INITIAL STUDY AND MITIGATED NEGATIVE DECLARATION/ ENVIRONMENTAL ASSESSMENT

Ramona Municipal Water District/Barona Indian Tribe Potable and Recycled Water Infrastructure Project

Prepared for:

Barona Band of Mission Indians
and
Ramona Municipal Water District

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Volume 2-A
Appendices

March 2025

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Appendix A

Construction Equipment Emissions Calculations

Ramona Municipal Water District/Barona Indian Tribe Potable and Recycled Water Infrastructure Project

Construction Equipment Emissions

			Equation Variables		Emissions				
Operation	Emission Factor	Units	1	2	PM-10 lbs/day	ROG/VOC lbs/day	CO lbs/day	NOX lbs/day	SOX lbs/day
Excavation Equipment Exhaust Emissions			Pieces of Equipment	Operating Hours					
PM-10									
Excavator	0.010	lbs/hr	1	8	0.08				
Dump Truck	0.008	lbs/hr	1	8	0.06				
Water Truck	0.008	lbs/hr	1	8	0.06				
Loader	0.014	lbs/hr	1	8	0.11				
Snopper Truck	0.008	lbs/hr	1	8	0.06				
Other Construction Equipment	0.008	lbs/hr	2	8	0.13				
ROG									
Excavator	0.059	lbs/hr	1	8		0.47			
Dump Truck	0.046	lbs/hr	1	8		0.37			
Water Truck	0.046	lbs/hr	1	8		0.37			
Loader	0.059	lbs/hr	1	8		0.47			
Snopper Truck	0.046	lbs/hr	1	8		0.37			
Other Construction Equipment	0.046	lbs/hr	2	8		0.74			
CO									
Excavator	0.509	lbs/hr	1	8			4.07		
Dump Truck	0.348	lbs/hr	1	8			2.78		
Water Truck	0.348	lbs/hr	1	8			2.78		
Loader	0.432	lbs/hr	1	8			3.46		
Snopper Truck	0.348	lbs/hr	1	8			2.78		
Other Construction Equipment	0.348	lbs/hr	2	8			5.56		
NOX									
Excavator	0.252	lbs/hr	1	8				2.02	
Dump Truck	0.224	lbs/hr	1	8				1.80	
Water Truck	0.224	lbs/hr	1	8				1.80	
Loader	0.313	lbs/hr	1	8				2.50	
Snopper Truck	0.224	lbs/hr	1	8				1.80	
Other Construction Equipment	0.224	lbs/hr	2	8				3.59	
SOX									
Excavator	0.001	lbs/hr	1	8					0.01
Dump Truck	0.001	lbs/hr	1	8					0.01
Water Truck	0.001	lbs/hr	1	8					0.01
Loader	0.001	lbs/hr	1	8					0.01
Snopper Truck	0.001	lbs/hr	1	8					0.00
Other Construction Equipment	0.001	lbs/hr	2	8					0.02
				Total	0.51	2.78	21.44	13.50	0.06

Sources: Off-Road Mobile Source Emission Factors; SCAQMD 2024

Ramona Municipal Water District/Barona Indian Tribe Potable and Recycled Water Infrastructure Project

GHG-Construction Equipment Emissions

Operation	Emission Factor	Units	Equation Variables 1	Equation Variables 2	GHG Emissions CO2 lbs/day	GHG Emissions CH4 lbs/day	GHG Emissions N2O g/day
Excavation Equipment Exhaust Emissions			Pieces of Equipment	Operating Hours			
CO2							
Excavator	120.0	lbs/hr	1	8	960.0		
Dump Truck	123.0	lbs/hr	1	8	984.0		
Water Truck	123.0	lbs/hr	2	8	1968.0		
Loader	109.0	lbs/hr	1	8	872.0		
Snopper Truck	123.0	lbs/hr	1	8	984.0		
Other Construction Equipment	123.0	lbs/hr	1	8	984.0		
CH4							
Excavator	0.005	lbs/hr	1	8		0.042	
Dump Truck	0.004	lbs/hr	1	8		0.034	
Water Truck	0.004	lbs/hr	2	8		0.067	
Loader	0.005	lbs/hr	1	8		0.042	
Snopper Truck	0.004	lbs/hr	1	8		0.034	
Other Construction Equipment	0.004	lbs/hr	1	8		0.034	
				Miles Per Day			
N2O*							
Excavator	0.101	g/mile	1	2			0.202
Dump Truck	0.246	g/mile	1	2			0.492
Water Truck	0.246	g/mile	2	2			0.984
Loader	0.246	g/mile	1	2			0.492
Snopper Truck	0.246	g/mile	1	2			0.492
Other Construction Equipment	0.080	g/mile	1	2			0.160
				Total lbs/g/day	6752.00	7.08	747.83
				Total lbs/day	7387.10		
				Total MTCO2e per Year	554.03		

Sources: Off-Road Mobile Source Emission Factors; SCAQMD 2024

Source N2O: California Climate Action Registry General Reporting Protocol, 2009I;

Table A9-8-C SCAQMD Handbook; Climate Leaders EPA, Section 3, Table 2

Duration: 6 Month (150 days) Construction Period

Appendix B

February 2025 Biological Assessment by Alden Environmental, Inc.

ALDEN
ENVIRONMENTAL, INC
3245 University Ave, #1188 | San Diego, CA 92104 | **Phone/Fax:** 619.284.3815

February 26, 2025

Mr. Brian Smith
BFSA Environmental Services
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Dear Mr. Smith:

This letter report presents the results of a field reconnaissance, a protocol presence/absence coastal California gnatcatcher (*Polioptila californica californica*) survey, vegetation mapping, and a biological impacts analysis for Long-Term Potable and Recycled Water Service to the Barona Indian Reservation (the project). Sensitive resources, including potential jurisdictional resources, identified are described along with the proposed impacts from development. The potential for sensitive plant and animal species to occur have been assessed and recommendations made for additional studies/surveys that may be necessary to construct the project.

PROJECT LOCATION AND DESCRIPTION

Approximately 5.79 miles of the approximately 6.34-mile-long project is located on the Reservation; the northern-most segment (approximately 0.55 mile) is in unincorporated San Diego County within the boundaries of the County's Multiple Species Conservation Program (MSCP) Subarea Plan (Figures 1-3). Wildcat Canyon Road is the dividing line between the South San Diego County Subarea and the North San Diego County Subarea. The project would source water from the Ramona Municipal Water District and is needed because recent estimates of the Tribe's long-term water demand are projected to exceed the sustainable yield of the underlying groundwater basin (Dudek 2022).

Project construction would include the use of staging areas along the route including vacant private land, public land, and parking lots. Surface preparation would be conducted including removing structures such as fences/posts, pavement and/or vegetation from trenching and jack-and-bore pit areas. Trenches would be excavated for pipe installation; excavated soil would be stockpiled alongside the trench and used for backfill or would be hauled off site for disposal. Pipe trenches would generally be 3 to 5 feet wide and 4 to 10 feet deep, with deeper installations potentially required such as at large utility or channel crossings.

Pipeline trenches, in any given location, would be open for two to three days on average. During construction, vertical wall trenches would be temporarily "closed" at the end of each work day by covering with steel plates or backfilled. Trenches would be backfilled with either the excavated soil or imported material. Dump trucks would be used to deliver imported, engineered backfill material to stockpiles near the trenching operation. Native soil would be reused for backfill to the greatest extent possible; however, the soil may not have the properties necessary for compatibility and stability.

Jack-and-bore construction employs a non-steerable system that drives an open-ended pipe laterally using a percussive hammer, thereby resulting in the displacement of soil limited to the wall thickness of the pipe. For this construction method, pits would be dug on either side of the surface feature to be avoided (e.g., stream crossing or heavily traveled roadway). The pits are typically 10 to 15 feet wide and 10 to 20 feet long for the receiving pit and up to 50 feet long for the jacking pit. The depth would depend on the feature to be avoided. The boring equipment and pipe would be lowered into the pit and aligned at the appropriate depth and angle to achieve the desired exit location. A compressor would supply air to the pneumatic ramming tool to thrust the pipe forward. A cutting shoe may be welded to the front of the lead pipe to help reduce friction and cut through the soil.

Depending on the size of the installation, spoil from inside the pipe would be removed with an auger, compressed air, water, or a combination of techniques. A seal cap would be installed on the starter pit side of the installation and spoil would be discharged into the receiver pit. Using this technique, ground surface disturbance would not occur, except at the pits.

Bridge-crossing construction would utilize a bridge boom, also known as a Snooper™ truck, to hang the pipeline from the bridge crossing. While the truck is parked on the bridge or roadway, this truck provides a portable platform that can be positioned under the bridge that allows workers to attach the pipeline to the bridge without damaging the waterway or vegetated area below the bridge.

After the pipe is installed, the ground surface of the pit areas would be restored. When pipe is installed on paved roadways, the asphalt would be patched and restored to pre-construction conditions. When the pipe is installed in dirt access roads, the dirt would be graded and compacted. In natural or vegetated areas, native plantings may be installed.

LITERATURE REVIEW

Available biological database information was reviewed as part of this analysis prior to conducting the field reconnaissance. Database queries for vegetation; soils; federal-listed/protected, State-listed/sensitive, and County-sensitive plant and animal species; and potential jurisdictional wetlands and waters were made within a 2.0-mile radius of the constraints Study Area. The following databases were queried: SANDAG 2012 Vegetation, Natural Resources Conservation Service Web Soil Survey, California Natural Diversity Database (CNDDB; Attachment A), SanBIOS, U.S. Fish and Wildlife Service (USFWS; Attachment A) listed species database, National Wetlands Inventory (NWI), and National Hydrography Dataset (NHD).

METHODS

A Study Area was defined for this report as a linear polygon approximately 200-feet wide within which the pipeline would be located. The field reconnaissance was conducted on June 21, 2023 by vehicle, which was driven by Barona personnel. Vegetation in the Study Area was compared with the SANDAG Vegetation in the field, and more detailed mapping was done during the coastal California gnatcatcher survey.

Due to the reconnaissance by vehicle, the Study Area could not be surveyed for potential jurisdictional wetlands and waters, and no formal jurisdictional delineation was conducted. Therefore, this letter reports the results of the NWI and NHD query results.

The potential for federal-listed/protected, State-listed/sensitive, and County-sensitive plant and animal species to occur was determined based on the database query results, vegetation (habitat) mapping, and soils data.

A presence/absence survey of nine site visits for the coastal California gnatcatcher (*Polioptila californica californica*) was conducted in accordance with USFWS 1997 protocol in the constraints Study Area during the period August 16, 2023 and December 6, 2023. The survey report is included as Attachment B to this letter.

Vegetation community names follow Oberbauer et al. (2008). Plant names and listing/sensitivity follow California Native Plant Society (CNPS; 2024). Animal names and listing/sensitivity follow California Department of Fish and Wildlife (CDFW 2024).

REGULATORY CONTEXT

Throughout the Study Area, federal regulations are applicable. State and County regulations apply/may apply to the portion of the Study Area on County land and are not anticipated to be applicable on Reservation land.

Federal Regulations

Federal Endangered Species Act

Administered by the USFWS, the federal Endangered Species Act (ESA) provides the legal framework for the listing and protection of species (and their habitats) that are identified as being endangered or threatened with extinction. Actions that jeopardize endangered or threatened species and the habitats upon which they rely are considered a 'take' under the ESA. Section 9(a) of the ESA defines take as "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or attempt to engage in any such conduct." 'Harm' and 'harass' are further defined in federal regulations and case law to include actions that adversely impair or disrupt a listed species' behavioral patterns.

The USFWS identifies critical habitat for endangered and threatened species. Critical habitat is defined as areas of land that are considered necessary for endangered or threatened species to recover. The goal is to restore healthy populations of listed species within their native habitat so they can be removed from the list of threatened or endangered species. Once an area is designated as critical habitat pursuant to the federal ESA, all federal agencies must consult with the USFWS to ensure that any action they authorize, fund, or carry out is not likely to result in destruction or adverse modification of the critical habitat. There is no critical habitat designated in the Study Area.

Sections 7 and 10(a) of the federal ESA regulate actions that could jeopardize endangered or threatened species. Section 7 describes a process of federal interagency consultation for use when federal actions may adversely affect listed species. A biological assessment is required for any major construction activity if it may affect listed species. In this case, take can be authorized via a letter of biological opinion issued by the USFWS for non-marine related listed species issues. A Section 7 consultation (formal or informal) is required when there is a nexus between endangered species' use of the site and impacts to U.S. Army Corps of Engineers (Corps) jurisdictional areas. Section 10(a) allows issuance of permits for incidental take of endangered or threatened species with preparation of a Habitat Conservation Plan (HCP). The term "incidental" applies if the taking of a listed species is incidental to, and not the purpose of, an otherwise lawful activity. An HCP demonstrating how the taking would be minimized and how steps taken would ensure the species' survival must be submitted for issuance of Section 10(a) permits.

Migratory Bird Treaty Act

The Migratory Bird Treaty Act (MBTA; 16 U.S. Code Sections 703-711) includes provisions for protection of migratory birds, including the non-permitted take of migratory birds. The MBTA regulates or prohibits taking, killing, possession of, or harm to migratory bird species listed in Title 50 Code of Federal Regulations Section 10.13. Migratory birds include geese, ducks, shorebirds, raptors, songbirds, and many others (including those that are not sensitive). Disturbance that causes nest abandonment and/or loss of reproductive effort (killing or abandonment of eggs or young) is considered a "take." The MBTA is an international treaty for the conservation and management of bird species that migrate through more than one country, and is enforced in the United States by the USFWS. In 1962 it was updated to address how Native American tribes can collect feathers from protected birds for religious ceremonies (a practice otherwise banned by the MBTA). As a general/standard condition, the project must comply with the MBTA.

Bald and Golden Eagle Protection Act

In 1782, Continental Congress adopted the bald eagle (*Haliaeetus leucocephalus*) as a national symbol. During the next 150 years, the bald eagle was heavily hunted by sportsmen, taxidermists, fisherman, and farmers. To prevent the species from becoming extinct, Congress passed the Bald Eagle Protection Act in 1940. The Act was extremely comprehensive, prohibiting the take, possession, sale, purchase, barter, or offer to sell, purchase, or barter, export or import of the bald eagle "at any time or in any manner." In 1962, Congress amended the Bald Eagle Act to cover golden eagles.

Rivers and Harbors Act and Clean Water Act

Federal wetland regulation (non-marine issues) is guided by the Rivers and Harbors Act of 1899 and the Clean Water Act (CWA). The Rivers and Harbors Act deals primarily with discharges into navigable waters, while the purpose of the CWA is to restore and maintain the chemical, physical, and biological integrity of all Waters of the U.S. (WUS). Permitting for projects filling WUS (including wetlands) is overseen by the Corps under Section 404 of the CWA. Projects could be permitted on an individual basis or be covered under one of several approved Nationwide Permits. Individual Permits are assessed individually based on the type of action, amount of fill, etc. and typically require substantial time (often longer than 6 months) to review and approve, while Nationwide Permits are pre-approved if a project meets appropriate conditions.

State of California

California Environmental Quality Act

Primary environmental legislation in California is found in CEQA and its implementing guidelines (State CEQA Guidelines), which require that projects with potential adverse effects (or impacts) on the environment undergo environmental review. Adverse environmental impacts are typically mitigated because of the environmental review process in accordance with existing laws and regulations.

California Endangered Species Act

The California ESA is like the federal ESA in that it contains a process for listing of species and regulating potential impacts to listed species. California ESA Section 2081 authorizes the CDFW to enter into a memorandum of agreement for the take of listed species for scientific, educational, or management purposes.

Native Plant Protection Act

The Native Plant Protection Act (NPPA) enacted a process by which plants are listed as rare or endangered. The NPPA regulates collection, transport, and commerce in listed plants. The California ESA follows the NPPA and covers both plants and animals designated as endangered or threatened with extinction. Plants listed as rare under NPPA were also designated rare under the California ESA.

California Fish and Game Code

California Fish and Game Code Sections 1600 through 1603 require a CDFW agreement for projects affecting riparian and wetland habitats through issuance of a Lake and Streambed Alteration Agreement (LSA).

Pursuant to California Fish and Game Code Section 3503, it is unlawful to take, possess, or needlessly destroy the nest or eggs of any bird, except as otherwise provided by this code or any regulation made pursuant thereto. Raptors and owls and their active nests are protected by California Fish and Game Code Section 3503.5, which states that it is unlawful to take, possess, or destroy any birds of prey or to take, possess, or destroy the nest or eggs of any such bird unless authorized by the CDFW. Section 3513 states that it is unlawful to take or possess any migratory non-game bird as designated in the MBTA.

Porter-Cologne Water Quality Control Act

The Porter-Cologne Water Quality Control Act of 1970 grants the State Water Resource Control Board (SWRCB) and its regional offices (RWQCBs) power to protect water quality and is the primary vehicle for implementation of the State's responsibilities under Section 401 of the CWA. The Porter-Cologne Act grants the SWRCB authority and responsibility to adopt plans and policies, regulate discharges to surface and groundwater, regulate waste disposal sites, and require cleanup of discharges of hazardous materials and other pollutants. Typically, the SWRCB and RWQCB act in concert with the Corps under Section 401 of the federal CWA in relation to permitting fill of federal jurisdictional waters.

California Natural Communities Conservation Planning Act

The California Natural Communities Conservation Planning (NCCP) Act of 1991 (Section 2835) allows the CDFW to authorize interim take of species covered by plans in agreement with NCCP guidelines. A Natural Communities Conservation Program initiated by the State of California focuses on conserving coastal sage scrub, and in concert with the USFWS and the federal ESA, is intended to avoid the need for future federal and State listing of coastal sage scrub-dependent species. The County of San Diego became a participant in the NCCP in 1993 for projects located within the planning area for the Coastal Sage Scrub NCCP with the intent to "…provide for regional protection and perpetuation of natural wildlife diversity while allowing compatible land use and appropriate development and growth." The NCCP process guidelines were established as interim guidelines until formal subregional plans were approved. The South San Diego County MSCP Subarea Plan was approved in 1997. The North San Diego County MSCP Subarea Plan has not yet been adopted. Until adoption, an NCCP 4(d) take permit (Habitat Loss Permit [HLP]; see below) may be required to demonstrate compliance with the NCCP Act within the North San Diego County subarea boundaries.

County of San Diego

Habitat Loss Permit Ordinance

The HLP Ordinance was adopted in March of 1994 in response to both the listing of the coastal California gnatcatcher as a federal threatened species and the adoption of the NCCP Act by the State. Pursuant to the Special 4(d) Rule under the federal ESA, the County is authorized to issue "take permits" for the coastal California gnatcatcher (in the form of HLPs) in lieu of Section 7 or 10(a) permits typically required from the USFWS. Although issued by the County, the USFWS and CDFW must concur with the issuance of an HLP for it to become valid as take authorization under the federal ESA.

The HLP Ordinance states that projects must obtain an HLP prior to the issuance of a grading permit, clearing permit, or improvement plan if the project would directly or indirectly impact any of several coastal sage scrub habitat types. The HLP Ordinance requires an HLP if coastal sage scrub or related habitat will be impacted, regardless of whether it is currently occupied by the coastal California gnatcatcher. An HLP is not required, however, for projects within the boundaries of the MSCP that have an adopted subarea plan (for the Study Area, that is the land within the boundaries of the South County Subarea). Within the boundaries of the North San Diego County MSCP Subarea, however, where the Subarea Plan is still in draft form, an HLP may be required as the County does not have take authorization for the coastal California gnatcatcher that coastal sage scrub is known to support. For the project, this would be for impacts to Diegan coastal sage scrub occurring east of Wildcat Canyon Road not on Reservation land. Based on Attachment G of the County's Protocols for Projects Requiring Habitat Loss Permits, however, the project is exempt from the HLP requirement because it is a utility facility project.

There are areas where coastal sage scrub could be impacted by pipeline trenching on Reservation land (approximately 4,600 feet in areas where the pipeline alignment is not a road right-of-way), but the HLP Ordinance does not apply to Reservation land.

HLPs are not required for projects that have separately obtained Section 7 or 10(a) permits for take of the coastal California gnatcatcher. The gnatcatcher was not found during the protocol presence/absence survey for the species in the Study Area in 2023 (see Attachment B).

Resource Protection Ordinance

The County regulates natural resources (among other resources) as sensitive biological resources via the RPO (County 2012), the regulations of which cover wetlands, wetland buffers, sensitive plant and animal species, sensitive vegetation communities/habitat types, and habitats containing sensitive animals or plants.

Sensitive Habitat Lands are defined by the RPO as:

- Land which supports unique vegetation communities, or the habitats of rare or endangered species or sub-species of animals or plants as defined by Section 15380 of the State CEQA Guidelines (14 Cal. Admin. Code Section 15000 *et seq*.), including the area which is necessary to support a viable population of any of the above species in perpetuity, or which is critical to the proper functioning of a balanced natural ecosystem or which serves as a functioning wildlife corridor.
    - "Unique vegetation community" refers to associations of plant species which are rare or substantially depleted. These may contain rare or endangered species, but other species may be included because they are unusual or limited due to a number of factors, for example: (a) they are only found in the San Diego region; (b) they are a local representative of a species or association of species not generally found in San Diego County; or (c) they are outstanding examples of the community type as identified by the CDFW listing of community associations.

Biological Mitigation Ordinance

The Biological Mitigation Ordinance (BMO; County 2010) is the ordinance by which the County implements the South County MSCP Subarea Plan at the project level. The BMO contains design criteria and mitigation standards that, when applied to projects requiring discretionary permits, protect habitats and species and ensure that a project does not preclude the viability of the MSCP Preserve System.

The first part of the BMO explains how mitigation for impacts is determined. The habitat and vegetation community must first be identified at the impact site and at the area proposed for mitigation. The second part sets out specific mitigation requirements for impacts to certain species. Protecting these sensitive species is required in to gain coverage of the species under the MSCP. Depending on the sensitivity of the individual species, their avoidance or mitigation is also necessary to comply with the California Environmental Quality Act. The two parts work together and are to be applied at the same time.

A BMO for the North San Diego County MSCP Subarea Plan has not yet been adopted but would be the ordinance by which the County implements the North County Subarea Plan at the project level.

RESULTS

Vegetation Mapping

Fourteen vegetation communities and developed land were mapped in the Study Area and within the proposed pipeline alignment. Seven communities and developed were mapped on County land. Thirteen communities and developed were mapped on Reservation land (Figures 4a-f; Table 1).

A description of each community and developed land (from Oberbauer et al. [2008]) is provided below along with its associated five-digit Holland Code when applicable.

Riparian Forest (61300)

Riparian forest (or southern riparian forest) is found along streams and rivers. Characteristic plant species in the community include western sycamore (*Platanus racemosa*), cottonwood (*Populus* spp.), and other wetland species.

Coast Live Oak Woodland (71160)

Coast live oak woodland is dominated by coast live oak (*Quercus agrifolia*). The shrub layer is poorly developed but may include toyon (*Heteromeles arbutifolia*), currants (*Ribes* spp.), laurel sumac (*Malosma laurina*), or elderberry (*Sambucus mexicana*). The herb component is continuous and dominated by common ripgut (*Bromus diandrus*) and several other introduced taxa. It typically occurs on north-facing slopes and in shaded ravines in the south and more exposed sites in the north.

Table 1
VEGETATION COMMUNITIES
MAPPED IN THE STUDY AREA

Vegetation Community	Study Area Acreage on County Land	Study Area Acreage on Reservation Land
Riparian forest	0.90	--
Coast live oak woodland	0.71	16.87
Diegan coastal sage scrub	0.05	13.09
Diegan coastal sage scrub-disturbed	2.73	6.91
Buckwheat scrub	--	0.72
Buckwheat scrub-disturbed	--	0.33
Coastal sage-chaparral scrub	--	8.60
Coastal sage-chaparral scrub-disturbed	--	0.55
Chamise chaparral	--	5.18
Southern mixed chaparral	--	17.30
Southern mixed chaparral-disturbed	--	2.94
Non-native grassland	1.67	19.79
Disturbed habitat	4.23	29.80
Ornamental	0.13	0.01
Developed	3.71	26.62
TOTAL[1]	**14.1**	**148.7**

[1]Total rounded to the nearest 0.1 acre.

Chamise Chaparral (37200)

A one- to three-meter-tall chaparral dominated by chamise (*Adenostoma fasciculatum*). Associated species contribute little cover. Characteristic associated plants include *Arctostaphylos* species, *Ceanothus* species, among others. Chamise chaparral is the dominant chaparral type in San Diego County.

Southern Mixed Chaparral (including -disturbed; 37120)

Southern mixed chaparral is a community of broad-leaved shrubs that, in San Diego County, is dominated by lilacs, particularly Ramona lilac (*Ceanothus tomentosus* var. *olivaceus*) and occurs on dry, rocky, often steep slopes that typically face north. Southern mixed chaparral-disturbed can be described as a community that has been altered by activity that reduces the cover of native shrubs and allows for a notable cover of bare ground and/or non-native plant species.

Diegan Coastal Sage Scrub (including -disturbed; 32500)

Diegan coastal sage scrub is comprised of low, soft-wood subshrubs dominated by species such as coastal sagebrush (*Artemisia californica*), California buckwheat (*Eriogonum fasciculatum*), laurel sumac, black sage (*Salvia mellifera*), and white sage (*Salvia apiana*). It typically grows on sites with low moisture and is the most wide-spread coastal sage scrub in coastal southern California. Diegan coastal sage scrub-disturbed can be described as a community that has been altered by activity that reduces the cover of native shrubs and allows for a notable cover of bare ground and/or non-native plant species.

Buckwheat Scrub (including -disturbed; 32800)

Buckwheat scrub is comprised of a near monoculture of California buckwheat (*Eriogonum fasiculatum*) often associated with deerweed (*Acmispon glaber*). It often occurs in areas that have been disturbed in coastal and foothill areas of the County. Buckwheat scrub-disturbed can be described as a community that has been altered by activity that has further reduced the cover of the native shrubs and allows for a notable cover of bare ground and/or non-native plant species.

Coastal Sage-Chaparral Scrub (including -disturbed; 37G00)

Coastal sage-chaparral scrub (or coastal sage-chaparral transition) is a vegetation type between coastal scrubs and chaparrals; it may be a post-fire community. It is comprised of a mix of woody chaparral and drought-deciduous sage scrub plant species such as chamise, *Ceanothus* species, coastal sagebrush, black sage, and lemonadeberry (*Rhus integrifolia*). Coastal sage-chaparral scrub-disturbed can be described as a community that has been altered such that the cover of native shrubs has been reduced allowing for a notable cover of bare ground and/or non-native plant species.

Non-native Grassland (42200)

Non-native grassland is comprised of at least 50 percent cover of non-native, annual grass species that may be associated with native, annual forbs (wildflowers). In San Diego County, the presence of oats (*Avena* spp.), bromes (*Bromus* spp.), filaree (*Erodium* spp.), and mustard (*Brassica* spp.) are common indicators of this community.

Disturbed Habitat (11300)

Disturbed habitat includes areas that have been physically disturbed by human activity and no longer support native or naturalized vegetation. Typically, if vegetation is present, it is almost exclusively composed of non-native plant species that take advantage of disturbance. Examples of disturbed habitat include areas that have been graded, repeatedly cleared for fuel management purposes, and/or that have experienced repeated use that prevents the growth of native habitat (e.g., parking on vegetation, creating/using trails).

Ornamental (12000)

Ornamental describes areas that have been planted with ornamental (usually non-native) plant species and are typically associated with current or past development (see Developed below). The plantings may or may not be maintained.

Developed (12000)

Developed includes areas that have been constructed upon or otherwise physically altered to an extent that native vegetation is no longer supported. Developed land is characterized by permanent or semi-permanent structures, pavement or hardscape, and landscaped areas that often require irrigation. Areas where no natural land is evident due to a large amount of debris or other materials being placed upon it may also be considered developed (e.g., a quarry).

Listed/Sensitive Plant Species

Fifteen sensitive plant species (listed below) were reported within two miles of the Study Area as listed below. The only federal-listed species is San Diego thorn-mint (*Acanthomintha ilicifolia*).

