BIOLOGICAL ASSESSMENT

of the
Effects to Federally Endangered Species and Wildlife of Special Concern in Arizona from Removal of Sonoran Desertscrub Habitat and Construction of a Raw Water Pump Station and Associated Conveyance Pipeline in
Maricopa County, Arizona

Prepared for:

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BIOLOGICAL ASSESSMENT

1. Project Name/Activity:

The project name is the City of Phoenix raw water pump station and associated water conveyance pipeline.

2. Activity Location:

The approximately 7-acre project area lies about 30 miles north of Phoenix, approximately 1 mile east of the Agua Fria River and 0.50 miles south of the new Waddel Dam (Figure 1 – Project Location and Figure 2 – Project Vicinity). The project area is bounded on the west by the Waddell Canal and by State Route (SR) 74, approximately 800 feet to the south. The raw water pumping station lies in the southwestern comer of Section 28, Township 6 North, Range 1 East in Maricopa County, Arizona.. Lands adjoining the project area are owned by the Central Arizona Project.

An associated 150-foot wide, 7,500-foot long water conveyance pipeline corridor connects the raw water pumping station to a water treatment facility approximately 1 mile southeast of the pump station. The pipeline corridor begins. in the southwest comer of Section 28, traverses east approximately 2,500 feet, turns southward approximately 2,750 feet into the northeast corner of Section 33. From this point, the pipeline turns eastward approximately 2,250 feet and joins the water treatment facility site in the northwest comer of Section 34, Township 6 North, Range 1 East.

3. Proposed Activity:

The City of Phoenix proposes to construct a raw water pump station and associated 90-inch diameter conveyance pipeline as part of a new water treatment plant project serving the northern areas of Phoenix. The pump station and pipeline will transport water from the Waddell Canal to a proposed water treatment facility. The first phase of the water treatment project is planned to be operational in 2004.

Project construction will result in removal of Sonoran Desertscrub vegetation on the proposed pumping site and pipeline corridor. Excavation and ground surface leveling will occur as necessary to allow construction of pumping facilities and placement of the subsurface pipeline. Selected native trees and saguaros will be transplanted to outside the project boundaries (i.e., pipeline corridor) prior to construction.

4. Species Identification:

The U. S. Fish and Wildlife Service (USFWS) Threatened, Endangered, Proposed, and Candidate Species list for Maricopa County was reviewed to determine which listed species may occur in the project area. In addition, the Arizona Game and Fish (AGFD) list of Wildlife of

