial herb is generally found at higher elevations between 3,000 and 9,000 ft. in the Chiricahua, Huachuca, and Pinal mountains in Cochise County. It is typically found in rocky soil in oak chaparral and sometimes pine forest (AGFD 2008b).	No reasonable potential for this species to occur. Given that the Project Area is outside the known geographic and elevation range for this species and does not contain suitable habitat to support the species, it is our opinion that the Project and associated construction activities will have no impact on the Toumey groundsel or its habitat. This species is not considered further in this BA&E.
Tumamoc globeberry *(Tumamoca macdougalii)*	USFS-S	Sonoran desertscrub, sandy washes of hills and valleys, xeric conditions. This species is known to occur in extreme southern Pinal and Maricopa Counties and is widespread in Pima County. Elevation range below 3,000 ft. (AGFD 2008b).	No reasonable potential for this species to occur. Given that the Project Area is outside the known geographic range for this species, it is our opinion that the Project and associated construction activities will have no impact on the Tumamoc globeberry or its habitat. This species is not considered further in this BA&E.
Western barking frog *(Eleutherodactylus augusti cactorum)*	USFS-S, TNF-S, WSCA	This species is known to occur on the TNF. Habitat consists of limestone, rhyolite, granite, or rock outcrops of canyons within evergreen woodlands. Elevation is from 4,200 to 6,200 ft.. This species does not require a permanent water source (AGFD 2008b).	No reasonable potential for this species to occur. Given that the Project Area is below the elevation range for this species and does not contain suitable substrate and habitat to support the species, it is our opinion that the Project and associated construction activities will have no impact on the western barking frog or its habitat. This species is not considered further in this BA&E.
Western red bat *(Lasiurus blossevillii)*	TNF-S WSCA, H, HP	Poorly known in Arizona, this species appears to be a summer resident only, occurring primarily along riparian corridors in the central and southeastern part of the state. In Arizona, the western red bat has been collected over ponds or along waterways among oaks, sycamores, and walnuts in the Huachuca and Graham Mountains, among cottonwoods along Bright Angel Creek near the Colorado River, and within the pine-fir forest of the Sierra Anchas. It typically roosts singly in the foliage of broad-leafed trees (TNF 2000).	No reasonable potential for this species to occur. This species is known to occur within 3 miles of the Project Area and it is possible that the bat could fly over the site; however, the closest suitable habitat is the Queen Creek riparian area, located outside of the Project Area. Given that the Project Area lacks suitable roosting or riparian habitat to support this species, it is our opinion that the Project and associated construction activities will have no impact on the western red bat or its habitat. This species is not considered further in this BA&E.

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Western black kingsnake *(Lampropeltis getula nigrita)*	USFS-S	This species is known to occur in semi-desert grassland habitat in rock outcrops, rodent burrows, under vegetative cover or under surface cover in low elevation desert areas (AGFD 2008b).	No reasonable potential for this species to occur. Given that the Project Area is outside the normal geographic range for this species, it is our opinion that the Project and associated construction activities will have no impact on the western black kingsnake or its habitat. This species is not considered further in this BA&E.
White-nosed coati *(Nasua narica)*	TNF-S	Coatis in Arizona inhabit woodlands of the lower canyons of the southeastern mountains, with prevalent vegetation consisting of oaks, sycamores, and walnuts. Sometimes they live in canyons with a mixture of oaks and pines, shrubby woodland, or grassland and shrubs. They are usually found near streams or creeks or some source of water. Coatis probably live in natural retreats such as rock crevices, cavities among tree roots, and caves or mines. Although they are not desert animals, coatis may move into and through desertscrub when going from one place to another (BISON-M 2008).	Some potential for this species to occur. Although this species may pass through the Project Area in transit, the alignment does not contain suitable riparian woodland habitat to support this species. Given that the Project Area is outside the normal range and lacks a perennial water source and suitable woodland habitat, it is our opinion that the Project and associated construction activities will have no impact on the white-nosed coati or its habitat. This species is not considered further in this BA&E.
Zone-tailed hawk *(Buteo albonotatus)*	TNF-S	Zone-tailed hawks occur in canyons in pine-oak, evergreen, and riparian woodlands at lower (2800 - 5500 ft.) to middle (5000 - 7500 ft.) elevations (BISON-M 2008)..	No reasonable potential for this species to occur. Given that the Project Area is below the normal elevation range and lacks suitable riparian woodland habitat to support this species, it is our opinion that the Project and associated construction activities will have no impact on the zone-tailed hawk or its habitat. This species is not considered further in this BA&E.

Unless otherwise referenced, species information for the screening analysis was obtained from the following sources: **USFWS (2008); TNF (2000); AGFD (2008b); SEINet (2008); ARPC (2001); Kearney and Peebles (1960); NatureServe (2008); Brennan and Holycross (2006); Stebbins (2003); Corman and Wise-Gervais (2005); BISON-M (2008); Hoffmeister (1986); Cockrum (1991)**

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WSCA = Wildlife of Special Concern in Arizona, AZ Game and Fish Department Heritage Data Management System (2/19/2008)
HS = Arizona Highly Safeguarded plant species: no collection allowed
HP = High Priority Species; Western Bat Species Regional Priority Matrix
MIS = Tonto National Forest Management Indicator Species
H = Historically known from the Tonto
CH = Critical Habitat designated on the Tonto
ENE = Reintroduction populations designated as experimental-nonessential, under ESA