Engelmann oak (*Quercus engelmannii*)
Felt-leaved monardella (*Monardella hypoleuca* ssp. *lanata*)
Gander's ragwort (*Packera ganderi*)
Lakeside ceanothus (*Ceanothus cyaneus*)
Long-spined spineflower (*Chorizanthe polygonoides* var. *longispina*)
Mission Canyon bluecup (*Githopsis diffusa* ssp. *filicaulis*)
Moreno currant (*Ribes canthariforme*)
Orcutt's brodiaea (*Brodiaea orcuttii*)
Parry's tetracoccus (*Tetracoccus dioicus*)
Ramona horkelia (*Horkelia truncata*)
San Diego milk-vetch (*Astragalus oocarpus*)
San Diego sagewort (*Artemisia palmeri*)
San Diego thorn-mint (*Acanthomintha ilicifolia*)
San Miguel savory (*Clinopodium chandleri*)
Yucaipa onion (*Allium marvinii*)

Based on the vegetation mapped and the Web Soil Survey results (that show no clay soils in the Study Area), it was determined that four sensitive plant species have potential to occur in the Study Area on County land (see below).

The only federal-listed species, San Diego thorn-mint, is not expected to occur within the Study Area on County land or Reservation land due to a lack of clay soils with which this species is associated.

Sensitive Plant Species with Potential to Occur

No federal-listed plant species are anticipated to occur. The following State/County sensitive species have potential to occur.

Engelmann Oak (*Quercus engelmannii*)
Sensitivity: CNPS Rare Plant Rank 4.2; County List D; North County MSCP Draft Covered
Habitat(s): Chaparral, cismontane woodland, riparian woodland, and valley and foothill grassland.
Presence: Thirty-three Engelmann oaks were observed in the Study Area (Figures 4a-4f).

Parry's Tetracoccus (*Tetracoccus dioicus*)
Sensitivity: CNPS Rare Plant Rank 1B.2; County List A; South County MSCP Covered; North County MSCP Draft Covered
Habitat(s): Chaparral, coastal scrub.
Presence: Parry's tetracoccus is a perennial shrub that likely would have been observed on County land if it were present. It was observed throughout a hillside in the Study Area on Reservation land in chaparral (Figure 4f).

San Diego Sagewort (*Artemisia palmeri*)
Sensitivity: CNPS Rare Plant Rank 4.2; County List D
Habitat(s): Chaparral; coastal scrub; riparian forest, scrub, and woodland.
Presence: Was not observed, but suitable habitat is present for the species.

San Miguel Savory (*Clinopodium chandleri*)
Sensitivity: CNPS Rare Plant Rank 1B.2; County List A; South County MSCP Covered; North County MSCP Draft Covered
Habitat(s): Chaparral, cismontane woodland, coastal scrub, riparian woodland, and valley and foothill grassland sometimes with gabbroic or rocky soils.
Presence: Was not observed, but suitable habitat is present for the species.

Listed/Sensitive Animal Species

Twenty-seven sensitive animal species (listed below), four of which are federal-listed (i.e., Quino checkerspot butterfly [*Euphydryas editha quino*], arroyo toad [*Anaxyrus californicus*], coastal California gnatcatcher, and least Bell's vireo [*Vireo bellii pusillus*]) were reported within two miles of the Study Area, or were observed there, as listed below. The federal-proposed threatened western spadefoot, listed below, was also reported within two miles.

While not reported within two miles of the Study Area, the Crotch bumble bee (*Bombus crotchii*) is also being addressed because it was recently designated as a candidate for State listing as endangered, and potential habitat is present.

Invertebrates
Crotch bumble bee (*Bombus crotchii*)
Quino checkerspot butterfly (*Euphydryas editha quino*)

Amphibians
Arroyo toad (*Anaxyrus californicus*)
Western spadefoot (*Spea hammondii*)

Reptiles
California glossy snake (*Arizona elegans occidentalis*)
Coast horned lizard (*Phrynosoma blainvillii*)
Coast patch-nosed snake (*Salvadora hexalepis virgultea*)
Coastal whiptail (*Aspidoscelis tigris stejnegeri*)
Coronado skink (*Plestiodon* [*Eumeces*] *skiltonianus*)
Orange-throated whiptail (*Aspidoscelis hyperythra*)
Red-diamond rattlesnake (*Crotalus ruber*)
Rosy boa (*Lichanura orcuttii* [*Charina trivirgata roseofusca*])
San Diego banded gecko (*Coleonyx variegatus abbottii*)
Two-striped garter snake (*Thamnophis hammondii*)

Birds
Barn owl (*Tyto alba*)
Coastal California gnatcatcher (*Polioptila californica californica*)
Cooper's hawk (*Accipiter cooperii*)
Golden eagle (*Aquila chrysaetos*)
Grasshopper sparrow (*Ammodramus savannarum*)
Least Bell's vireo (*Vireo bellii pusillus*)
Red-shouldered hawk (*Buteo lineatus*)
Southern California rufous-crowned sparrow (*Aimophila ruficeps canescens*)
Turkey vulture (*Cathartes aura*)
Western bluebird (*Sialia mexicana*)

Mammals
American badger (*Taxidea taxus*)
Mule deer (*Odocoileus hemionus*)
San Diego desert woodrat (*Neotoma lepida intermedia*)

Listed/Sensitive Animal Species with Potential to Occur

Based on the vegetation (habitats) mapped, there is some potential for all 27 of the listed/sensitive animal species to occur on County land in the Study Area.

Crotch Bumble Bee (*Bombus crotchii*)
Sensitivity: State Candidate Endangered
Habitat(s): Open grassland and scrub habitats with flowering plants.

Quino Checkerspot Butterfly (*Euphydryas editha quino*)
Listing: Federal Endangered; County Group 1; North County MSCP Draft Covered
Habitat(s): Potential habitat includes vegetation communities with relatively open areas that typically include patches of dwarf plantain (*Plantago erecta*), purple owl's clover (*Castilleja exserta*), and nectaring plants. These habitats include open coastal sage scrub, vernal pools, lake margins, non-native grassland, perennial grassland, disturbed habitat, disturbed wetlands, and open areas within shrub communities. The Study Area is within the USFWS recommended survey area (USFWS 2014).
Presence: There is suitable habitat for this species in the project vicinity; however, the habitat within the proposed pipeline alignment is generally unsuitable, and a focused survey for the species is not recommended.

Arroyo Toad (*Anaxyrus californicus*)
Listing: Federal Endangered; State Species of Special Concern; County Group 1; South County MSCP Covered; North County MSCP Draft Covered
Habitat(s): Found on banks with open-canopy riparian forest characterized by willows, cottonwoods, or sycamores; breeds in areas with shallow, slowly moving streams; burrows in adjacent uplands during dry months.
Presence: Suitable habitat for this species occurs within San Vicente Creek in the County portion of the alignment; however, impacts to the creek at this location are not anticipated. There also is USFWS designated Critical Habitat for this species in San Vicente Creek. The creeks/streams within the Reservation land are generally unsuitable for this species and it is not anticipated to occur within the pipeline alignment.

Western Spadefoot (*Spea hammondii*)
Sensitivity: Federal Proposed Threatened; State Species of Special Concern; County Group 2; North County MSCP Draft Covered
Habitat(s): Occurs in open coastal sage scrub, chaparral, and grassland, along sandy or gravelly washes, floodplains, alluvial fans, or playas; requires temporary pools for breeding and friable soils for burrowing; generally excluded from areas with bullfrogs (*Rana catesbiana*) or crayfish (*Procambarus* sp.).
Presence: There is suitable habitat for this species within Reservation land; however, as it is not a federal-listed species its presence on Reservation land would not be a constraint. Should it become a federal-listed species, then focused surveys may be required to determine presence within streams proposed for impacts within the Reservation. There also is suitable habitat for this species within San Vicente Creek in the County portion of the alignment; however, impacts to the creek at this location are not anticipated.

California Glossy Snake (*Arizona elegans occidentalis*)
Sensitivity: State Species of Special Concern
Habitat(s): Arid scrub, rocky washes, grasslands, and chaparral with soil loose enough for burrowing.
Presence: There is suitable habitat for this species within Reservation land; however, as it is not a federal-listed species its presence on Reservation land would not be a constraint.

Coast Horned Lizard (*Phrynosoma blainvillii*)
Sensitivity: State Species of Special Concern; County Group 2; South County MSCP Covered; North County MSCP Draft Covered
Habitat(s): Frequents a variety of habitats from sage scrub and chaparral to coniferous and broadleaf woodlands. Habitat requirements include open areas for sunning, bushes for cover, fine loose soil for rapid burial, and native ant species such as harvester ants (*Pogonomyrmex* sp.).
Presence: There is suitable habitat for this species within Reservation land; however, as it is not a federal-listed species its presence on Reservation land would not be a constraint. It also is unlikely to occur within the project footprint in the County portion of the alignment as the habitat is disturbed and heavily fragmented.

Coast Patch-nosed Snake (*Salvadora hexalepis virgultea*)
Sensitivity: State Species of Special Concern; County Group 2
Habitat(s): Semi-arid brushy areas and chaparral in canyons, rocky hillsides, and plains.
Presence: There is suitable habitat for this species within Reservation land; however, as it is not a federal-listed species its presence on Reservation land would not be a constraint. It also is unlikely to occur within the project footprint in the County portion of the alignment as the habitat is disturbed and heavily fragmented.

Coastal Whiptail (*Aspidoscelis tigris stejnegeri*)
Sensitivity: State Species of Special Concern; County Group 2
Habitat(s): Coastal sage scrub, grassland, and ruderal habitats.
Presence: There is suitable habitat for this species within Reservation land; however, as it is not a federal-listed species its presence on Reservation land would not be a constraint. It also is unlikely to occur within the project footprint in the County portion of the alignment as the habitat is disturbed and heavily fragmented.

Coronado Skink (*Plestiodon* [*Eumeces*] *skiltonianus*)
Sensitivity: State Watch List; County Group 2
Habitat(s): Grassland, woodlands, pine forests, chaparral, especially in open sunny areas. Rocky areas near streams with vegetation but also found away from water.
Presence: There is suitable habitat for this species within Reservation land; however, as it is not a federal-listed species its presence on Reservation land would not be a constraint. It also is unlikely to occur within the project footprint in the County portion of the alignment as the habitat is disturbed and heavily fragmented.

Orange-throated Whiptail (*Aspidoscelis hyperythra*)
Sensitivity: State Watch List; County Group 2; South County MSCP Covered; North County MSCP Draft Covered
Habitat(s): Coastal sage scrub and chaparral.
Presence: There is suitable habitat for this species within Reservation land; however, as it is not a federal-listed species its presence on Reservation land would not be a constraint.

Red-diamond Rattlesnake (*Crotalus ruber*)
Sensitivity: State Species of Special Concern; County Group 2; North County MSCP Draft Covered
Habitat(s): Favors rocky outcrops in coastal sage scrub, chaparral, creosote bush scrub, and areas dominated by cactus. Also encountered along rocky canyon bottoms and on the flats adjacent to rocky, desert foothills.
Presence: There is suitable habitat for this species within Reservation land; however, as it is not a federal-listed species its presence on Reservation land would not be a constraint.

Rosy Boa (*Lichanura orcuttii* [*Charina trivirgata roseofusca*])
Sensitivity: County Group 2
Habitat(s): Arid scrublands, semi-arid shrublands, rocky shrublands, rocky deserts, canyons, and other rocky areas.
Presence: There is suitable habitat for this species within Reservation land; however, as it is not a federal-listed species its presence on Reservation land would not be a constraint.

San Diego Banded Gecko (*Coleonyx variegatus abbottii*)
Sensitivity: State Species of Special Concern; County Group 1
Habitat(s): Rocky areas in coastal sage and chaparral.
Presence: There is suitable habitat for this species within Reservation land; however, as it is not a federal-listed species its presence on Reservation land would not be a constraint.

Two-striped Garter Snake (*Thamnophis hammondii*)
Sensitivity: State Species of Special Concern; County Group 1; North County MSCP Draft Covered
Habitat(s): Generally found around pools, creeks, cattle tanks, and other water sources, often in rocky areas, in oak woodland, chaparral, brushland, and coniferous forest.
Presence: There is suitable habitat for this species within Reservation land; however, as it is not a federal-listed species its presence on Reservation land would not be a constraint. There is suitable habitat for this species within Reservation land; however, as it is not a federal-listed species its presence on Reservation land would not be a constraint. It also is unlikely to occur within the project footprint in the County portion of the alignment as the habitat is disturbed and heavily fragmented.

Barn Owl (*Tyto alba*)
Sensitivity: County Group 2
Habitat(s): Woodland habitats and open areas with trees or other structures that can offer shelter.
Presence: There is suitable habitat for this species within Reservation land; however, as it is not a federal-listed species its presence on Reservation land would not be a constraint. In addition, coast live oak woodland and riparian forest within the County portion of the alignment provides potential habitat for this species.

Coastal California Gnatcatcher (*Polioptila californica californica*)
Listing: Federal Threatened; County Group 1; South County MSCP Covered; North County MSCP Draft Covered
Habitat: Coastal sage scrub.
Presence: The coastal California gnatcatcher was not found during the protocol presence/absence survey for the species conducted in 2023 (see Attachment B for the survey report). Furthermore, this species is not anticipated to occur along the alignment as it is at the extent of the species geographic and elevation range.

Cooper's Hawk (*Accipiter cooperii*)
Sensitivity: State Watch List; County Group 1; South County MSCP Covered
Habitat(s): Oak groves, mature riparian woodlands, and eucalyptus stands or other mature forests.
Presence: The Cooper's hawk was observed east of Wildcat Canyon Road southwest of its intersection with San Vicente Oaks Road. Its habitats also occur on County land in the Study Area; however, as it is not a federal-listed species its presence on Reservation land would not be a constraint. In addition, coast live oak woodland and riparian forest within the County portion of the alignment provides potential habitat for this species.

Golden Eagle (*Aquila chrysaetos*)
Sensitivity: Bald and Golden Eagle Protection Act; State Fully Protected, State Watch List; County Group 1; South County MSCP Covered; North County MSCP Draft Covered
Habitat(s): Forages in grassy and open, shrubby habitats. Nests most often on cliffs, less often in trees. Tend to require places of solitude and are usually found at a distance from human habitation.
Presence: There is suitable habitat for this species within Reservation land; however, as it is not a federal-listed species its presence on Reservation land would not be a constraint under the federal ESA. Additionally, this is not anticipated to occur within or adjacent to the pipeline alignment which would occur far from potential suitable nesting areas for the species, should it occur.

Grasshopper Sparrow (*Ammodramus savannarum*)
Sensitivity: State Species of Special Concern; County Group 1; North County MSCP Draft Covered
Habitat: Grassland
Presence: There is suitable habitat for this species within Reservation land; however, as it is not a federal-listed species its presence on Reservation land would not be a constraint.

Least Bell's Vireo (*Vireo bellii pusillus*)
Listing: Federal Endangered; State Endangered, State Watch List; County Group 1; South County MSCP Covered; North County MSCP Draft Covered
Habitat(s): Riparian woodland, riparian forest, mule fat scrub, and southern willow scrub. There is suitable habitat for this species located at the northernmost extent of the project alignment, within riparian forest habitat in San Vicente Creek. No direct impacts to the San Vicente Creek are anticipated; however, construction activities could have an indirect impact to this species during the nesting season, should it be present. Pre-construction surveys and avoidance measures may be required to help ensure project construction does not impact this species in the County portion of the alignment. Suitable habitat does not occur within or adjacent to the pipeline alignment on Reservation land.

Red-shouldered Hawk (*Buteo lineatus*)
Sensitivity: County Group 1
Habitat(s): Riparian woodland, oak woodland, orchards, eucalyptus groves, or other areas with tall trees.
Presence: The red-shouldered hawk was observed in coast live oak woodland on Reservation land (Figure 4a). In addition, coast live oak woodland and riparian forest within the County portion of the alignment provides potential habitat for this species.

Southern California Rufous-crowned Sparrow (*Aimophila ruficeps canescens*)
Sensitivity: State Watch List; County Group 1; South County MSCP Covered; North County MSCP Draft Covered
Habitat(s): Coastal sage scrub where it occurs on rocky hillsides and in canyons but also may be found in open sage scrub/grassy areas of successional growth (i.e., after a fire).
Presence: The rufous-crowned sparrow was observed in Diegan coastal sage scrub-disturbed in the northern portion of the Reservation land (Figure 4f). In addition, coast live oak woodland and riparian forest within the County portion of the alignment provides potential habitat for this species.

Turkey Vulture (*Cathartes aura*)
Sensitivity: County Group 1
Habitat(s): Most open habitats with breeding occurring in crevices among boulders.
The turkey vulture was observed just outside the Study Area in the northern portion of Reservation land (Figure 4f). It has some potential to utilize habitats in the Study Area for foraging but is not likely to nest within it due to limited/lacking, suitable boulder crevices and proximity to Wildcat Canyon Road and existing development.
Presence: There is suitable habitat for this species within Reservation land; however, as it is not a federal-listed species its presence on Reservation land would not be a constraint.

Western Bluebird (*Sialia mexicana*)
Sensitivity: County Group 2; South County MSCP Covered
Habitat(s): Open woodlands and areas where meadows or grasslands occur among groves of oak or pine. The western bluebird was observed on the border between Reservation and County land in sage scrub near non-native grassland that occurs on both Reservation and County land in the vicinity of the sighting (Figure 4f).
Presence: There is suitable habitat for this species within Reservation land; however, as it is not a federal-listed species its presence on Reservation land would not be a constraint. In addition, coast live oak woodland and riparian forest within the County portion of the alignment provides potential habitat for this species.

American Badger (*Taxidea taxus*)
Sensitivity: State Species of Special Concern; County Group 2; South County MSCP Covered; North County MSCP Draft Covered
Habitat(s): Prefers open areas such as grasslands and deserts on flat terrain to moderate slopes with friable soils. Occurs mainly in large blocks of undeveloped land absent urban development in San Diego County.
Presence: There is suitable habitat for this species within Reservation land; however, as it is not a federal-listed species its presence on Reservation land would not be a constraint.

Mule Deer (*Odocoileus hemionus*)
Sensitivity: County Group 2; South County MSCP Covered
Habitat(s): Coastal sage scrub, riparian and montane forests, chaparral, grasslands, croplands, and open areas if some scrub cover present.
Presence: This species is known to occur within Reservation land and adjacent County lands; however, as it is not a federal-listed species its presence on Reservation land would not be a constraint.

San Diego Desert Woodrat (*Neotoma lepida intermedia*)
Sensitivity: State Species of Special Concern; County Group 2
Habitat(s): Open chaparral and coastal sage scrub, often building large, stick nests in rock outcrops or around clumps of cactus or yucca.
Presence: This species is known to occur within Reservation land and adjacent County lands; however, as it is not a federal-listed species its presence on Reservation land would not be a constraint.

Federal-listed or Protected Animal Species with Potential to Occur on Reservation Land

Based on the vegetation (habitats) mapped, there is potential for three federal-listed or protected animal species to occur on Reservation land in the Study Area. Since there are no riparian habitats in the Study Area on Reservation land, the federal-listed arroyo toad and least Bell's vireo are not expected to occur there.

Potential Jurisdictional Resources

Tribal lands are not subject to State and local (County) regulation of jurisdictional/wetland resources. Federal regulations (CWA) for potential impacts to federal jurisdictional resources (should they occur) may be applicable on Tribal lands. Throughout the Study Area on Reservation land, the NHD shows stream/river features, and the NWI shows riverine features. The proposed pipeline alignment would cross the Padre Barona Creek, Klondike Creek, and numerous unnamed tributaries to these creeks within the limits of the Reservation (Figure 5).

Subsequent to the Sackett Supreme Court decision, the Environmental Protection Agency issued a new definition for what is to be considered a WUS. No federal regulated wetland WUS resources would be affected by the project on Reservation land. Areas are determined to be non-wetland WUS if there is evidence of intermittent or perennial surface flow (relative permanent water), but the vegetation and/or soils criterion are not met to make a wetland determination. Per the current Corps CWA Rule, unvegetated ephemeral drainages/streambeds are not considered to be jurisdictional WUS.

The streams and tributaries on Reservation land within the Study Area are anticipated to be ephemeral and, therefore, not jurisdictional to the Corps and subject to regulation under the CWA. This is based on the historically very dry nature of the streams/tributaries and additional "traditional ecological knowledge" (TEK), provided by Tribal elders and representatives. This knowledge includes historical observations of the streams/tributaries remaining dry most of the year, year after year. The only observed water flow has been during and immediately following rain events, characteristic of ephemeral features.

In addition to the above, there are potential jurisdictional resources on County land (outside of the Reservation land) in the Study Area including NHD stream/river and NWI freshwater forested/shrub wetland (Figure 5). The NWI also shows freshwater forested/shrub wetland in the northern portion of the Study Area in the County (Figure 5).

IMPACTS AND POTENTIAL MITIGATION

Reservation Land

Based on the results of the literature review, Tribal communication, field reconnaissance, vegetation mapping, and coastal California gnatcatcher surveys, no significant impacts to federal-regulated biological resources are anticipated on Reservation land. Table 2 and Figures 4a-f present the anticipated permanent and temporary impacts to vegetation communities on the Reservation.

Table 2 IMPACTS TO VEGETATION COMMUNITIES ON RESERVATION LAND		
Vegetation Community	**Permanent Impacts (acres)[2]**	**Temporary Impacts (acres)**
Riparian forest[1]	--	--
Coast live oak woodland	--	0.924
Diegan coastal sage scrub	--	0.940
Diegan coastal sage scrub-disturbed	--	0.504
Buckwheat scrub	--	0.198
Buckwheat scrub-disturbed	--	0.020
Coastal sage-chaparral scrub	--	0.579
Coastal sage-chaparral scrub-disturbed	--	--
Chamise chaparral	--	0.415
Southern mixed chaparral	--	1.424
Southern mixed chaparral-disturbed	--	0.168
Non-native grassland	--	1.627
Disturbed habitat	0.043	3.381
Ornamental	--	--
Developed	0.004	4.983
TOTAL[3]	**0.047**	**15.16**

[1]Impacts to riparian forest are not anticipated due to the use of jack-and-bore and bridge crossing construction methods.
[2]Permanent impacts would be from a Pressure Reducing Station (Figure 4b) and a Booster Pump Station (Figure 4e).
[3]Totals rounded to nearest 0.01 acre

While federal-listed animal species are not anticipated to be impacted by the proposed project, the project would still be required to comply with MBTA nesting bird restrictions.

As noted above, the streams and tributaries located within the Study Area on Reservation land are anticipated to be ephemeral in nature; therefore, they would not be considered jurisdictional to the Corps.

Finally, since no federal-listed (threatened or endangered) plant or animal species are anticipated to be affected by the project within the limits of the Reservation, a USFWS Section 7 consultation is not anticipated to be required. This could change if it is later determined that a federal-listed species could be affected.

County Land

Based on the results of the literature review, field reconnaissance, vegetation mapping, and coastal California gnatcatcher surveys, the anticipated impacts from pipeline construction on County land, outside of the Reservation Land, would be as follows.

Vegetation Communities

There are five vegetation communities located outside of the Reservation, within the County, that are considered sensitive. These communities are Diegan coastal sage scrub, Diegan coastal sage scrub-disturbed, non-native grassland, coast live oak woodland, and riparian forest (Figure 4f). Table 3 and Figure 4a present the anticipated temporary impacts to vegetation communities on County land. There would be no permanent impacts on County land.

Table 3
TEMPORARY IMPACTS TO VEGETATION COMMUNITIES ON COUNTY LAND (acres)

Vegetation Community	South County MSCP Subarea	North County MSCP Subarea
Riparian forest[1]	--	--
Coast live oak woodland	0.007	0.019
Diegan coastal sage scrub	--	--
Diegan coastal sage scrub-disturbed	0.011	0.020
Buckwheat scrub	--	--
Buckwheat scrub-disturbed	--	--
Coastal sage-chaparral scrub	--	--
Coastal sage-chaparral scrub-disturbed	--	--
Chamise chaparral	--	--
Southern mixed chaparral	--	--
Southern mixed chaparral-disturbed	--	--
Non-native grassland	--	0.012
Disturbed habitat	0.062	0.179
Ornamental	--	0.003
Developed	0.835	1.331
TOTAL[2]	**0.91**	**1.56**

[1]Impacts to riparian forest are not anticipated due to the use of jack-and-bore and bridge crossing construction methods.
[2]Totals rounded to nearest 0.01 acre.

Impacts are not anticipated to riparian forest due to the use of jack-and-bore and bridge-crossing construction methods. Impacts to coast live oak woodland, Diegan coastal sage scrub-disturbed, and non-native grassland, although very limited in extent and temporary (Table 3 and Figure 4f), would still be significant because they are sensitive communities. Mitigation to compensate for the temporary impacts could include revegetating (adequately replacing) the impacted vegetation in place following construction in accordance with a County-approved Revegetation Plan (County 2012).

Sensitive Species

Within the County (non-Tribal) segment (Figure 4f) there may be constraints (impacts) due to sensitive species that would not be considered constraints within the Reservation land. The riparian forest land within San Vicente Creek at the northern most extent of the alignment has the potential to support the federal-listed endangered least Bell's vireo. While direct impacts to riparian forest are not anticipated, construction activities could have an indirect impact (noise) to this species during the nesting season, should it be present. Pre-construction surveys and avoidance measures may be required to help ensure project construction does not impact this species in the County portion of the alignment.

In addition, the project would be required to comply with California Fish and Game Code and MBTA nesting bird restrictions.

Jurisdictional Resources (Federal, State, County)

Within the County segment of the pipeline is San Vicente Creek (Figure 5), which likely would be considered jurisdictional by the Corps, CDFW, RWQCB, and the County. This creek currently flows under a bridge as part of Wildcat Canyon Road. It is anticipated that there would be no impacts from pipeline construction to jurisdictional resources associated with the creek due to the use of bridge-crossing and jack-and-bore construction methods.

Should there be impacts to San Vicente Creek then federal (Corps) and State (CDFW and RWQCB) permits may be required for this location in the County. The exact authorization required would depend upon the amount and type of jurisdictional features to be impacted within the County segment. If required, it is anticipated that Nationwide Permit (NWP) 58 (Utility Line Activities for Water and Other Substances) would be the suitable NWP for the project. The Corps NWP process also includes a cultural resources analysis with Tribal consultation. Given that the project is a Tribal project, it is anticipated that a streamlined cultural evaluation would be possible.

Impacts to CDFW jurisdictional resources may require a Lake and Streambed Alteration (LSA) agreement via California Fish and Game Code Section 1602. Impacts to RWQCB jurisdictional resources may require a Water Quality Certification under Section 401 of the federal CWA.

The actual permitting requirement would depend on the type and amount of jurisdictional resource impacts in the County (if any).

MSCP Applicability and Consistency

The South San Diego County MSCP Subarea Plan was approved in 1997. The identification of sensitive resources, potential project impacts, and potential mitigation described above for the pipeline construction in the South County Subarea are consistent with the Subarea Plan and the Biological Mitigation Ordinance (County 2010), the latter of which enables the County to achieve the conservation goals set forth in the Subarea Plan for the MSCP.

The North San Diego County MSCP Subarea Plan has not yet been adopted; however, this report does consider what resources are identified as sensitive in that draft Plan for pipeline construction in the North County Subarea, and the County provides mitigation for impacts to vegetation communities outside of approved MSCP Subarea Plans (County 2012)

CONCLUSION

Reservation Land

No significant impacts to federal regulated biological resources are anticipated on Reservation land.

If the USFWS lists the western spadefoot, however, then focused surveys for that species may be required.

The project must comply with the nesting bird restrictions of the MBTA. This may include pre-construction nesting bird surveys during the nesting season and possibly nest monitoring during construction.

County Land

Impacts to coast live oak woodland, Diegan coastal sage scrub-disturbed, and non-native grassland would be significant because they are sensitive communities. Mitigation to compensate for these temporary impacts could include revegetating the impacted vegetation in place following construction in accordance with a County-approved Revegetation Plan. Impacts are not anticipated to riparian forest due to the use of jack-and-bore and bridge-crossing construction methods.