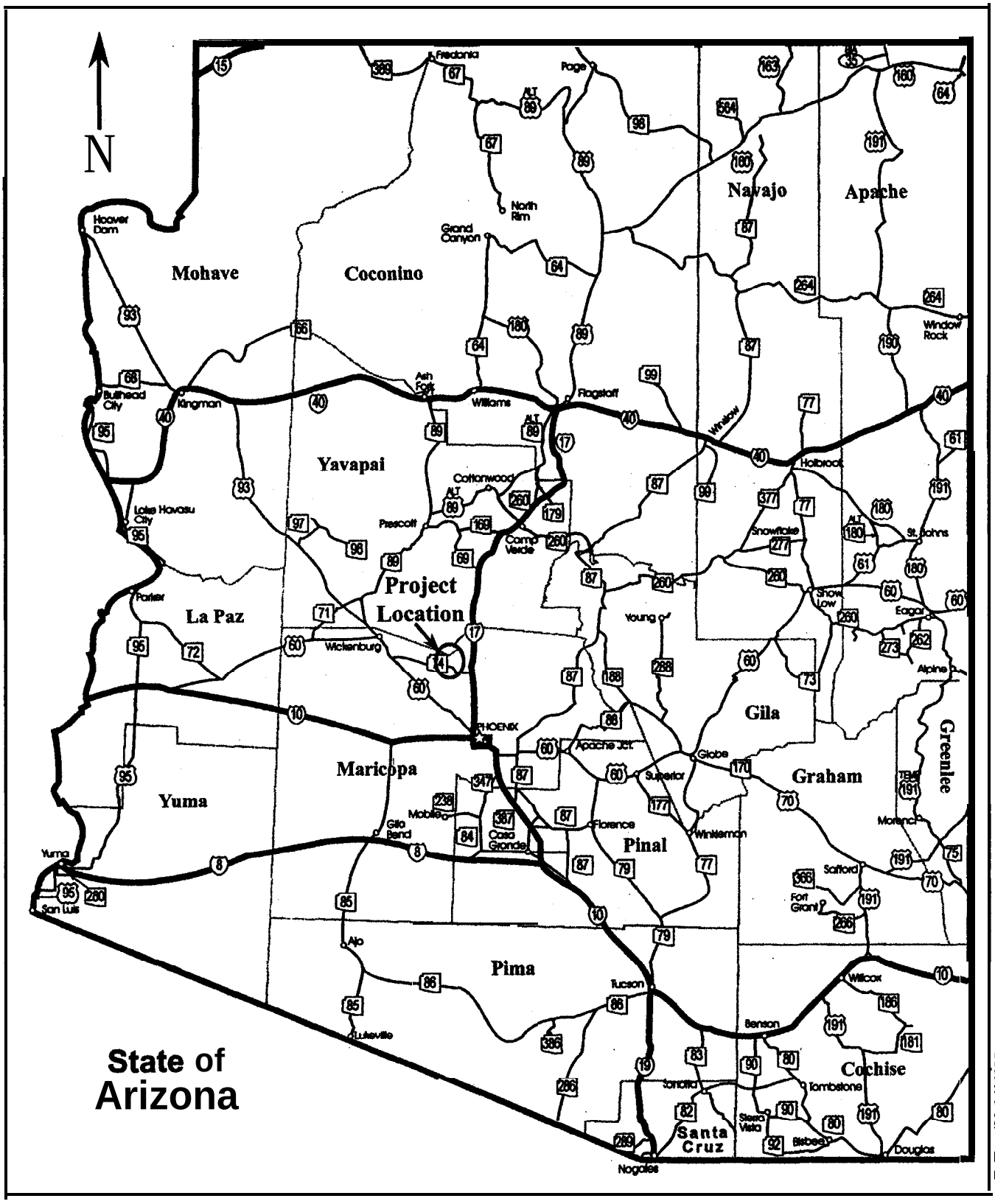

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Figure 1. Project Location, Proposed Raw Water Pumping Station and Associated Conveyance Pipeline, Maricopa County, Arizona.