The project also must comply with the nesting bird restrictions of the MBTA and California Fish and Game Code (within the County area). This may include pre-construction nesting bird surveys during the nesting season and possibly nest monitoring (and noise-impact avoidance measures for the least Bell's vireo) during construction.

Please contact me if you have any questions.

Sincerely,

Greg Mason
Senior Biologist

Enclosures:
Figure 1 – Regional Location
Figure 2 – Project Location
Figure 3 – MSCP
Figures 4a-f – Vegetation and Sensitive Resources
Figure 5 – NWI and NHD
Attachment A – CNDDB and USFWS Database Query Results
Attachment B – Coastal California Gnatcatcher Survey Report

REFERENCES

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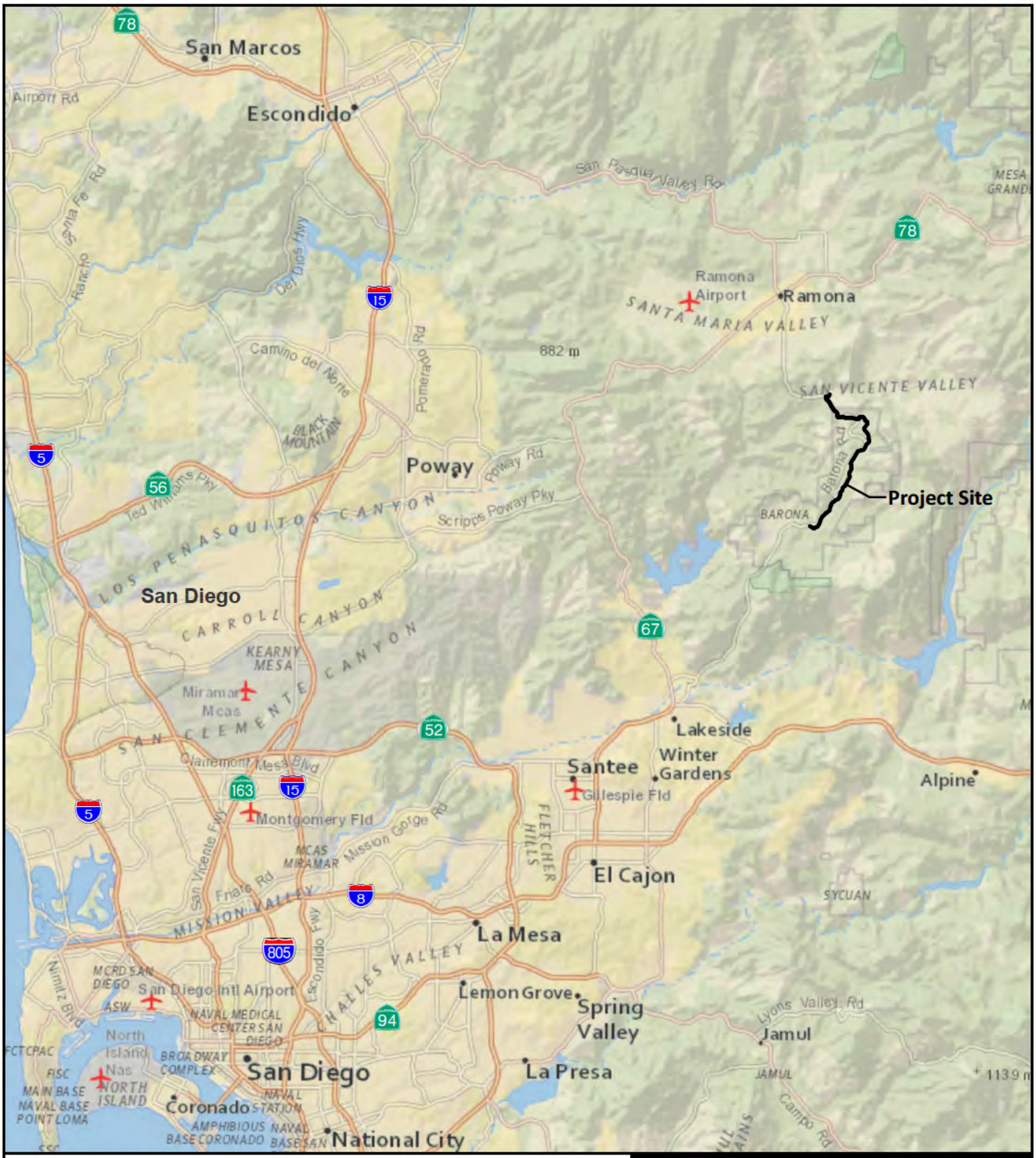


Figure 1

Regional Location

LONG-TERM POTABLE AND
RECYCLED WATER SERVICE
TO BARONA INDIAN RESERVATION

N
W E
S

0 2 4 Miles

ALDEN ENVIRONMENTAL, INC

Study Area

N
W E
S

0 0.5 1 Miles

ALDEN ENVIRONMENTAL, INC

Figure 2

Project Location

LONG-TERM POTABLE AND RECYCLED WATER SERVICE TO BARONA INDIAN RESERVATION

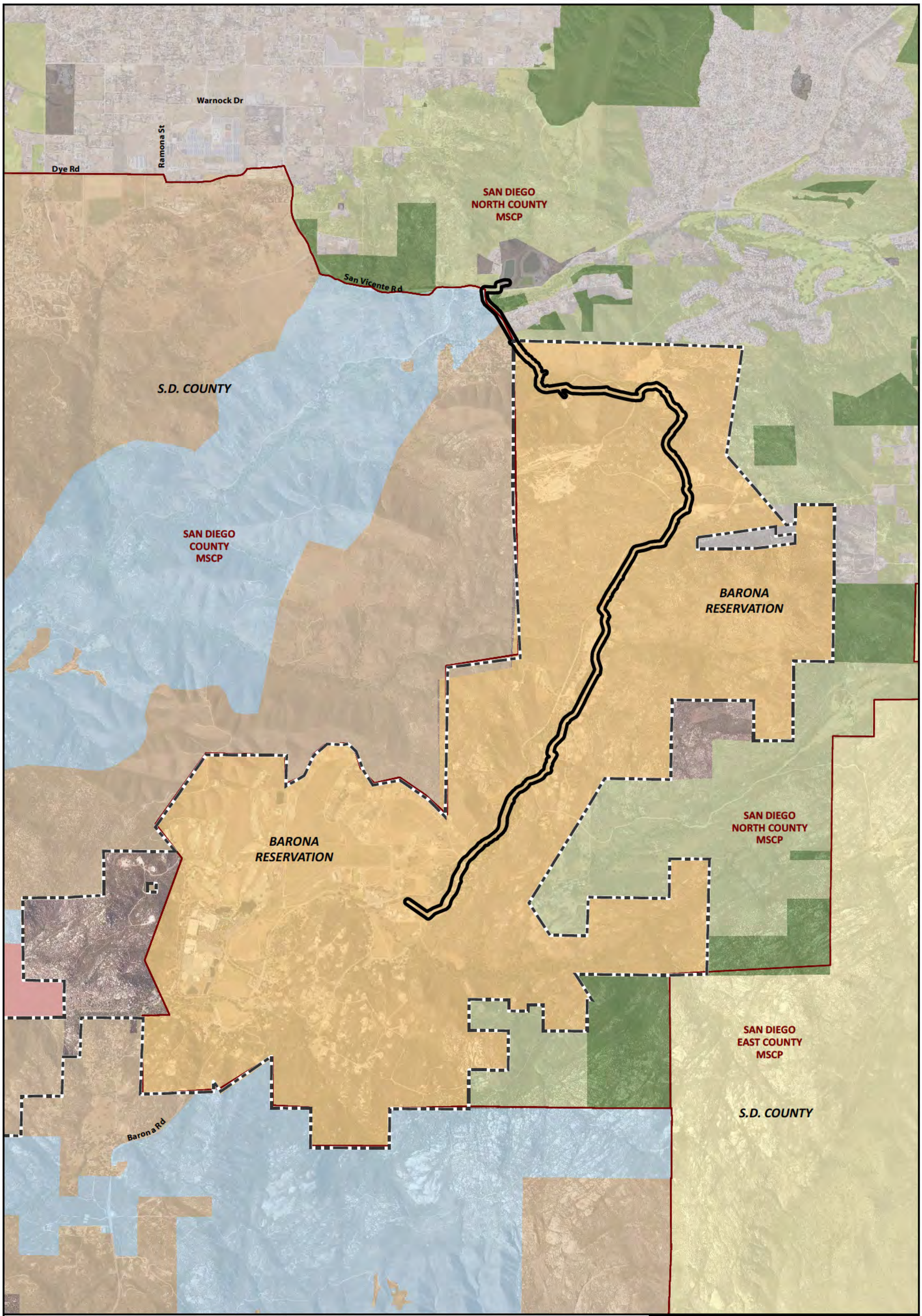
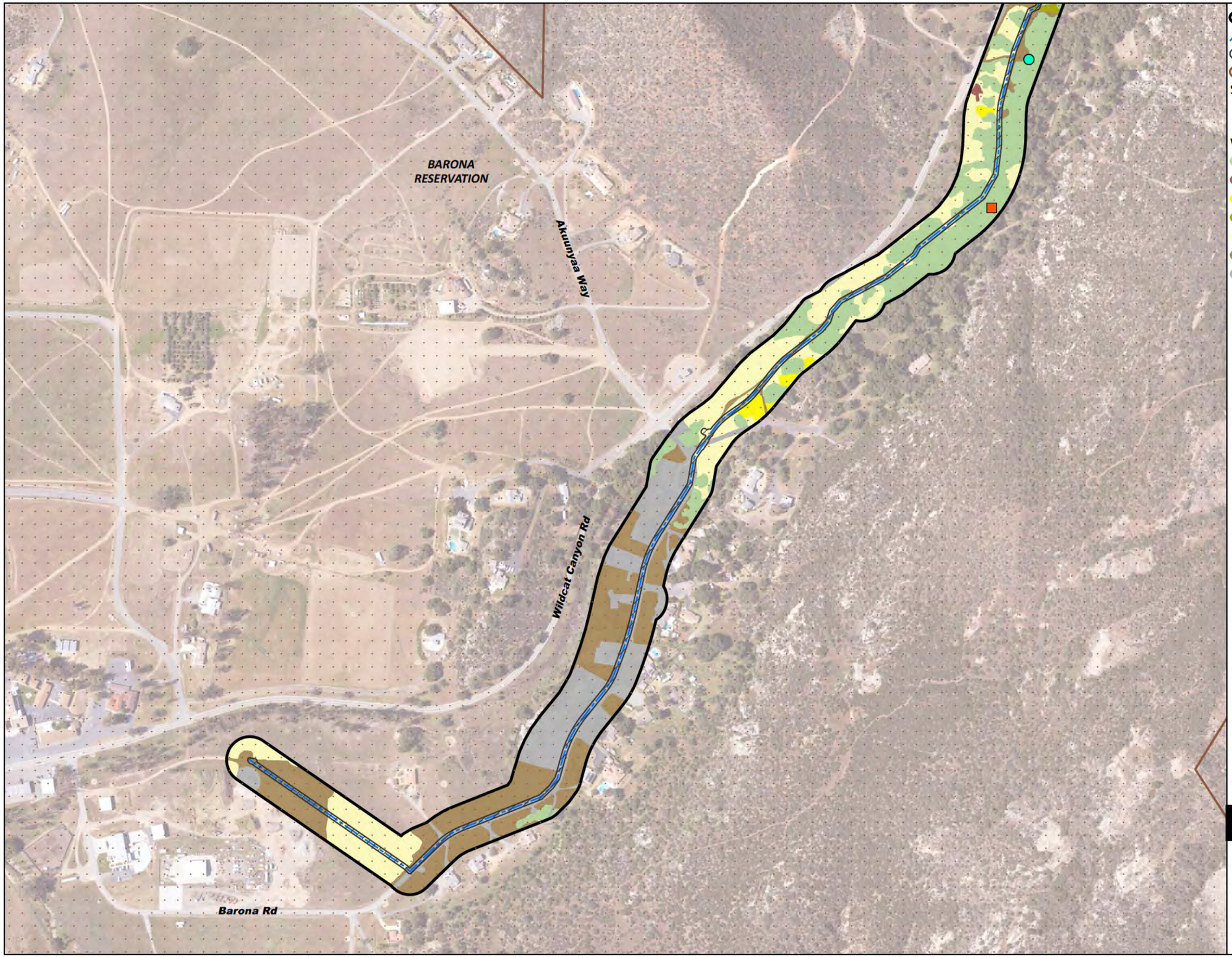


Figure 3

County of San Diego - MSCP Areas

LONG-TERM POTABLE AND
RECYCLED WATER SERVICE
TO BARONA INDIAN RESERVATION

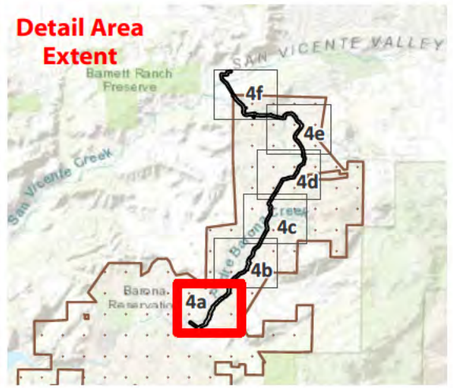


Survey Area
Proposed Potable Water Pipeline
Temporary Impacts
Barona Reservation

Special Status Species
- Engelmann Oak (*Quercus engelmannii*)
- Red-shouldered Hawk (*Buteo lineatus*)

Vegetation
- Coast Live Oak Woodland
- Diegan Coastal Sage Scrub - Disturbed
- Buckwheat Scrub
- Buckwheat Scrub - Disturbed
- Non-native Grassland
- Disturbed Habitat
- Developed

Detail Area Extent



N
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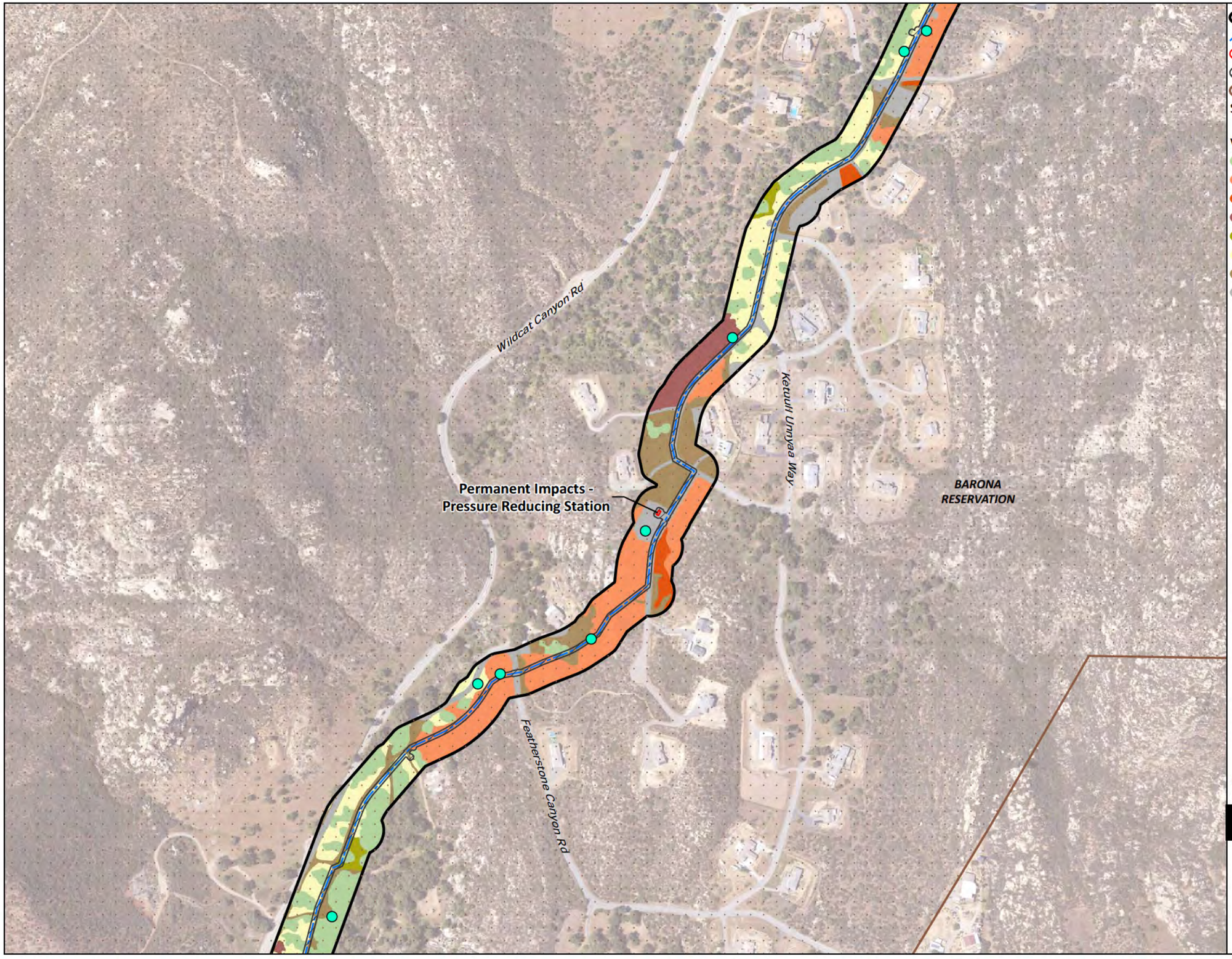
S
0 200 400 Feet

ALDEN ENVIRONMENTAL, INC

Figure 4a

Vegetation and Sensitive Resources

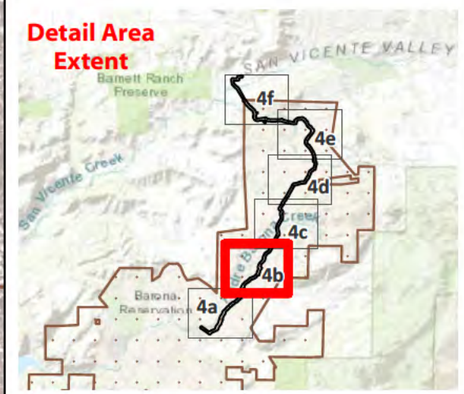
LONG-TERM POTABLE AND RECYCLED WATER SERVICE TO BARONA INDIAN RESERVATION



Survey Area
Proposed Potable Water Pipeline
Permanent Impacts
Temporary Impacts
Barona Reservation

Special Status Species
Engelmann Oak (*Quercus engelmannii*)

Vegetation
Coast Live Oak Woodland
Coastal Sage-Chaparral Scrub
Coastal Sage-Chaparral Scrub - Disturbed
Diegan Coastal Sage Scrub - Disturbed
Buckwheat Scrub - Disturbed
Non-native Grassland
Disturbed Habitat
Developed



N
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Feet

ALDEN
ENVIRONMENTAL, INC

Figure 4b

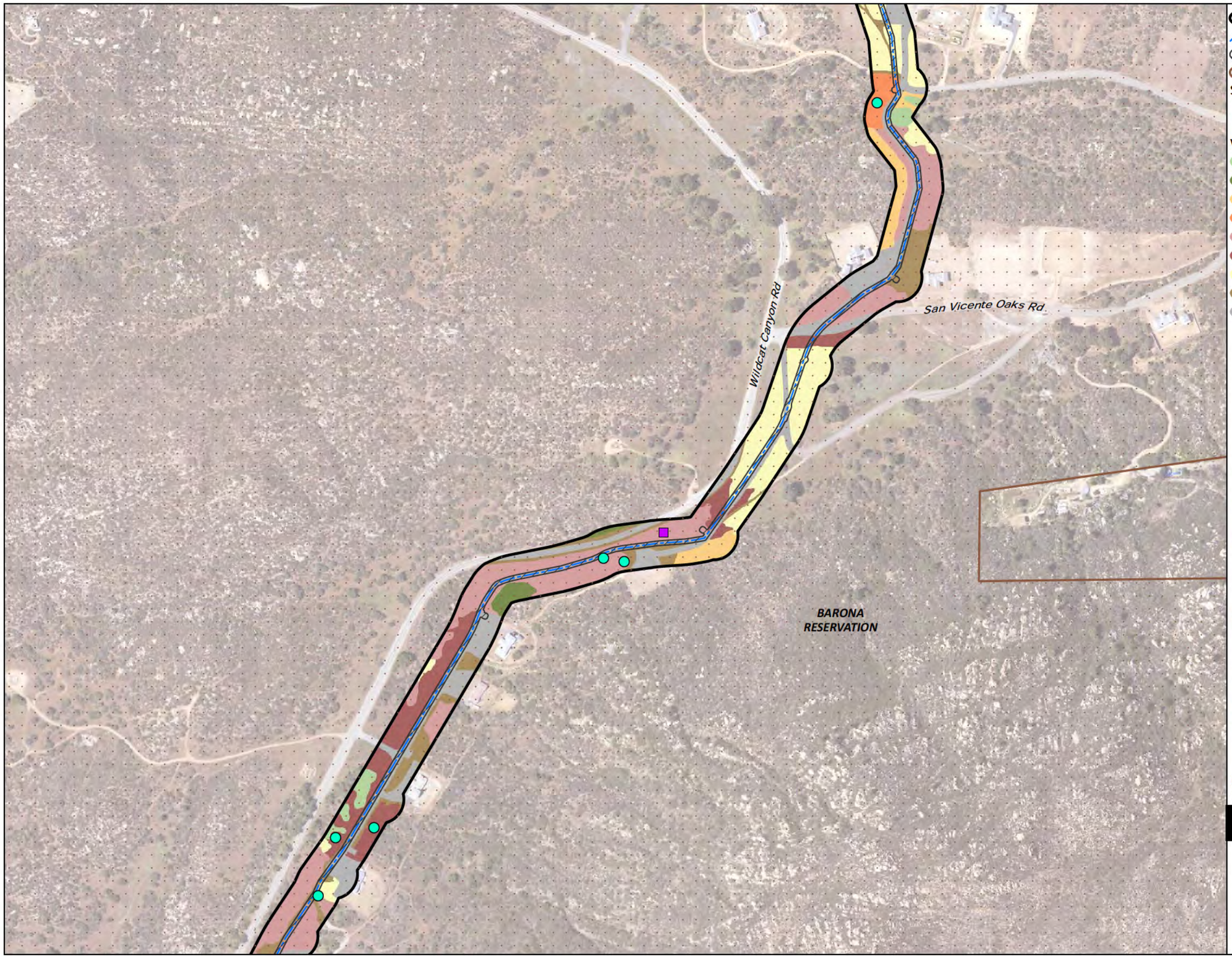
Vegetation and
Sensitive Resources

LONG-TERM POTABLE AND
RECYCLED WATER SERVICE
TO BARONA INDIAN RESERVATION

Figure 4c

Vegetation and Sensitive Resources

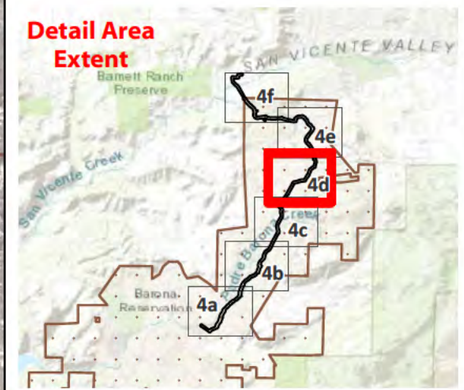
LONG-TERM POTABLE AND
RECYCLED WATER SERVICE
TO BARONA INDIAN RESERVATION



Survey Area
Proposed Potable Water Pipeline
Temporary Impacts
Barona Reservation

Special Status Species
- Engelmann Oak (*Quercus engelmannii*)
- Cooper's Hawk (*Accipiter cooperii*)

Vegetation
- Coast Live Oak Woodland
- Chamise Chaparral
- Southern Mixed Chaparral
- Coastal Sage-Chaparral Scrub
- Diegan Coastal Sage Scrub
- Diegan Coastal Sage Scrub - Disturbed
- Non-native Grassland
- Disturbed Habitat
- Developed



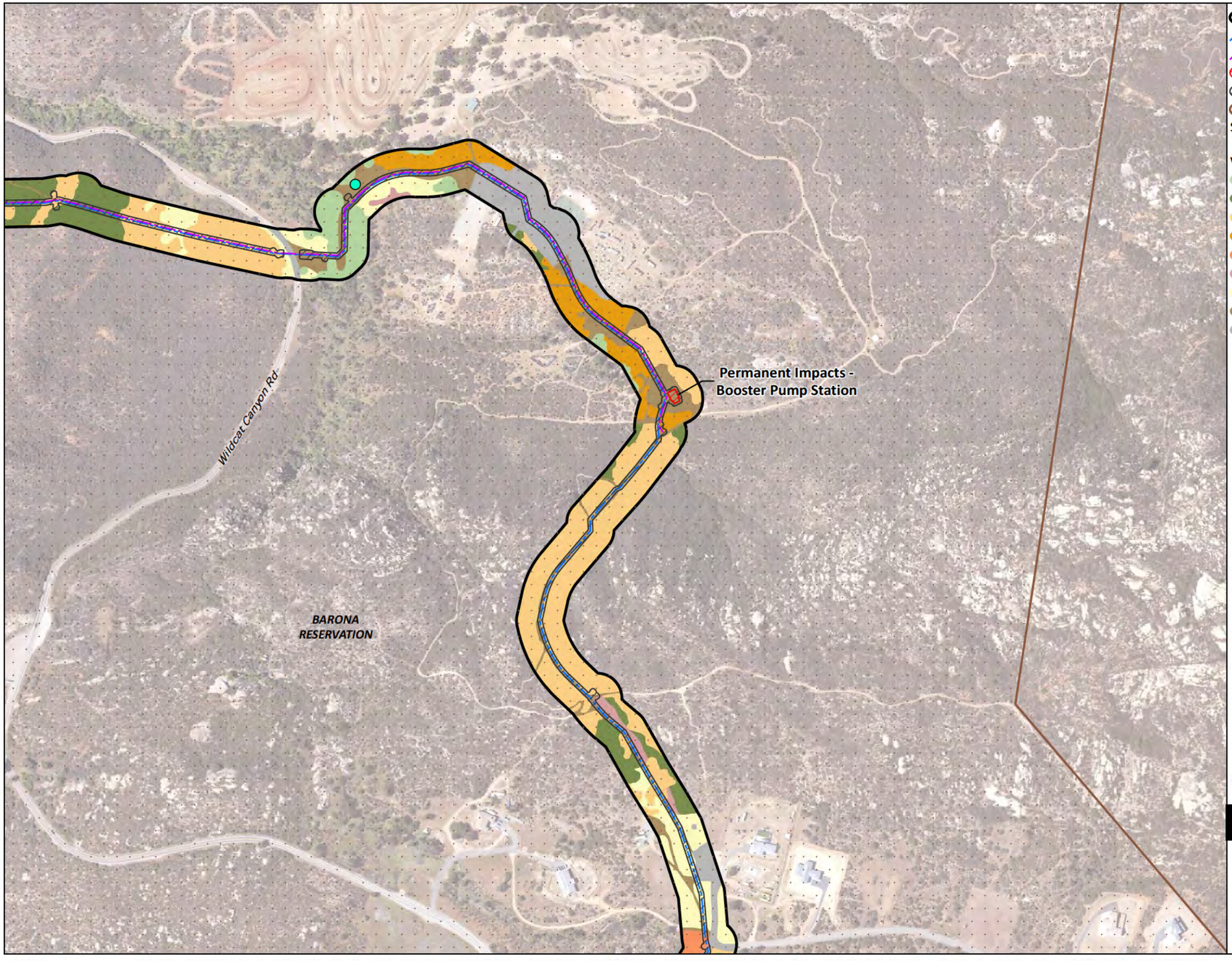
N
W
E
S
0 200 400
Feet

ALDEN
ENVIRONMENTAL, INC

Figure 4d

Vegetation and
Sensitive Resources

LONG-TERM POTABLE AND
RECYCLED WATER SERVICE
TO BARONA INDIAN RESERVATION

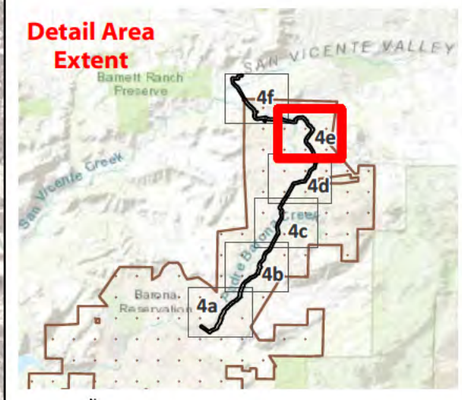


Survey Area
Proposed Potable Water Pipeline
Proposed Recycled Water Pipeline
Permanent Impacts
Temporary Impacts
Barona Reservation

Special Status Species
Engelmann Oak (*Quercus engelmannii*)

Vegetation
Coast Live Oak Woodland
Chamise Chaparral
Southern Mixed Chaparral
Southern Mixed Chaparral - Disturbed
Coastal Sage-Chaparral Scrub
Diegan Coastal Sage Scrub
Non-native Grassland
Disturbed Habitat
Developed

Detail Area Extent



N
W E
S

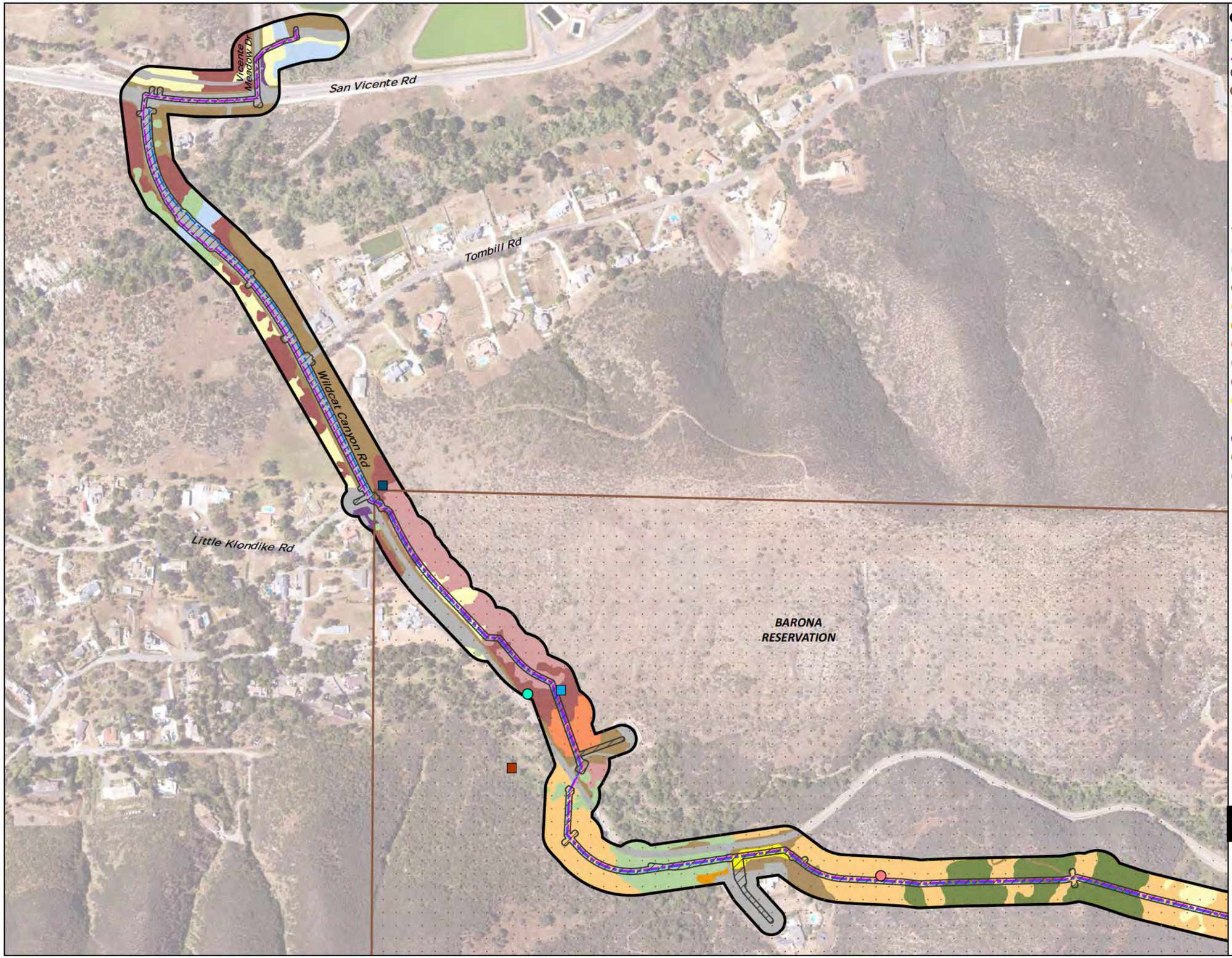
0 200 400
Feet

ALDEN ENVIRONMENTAL, INC

Figure 4e

Vegetation and Sensitive Resources

LONG-TERM POTABLE AND RECYCLED WATER SERVICE TO BARONA INDIAN RESERVATION

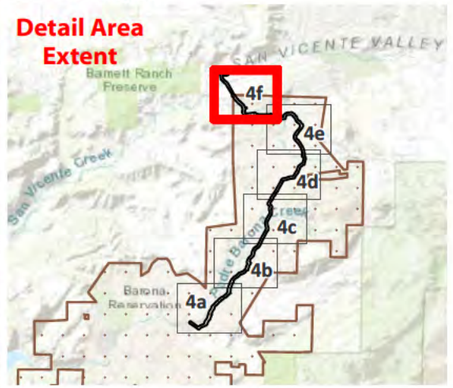


Survey Area
Proposed Potable Water Pipeline
Proposed Recycled Water Pipeline
Temporary Impacts
Barona Reservation

Special Status Species
- Engelmann Oak (*Quercus engelmannii*)
- Parry's tetracoccus (*Tetracoccus dioicus*)
- Rufous-crowned Sparrow (*Aimophila ruficeps*)
- Turkey Vulture (*Cathartes aura*)
- Western Bluebird (*Sialia mexicana*)

Vegetation
- Riparian Forest
- Coast Live Oak Woodland
- Chamise Chaparral
- Southern Mixed Chaparral
- Southern Mixed Chaparral - Disturbed
- Coastal Sage-Chaparral Scrub
- Diegan Coastal Sage Scrub
- Diegan Coastal Sage Scrub - Disturbed
- Buckwheat Scrub
- Non-native Grassland
- Ornamental
- Disturbed Habitat
- Developed

Detail Area Extent



N
W E
S
0 200 400
Feet

ALDEN ENVIRONMENTAL, INC

Figure 4f

Vegetation and Sensitive Resources

LONG-TERM POTABLE AND RECYCLED WATER SERVICE TO BARONA INDIAN RESERVATION

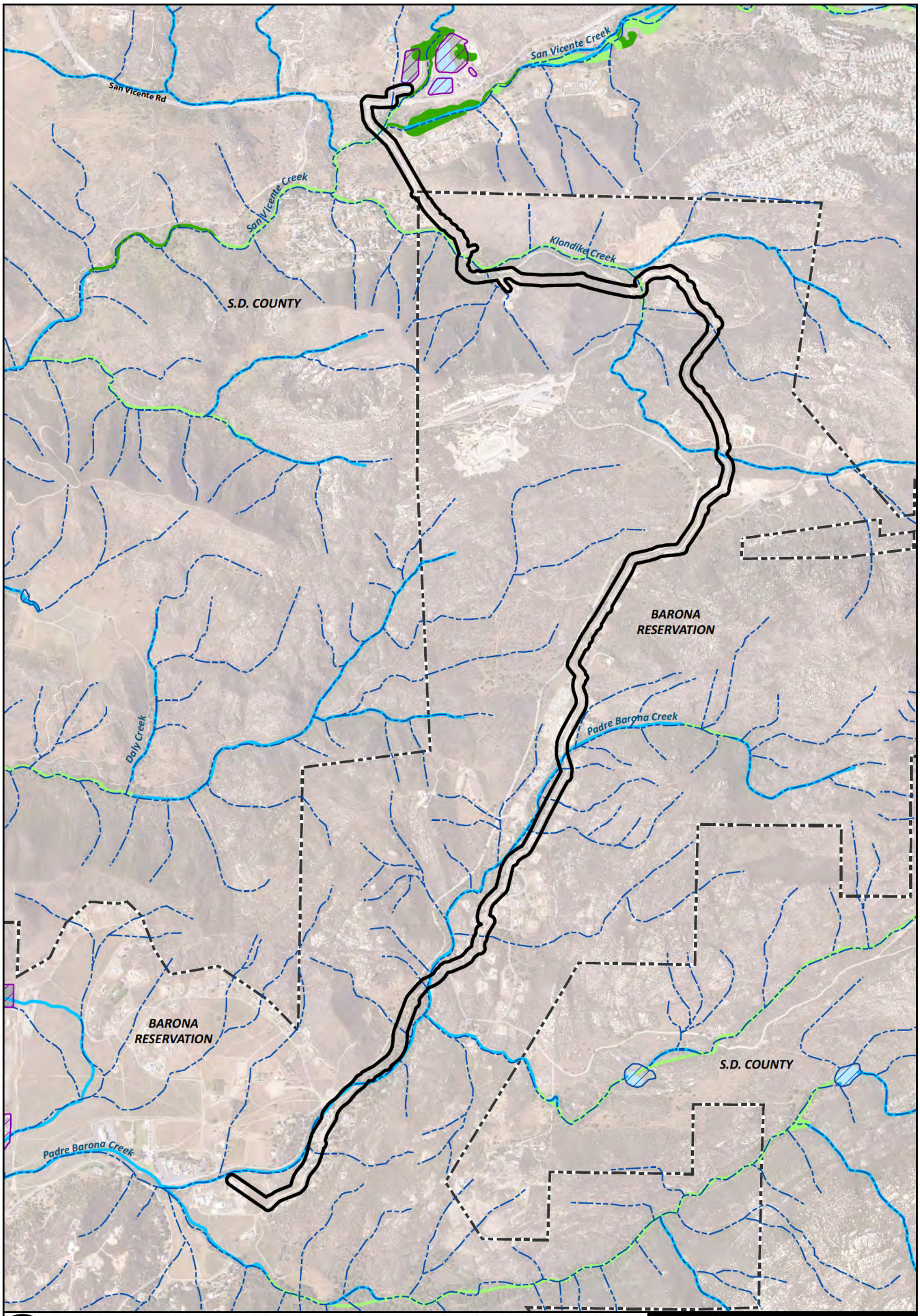


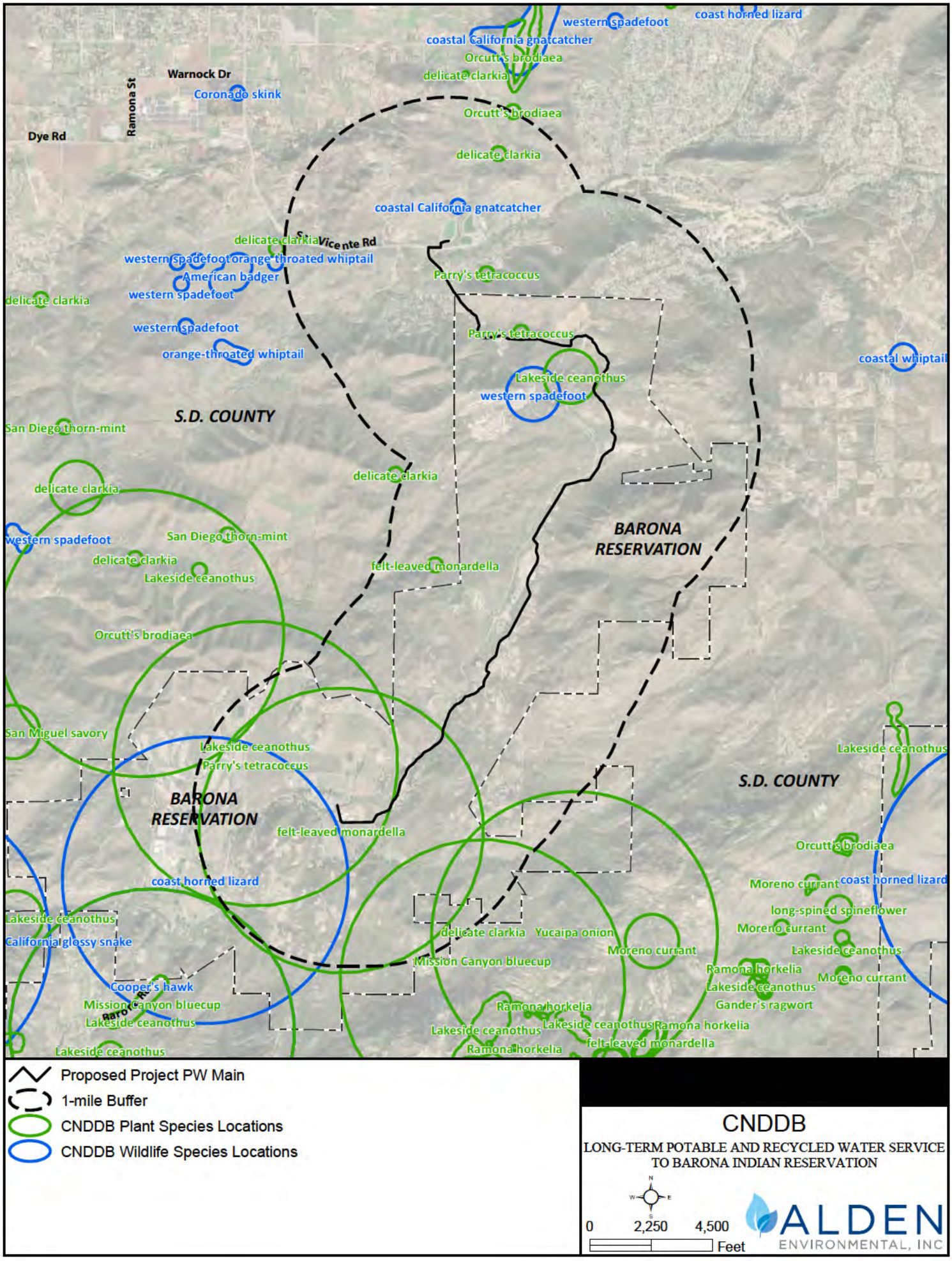
Figure 5

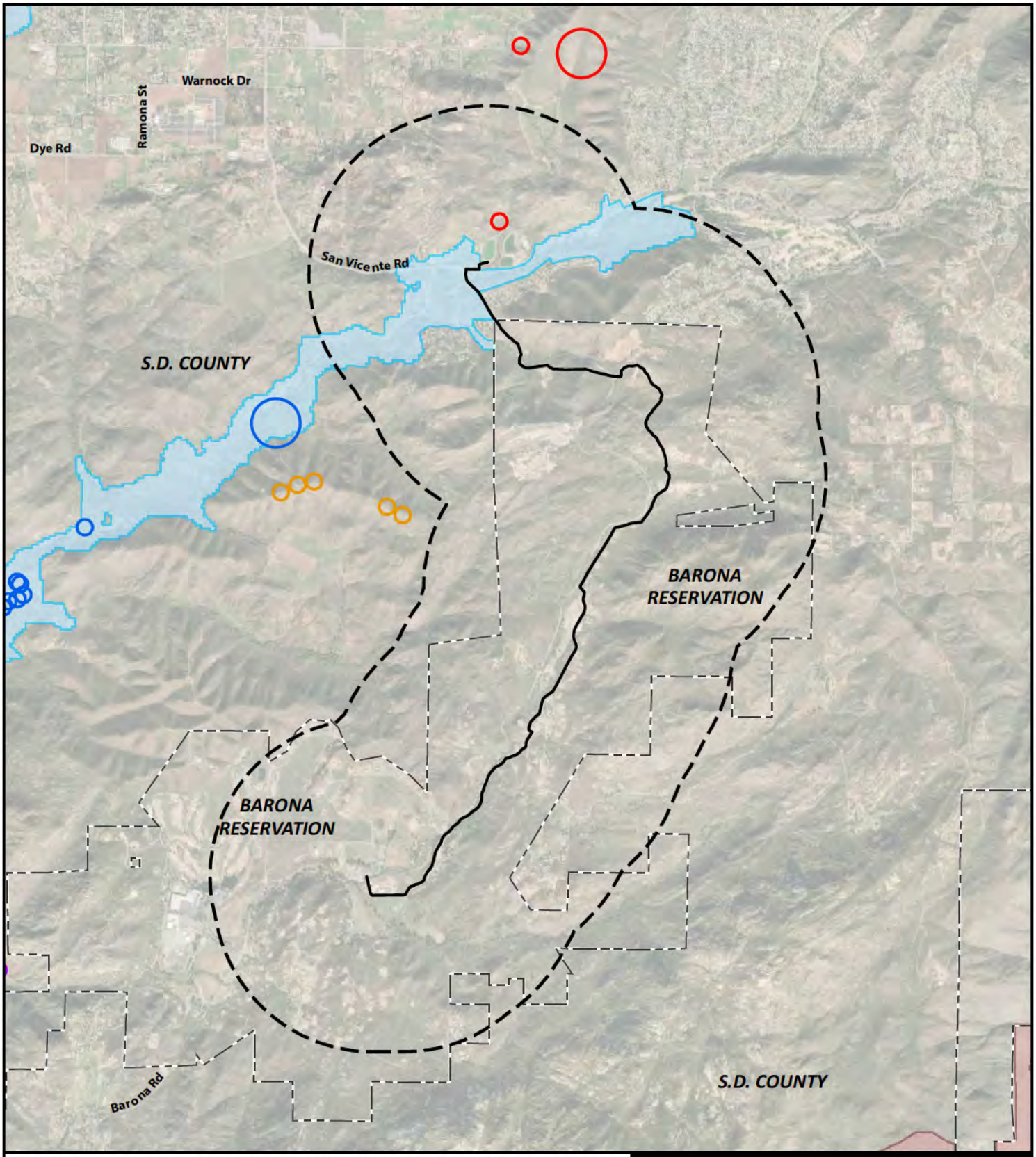
NWI and NHD

LONG-TERM POTABLE AND
RECYCLED WATER SERVICE
TO BARONA INDIAN RESERVATION

Attachment A

CNDDB & USFWS Database Query Results


western spadefoot
coast horned lizard
coastal California gnatcatcher
Orcutt's brodiaea
delicate clarkia
Warnock Dr
Ramona St
Coronado skink
Dye Rd
Orcutt's brodiaea
delicate clarkia
coastal California gnatcatcher
delicate clarkia
San Vicente Rd
western spadefoot
orange-throated whiptail
American badger
Parry's tetracoccus
delicate clarkia
western spadefoot
western spadefoot
Parry's tetracoccus
orange-throated whiptail
coastal whiptail
Lakeside ceanothus
western spadefoot
S.D. COUNTY
San Diego thorn-mint
delicate clarkia
delicate clarkia
BARONA RESERVATION
western spadefoot
San Diego thorn-mint
delicate clarkia
Lakeside ceanothus
felt-leaved monardella
Orcutt's brodiaea
San Miguel savory
Lakeside ceanothus
Parry's tetracoccus
BARONA RESERVATION
felt-leaved monardella
S.D. COUNTY
Lakeside ceanothus
Orcutt's brodiaea
coast horned lizard
Moreno currant
coast horned lizard
long-spined spineflower
Lakeside ceanothus
California glossy snake
delicate clarkia
Yucaipa onion
Moreno currant
Moreno currant
Lakeside ceanothus
Mission Canyon bluecup
Ramona horkelia
Moreno currant
Cooper's hawk
Lakeside ceanothus
Gander's ragwort
Ramona horkelia
Mission Canyon bluecup
Lakeside ceanothus
Lakeside ceanothus
Ramona horkelia
Lakeside ceanothus
Ramona horkelia
felt-leaved monardella
Lakeside ceanothus
Proposed Project PW Main
1-mile Buffer
CNDDB Plant Species Locations
CNDDB Wildlife Species Locations
CNDDB
LONG-TERM POTABLE AND RECYCLED WATER SERVICE TO BARONA INDIAN RESERVATION
N
W
E
S
0
2,250
4,500
Feet
ALDEN
ENVIRONMENTAL, INC



Proposed Project PW Main

1-mile Buffer

Critical Habitat

Arroyo Toad

Coastal California Gnatcatcher

USFWS Species Locations

Arroyo Toad

Coastal California Gnatcatcher

Least Bell's Vireo

Quino Checkerspot Butterfly

USFWS Species

LONG-TERM POTABLE AND RECYCLED WATER SERVICE TO BARONA INDIAN RESERVATION

0 2,250 4,500 Feet

ALDEN ENVIRONMENTAL, INC

Attachment B

Coastal California Gnatcatcher Survey Report

2023 Report
U.S. Fish and Wildlife Service Protocol Level Presence/Absence Surveys for the Coastal California Gnatcatcher (*Polioptila californica californica*)

Prepared for:

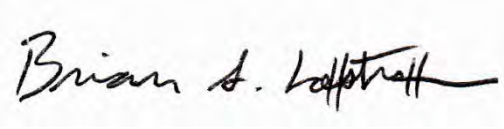
BFSA Environmental Services
14010 Poway Road, Suite A
Poway, CA 92064

Prepared by:

Alden Environmental, Inc.
3245 University Ave., #1188
San Diego, CA 92104

December 15, 2023

I certify that the information in this survey report and attached exhibits fully and accurately represent my work.



Brian Lohstroh (ES 063608-7)

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TABLE OF CONTENTS

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LIST OF APPENDICES

INTRODUCTION

This report documents the results of a survey conducted for the federally listed as threatened coastal California gnatcatcher (*Polioptila californica californica*; CAGN) on the Barona Reservation Water Pipeline Project site. The project consists of an approximately 8-mile long water pipeline on the Barona Indian Reservation with about 40 acres of suitable coastal sage scrub habitat along the pipeline alignment. Given that the site is not within a participating NCCP and that the surveys were conducted outside of the breeding season for this species, the survey consisted of nine separate site visits.

METHODS

The non-breeding season surveys were performed in accordance with the Year 1997 Survey Protocol Information (USFWS 1997) by US Fish & Wildlife Service (USFWS) permitted biologist Brian Lohstroh (ES063608-7). The survey visits were conducted between August 16 and December 6, 2023.

Dates, times, and weather conditions at the start and end of each survey are presented in Appendix A. The survey was conducted by walking through, and adjacent to, suitable CAGN habitat on site. Birds were viewed with the aid of binoculars, where necessary. Recorded CAGN vocalizations ("mew calls") were broadcast for approximate 5-second durations at approximately 50-yard increments along the survey route, or as needed to adequately cover each suitable habitat patch. Recorded vocalizations were only broadcast to initially detect the possible presence of CAGNs. Copies of field forms from each survey are presented in Appendix B.

SURVEY RESULTS

The habitat surveyed onsite included patches of buckwheat scrub, Diegan coastal sage scrub and coastal sage-chaparral scrub. Dominant species observed varied according to the habitat type and included combinations of California buckwheat (Eriogonum fasciculatum), California sagebrush (Artemisia californica), laurel sumac (Malosma laurina), scrub oaks (Quercus spp.), chamise (Adenostema fasciclatum) and deerweed (Acmispon glaber). Common annuals in the understory include short-pod mustard (Hirschfeldia incana), tocalote (Centaurea melitensis), and non-native grasses (Bromus spp., Avena spp.).

CAGN are known to occur 5 miles to the west of the survey area (Lohstroh 2019), which is likely near the eastern edge of the known range for CAGN within central San Diego County. Although there is suitable habitat within the survey area, the climate extremes in the local area likely preclude CAGN from permanently residing in the area. No CAGN were observed during any of the survey visits. A list of species observed is provided as Appendix C.

REFERENCES

USFWS. 1997. Coastal California Gnatcatcher (*Polioptila californica californica*) Presence/Absence Survey Guidelines. February 28.

Lohstroh, Brian. 2019. Personal observation of California gnatcatcher breeding pairs at Lakeside Ranch, Lakeside CA. Protocol surveys 2016-2019.