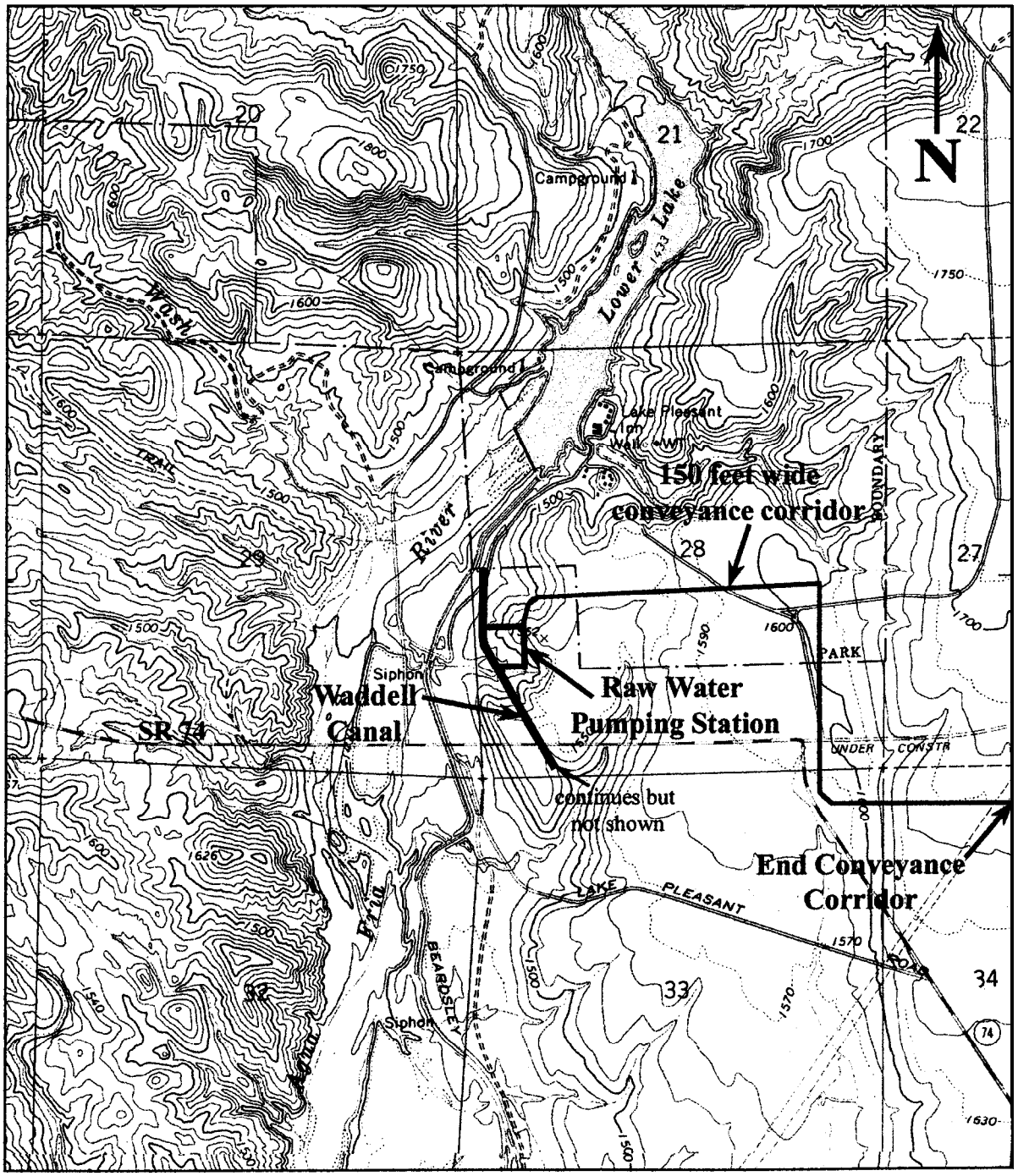

Figure 2. Project Vicinity, Proposed Raw Water Pumping Station and Associated Conveyance Pipeline, Maricopa County, Arizona. Baldy Mtn. USGS 7.5 min. Quad. Scale 1:24,000. Roads and Waddell Dam not Accurately Depicted.

Special Concern in Arizona (WSCA) was also reviewed. The following species may occur in the project area and vicinity.

Common Name	Scientific Name	Status
Lesser long-nosed bat	*Leptonycteris curasoae verbabuenae*	Endangered
Cactus Ferruginous Pygmy-Owl	*Glaucidium brasilianum cactorum*	Endangered
Desert tortoise	*Gopherus agassizii*	WSCA

The USFWS list for Maricopa County also includes the Sonoran pronghorn, Bald Eagle, Mexican Spotted Owl, Southwestern Willow Flycatcher, Yuma Clapper Rail, desert pupfish, Gila topminnow, razorback sucker, Arizona agave, Arizona cliffrose, and Arizona hedgehog cactus. These species have not been recorded in the project vicinity and/or require specific habitat not present in the project area and, therefore, were not evaluated.

5. Critical Habitat in Activity Area:

No designated or proposed Critical Habitat exists within the proposed project area:

6. Species Evaluation and Determination of Effect:

Habitat Present

The raw water pumping station project area lies approximately 1,590 feet above mean sea level on a flat-topped bluff 190 feet above the floodplain of the Agua Fria River. Soils are alluvial fill with surface cobbles-and larger rocks of volcanic origin. No drainages occur on the pumping station project area. The vegetation community is part of the Arizona Upland Subdivision of Sonoran Desertscrub dominated by the creosote bush and triangle-leaf bursage (Turner and Brown 1994). Much of the proposed pumping station project area was bladed in the past and has since revegetated. Dominant plants found within the project area include foothill paloverde, mesquite, brittlebush, creosotebush, and triangle-leaf bursage.

The proposed pipeline corridor crosses a range of habitat conditions including highly disturbed soils and vegetation communities associated with the pumping station, Pleasant Harbor Road crossing, and gasline and overhead powerline utility corridors. Disturbed soils are those that have been recently or historically bladed resulting in substantial vegetation removal, and/or lie adjacent to road crossings and subjected to periodic maintenance activities. Disturbed soils along the corridor represent approximately 60 percent of the total area. Approximately 40 percent of the total corridor area is comprised of undisturbed, natural habitat conditions. Vegetation of the undisturbed portions of the pipeline is dominated by foothill paloverde, mesquite, saguaro, brittlebush, creosotebush, and triangle-leaf bursage.

The pipeline corridor intersects several ephemeral, natural and man-made drainages. **NO** wetlands or perennial surface waters are present either on the pumping station site or pipeline corridor portions of this project.

See Tables 1 and 2 at the end of this report for lists of plants and animals observed within or in the vicinity of the project area.

EcoPlan biologists Thomas C. Ashbeck and Lauralyn K. Jensen conducted a 100 percent pedestrian survey of the project area and the near project vicinity on July 18 and 19, 2000.

The following species evaluation is based on the field survey and habitat present in the project area and vicinity.

Lesser Long-nosed Bat

The lesser long-nosed bat is one of four Phyllostomid bats ranging into the United States. Adult bats are gray to reddish brown. The lesser long-nosed bat, with a wingspan to 14 inches, is a relatively large nectar and pollen-feeding bat. Relying mainly on its sense of smell, it has a relatively long rostrum with a triangular nose-leaf at the end, small non-specialized ears, and no tail. The species does not hibernate, so it is dependent on the flowering cycles of the columnar cactus and agave species on which it feeds (Hoffmeister 1986). It winters in Mexico and Central America and extends its range into southern Arizona from mid-April to early October (USFWS 1993). The species roosts in caves, mineshafts and tunnels. Females form maternity colonies where they rear their young between May and July. Males form separate roosting colonies. Once the young are self sufficient, the maternity colonies disperse and expand their range to take advantage of summer flowering agaves at higher elevations. Lesser long-nosed bats are known to travel large distances (20 to 35 miles) from their roosting sites to feeding areas (USFWS 1993). The species has been recorded in Arizona as far north as Phoenix, and is restricted to saguaro-dominated desert of south central Arizona and the agave rich grasslands of southeastern Arizona (Hoffmeister 1986). A recent unconfirmed sighting of a lesser long-nosed bat occurred in the McDowell Mountains near northeast Phoenix in 1992 (Tim Snow, AGFD, pers. comm.)

The presence of saguaro in the project area, flowering in May to early June, provide a potential food source to this species during these months. Additional food sources in the form of agaves are not present in the project area. Following the saguaro flowering period, lesser long-nose bats would be expected to leave the project vicinity for areas where agaves are more abundant. Saguaros will be transplanted outside the area affected by the proposed activity, which will maintain the presence of this potential food source. Caves and abandoned mines suitable as roost sites may be present in the general project vicinity, but will not be affected by project activities. The proposed project will not affect the lesser long-nosed bat.

Cactus Ferrupinous Pygmy-owl

The Cactus Ferruginous Pygmy-owl (CFPO) is a small owl, 6.5 to 7.0 inches long, with a long, rufous colored tail accented by dark barring (Udvardy 1977). The range of the CFPO extends from south-central Arizona, south through western Mexico, and from southern Texas south through northeastern Mexico (USFWS 199.1). In Arizona, the CFPO was historically abundant in mesquite-cottonwood woodlands, which provided abundant nesting cavities and prey base along the lower Salt, Verde, Gila, San Pedro, and Santa Cruz rivers and their tributaries.