Figure 1

Regional Location

BARONA PIPELINE
2023 COASTAL CALIFORNIA
GNATCATCHER SURVEY

ALDEN ENVIRONMENTAL, INC

Project Site

N
W E
S

0 0.5 1 Mile

ALDEN ENVIRONMENTAL, INC

Figure 2

Project Location

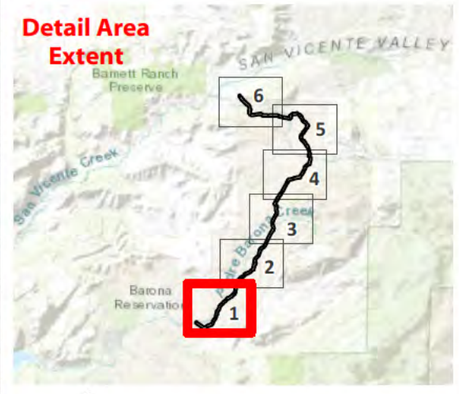
BARONA PIPELINE
2023 COASTAL CALIFORNIA
GNATCATCHER SURVEY

Survey Area

Vegetation

- Coast Live Oak Woodland
- Buckwheat Scrub
- Buckwheat Scrub - Disturbed
- Non-native Grassland
- Disturbed Habitat
- Developed

Detail Area Extent



N W E S

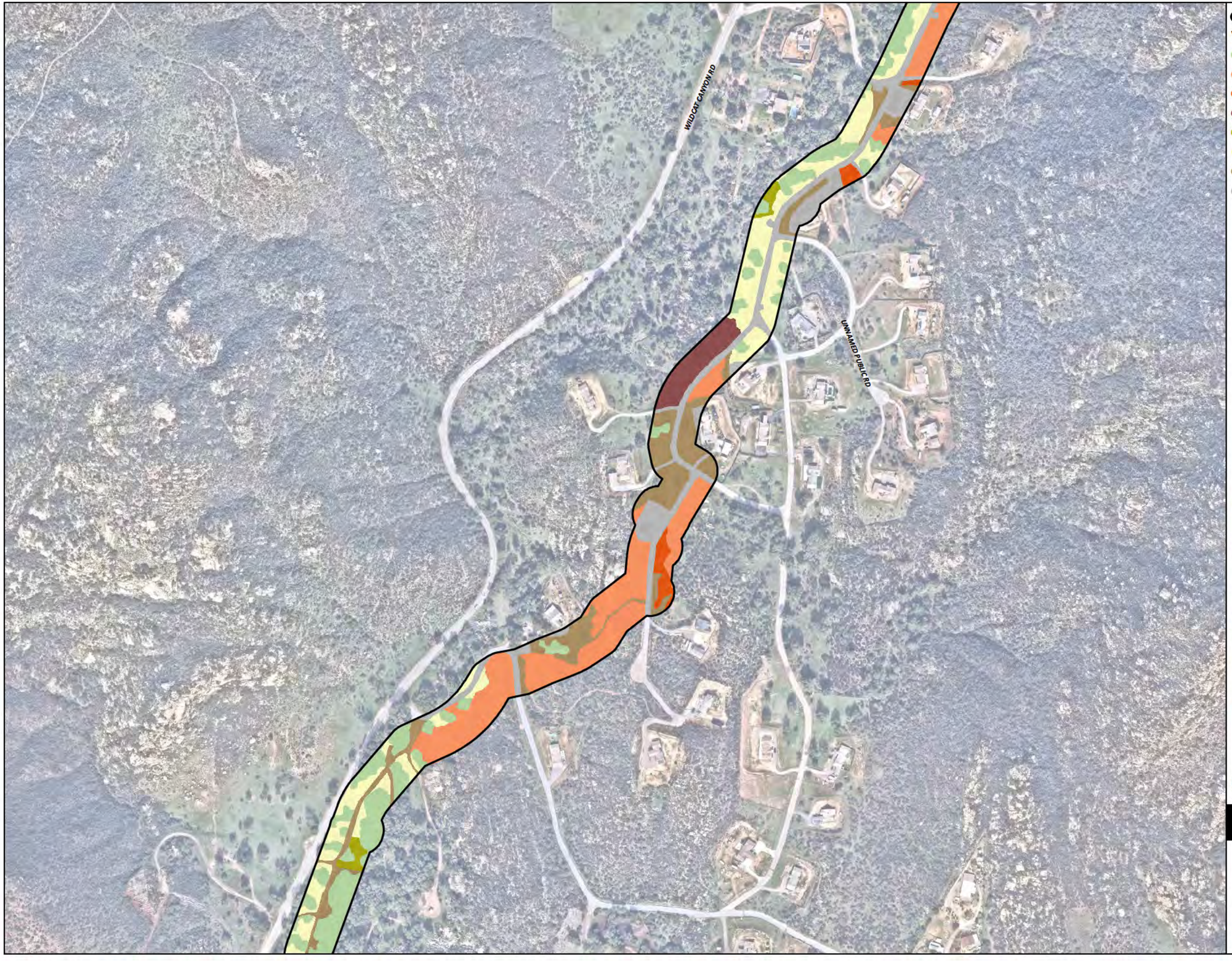
0 200 400 Feet

ALDEN ENVIRONMENTAL, INC

Figure 3 - Page 1 of 6

Coastal California Gnatcatcher Survey Results

BARONA PIPELINE
2023 COASTAL CALIFORNIA
GNATCATCHER SURVEY

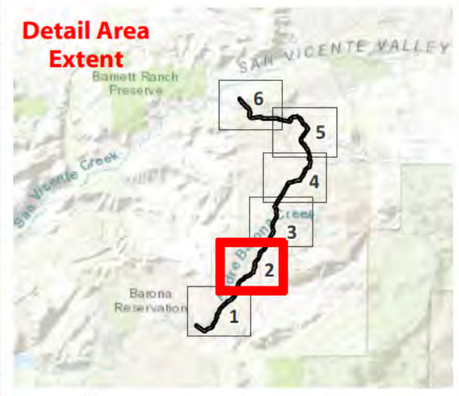


Survey Area

Vegetation

- Coast Live Oak Woodland
- Coastal Sage-Chaparral Scrub
- Coastal Sage-Chaparral Scrub - Disturbed
- Diegan Coastal Sage Scrub - Disturbed
- Buckwheat Scrub - Disturbed
- Non-native Grassland
- Disturbed Habitat
- Developed

Detail Area Extent



N W E S

0 200 400 Feet

ALDEN ENVIRONMENTAL, INC

Figure 3 - Page 2 of 6

Coastal California Gnatcatcher Survey Results

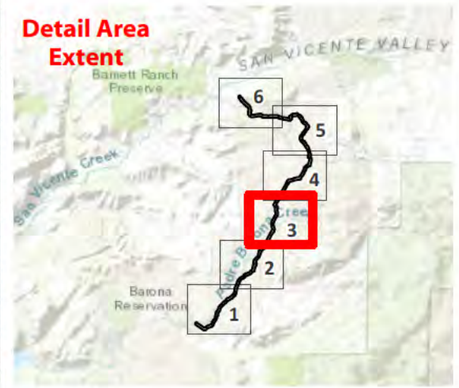
BARONA PIPELINE
2023 COASTAL CALIFORNIA GNATCATCHER SURVEY

Survey Area

Vegetation

- Coast Live Oak Woodland
- Coastal Sage-Chaparral Scrub
- Coastal Sage-Chaparral Scrub - Disturbed
- Diegan Coastal Sage Scrub
- Diegan Coastal Sage Scrub - Disturbed
- Non-native Grassland
- Disturbed Habitat
- Developed

Detail Area Extent



N
W E
S

0 200 400 Feet

ALDEN ENVIRONMENTAL, INC

Figure 3 - Page 3 of 6

Coastal California Gnatcatcher Survey Results

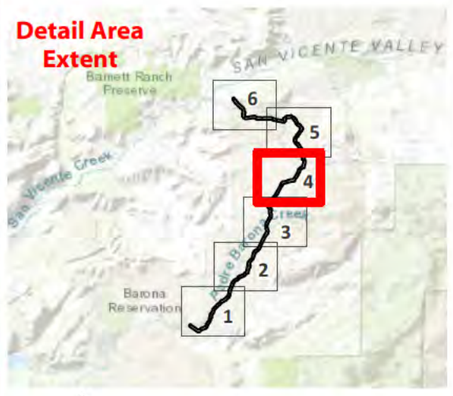
BARONA PIPELINE
2023 COASTAL CALIFORNIA GNATCATCHER SURVEY

Survey Area

Vegetation

- Coast Live Oak Woodland
- Chamise Chaparral
- Southern Mixed Chaparral
- Coastal Sage-Chaparral Scrub
- Diegan Coastal Sage Scrub
- Diegan Coastal Sage Scrub - Disturbed
- Non-native Grassland
- Disturbed Habitat
- Developed

Detail Area Extent



N
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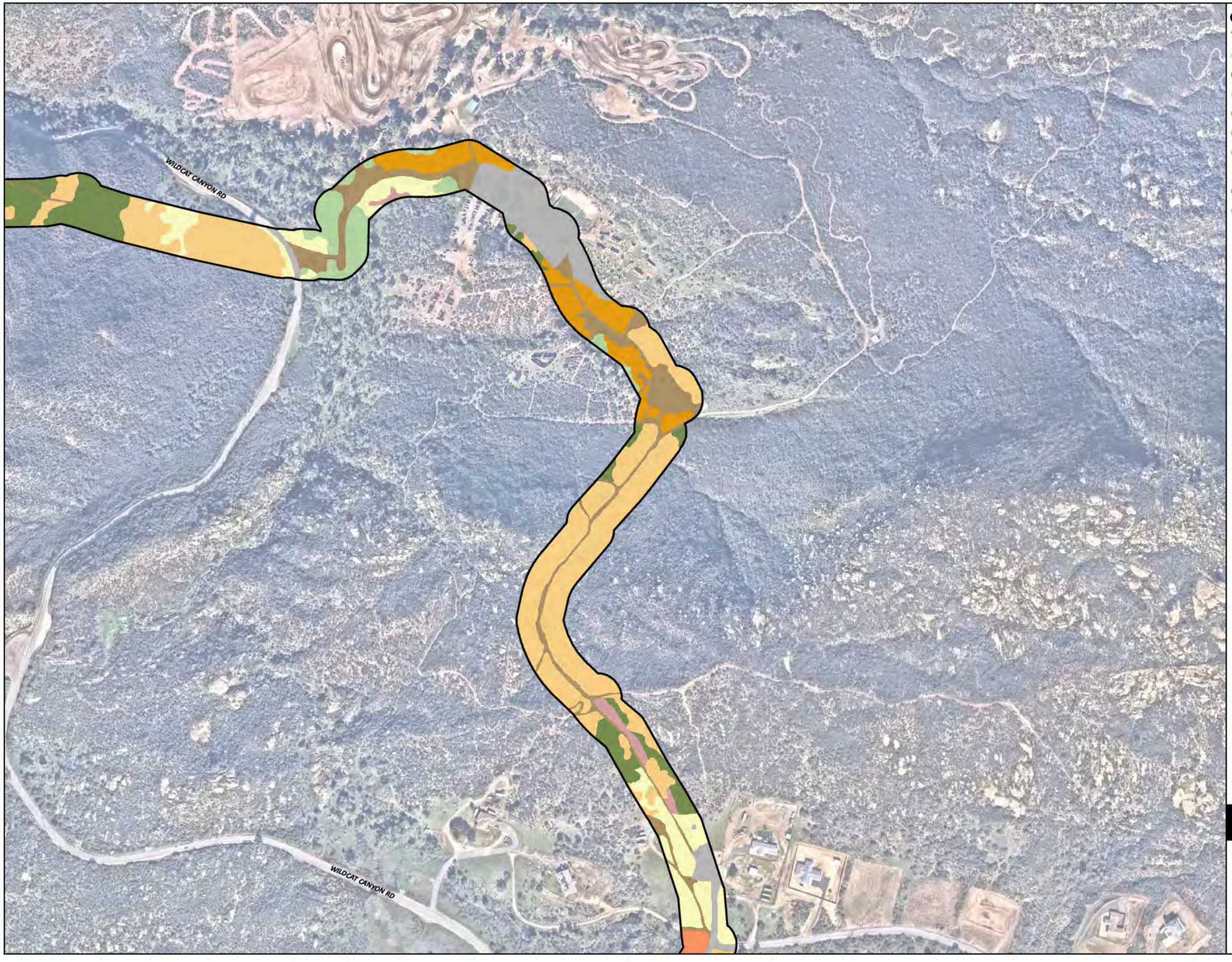
0 200 400 Feet

ALDEN ENVIRONMENTAL, INC

Figure 3 - Page 4 of 6

Coastal California Gnatcatcher Survey Results

BARONA PIPELINE
2023 COASTAL CALIFORNIA GNATCATCHER SURVEY

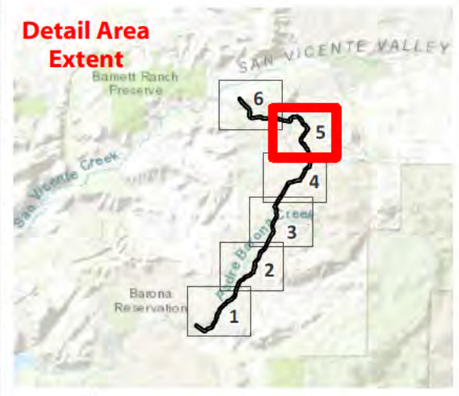


Survey Area

Vegetation

- Coast Live Oak Woodland
- Chamise Chaparral
- Southern Mixed Chaparral
- Southern Mixed Chaparral - Disturbed
- Coastal Sage-Chaparral Scrub
- Diegan Coastal Sage Scrub
- Non-native Grassland
- Disturbed Habitat
- Developed

Detail Area Extent



N W E S

0 200 400 Feet

ALDEN ENVIRONMENTAL, INC

Figure 3 - Page 5 of 6

Coastal California Gnatcatcher Survey Results

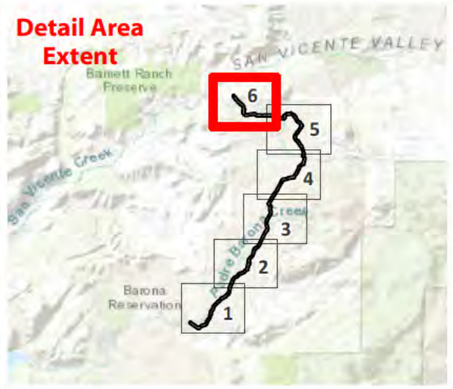
BARONA PIPELINE
2023 COASTAL CALIFORNIA GNATCATCHER SURVEY

Survey Area

Vegetation

- Coast Live Oak Woodland
- Chamise Chaparral
- Southern Mixed Chaparral
- Southern Mixed Chaparral - Disturbed
- Coastal Sage-Chaparral Scrub
- Diegan Coastal Sage Scrub
- Diegan Coastal Sage Scrub - Disturbed
- Buckwheat Scrub
- Non-native Grassland
- Ornamental
- Disturbed Habitat
- Developed

Detail Area Extent



N W E S

0 200 400 Feet

ALDEN ENVIRONMENTAL, INC

Figure 3 - Page 6 of 6

Coastal California Gnatcatcher Survey Results

BARONA PIPELINE
2023 COASTAL CALIFORNIA GNATCATCHER SURVEY

Appendix A
SUMMARY OF 2023 FIELD SURVEY CONDITIONS

Survey	Date	Survey Times (start/stop)	Weather Conditions (start/stop)
1	8/16	0640-1015	10% cover, 69°F, wind 0-2 mph/ 45% cover, 87°F, wind 0-5 mph
2	8/30	0635-1025	0% cover, 72°F, wind 0-2 mph / 0% cover, 93°F, wind 0-5 mph
3	9/13	0630-1000	100% cover, 64°F, wind 0-2 mph/ 0% cover, 69°F, wind 0-4 mph
4	9/27	0645-1040	10% cover, 56°F, wind 0-1 mph/ 30% cover, 78°F, wind 0-3 mph
5	10/11	0700-1100	100% cover, 61°F, wind 0-3 mph/ 70% cover, 60°F, wind 2-5 mph
6	10/25	0700-1100	100% cover, 60°F, wind 0-3 mph/ 100% cover, 62°F, wind 1-4 mph
7	11/8	0655-1045	5% cover, 46°F, wind 0-3 mph/ 0% cover, 65°F, wind 1-3 mph
8	11/22	0700-1100	10% cover, 51°F, wind 5-7 mph/ 0% cover, 75°F, wind 4-7 mph
9	12/6	0650-1030	0% cover, 43°F, wind 0-3 mph/ 0% cover, 68°F, wind 4-6 mph

Appendix B
COPIES OF FIELD FORMS

Avian Field Survey Survey Data Sheet

Date: 8/16/23 Project: Barona Waterline Survey Type: CAGN

Subarea: N/A Survey #: 1

Surveyor: BRIAN LOHSTROH Permit #: ES-063608-7 Affiliation: Lohstroh Bio

Add'l Persons: Ed (escort) Affiliation: Barona

Start Time: 0640 T:69 °F %CC: 10 Wind MPH: 0-2 Gen Wx Cond: mild, calm

End Time: 1015 T:87 °F %CC: 45 Wind MPH: 0-5 Gen Wx Cond: calm, warm

Special Status Spp. Observed: TETDIO, RCSP, QUEENG

Habitat Description: inland BWS, CSS, w/ CLOW, NNG, DH, CSS/chap

BWS/CSS dom: ERIFAS, ARTCAL, ACMGLA, QUEBER, TOXDIV
with: HIRINC, ADEFAC, CEAMMEL, STEDIE

General Notes: Ed + drove entire alignment in Polaris
Edited veg map

NO CAGN OBS.

Avian Species Detected:

AMWO							
CALT							
WBNU							
EUST							
NUWO							
BEWR							
LEGO							
BLPH							
MODO							
WREN							
HOWR							
AMPI							
OATI							
CAQU							
WEBL							
CALI							
RCSP*							
HUVI							

Herps/Mammals Detected:

Other Incidental Observations:

TetDIO -	North End	w/ Gabbro	soils				
QUEENG -	mixed into	CLOW +	CSS/chap				

Avian Field Survey Survey Data Sheet

Date: 8/30/23 Project: Barona Waterline Survey Type: CAGN

Subarea: N/A Survey #: 2

Surveyor: BRIAN LOHSTROH Permit #: ESOG3608-7 Affiliation: LOHSTROH BIO

Add'l Persons: Eel (Escort) Affiliation: Barona

Start Time: 0635 T: 72 °F %CC: 0 Wind MPH: 0-2 Gen Wx Cond: Mild

End Time: 1025 T: 93 °F %CC: 0 Wind MPH: 0-5 Gen Wx Cond: HOT

Special Status Spp. Observed: RCSP (North end)

Habitat Description: BWS/CSS

General Notes: Ed w/ Polaris.
Edited veg map

NO CAGN OBS.

Avian Species Detected:

BEWR	SATO						
CMLT	HOFI						
OATI	RCSP *						
WREN	TUVU						
ANHU	RTHA						
CAGN							
NWWO							
SCJA							
CATH							
EUST							
LEGO							
BUSH							
ACWO							
PLPI							
CAKI							
WBNU							
AMCR							
AMAI							
MODO							
HOSP							

Herps/Mammals Detected:

OTBE	SCOC						

Other Incidental Observations:

Avian Field Survey Survey Data Sheet

Date: 9/13/23 Project: Barrow Waterline Survey Type: CAGN

Subarea: N/A Survey #: 3

Surveyor: BRIAN LOHSTROH Permit #: ES-063606-4 Affiliation: LOHSTROH BIO

Add'l Persons: Ed (ESCORT) Affiliation: Barrow

Start Time: 0630 T: 64 °F %CC: 100 Wind MPH: 0-2 Gen Wx Cond: cool, cloudy

End Time: 1000 T: 69 °F %CC: 0 Wind MPH: 0-4 Gen Wx Cond: mild

Special Status Spp. Observed:

Habitat Description: CSS, BWS, CSS/CHM

General Notes: Ed w/ Polaris
NO CAGN OBS.

Avian Species Detected:

ACWO	CAGN						
OATI	WEBL						
CALT	CANW						
RTHA	EUST						
WREN	TUVU						
CATH	SAPH						
MODO	HOOR						
ANHU	CORA						
BUSH	SBMU						
AMCR							
HUVI							
BEWR							
WRWU							
LEGO							
CAST							
NUWO							
SOSP							
HOWR							
SPTO							
HOFI							

Herps/Mammals Detected:

Other Incidental Observations:

Avian Field Survey Survey Data Sheet

Date: 9/27/23	Project: Barona Waterline			Survey Type: CAGN	
Subarea: N/A				Survey #: 4	
Surveyor: BRIAN LOHSTROH		Permit #: ES-063608-7		Affiliation: LOHSTROH BIO	
Add'l Persons: Ed (Escort)				Affiliation: Barona	
Start Time: 0645	T: 56 °F	%CC: 10	Wind MPH: 0-1	Gen Wx Cond: Brisk	
End Time: 1040	T: 78 °F	%CC: 30	Wind MPH: 0-3	Gen Wx Cond: Warm, Mostly Sunny	

Special Status Spp. Observed:

Habitat Description: CSS, BWS, CSS/CHAP

General Notes: Ed w/ Polaris
NO CAGN OBS

Avian Species Detected:

CALT	RTHA						
BEWR	MODO						
CATH	WEBL						
WBNU	ANHU						
SPTO	ROWR						
ACWO	SBMU						
HOFI							
OATI							
CAST							
CAQU							
AMCR							
HOWR							
LEGO							
WREN							
RSHA							
CEDW							
EUST							
NUWO							
BUSH							
BLPH							

Herps/Mammals Detected:

Other Incidental Observations:

Avian Field Survey Survey Data Sheet

Date: 10/11/23	Project: Barona Waterline		Survey Type: CAGN
Subarea: N/A			Survey #: 5
Surveyor: BRIAN LOHSTROH	Permit #: ES 063608-7		Affiliation: LOHSTROH BIO
Add'l Persons: FRED (ESCORT)			Affiliation: Barona
Start Time: 0900 T: 61 °F	%CC: 100	Wind MPH: 0-3	Gen Wx Cond: misty
End Time: 1100 T: 60 °F	%CC: 70	Wind MPH: 2-5	Gen Wx Cond: cool, mostly cloudy
Special Status Spp. Observed: RCSP - North end			

Habitat Description: CSS/CHAP, CGS, BWS

General Notes: Fred w/ Polaris
No CAGN OBS.

Avian Species Detected:

ACWO	MODO						
OATI	OCWA						
CALT	RCSP*						
HOFI	ANHU						
AMCR	NOMO						
RTHA	SBMU						
BEWR	LASP						
SPTO							
BUSH							
WEBL							
CATH							
CAQU							
CAST							
WBNU							
NUWO							
YRWA							
WREN							
WCSP							
NOFL							
HOWR							

Herps/Mammals Detected:

SyAn							

Other Incidental Observations:

Avian Field Survey Survey Data Sheet

Date: 10/25/23 Project: Baroma Waterline Survey Type: CAGN

Subarea: N/A Survey #: 6

Surveyor: BRIAN LOHSTROH Permit #: ES 063608-7 Affiliation: LOHSTROH BIO

Add'l Persons: Ed Affiliation: Baroma

Start Time: 0700 T: 60 °F %CC: 100 Wind MPH: 0-3 Gen Wx Cond: light drizzle

End Time: 1100 T: 62 °F %CC: 100 Wind MPH: 1-4 Gen Wx Cond: mostly cloudy

Special Status Spp. Observed: COHA (GPS)

Habitat Description: CSS/CHAP, BWS, CSS

General Notes: Ed w/ Polaris
No CAGN OBS.

Avian Species Detected:

CATH	CAGN						
LEGO	BEWR						
CALT	RTHA						
WCSP	WEBL						
CASJ	AMHU						
YRWA	RDWR						
AGWO	MODO						
WREN	COHA						
RSHA	CAKI						
COHA							
SPTO							
OATI							
RCKI							
NOFL							
BUSH							
WBNU							
BLPH							
NUWO							
HOFI							
AMGR							

Herps/Mammals Detected:

Other Incidental Observations:

Avian Field Survey Survey Data Sheet

Date: 11/8/23	Project: Barona waterline		Survey Type: CAGN
Subarea: N/A			Survey #: 7
Surveyor: BRIAN LOHSTROH	Permit #: ES 063608-7		Affiliation: LOHSTROH BIO
Add'l Persons: Ed (escort)			Affiliation: Barona
Start Time: 0655 T: 46 °F	%CC: 5	Wind MPH: 0-3	Gen Wx Cond: cold, mostly clear
End Time: 1045 T: 65 °F	%CC: 0	Wind MPH: 1-3	Gen Wx Cond: cool, mostly sunny
Special Status Spp. Observed:			

Habitat Description: CSS/chap, CSS, BWS

General Notes: Ed w/ Polaris

Dead CA Toad in Road

NO CAGN OBS.

Avian Species Detected:

SCJA	AMCR						
CATH	SEMU						
ACWO	CORA						
NUWO	WBNU						
OATI	NOFL						
CALT	ITDWR						
SPTO							
CAQU							
MODO							
WEBL							
RTHA							
YRWA							
RCKI							
WCSP							
LEGO							
WREN							
BEWR							
EUST							
LASP							
HOFI							

Herps/Mammals Detected:

OTBE	ANBO						
	SCOC						

Other Incidental Observations:

Avian Field Survey Survey Data Sheet

Date: 11/22/23	Project: Barona Waterline		Survey Type: CAGN
Subarea: N/A			Survey #: 8
Surveyor: BRIAN LOHSTROH	Permit #: ES063605-F		Affiliation: LOHSTROH 360
Add'l Persons: FRED (Escort)			Affiliation: Barona
Start Time: 0650 T: 51 °F %CC: 10	Wind MPH: 5-7		Gen Wx Cond: Mostly Sunny, cool
End Time: 1030 T: 75°F %CC: 0	Wind MPH: 4/-7		Gen Wx Cond: clear, warm
Special Status Spp. Observed:			

Habitat Description:

General Notes:

Avian Species Detected:

YRWA	LEGO						
RSHA	WBNU						
CAKI	SAPH						
CASJ	CAQU						
OATI	CORA						
CALT	WEBL						
RCKI	COHA						
SATO	SBMM						
NUWO	BLPH						
ACWO							
HOFI							
WRUM							
EUST							
MODO							
CRTH							
AMCR							
BUSH							
WCSP							
RTHA							
BEWR							

Herps/Mammals Detected:

Other Incidental Observations:

SYAU							

Avian Field Survey Survey Data Sheet

Date: 12/6/23	Project: Barona Winterline		Survey Type: CAGN
Subarea: N/A			Survey #: 9
Surveyor: BRIAN LOHSTROH	Permit #: ES 063606-7		Affiliation: LOHSTROH BIO
Add'l Persons: Ed (Escort)			Affiliation: Barona
Start Time: 0650 T: 43 °F %CC: 0	Wind MPH: 0-3		Gen Wx Cond: clear and cold
End Time: 1030 T: 68 °F %CC: 0	Wind MPH: 4-6		Gen Wx Cond: clear and mild
Special Status Spp. Observed:			

Habitat Description: CSS/CHAP, CSS, BWS

General Notes: Ed w/ Polaris
NO CAGN OBS.
Last survey, NO CAGN detected during any survey 1-9.

Avian Species Detected:

CASJ	RTHA						
WBNU	CAQU						
HOFI	SAPH						
YRWA	NOMO						
OATI	CATH						
ACWO	ANHU						
NUWO	BLPH						
WREN	CAKI						
EUST							
WCSP							
HOFI							
moJO							
BEWR							
SPTO							
CALT							
RCKI							
AMCR							
HOWR							
LEGO							
BUSH							

Herps/Mammals Detected:

Other Incidental Observations:

Appendix C ANIMAL SPECIES OBSERVED BARONA PIPELINE CAGN SURVEY	
SCIENTIFIC NAME	**COMMON NAME**
VERTEBRATES	
Amphibian	
Anaxyrus boreas halophilus	California toad
Reptiles	
Sceloporus occidentalis longipes	great basin fence lizard
Birds	
Accipiter cooperii	Cooper's hawk
Aimophila ruficeps	Rufous-crowned sparrow
Aphelocoma californica	California scrub-jay
Baeolophus inornatus	oak titmouse
Bombycilla cedrorum	cedar waxing
Buteo jamaicensis	red-tailed hawk
Buteo lineatus	red-shouldered hawk
Callipepla californica	California quail
Calypte anna	Anna's hummingbird
Cathartes aura	turkey vulture
Catherpes mexicanus	canyon wren
Chamaea fasciata	wrentit
Chondestes grammacus	lark sparrow
Colaptes auratus	Northern flicker
Corvus brachyrhynchos	American crow
Corvus corax	common raven
Haemorhous mexicanus	house finch
Icterus cucullatus	hooded oriole
Lonchura punctulata	scaly-breasted munia
Melanerpes formicivorus	acorn woodpecker
Melospiza melodia	song sparrow
Melozone crissalis	California Towhee
Mimus polyglottus	northern mockingbird
Oreothlypis celata	orange-crowned Warbler
Passer domesticus	house sparrow
Phainopepla nitens	phainopepla
Picoides nuttallii	Nuttall's woodpecker
Pipilo maculatus	spotted towhee
Psaltriparus minimus	bushtit
Regulus calendula	Ruby-crowned Kinglet
Salpinctes obsoletus	rock wren
Sayornis nigricans	black phoebe

Appendix C (continued) **ANIMAL SPECIES OBSERVED** **BARONA PIPELINE CAGN SURVEY**	
SCIENTIFIC NAME	**COMMON NAME**
Birds	
Sayornis saya	Say's phoebe
Selasphorus sp.	selasphorus hummingbird
Setophaga coronata	yellow-rumped warbler
Sialia mexicana	western bluebird
Sitta carolinensis	white-breasted Nuthatch
Spinus psaltria	lesser goldfinch
Sturnus vulgaris	European starling
Thryomanes bewickii	Bewick's Wren
Toxostoma redivivum	California thrasher
Troglodytes aedon	house Wren
Tyrannus vociferans	Cassin's kingbird
Vireo huttoni	Hutton's Vireo
Zenaida macroura	mourning dove
Zonotrichia leucophrys	white-crowned sparrow
Mammals	
Canis latrans	coyote
Otospermophilus beecheyi	California ground squirrel
Sylvilagus audubonii	desert cottontail

Appendix C

June 2024

Section 106 (NHPA) Historic Resources Study

by BFS Environmental Services, a Perennial Company

This document is confidential.

Appendix C-1

June 2024

Paleontological Assessment

by BFS Environmental Services, a Perennial Company

A PALEONTOLOGICAL ASSESSMENT FOR THE BARONA LONG-TERM POTABLE AND RECYCLED WATER SERVICE PROJECT

COUNTY OF SAN DIEGO, BARONA INDIAN RESERVATION, CALIFORNIA

APNs 285-081-18, -21, -25, and -31, 285-090-07 and -51, 328-050-01, 328-080-01, 328-100-02, 328-120-03, 330-020-01, and 331-010-01

Submitted to:

Barona Band of Mission Indians
1095 Barona Road
Lakeside, California 92040

Prepared for:

Barona Band of Mission Indians
1095 Barona Road
Lakeside, California 92040

Prepared by:

BFSA Environmental Services,
a Perennial Company
14010 Poway Road, Suite A
Poway, California 92064

June 21, 2024

BFSA Environmental Services
A Perennial Company

Paleontological Database Information

Author:	Todd A. Wirths, M.S., Senior Paleontologist, California Professional Geologist No. 7588
Consulting Firm:	BFSA Environmental Services, a Perennial Company 14010 Poway Road, Suite A Poway, California 92064 (858) 484-0915
Report Date:	June 21, 2024
Report Title:	Paleontological Assessment for the Barona Long-Term Potable and Recycled Water Service Project, County of San Diego, Barona Indian Reservation, California
Submitted to:	Barona Band of Mission Indians 1095 Barona Road Lakeside, California 92040
Prepared for:	Barona Band of Mission Indians 1095 Barona Road Lakeside, California 92040
USGS Quadrangle:	*El Cajon Mountain, California* (7.5-minute) Quadrangle
Study Area:	Approximately 75.3 acres
Assessor's Parcel Numbers:	285-081-18, -21, -25, and -31, 285-090-07 and -51, 328-050-01, 328-080-01, 328-100-02, 328-120-03, 330-020-01, and 331-010-01
Key Words*:*	Paleontological assessment; no monitoring recommended.