Much of Arizona's riparian broadleaf habitat has been destroyed or severely altered, which may have resulted in local population declines and extirpation in some areas. The CFPO also occurs in Sonoran desertscrub associations in southern and southwestern Arizona, comprised of mesquite *(Prosopis velutina),* ironwood *(Olneya tesota),* paloverde *(Cercidium* spp.), acacia *(Acacia* spp.), bursage *(Ambrosia* spp.), saguaro *(Carnegiea gigantea)* and organpipe cactus

(Stenocereus thurberi) (Phillips et al. 1964). Their occurrence in this vegetation type has been uncommon and unpredictable. CFPOs are more predictably found in xeroriparian habitats comprised of very dense desertscrub thickets bordering dry desert washes than more open uplands (USFWS 1994). Xeroriparian and adjacent scrub habitat provide nesting cavities and a high diversity of wildlife species supplies a prey base for this species.

The northern-most record for the CFPO in Arizona is from New River (Phillips et. al. 1964, USFWS 1993b, 1994). Pygmy-owls were collected and observed numerous times in Maricopa County prior to 1908 (SWCA 1998). It is likely all were encountered along riparian habitats of the Salt and Gila rivers. The most recent record of CFPO closest to the project area occurred in 1971 near the Verde River and Salt River confluence (Millsap and Johnson 1986). Johnson and Haight (1998) surveyed this location and vicinity in 1998 and did not detect any Pygmy-owls.

The decline in range and abundance of the CFPO led to its classification of candidate category 2 species by the USFWS in 1989. The USFWS upgraded this species classification to candidate Category 1 in 199 1 after further evaluation (USFWS 1991). In 1994, the USFWS proposed listing the owl as endangered, however, a moratorium on listing species stopped the process (USFWS 1994). The CFPO was listed as endangered in 1997 after the moratorium expired in 1996 (USFWS 1997). Critical habitat for the species was determined (USFWS 1998) and encompasses nearly contiguous areas including Semidesert Grassland habitat in the Altar Valley in southern Pima County, paloverde – saguaro dominated Arizona Upland Subdivision of Sonoran Desertscrub northwest of Tucson, and desert riparian habitats along the San Pedro and Gila rivers, extending into eastern Maricopa County. No critical habitat exists in the project area.

Formal surveys for CFPOs in Arizona began in 1991 and have continued (Lesh and Corman 1995). The majority of surveys, since 1993 have been conducted by the AGFD, which found CFPOs in xeroriparian habitat in Sonoran Desertscrub at two locations in Organ Pipe Cactus National Monument during the period 1993 to 1995. In 1996, the AGFD conducted surveys in the Tucson Area. A total of 41 CFPO detections were made in survey areas within the northwestern Tucson basin including Sonoran Desertscrub habitat south of the Tortolita Mountains. These detections suggested that an estimated 14 birds were present, including a nesting pair. Surveys were conducted between January and June and indicated a peak of activity in the months of February, March and April. CFPOs were most often detected in the morning from one hour before sunrise to two hours after. Approximately half as many detections were recorded in the evening from one to two hours before sunset to two hours after. Although survey times were often extended earlier and later than these time periods, no detections were made at other times.

CFPOs were most often encountered along or within 100 feet of desert riparian areas. All detections were made in paloverde-cacti mixed scrub series of the Arizona Upland subdivision of Sonoran Desertscrub as defined by Turner and Brown (1994). CFPOs were often detected in saguaros and tree species including foothill paloverde, ironwood and velvet mesquite. In addition, CFPOs were often detected in close proximity to residences suggesting the species is tolerant of human activity and low density housing (Abbate et al, 1996).