Table of Contents

Appendices

List of Figures

I. INTRODUCTION AND LOCATION

BFSA Environmental Services, a Perennial Company (BFSA), was contracted by the Barona Band of Mission Indians to supply a paleontological resources study report in support of the Barona Long-Term Potable and Recycled Water Service Project (Barona LTPRWS Project). The paleontological assessment of the Barona LTPRWS Project included a review of paleontological literature and fossil locality records in the area, a review of the underlying geology, and recommendations to monitor for impacts to potential paleontological resources, if necessary. The project is parallel to Wildcat Canyon Road on both the Barona Indian Reservation and unincorporated county of San Diego land, northeast of the San Vicente Reservoir and south of San Vicente Road (Figure 1). Elevations within the Barona LTPRWS Project vary, beginning from the north around 1,280 feet above mean sea level (AMSL) near the intersection of San Vicente and Wildcat Canyon roads, ascending to approximately 1,750 feet AMSL just south of Capitan Grande Road, and descending again to approximately 1,350 feet AMSL near Barona Road. The Barona LTPRWS Project is situated within an unsectioned area of Township 14 South, Range 1 East of the San Bernardino Baseline and Meridian, as shown on the U.S. Geological Survey (USGS) *El Cajon Mountain, California* (7.5-minute) topographic quadrangle map (Figure 2).

As proposed, the Barona LTPRWS Project includes the construction of two roughly parallel underground water pipelines to run from the Ramona Municipal Water District facilities, in the county of San Diego, into and through the Barona Indian Reservation, to provide both recycled and potable water to the reservation and its residents. The recycled water pipeline will be eight inches in diameter and the potable water pipeline will be 12 inches in diameter. Pipes for potable and recycled water will be separated by 10 feet, except in special situations, such as where they pass under a road. The potable line will extend 41,900 linear feet, and the recycled line will extend 21,700 linear feet. The proposed pipeline alignment extends from the Ramona Municipal Water District facilities south and east along Vicente Meadows Drive and San Vicente Road to Wildcat Canyon Road before traveling approximately six miles south from San Vicente Road in the county of San Diego through the Barona Indian Reservation to Barona Road. As such, the Barona LTPRWS Project includes the proposed pipeline alignment and a 50-foot buffer, measured from the center of the alignment, which collectively comprise approximately 75.3 acres.

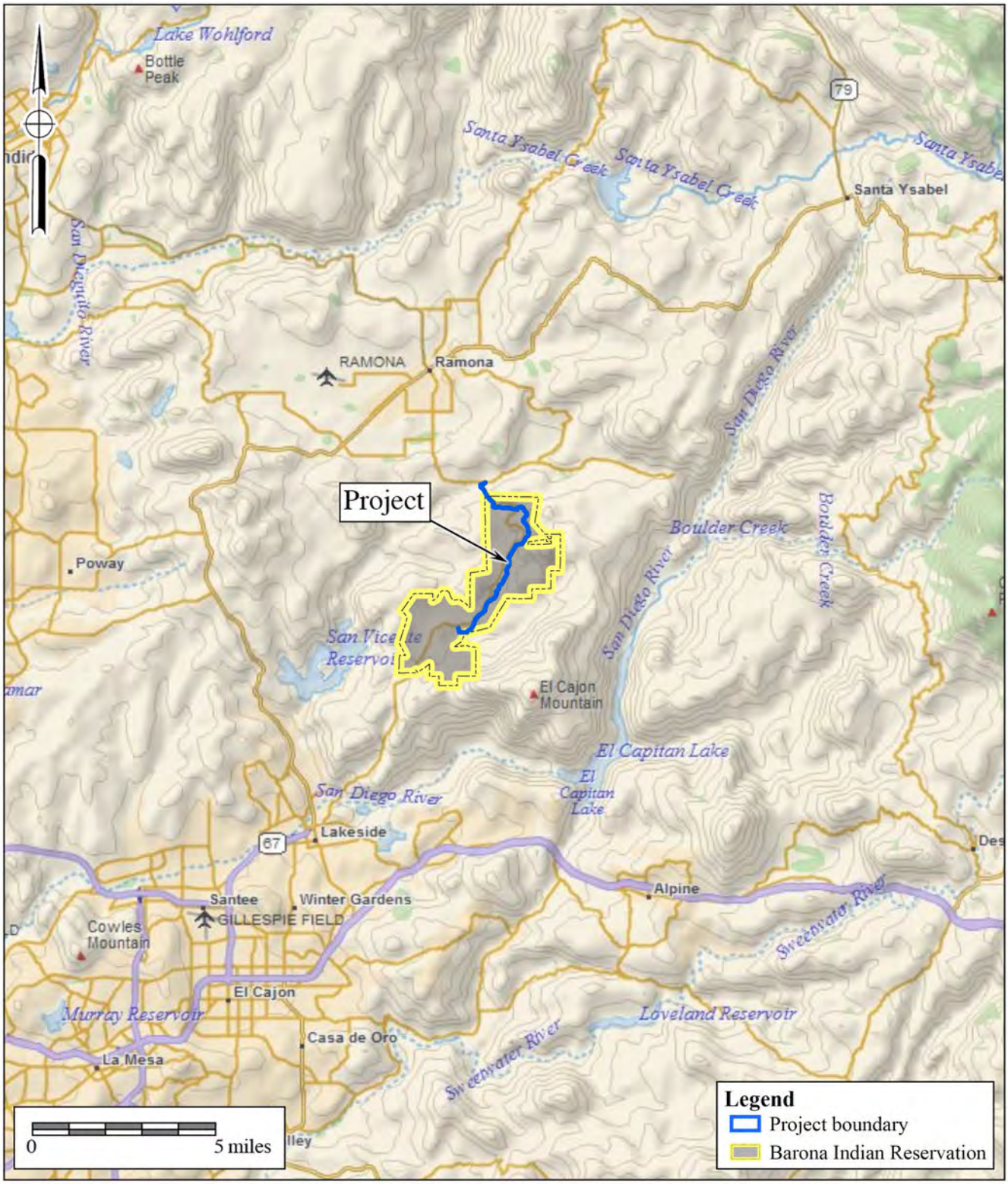


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Figure 1
General Location Map

The Long-Term Potable and Recycled Water Service to the Barona Indian Reservation Project

DeLorme (1:250,000)

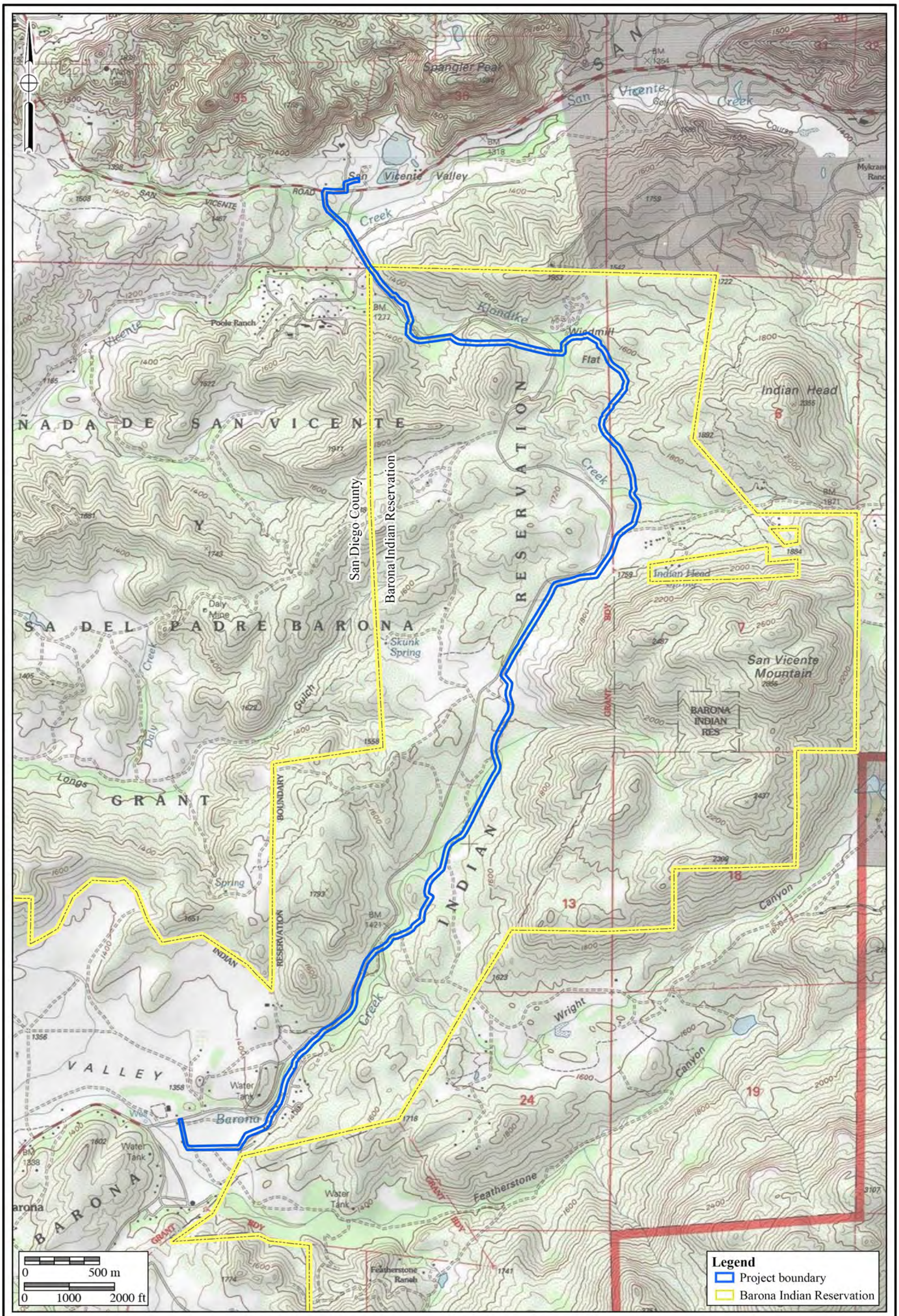

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Figure 2
Project Location Map

The Long-Term Potable and Recycled Water Service
to the Barona Indian Reservation Project

USGS *El Cajon Mountain* Quadrangle (7.5-minute series)

II. REGULATORY SETTING

The northern approximately six acres of the Barona LTPRWS Project are located on county of San Diego land, while the remainder of the alignment falls within the Barona Indian Reservation. The portion of the project on unincorporated county land is subject to California Environmental Quality Act (CEQA) and County of San Diego environmental guidelines.

CEQA, patterned after the National Environmental Policy Act, is the overriding environmental regulation that sets the requirement for protecting California's paleontological resources. CEQA mandates that governing permitting agencies (lead agencies) set their own guidelines for the protection of nonrenewable paleontological resources under their jurisdiction.

Pursuant to CEQA, the County of San Diego has developed a comprehensive set of guidelines, practices, and criteria for evaluating the potential for developments to adversely impact significant paleontological resources, and the necessary procedures to implement in order to preserve the resources if discovered (Stephenson et al. 2009). Geologic formations mapped within unincorporated areas in the county are rated as high, moderate, low, marginal, or with no potential to yield paleontological resources. Based on the rating assignment, the County requires the following monitoring criteria, and subsequent salvage of significant paleontological resources if they are found, to adequately mitigate potentially significant impacts:

- For projects within areas of High or Moderate Paleontological Resources Potential that propose excavation equal to or greater than 2,500 cubic yards, the services of a Project Paleontologist and a Paleontological Resources Monitor are required.
- For projects within areas of High or Moderate Paleontological Potential that propose excavation of less than 2,500 cubic yards, monitoring by a Standard Monitor is required.
- For projects within areas of Low or Marginal Potential, monitoring by a Standard Monitor is required. (Stephenson et al. 2009)

Based on these criteria, the Barona LTPRWS Project is evaluated for paleontological resource sensitivity and the need for mitigation monitoring in Section V of this report.

III. GEOLOGY

The Barona LTPRWS Project lies within the western foothills of the Cuyamaca Mountains, a part of the Peninsular Ranges that extend from the Santa Ana Mountains in Orange County to the southern tip of Mexico's Baja California. The rock units that compose the Peninsular Ranges typically consist of tectonically uplifted plutonic rocks, and most of the project alignment traverses this rock type as well. As shown in Figure 3 (after Todd 2004), the project alignment crosses a variety of plutonic rocks—tonalite, monzogranite, and gabbro—as well as metavolcanic rocks. All are lower to middle Cretaceous in age, a time span of approximately 140 to 90 million years ago. Valleys and lowland areas are covered by a veneer of Holocene-aged young alluvium (yellow areas labeled "Qya" in Figure 3). The southern portion of the alignment traverses these deposits and crosses a small patch near the alignment's northern end. The young alluvial deposits consist of sand, silt, and gravel in modern streambeds and washes. In the middle of the project, the alignment passes through a patch of Holocene to late Pleistocene-aged colluvium (pale yellow area labeled "Qc" in Figure 3), characterized as slope wash, debris-flow, and talus deposits composed of sand and gravel.

Near the project are outcrops of what Todd (2004) labels as the "Pomerado Conglomerate." These isolated outcrops of sand, gravel, and cobbles (brown areas labeled "Tp" in Figure 3) are remnants of a continuous riverbed from a river that was actively flowing during the Eocene Epoch, about 50 to 40 million years ago, originating from Sonora, Mexico, to a point just west of the San Vicente Reservoir (Minch 1979; Abbott 1999). From there, the Ballena River, as the ancient river is called, transitioned to a river delta that now forms the elevated, heavily dissected highland south of Poway, and into the Pacific Ocean. The materials forming the outcrops are known as the "Ballenas gravels," after nearby Whale Peak (Spanish: whale = ballena).

IV. PALEONTOLOGICAL RESOURCES

Definition

Paleontological resources are the remains of prehistoric life that have been preserved in geologic strata. These remains are called fossils and include bones, shells, teeth, and plant remains (including their impressions, casts, and molds) in the sedimentary matrix, as well as trace fossils such as footprints and burrows. Fossils are considered older than 5,000 years of age (Society of Vertebrate Paleontology [SVP] 2010) but may include younger remains (subfossils) when viewed in the context of local extinction of the organism or habitat, for example. Fossils are considered a nonrenewable resource under state and local guidelines (Sections II and V of this report).

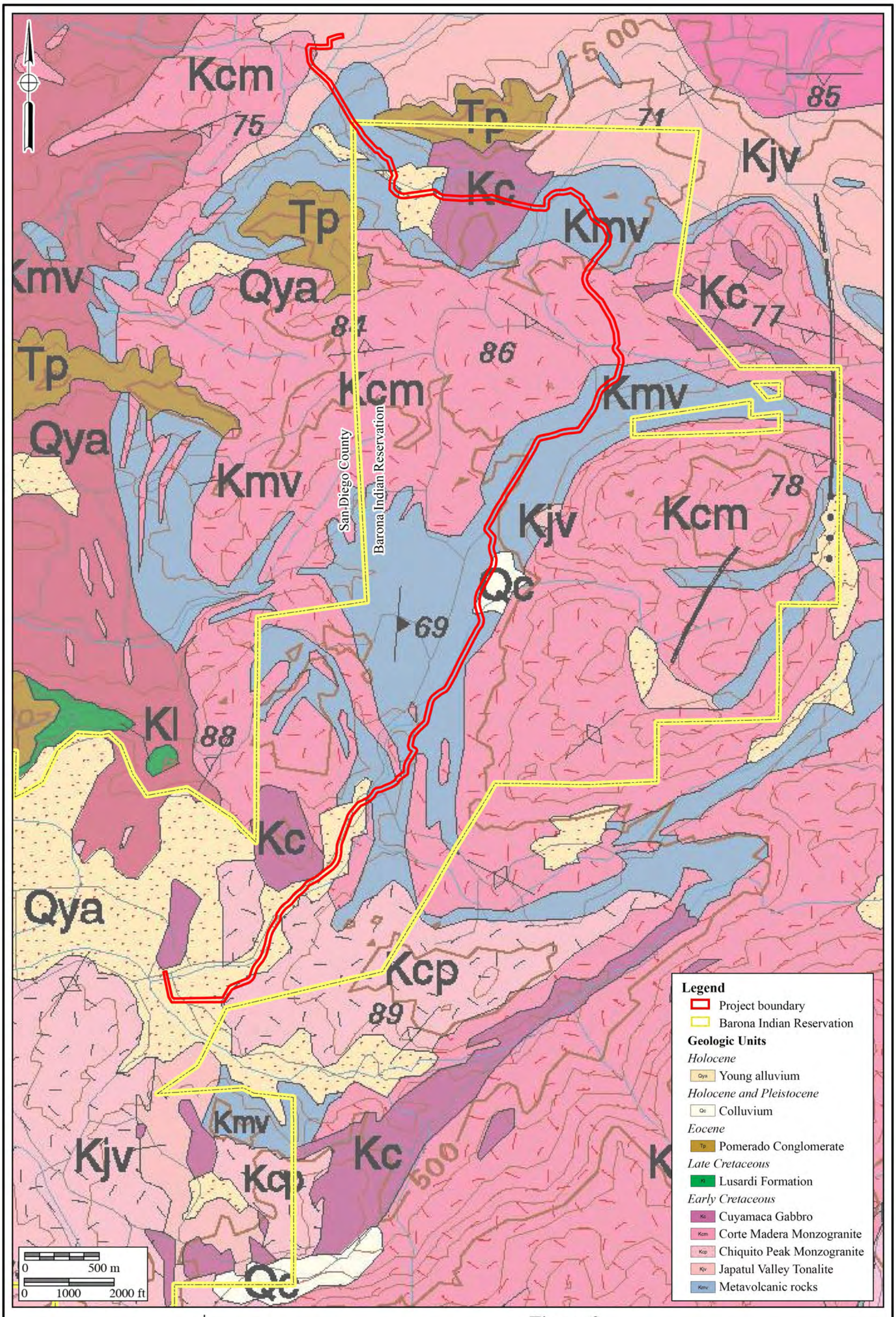

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Figure 3
Geologic Map
The Long-Term Potable and Recycled Water Service
to the Barona Indian Reservation Project
Geology after Todd (2004)

Fossil Locality Search

The nearest-known fossils are located several miles to the west, discovered during mitigation monitoring at the Sycamore Estates development in Poway, about eight miles away. The fossils consist of Eocene-aged bones and teeth of small mammals including marsupials, insectivores, primates, rodents, and an archaic camel, from the conglomerate member of the Friars Formation (Deméré et al. 2016; San Diego Society of Natural History fossil localities 5615 and 5616). Despite a suitable depositional environment and age of the nearby Ballena gravels, fossils are not known from these deposits.

V. PALEONTOLOGICAL SENSITIVITY

Overview

The degree of paleontological sensitivity of any particular area is based on a number of factors, including the documented presence of fossiliferous resources on a site or in nearby areas, the presence of documented fossils within a particular geologic formation or lithostratigraphic unit, and whether or not the original depositional environment of the sediments is one that might have been conducive to the accumulation of organic remains that may have become fossilized over time. Plutonic rocks, having crystalized millions of years ago from a molten state several miles below the surface of the earth, do not contain fossils. Holocene alluvial deposits are typically too young to yield significant fossils. In San Diego County, most Cenozoic and Mesozoic-aged sedimentary rock formations (since 75 million years ago) are known to produce fossils (Stephenson et al. 2009; Deméré and Walsh 2011).

Professional Standard

The SVP (2010) has drafted guidelines that include four categories of paleontological sensitivity for geologic units (formations) that might be impacted by a proposed project, as listed below:

- *High Potential:* Rock units from which vertebrate or significant invertebrate, plant, or trace fossils have been recovered.
- *Undetermined Potential:* Rock units for which little information is available concerning their paleontological content, geologic age, and depositional environment, and that further study is needed to determine the potential of the rock unit.
- *Low Potential:* Rock units that are poorly represented by fossil specimens in institutional collections or based upon a general scientific consensus that only preserve fossils in rare circumstances.
- *No Potential:* Rock units that have no potential to contain significant paleontological resources, such as high-grade metamorphic rocks and plutonic igneous rocks.

Using these criteria, based on the geologic formations at the project, the various plutonic and metavolcanic rocks underlying most of the project alignment have no potential. The Holocene alluvial deposits can be considered to have a low potential to yield fossils on account of their young geologic age. The Holocene and late Pleistocene-aged colluvial deposits in the middle of the project alignment probably consist of a wedge of earthen debris at the foot of San Vicente Mountain, deposited as a result of a catastrophic debris flow during a storm. Fossils are not typically found in debris flow deposits. Furthermore, the age designation of "Holocene and late Pleistocene" for the colluvial deposits covers every outcrop mapped as such within the whole 30' x 60' El Cajon quadrangle, an area of roughly 1,500 square miles (Todd 2004), implying that the age of this specific deposit at the project is only estimated. A Holocene age is assigned to this colluvial deposit here, based on its position at the mouth of a canyon, where debris flow deposits older than Holocene, if they exist at all, have been buried by younger sediments. Therefore, a low paleontological potential can be assigned to the colluvial deposits.

County of San Diego Assessment of Paleontological Sensitivity

Geologic formations in unincorporated areas of the county have been rated for their degree of paleontological sensitivity by the County of San Diego (Stephenson et al. 2009; Deméré and Walsh 2011). Sensitivity ratings of high, moderate, low, marginal, and none are assigned to the various formations based on rock type and record for yielding fossil material. The plutonic and metavolcanic rocks mapped underlying most of the project alignment are accorded no paleontological sensitivity, since these rocks do not have fossils. The County rates the Holocene alluvial and colluvial deposits with a low paleontological sensitivity, "based on their relatively young age and/or high-energy depositional history, are judged unlikely to produce unique fossil remains. Low resource potential formations rarely produce fossil remains of scientific significance and are considered to have low sensitivity" (Stephenson et al. 2009).

The County does not require monitoring for developments occurring within geological formations with no paleontological sensitivity. However, for projects occurring in formations with a low or marginal sensitivity, monitoring by a "Standard Monitor" is required. A Standard Monitor is defined as "any one person who is on the project site during all the original cutting of undisturbed substratum. The Standard Monitor must be designated by the Applicant and given the responsibility of watching for fossils so that the project is in conformance with Section 87.430 of the Grading Ordinance." Furthermore, "Section 87.430 of the Grading Ordinance provides for the requirement of a paleontological monitor at the discretion of the County. In addition, the suspension of grading operation is required upon the discovery of fossils greater than twelve inches in any dimension" (Stephenson et al. 2009).

VI. CONCLUSIONS AND RECOMMENDATIONS

County Land

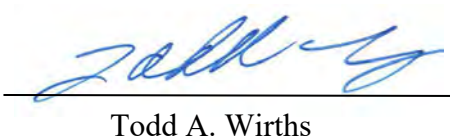
Research indicates that all of the Barona LTPRWS Project alignment that lies outside of the reservation overlies plutonic and metavolcanic rocks, which are not fossiliferous. The County of San Diego accords these rocks with no paleontological potential. The County does not require monitoring in rocks with no potential. Therefore, paleontological mitigation monitoring is not recommended for this portion of the project alignment.

Reservation Land

The potential for fossils to occur in areas mapped as plutonic or metavolcanic rocks within the reservation area of the Barona LTPRWS Project alignment are nil. The potential for significant fossils to occur in areas mapped as Holocene alluvial or colluvial deposits is low to nil. While the alluvial deposits become greater in age with increasing depth and, therefore, would have increasing paleontological sensitivity, it is anticipated the proposed water lines will be buried at shallow depths typical for this type of project and would not impact sensitive deposits. Therefore, paleontological mitigation monitoring is not recommended for this portion of the project alignment.

VII. CERTIFICATION

I hereby certify that the statements furnished above and in the attached exhibits present the data and information required for this paleontological report, and that the facts, statements, and information presented are true and correct to the best of my knowledge and belief and have been compiled in accordance with CEQA criteria.



June 21, 2024

Todd A. Wirths
Senior Paleontologist
California Professional Geologist No. 7588

Date

VIII. REFERENCES

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APPENDIX A

Qualifications of Key Personnel

Todd A. Wirths, MS, PG No. 7588

Senior Paleontologist

BFSA Environmental Services, A Perennial Company
14010 Poway Road • Suite A •
Phone: (858) 679-8218 • Fax: (858) 679-9896 • E-Mail: twirths@bfsa.perennialenv.com

Education

Master of Science, Geological Sciences, San Diego State University, California **1995**

Bachelor of Arts, Earth Sciences, University of California, Santa Cruz **1992**

Professional Certifications

California Professional Geologist #7588, 2003
Riverside County Approved Paleontologist
San Diego County Qualified Paleontologist
Orange County Certified Paleontologist
OSHA HAZWOPER 40-hour trained; current 8-hour annual refresher

Professional Memberships

Board member, San Diego Geological Society
San Diego Association of Geologists; past President (2012) and Vice President (2011)
South Coast Geological Society
Southern California Paleontological Society

Experience

Mr. Wirths has more than a dozen years of professional experience as a senior-level paleontologist throughout southern California. He is also a certified California Professional Geologist. At BFSA, Mr. Wirths conducts on-site paleontological monitoring, trains and supervises junior staff, and performs all research and reporting duties for locations throughout Los Angeles, Ventura, San Bernardino, Riverside, Orange, San Diego, and Imperial Counties. Mr. Wirths was formerly a senior project manager conducting environmental investigations and remediation projects for petroleum hydrocarbon-impacted sites across southern California.

Selected Recent Reports

2019 *Paleontological Assessment for the 10575 Foothill Boulevard Project, City of Rancho Cucamonga, San Bernardino County, California*. Prepared for T&B Planning, Inc. Report on file at Brian F. Smith and Associates, Inc., Poway, California.

2019 *Paleontological Assessment for the MorningStar Marguerite Project, Mission Viejo, Orange County, California.* Prepared for T&B Planning. Report on file at Brian F. Smith and Associates, Inc., Poway, California.

2019 *Paleontological Monitoring Report for the Nimitz Crossing Project, City of San Diego.* Prepared for Voltaire 24, LP. Report on file at Brian F. Smith and Associates, Inc., Poway, California.

2019 *Paleontological Resource Impact Mitigation Program (PRIMP) for the Jack Rabbit Trail Logistics Center Project, City of Beaumont, Riverside County, California.* Prepared for JRT BP 1, LLC. Report on file at Brian F. Smith and Associates, Inc., Poway, California.

2020 *Paleontological Monitoring Report for the Oceanside Beachfront Resort Project, Oceanside, San California.* Prepared for S.D. Malkin Properties. Report on file at Brian F. Smith and Associates, Inc., Poway, California.

2020 *Paleontological Resource Impact Mitigation Program for the Nakase Project, Lake Forest, Orange County, San California.* Prepared for Glenn Lukos Associates, Inc. Report on file at Brian F. Smith and Associates, Inc., Poway, California.

2020 *Paleontological Resource Impact Mitigation Program for the Sunset Crossroads Project, Banning, Riverside County*. Prepared for NP Banning Industrial, LLC. Report on file at Brian F. Smith and Associates, Inc., Poway, California.

2020 *Paleontological Assessment for the Ortega Plaza Project, Lake Elsinore, Riverside County*. Prepared for Empire Design Group. Report on file at Brian F. Smith and Associates, Inc., Poway, California.

2020 *Paleontological Resource Record Search Update for the Green River Ranch III Project, Green River Ranch Specific Plan SP00-001, City of Corona, California*. Prepared for Western Realco. Report on file at Brian F. Smith and Associates, Inc., Poway, California.

2020 *Paleontological Assessment for the Cypress/Slover Industrial Center Project, City of Fontana, San Bernardino County, California*. Prepared for T&B Planning, Inc. Report on file at Brian F. Smith and Associates, Inc., Poway, California.

2020 *Paleontological Monitoring Report for the Imperial Landfill Expansion Project (Phase VI, Segment C-2), Imperial County, California*. Prepared for Republic Services, Inc. Report on file at Brian F. Smith and Associates, Inc., Poway, California.