Recently, extensive CFPO surveys were conducted on the Tonto National Forest in northern Maricopa County to within 20 miles east of the project area. No CFPO detections were made (Johnson and Haight 1998). In addition, a review of a recent summary of all CFPO surveys in Arizona indicate that this species is not likely to be present within the immediate vicinity of the project area (SWCA 1998).

The basic habitat requirements (e.i., plant species) for the CFPO within paloverde-cacti mixed scrub series of the Arizona Upland subdivision of Sonoran Desertscrub are present in the project area (e.g., saguaro, ironwood, and mesquite). Of the trees present, none are greater than 6 inches in diameter at breast height – the size at which nesting cavities for CFPOs are possible (AGFD and USFWS 2000). The project area is not characterized by braided wash systems and well structured vegetation which defines typical CFPO habitat (AGFD and USFWS 2000).

Three large saguaros are present within the proposed pumping station boundaries and, although widely scattered, large saguaros are also present immediately north of the boundary and within the proposed pipeline corridor. Saguaros equal or greater than 8 feet in height may provide nesting opportunities for CFPOs; however, no CFPO surveys were conducted because the project area lies outside AGFD and USFWS recommended survey zones (Zone 1 – areas within the current range of the CFPO with a high potential for occupancy; Zone 2 – areas within the current range of the CFPO with a moderate potential for occupancy; and Zone 3 – areas within the historic range of the CFPO with a low potential of occupancy (AGFD and USFWS 2000)). The project area occurs within a region of Sonoran desertscrub absent of historic records of occurrence and presumed to be outside the past and present range of this species.

Saguaros falling within the disturbance area of the pumping station and conveyance pipeline will be moved and transplanted outside the project area, thus preserving the present level of nesting opportunities for CFPO. The proposed project will not affect the Cactus Ferruginous Pygmy-owl because the project area lies outside the current range of the CFPO and future nesting opportunities will be preserved.

Desert Tortoise

The Sonoran Desert population of the desert tortoise is usually associated with rolling often rocky terrain in the foothills of and within desert mountain ranges, where the relief is apt to provide naturally occurring shelter sites (Barrett 1990; Fritts and Jennings 1994; Germano et al. 1994). In their distribution map for the species, Germano, et al. (1994) include virtually all hilly to mountainous Arizona Upland habitat, excluding the intermontane valleys in the region as desert tortoise habitat.

Sonoran Desert tortoises most often utilize, and modify for their use, natural shelter sites. Such sites include caliche bank holes along arroyos, rock crevices, spaces under and among boulder piles (Germano et al. 1994; Martin 1995), debris piles created by woodrats *(Neotoma* spp.) (Bailey 1992; Martin 1995) and thick vegetation (Bailey 1992; Martin 1995; Vaughan 1984). Sonoran Desert tortoises will also dig soil burrows to provide additional shelter sites (Bailey 1992; Fritts and Jennings 1994).

It is likely that desert tortoises occur in the general project vicinity. The terrain transitions to rolling and low mountainous topography within 3 to 5 miles to the north and west of the project area, promoting the formation of natural shelter sites in arroyo banks and rock piles. The pumping station lies on a bluff east of the Agua Fria River immediately above the Waddell Canal, a significant barrier to tortoise migration from the west. In addition, Lake Pleasant lying 0.5 miles to the north may also prevent tortoise migration. The conveyance pipeline lies on nearly flat terrain to the east of the pumping station. The minor desert arroyos in the area are shallow and do not promote the formation of natural shelter sites. Soils are shallow and underlain by a layer of frequently emergent caliche hardpan, which does not favor tortoise burrowing. The presence of impermeable soils suggests that resident tortoises are not present along the pipeline, east of the pumping station. In addition, no boulders or boulder piles that may provide shelter sites, are present. No tortoises or evidence of their presence in the area (i.e., scat, scutes, or skeletons) were observed during surveys of the project area.

Due to the existing habitat and migration barriers resulting from adjacent infrastructure, it is unlikely desert tortoises live in the area or-travel through the project area from more favorable habitat while foraging. The project will not affect the desert tortoise.