2021 *Paleontological Assessment for the Manitou Court Logistics Center Project, City of Jurupa Valley, Riverside County, California*. Prepared for Link Industrial. Report on file at Brian F. Smith and Associates, Inc., Poway, California.

2021 *Paleontological Resource Impact Mitigation Program for the Del Oro (Tract 36852) Project, Menifee, Riverside County*. Prepared for D.R. Horton. Report on file at Brian F. Smith and Associates, Inc., Poway, California.

2021 *Paleontological Assessment for the Alessandro Corporate Center Project (Planning Case PR-2020-000519), City of Riverside, Riverside County, California*. Prepared for OZI Alessandro, LLC. Report on file at Brian F. Smith and Associates, Inc., Poway, California.

2021 *Paleontological Monitoring Report for the Boardwalk Project, La Jolla, City of San Diego*. Prepared for Project Management Advisors, Inc. Report on file at Brian F. Smith and Associates, Inc., Poway, California.

Appendix D

June 2022

Preliminary Design Report by Dudek

Preliminary Design Report

Long-Term Potable and Recycled Water Service to Barona Indian Reservation

JUNE 2022

Prepared for:

BARONA BAND OF MISSION INDIANS
1095 Barona Road
Lakeside, CA 92040
Contact: Sheila-Alvarez-Sitz

Prepared by:

DUDEK

605 Third Street
Encinitas, California 92024
Contact: Greg Ripperger, PE

Mike Metts, PE
Principal/Chief Engineer

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APPENDICES

Appendix D

June 2022

Preliminary Design Report by Dudek

FIGURES

TABLES

Acronyms and Abbreviations

Acronym/Abbreviation	Definition
afy	Acre-feet per year
CEQA	California Environmental Quality Act
DEM	Digital elevation model
fps	Feet per second
gpm	Gallons per minute
LF	Linear feet
RMWD	Ramona Municipal Water District

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Appendix D-1

December 2021

Water Supply Feasibility Study by Dudek

1 Introduction

1.1 Project Background and Purpose

In 2021 Dudek conducted a feasibility study evaluating potential potable and recycled water sources from neighboring water districts. The study was initiated as recent estimates of the Tribe's long-term water demand are projected to exceed the sustainable yield of the underlying groundwater basin.

California Water Code Section 71611.5 details guidelines for municipal water districts to provide service to Indian tribal lands. Section 71611.5 stipulates that upon request by an Indian tribe and satisfaction of conditions established by the California Water Code, a district can provide water service to the requesting tribe at substantially the same terms as its existing customers. However, Section 71611.5 has a sunset clause of January 1, 2023. The Tribe is motivated to establish the necessary service agreements with a suitable municipal water district prior to January 1, 2023, to avoid the potential loss of valuable water opportunities.

The feasibility study completed by Dudek in 2021 concluded that Ramona Municipal Water District (RMWD) is the best possible source of potable and recycled water for the Tribe. The study found that sourcing water from RMWD will allow for most required new infrastructure to be constructed on Reservation land, which is not subject to many environmental and permitting requirements, as well as the lowest operations and maintenance cost to the Tribe.

The objectives of this Preliminary Design Report (PDR) are as follows:

- Analyze the Tribe's existing and future potable and recycled water systems and demands
- Present preliminary design criteria for the proposed recycled water and potable water facilities, including pipe sizing, materials, points of connections, and alignments
- Summarize permitting and environmental requirements
- Present the preliminary opinion of probable construction costs and schedule

2 Existing System Summary and Hydraulic Model Analysis

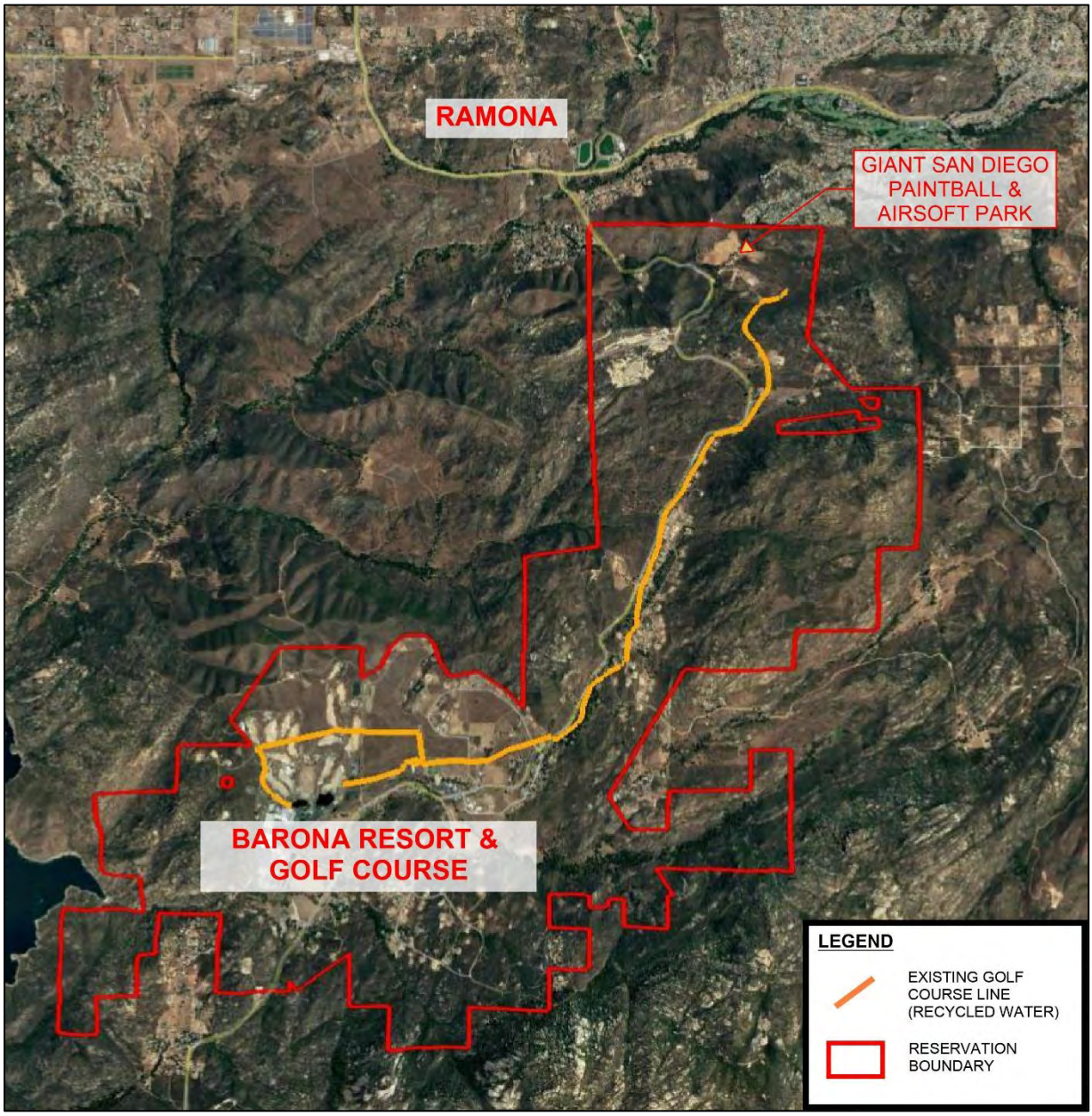
The following section describes the Tribe's existing potable and recycled water systems and demands, as well as future demands based on projected growth. In addition, the following section summarizes the development of a hydraulic model of the Tribe's potable water system and the model analysis results used to determine the appropriate sizing of proposed facilities.

2.1 Existing Tribal Systems

2.1.1 Recycled Water

The Tribe operates a 6-inch recycled water pipeline to irrigate Barona Creek Golf Club, the eighteen-hole golf course surrounding Barona Resort and Casino (Resort). The pipeline, commonly referred to as the "Golf Course Line", originates southeast of the Giant San Diego Paintball Park at Well 29 and continues along Ketuull Uunyaa Way before terminating at the irrigation ponds serving the golf course. The following **Figure 1** depicts the existing alignment of the Golf Course Line.

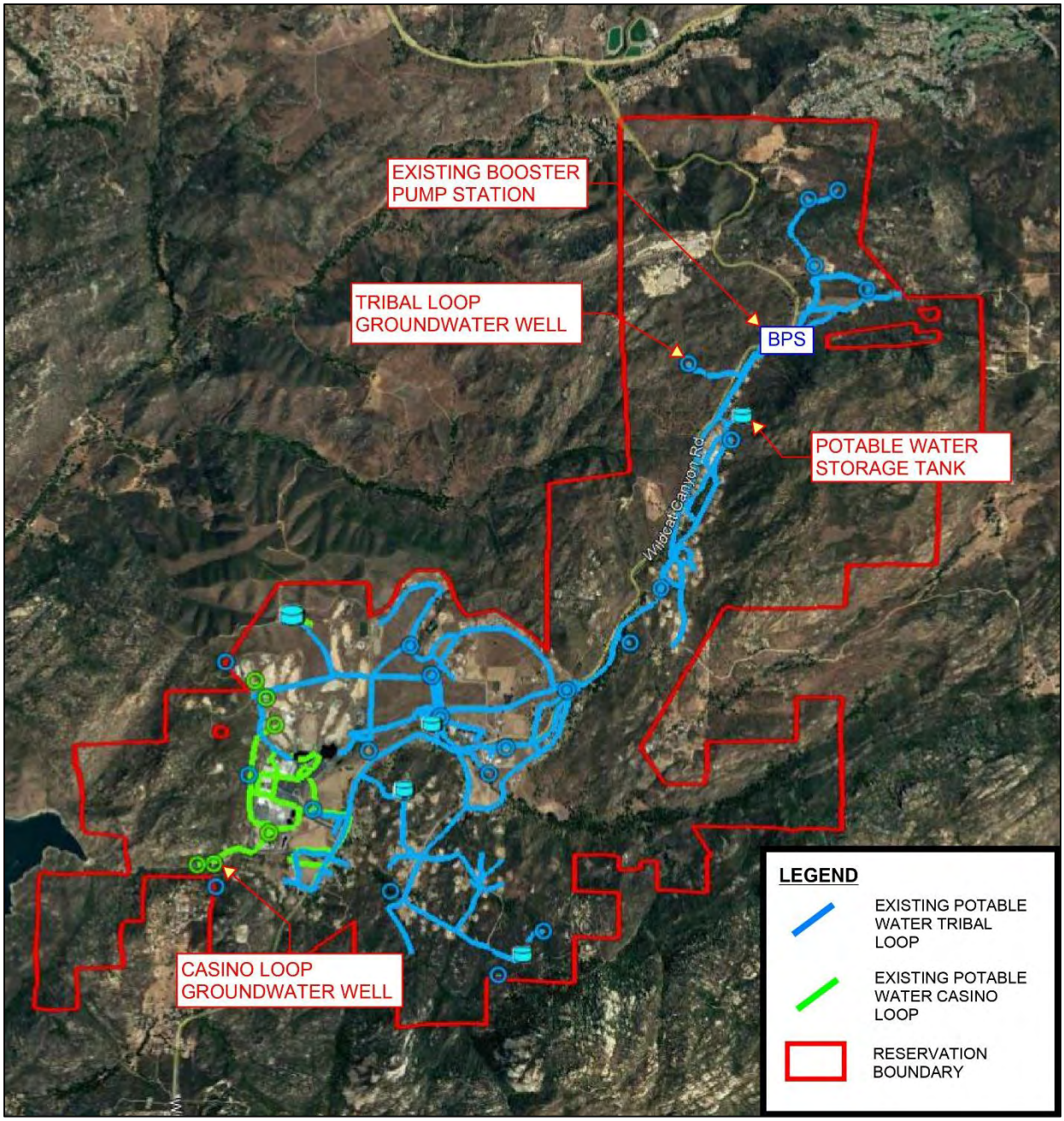
Figure 1: Existing Barona Golf Course Line (Recycled Water) Alignment



2.1.2 Potable Water

The Tribe operates a system of groundwater wells, tanks, booster pump stations, and pipelines to transport potable water throughout the Reservation. There are 28 wells that treat the groundwater and pump into the distribution system to supply the Reservation. There is also a water treatment plant at the Casino that treats groundwater and delivers it to the Casino and resort. The system includes a northern pressure zone and the southern pressure zone that serves the main portion of the Reservation. The following **Figure 2** illustrates the Tribe's existing potable water system.

Figure 2: Existing Barona Potable Water System (Tribal and Casino Loops)



2.2 Existing and Projected Tribal Demands

2.2.1 Recycled Water

San Vicente Wastewater Reclamation Plant (SVWWRP), located near the Tribe's northern Reservation boundary, currently produces 450 afy of recycled water. Approximately 300 afy is being delivered to the San Diego Country Estates Golf Course. The remaining 150 afy of recycled can presently be supplied to the Tribe. Conservation efforts by other RMWD customers may result in an additional 50 to 100 afy of recycled water being made available to the Tribe for additional irrigation needs. Ultimately, the Tribe is expected to receive a recycled water supply of 200 afy from RMWD.

The proposed recycled water pipeline connecting the Tribe's existing recycled water system to RMWD must be sized to accommodate the projected ultimate demand of 200 afy while maintaining velocities of less than 7 feet per second. An 8-inch pipeline can convey the expected demand at approximately 0.8 fps, with ample additional capacity should the Tribe obtain increased recycled water resources in the future.

2.2.2 Potable Water

The Tribe provided Dudek with available potable water data for the Reservation and Casino during the 2021 calendar year. Demand data was unavailable as the Tribe does not maintain individual water meters for each customer. In the absence of individual customer usage data, the daily supply data was used to calculate demand. Realistically, daily supply flows are greater than demands since supply flows do not include system water loss.

The average daily demand (ADD) and maximum daily demand (MDD) of the Reservation and Casino were calculated based on supply data. The MDD is the highest one-day demand over the entire year. Typically, water demands peak in the summer and reach a minimum during winter. A peaking factor, defined as the ratio of MDD to ADD, was also determined for both the Reservation and Casino. **Table 1** summarizes the ADD, MDD, and peaking factors for the Reservation and Casino.

Table 1. Existing Potable Water Demands (Average Daily, Maximum Daily, and Peaking Factors)

	ADD (afy)	MDD (afy)	Peaking Factor
Reservation	263.1	492.3	1.87
Casino	91.3	149.5	1.64
Total	354.4	641.8	N/A

The Tribe expects average annual potable water demand to increase by 25% because of projected residential development. Meanwhile, the Tribe's ultimate potable water demand is estimated at approximately 1500 afy when the Reservation is fully developed. **Table 2** summarizes the projected ADD and MDD of the Reservation and Casino for both near-term (25% increase) and ultimate (1500 afy) growth scenarios.

Table 2. Projected ADD and MDD – Near-Term (25% Increase) and Ultimate (1500 afy)

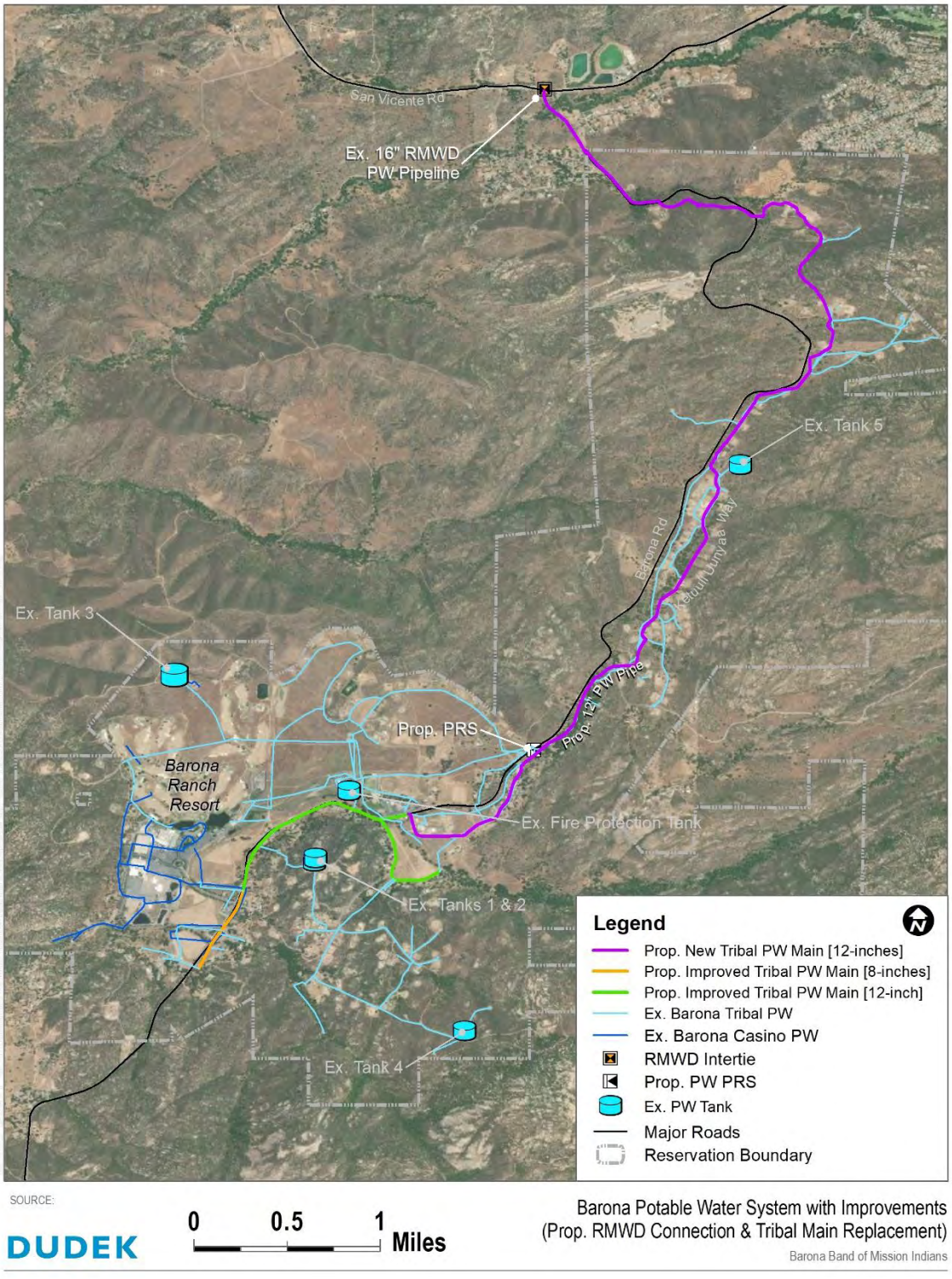
	Near-Term (25% Increase)		Ultimate (1500 afy)	
	ADD (afy)	MDD (afy)	ADD (afy)	MDD (afy)
Reservation	328.2	614.1	1113	2003
Casino	113.8	186.6	387	697
Total	442.1	800.7	1500	2700

2.3 Hydraulic Model Development

Dudek developed a hydraulic model of the Tribe's existing potable water system using InfoWater™. GIS data of the Tribe's existing system served as the basis for the model. Existing tank levels and booster pump station settings provided by the Tribe were incorporated to calibrate the model to existing operating conditions. In addition, model junctions were assigned elevations using a digital elevation model (DEM) of the Reservation and surrounding areas.

Since individual customer billing data was unavailable, the Reservation and Casino demands described in Section 2.2.2 were allocated evenly across the model junctions. Two demand scenarios, near-term MDD and ultimate MDD, were analyzed to determine the optimal sizing of the proposed potable water pipeline. The proposed point of connection with RMWD was modeled as a source reservoir at the intersection of San Vicente Rd and Barona Rd, north of the Tribe's northern Reservation boundary. The following **Figure 3** depicts the Tribe's existing system with the addition of the 12-inch potable water pipeline connection to RMWD.

Figure 3: Existing Potable Water System with 12-inch Pipeline Connection to RMWD



3 Preliminary Design

The following section provides preliminary design criteria for the recycled and potable water infrastructure required to connect the Tribe's systems to RMWD. The proposed points of connection to RMWD and the Tribe's systems, off- and on-Reservation alignments, and additional design criteria including pipe material selection and soil classification will be described in detail within the following section.

3.1 Pipeline Size

The model was used to size the pipelines for the recycled water and potable water. 8-inch (recycled) and 12-inch (potable) pipelines were independently modeled from the RMWD point of connection to the proposed point of connection with the Tribe's southern Reservation loop. The following **Table 3** presents the maximum velocities and flows predicted by the hydraulic model within the 8-inch and 12-inch pipelines under both near-term and ultimate MDD scenarios.

Table 3. Hydraulic Model Results for 8-inch and 12-inch Proposed Potable Water Pipeline

	8-inch Proposed Pipeline		12-inch Proposed Pipeline	
	Near-Term MDD	Ultimate MDD	Near-Term MDD	Ultimate MDD
Maximum Velocity (ft/sec)	4.41	4.71	1.96	2.22
Maximum Flow (gpm)	691.4	781.4	691.4	781.4

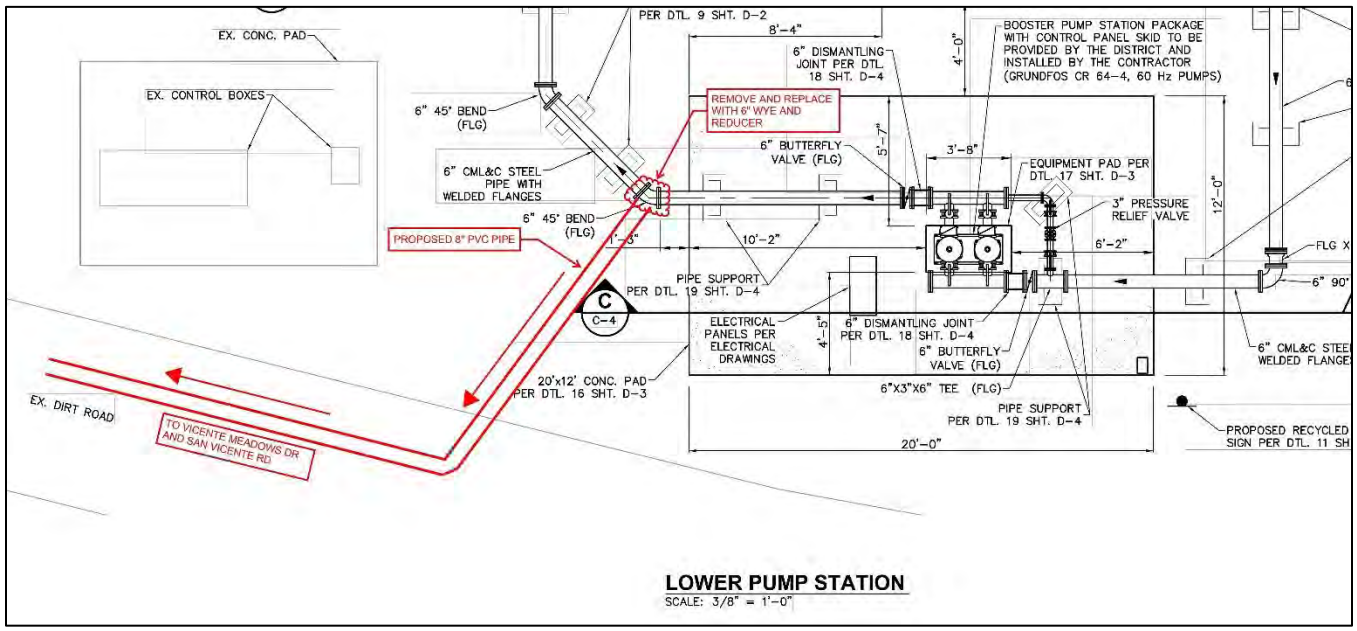
For potable water facilities under MDD conditions, the typical maximum pipeline velocity design criterion is 5 feet per second. Therefore, the proposed potable water pipeline connecting the Tribe's existing system with RMWD should be at least 12-inch to accommodate future increased demands.

3.2 Connection to Existing RMWD Systems

3.2.1 Recycled Water

The proposed 8-inch recycled water line will commence at the San Vicente Wastewater Reclamation Plant (SVWWRP), located at the intersection of San Vicente Rd and Barona Rd. The plant converts sewage flows from neighboring residences to recycled water and currently serves the San Vicente Golf Course and nearby avocado groves. The plant operates two pump stations, known as the Upper Pump Station and the Lower Pump Station. The proposed recycled water line will connect to the Lower Pump Station as shown on the following plan view as-built drawing in **Figure 4**. The 6-inch 45-degree elbow called out in Figure 4 will be removed and replaced with a 6-inch wye-fitting and reducer, to which the proposed 8-inch pipeline will connect.

Figure 4: Proposed Recycled Water Connection Point at Existing Lower Pump Station (Source: Dudek)



The 8-inch pipeline will continue southwest from the Lower Pump Station along an existing dirt road before turning south into Vicente Meadows Dr and running west along San Vicente Rd as shown in **Figure 5**. Approximately 1000 linear feet of 8-inch pipeline will be installed from the Lower Pump Station to the intersection of San Vicente Rd and Barona Rd.

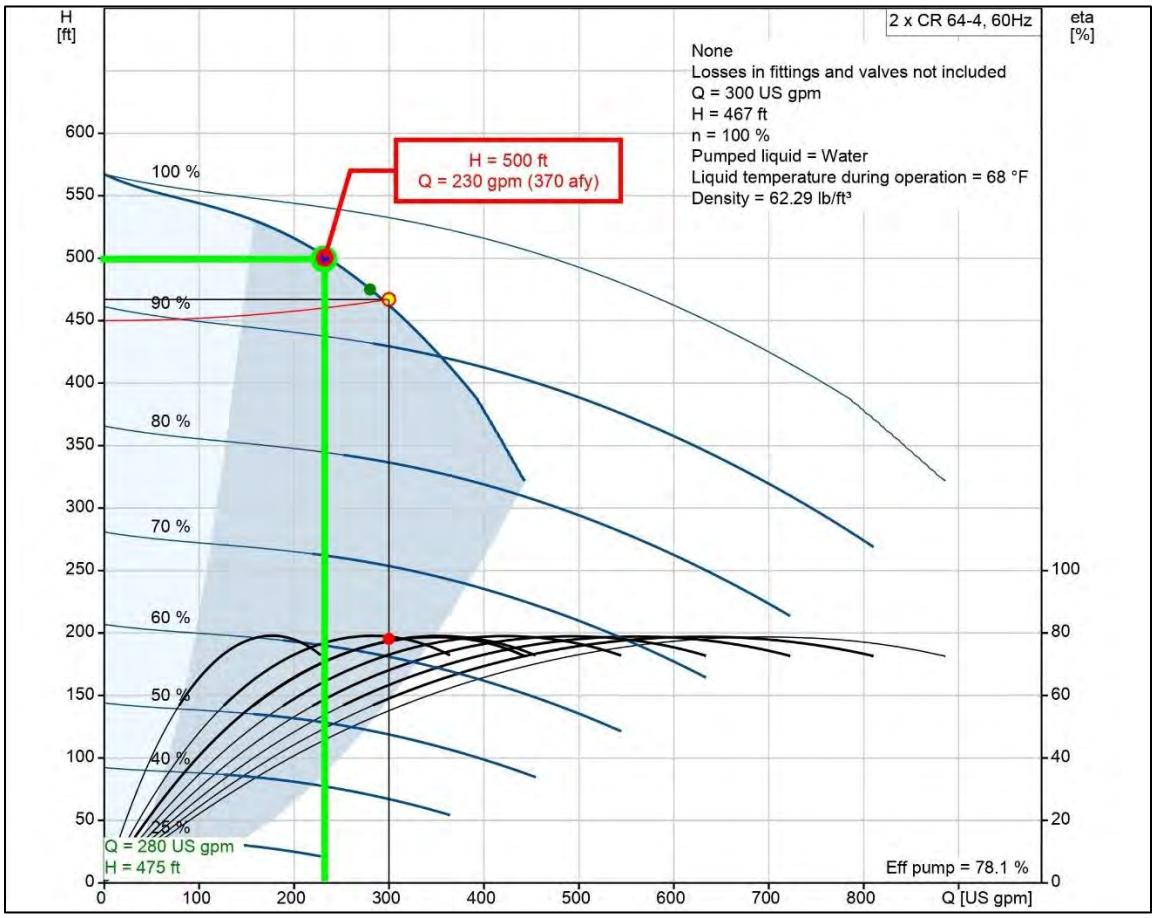
Figure 5: Proposed Recycled Water Alignment (Lower Pump Station to Intersection of San Vicente & Barona)

3.2.1.1 Pumping Requirements

The high elevation point of the proposed recycled water alignment occurs on-Reservation at 1762 ft along the existing 6-inch Golf Course Line. As the ground elevation of the Lower Pump Station is 1263 ft, the existing Lower Pump Station pump must be capable of overcoming approximately 500 ft of total dynamic head (TDH).