7. Coordination:

The following persons contributed information used in the preparation of this document.

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Madeline F. Goddard, P.E., City of Phoenix Water Services Department
R. Blane Work, Environmental Engineer, City of Phoenix.
Tim Snow, Biologist, Arizona Game and Fish Department

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9. Signatures:

PREPARER: I prepared this Biological Assessment.

Thomas C. Ashbeck 8-9-00

Thomas C. Ashbeck, Project Biologist — Date
EcoPlan Associates, Inc.

10. Additional Information:

Complete field notes, supplementary photographs, and maps are available for the aforementioned survey in the project file at EcoPlan Associates, Inc., Mesa, Arizona.

This biological assessment was prepared by Thomas C. Ashbeck and Bruce Brown of EcoPlan Associates.

Cattle and feral burros appear to use the project area and vicinity on a regular basis.

Table 1. Vascular Plants Observed within or in the Vicinity of the City of Phoenix, Raw Water Pumping Station Project Area, Maricopa County, Arizona.

Scientific Name	Occurrence	Common Name
Acacia greggii	common	catclaw
Ambrosia deltoidea	dominant	triangleleaf bursage
Aristida ssp.	rare	three-awn
Atriplex canescens	rare	four-wing saltbrush
Baccharis sarothroides	rare	desert broom
Bromus rubens	common	red brome
Carnegiea gigantea	common	saguaro
Celtis pallida	common	desert hackberry
Cercidium floridum	r a r e	blue paloverde
Cercidium microphylum	common	foothill paloverde
Chilopsis linearis	uncommon	desert-willow
Encelia farinosa	common	brittlebush
Ephedra fasciculata	rare	Mormon tea
Erioneuron (Tridens) pulchellus	abundant	fluffgrass
Erodium cicutarium	common	filaree
Euphorbia melandenia	common	spurge
Hymenoclea salsola	uncommon	burrobrush
Isocoma (Applopapus) acradenius	common	Jimmy-weed
Larrea tridentata	dominant	creosote-bush
Plantago insularis	common	plantain
Prosopis velutina	common	velvet mesquite
Senna covesii (Cassia)	common	desert senna
Sphaeralcea coulteri	common	Coulter globe mallow

Table 2. Animals or Evidence of Their-Presence Observed in the Vicinity of the City of Phoenix, Raw Water Pumping Station Project Area, Maricopa County, Arizona.

Scientific Name	Evidence	Common Name
MAMMALS		
Ammospermophilus harrisii	seen	Harris' ground squirrel
Canis latrans	seen, tracks, droppings	coyote
Dipodomys deserti	mounds	desert kangaroo rat
Dipodomys merriami	mounds	Merriam's kangaroo rat
Equus asinus	seen, track, droppings	feral burro
Lepus californicus	seen	black-tailed jackrabbit
Neotoma albigula	nests	white-throated woodrat
Odocoileus hemionus crooki	shed antlers	desert mule deer
Perognathus spp.	seen	pocket mouse
Sylvilagus auduboni	seen	desert cottontail
Urocyon cinereoagenteus	tracks'	gray fox
BIRDS .		
Auriparus flaviceps	seen	Verdin
Calypte costae	seen	Costa's Hummingbird
Campylorhynchus brunneicapillus	seen	Cactus Wren
Chordeiles acutipennis	seen	Lesser Nighthawk
Colaptes chrysoides	seen	Roadrunner
Geococcyx californicus	seen	Gila Woodpecker
Lophortyx gambelii	seen	Gambel's Quail
Melanerpes uropygialis	seen	Gila Woodpecker
Parabuteo unicinctus	seen	Harris' Hawk
Phainopepla nitens	seen	Phainopepla
Picoides scalaris	seen	Ladder-backed Woodpecker
Polioptila melanura	seen	Black-tailed Gnatcatcher
Toxostoma curvirostra	seen	Curve-billed Thrasher
Zenaida asiatica	seen	White-winged Dove
Zenaida macroura	seen	Mourning Dove