The Lower Pump Station features two Grundfos CR 64-4 60 Hz pumps, both operating on variable frequency drives (VFDs). The design point of the pump is 300 gpm at 467 feet of head. At 500 feet of head, the pump is expected to be able to deliver approximately 230 gpm. The Tribe anticipates an ultimate recycled water demand of only 200 afy (approximately 124 gpm) from RMWD. As shown on the existing Lower Pump Station pump curve in the following **Figure 6**, the existing pump will be able to meet the required 500 ft of TDH and deliver recycled water over the proposed alignment's high elevation point and provide approximately twice the expected demand.

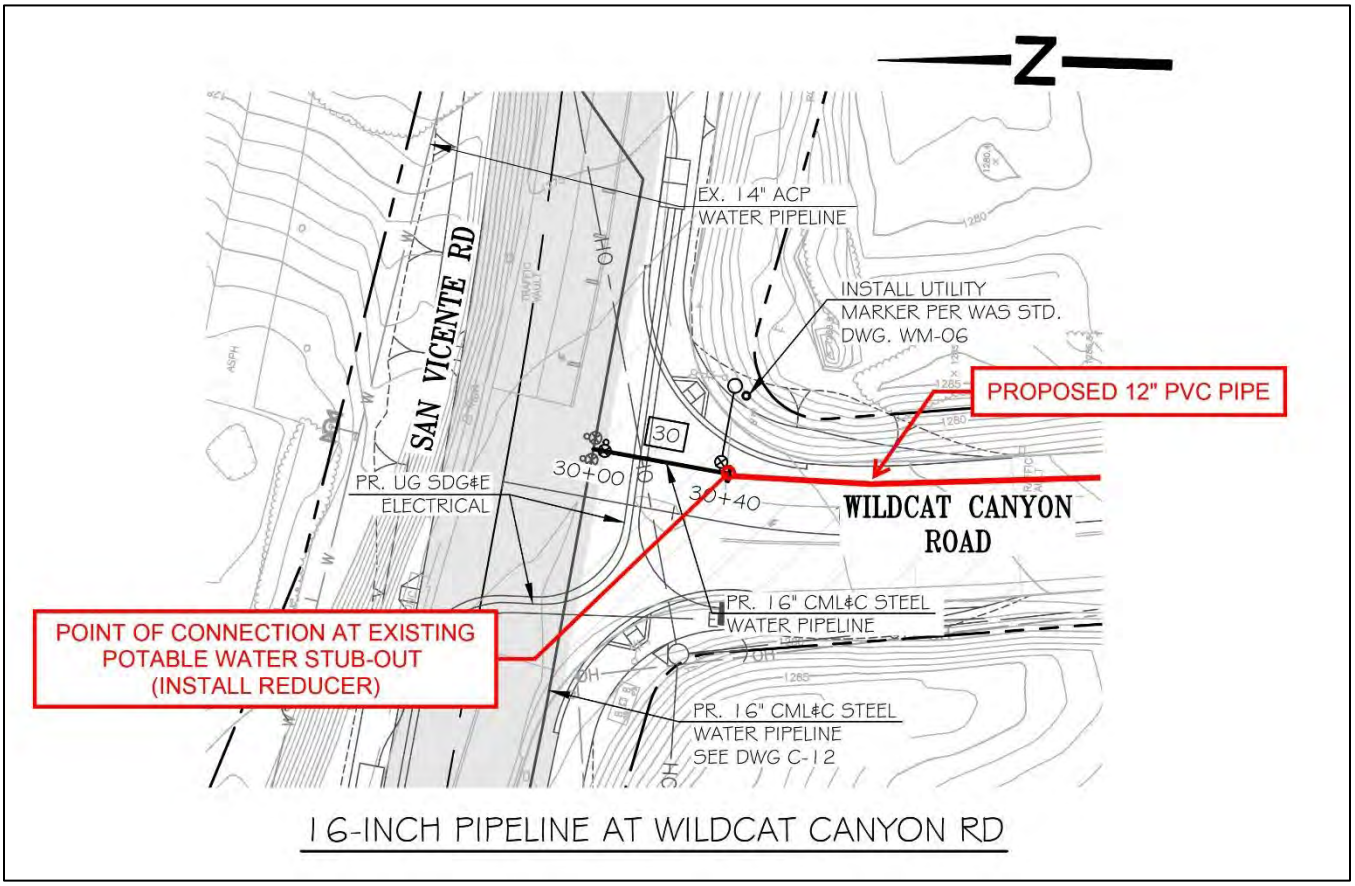
Figure 6: Existing Lower Pump Station Pump Curve with Proposed Recycled Water Demand (Source: Dudek/Grundfos)



3.2.2 Potable Water

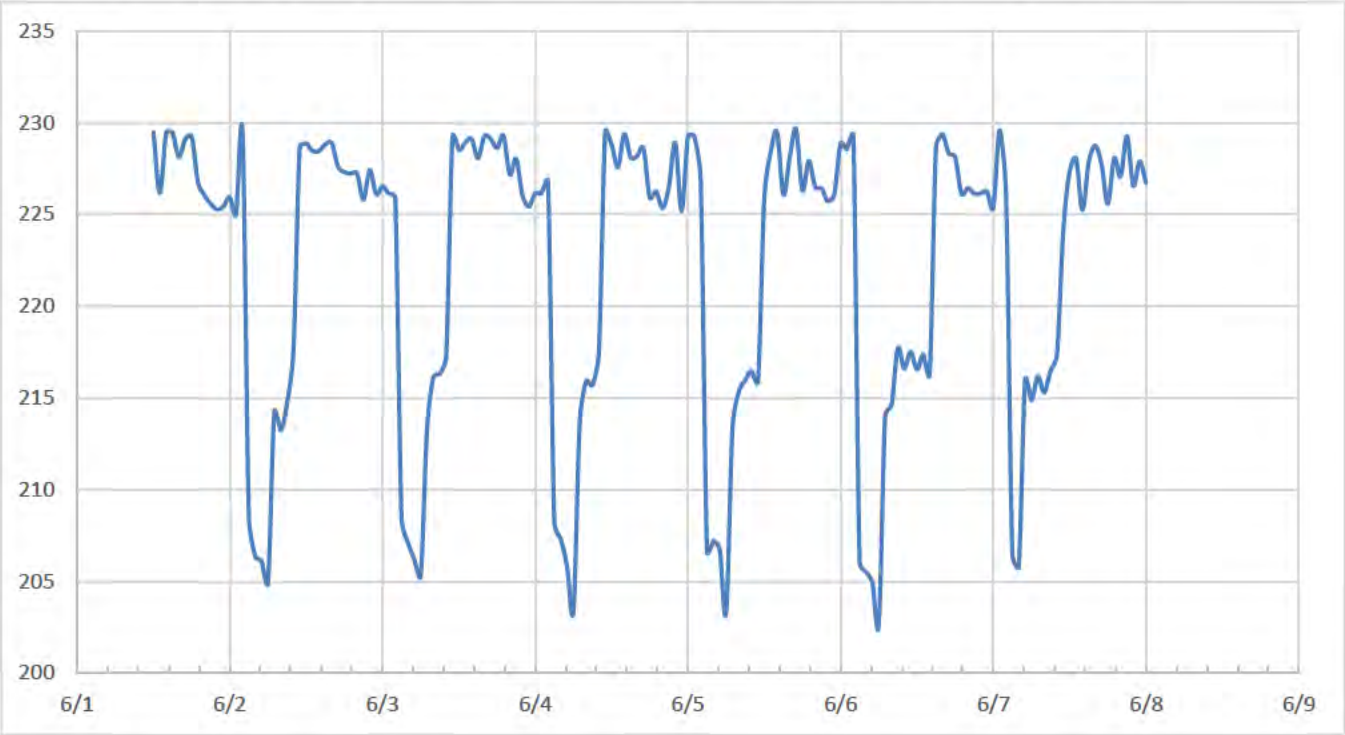
The proposed 12-inch potable water line will commence at the existing RMWD 16-inch CML&C steel water pipeline in San Vicente Rd. As-built drawings from the San Vicente Rd pipeline relocation project completed in 2016 depict a 16-inch CML&C steel stub-out at the intersection of San Vicente Rd and Barona Rd (also known as Wildcat Canyon Rd). As shown on the plan view as-built drawing in **Figure 7** below, the proposed 12-inch line will connect to the 16-inch stub-out via a reducer before continuing south along Barona Rd (Wildcat Canyon Rd).

Figure 7: Proposed Potable Water Connection Point at 16-inch RMWD Potable Water Pipeline (Source: NV5)



RMWD installed a pressure logger on the fire hydrant approximately 1300 feet east of the proposed connection. The data was logged every hour from June 1, 2021, until April 20, 2022. The system pressure followed a consistent pattern. The pressure was consistently between 225 psi and 230 psi from 11am until 2am. The pressure started dropping at approximately 2am each day until it reached approximately 205 psi at 6am. The pressure would range between 205 psi and 225 psi until 11am. The following **Figure 8** shows a typical pressure pattern over a week.

Figure 8: Typical Weekly Pressure Pattern Near Proposed RMWD Potable Water Point of Connection



Based on the pressure pattern, the hourly pressure data was summarized into bins of 10 psi to understand the amount of time the system is at a lower pressure. **Table 4** below shows that the system pressure was above 225 psi for 70% of the data points and was below 205 psi less than 1%of the time.

Table 4. RWMD System Pressures

Pressure Range (psi)	Number of Data Points	Percentage
< 205	53	0.7%
205-215	884	11.4%
215-225	1399	18.1%
> 225	5411	69.8%

The ground elevation at the point of connection is 1280 ft. A system pressure of 227 psi is a hydraulic grade line of 1802 ft. At a low of 202 psi, it would be a HGL of 1745 ft. The high elevation point of the proposed potable water alignment occurs on-Reservation at 1762 ft. Additionally, the pipeline also must provide pressure to fill Tank #5, which has a high-water line of 1794 feet. Neglecting head losses, the RMWD system pressure of 227 psi (1802 HGL) is capable of conveying water over the high elevation point of 1762 ft with a static pressure of approximately 17 psi. There would also be sufficient pressure to fill Tank #5 at 1794 ft. However the RMWD pressure of 202 psi (1745 HGL) would not have sufficient pressure to overcome the high point in the pipeline or supply Tank #5.

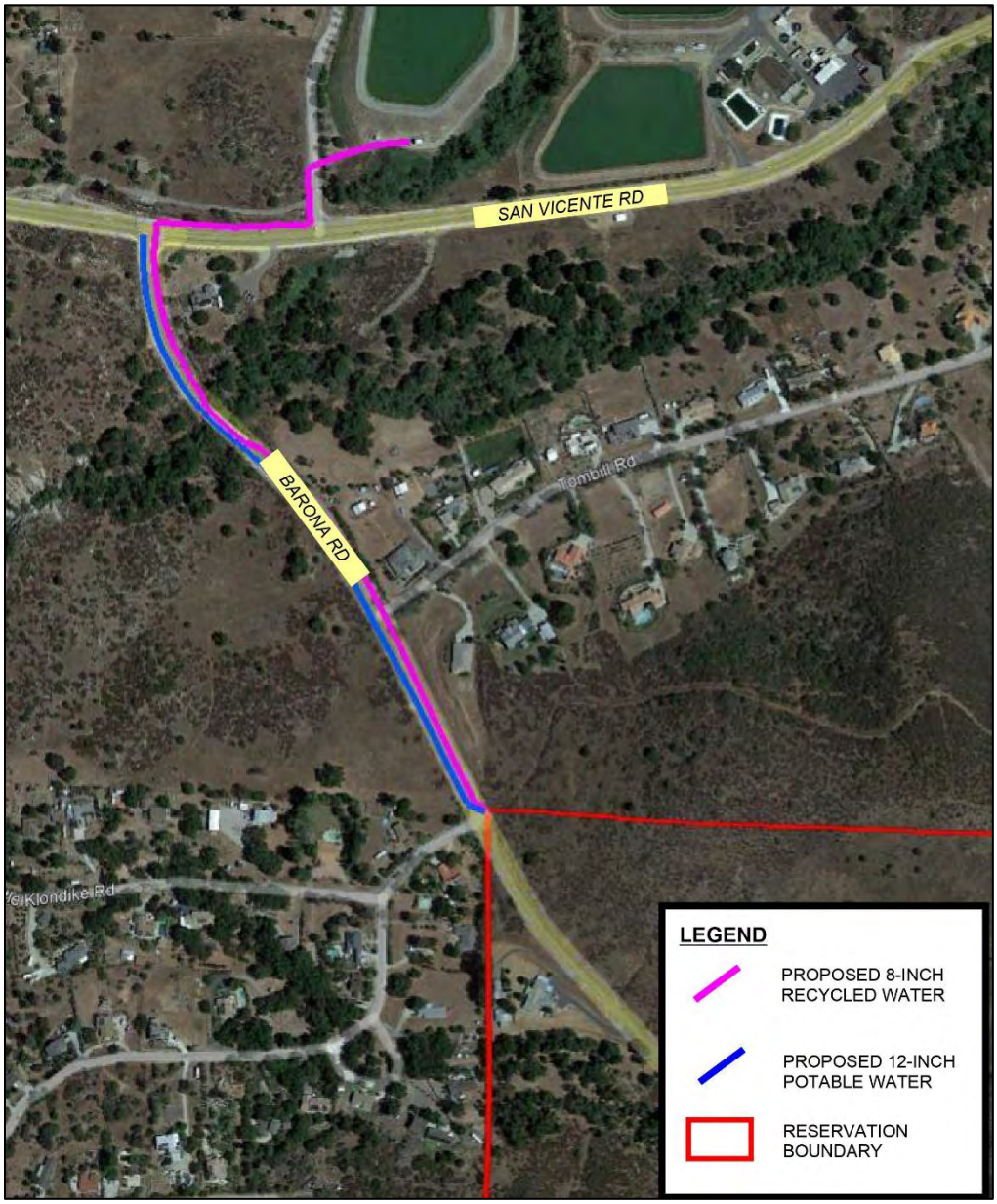
RMWD would be capable of serving the Reservation solely from system pressure approximately 70% of the time, generally from 11am-2am. Additional head would be required to serve the Reservation the remaining 30% of the time, generally from 2am-11am. We recommend constructing a small booster station at the north Reservation boundary as shown in **Figure 9** to provide the head necessary to always maintain an HGL of 1800 feet. The booster pump will need to be capable of providing up to 55 feet of head when RWMD system pressure drops to 205 psi. The most common system pressure is 214-217 psi, (14% of data points), which would require additional 25 feet of additional head. As discussed in Section 3.1, the MDD is anticipated to be 837 gpm. This equates to a design point of 25 feet of head at 835 gpm, with the capability to provide up to 55 feet of head. It is recommended to have a pump station that can deliver the maximum pressure required with an additional pump available on standby for redundancy.

Figure 9: Proposed Booster Pump Station at Northern Reservation Boundary

3.3 Off-Reservation Alignment

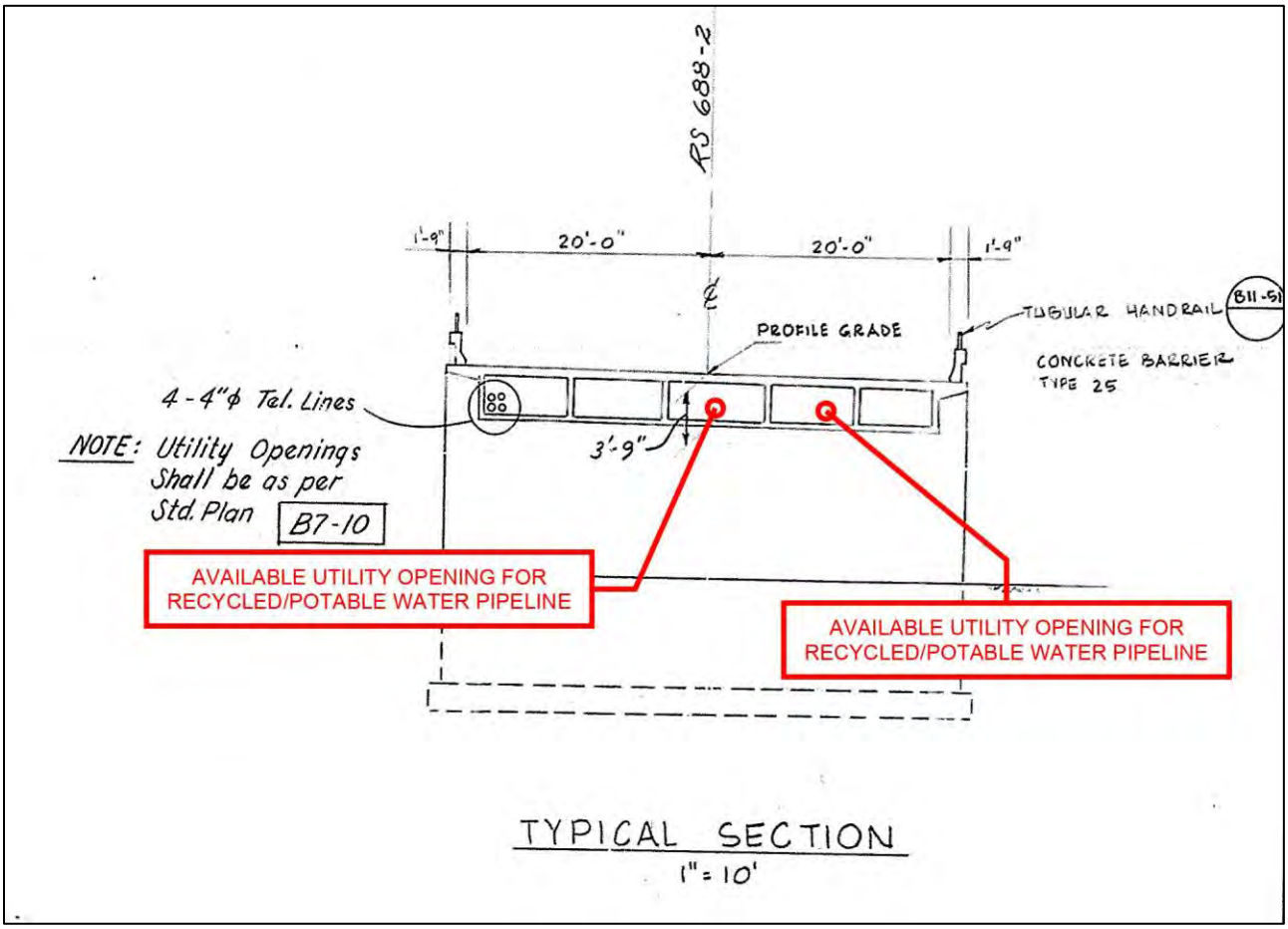
The proposed recycled and potable water pipelines will share an alignment off-Reservation and within Barona Rd. A horizontal separation of 10 feet must be maintained between the recycled and potable water pipelines throughout the alignment, both off- and on-Reservation. **Figure 10** depicts the limits of the off-Reservation alignment as defined by the Tribe's Reservation borders. Off-Reservation, Barona Rd is maintained by the San Diego County Department of Public Works (DPW) and thus subject to the County's design standards and permitting requirements. It will be necessary to obtain an Encroachment permit from the County. Approximately 3000 LF of recycled water pipeline and 2100 LF of potable water pipeline will be constructed off-Reservation in Barona Rd.

Figure 10: Proposed Off-Reservation Recycled and Potable Water Shared Alignment



The shared recycled and potable water alignment must traverse the length of an existing bridge within Barona Rd. The bridge, referred to as Wildcat Canyon Rd Bridge by DPW, was constructed in 1984. Design drawings of the bridge obtained from DPW depict five (5) utility openings, each with a vertical clearance of approximately 2'-5/8" and width of 6'-10". **Figure 11** is a typical bridge section from the design drawings showing four (4) 4-inch telephone lines, all contained within one of the five openings. The recycled and potable water pipelines can each be installed in one of the four remaining openings while maintaining the required horizontal separation of 10 feet. Prior to finalizing the water alignment, the design engineer should verify with DPW if any additional utilities beyond the four telephone lines have since been installed within the bridge openings. The bridge crossing design and permitting will be a part of the Encroachment Permit review process with the County DPW.

Figure 11: Wildcat Canyon Rd Bridge Typical Section, with Utility Openings (Source: San Diego County DPW)



3.4 On-Reservation Alignment

After crossing the Reservation boundary, the proposed recycled and potable water pipelines will move off the road outside of the County right-of-way and onto Reservation land. The pipes continue to share an alignment until the recycled water line connects to the existing Golf Course Line approximately 1200 feet southeast of the Giant San Diego Paintball Park. Initially the pipeline can run parallel to the road, but after approximately 1,000 feet the terrain adjacent to the road becomes very steep. The road is very narrow in this area and cut into the hillside. It would be very difficult to construct the pipeline without shutting down the road. Since this is the only road accessing the Reservation from the north side, this would be a major disruption to traffic on the Reservation. This would also put the pipeline back in the County easement and would cumulatively be over one mile, which would trigger a CEQA Initial Study. Lastly, it is very likely that the County will require that the street be repaved as a part of the project. The costs and impacts of this option are significant. To avoid these challenges, two alternate alignment options were evaluated and are presented in Sections 3.3.1 and 3.3.2 below.

3.4.1 Option 1

The first proposed on-Reservation shared alignment ("Option 1") is depicted in **Figure 12**. For the initial approximately 1000 LF of pipeline southeast of the Reservation boundary, the terrain north of Barona Rd is moderately sloped and can be traversed with typical construction equipment. However, as the alignment continues east and away from Barona Rd, the terrain becomes considerably steeper and significantly more difficult to navigate. The soil is rocky and overgrown with thick vegetation, and the alignment would be forced to cross several natural hillside depressions. **Figure 13**, an image taken in early spring 2022, provides a general impression of the vegetative growth and terrain for a sizable portion of the alignment.

Figure 12: Option 1 On-Reservation Shared Alignment, with Horizontal Directional Drilling Extents

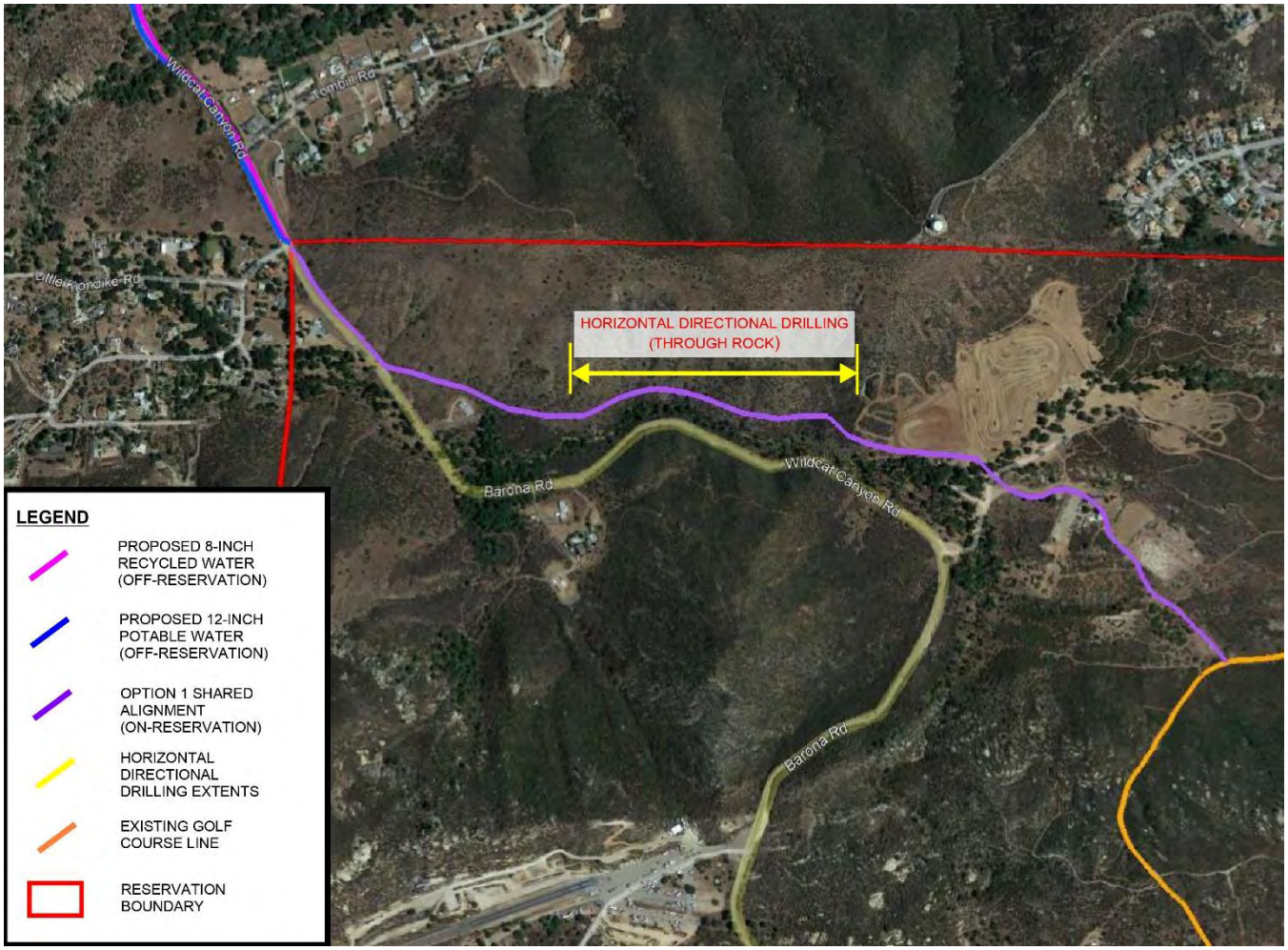


Figure 13: Thick Vegetation Growth and Sloping Terrain of Option 1 On Reservation Shared Alignment

The overall length of Option 1 is approximately 7000 LF from the most northwestern edge of the Reservation boundary to the proposed recycled water pipeline connection point with the existing Golf Course Line. Construction of Option 1 will require either horizontal directional drilling (HDD) or construction of significant segments of the alignment on piers. The estimated extents of HDD or pier construction are highlighted in yellow on Figure 10 and total approximately 1800 LF. Both HDD and pier construction are expensive and carry a significant risk of unforeseen additional costs and schedule delays during design and construction.

3.4.2 Option 2

Given the difficulties described in Section 3.3.1 of Option 1, a second alignment south of Barona Rd was developed ("Option 2") for the Tribe's consideration. Option 2 will require crossing a dry streambed and Barona Rd at two (2) locations, respectively. Each of the three (3) crossings will require jack and bore, a trenchless construction method in which a jack and bore machine drills a hole underground horizontally from a sending pit to a receiving pit without impacting the above ground surface. As the machine drills, it also functions as a jackhammer to push the new potable water pipeline into place. Option 2, including the three jack and bore locations, is depicted in **Figure 14** below.

Figure 14: Option 2 On-Reservation Shared Alignment, with Jack and Bore Construction Extents

Jack and bore will not disturb the surface of the environmentally sensitive dry streambed and thus avoid a costly and time-consuming permitting process with the U.S. Army Corps of Engineers (USACE). An USACE permit is required for any construction that will introduce pollutants, even native soil, to a waterway of the United States such as the streambed. Meanwhile, jack and bore at the two (2) Barona Rd crossings will prevent traffic closures and repaving costs associated with trenching and construction in-street.

The overall length of Option 2 is approximately 7700 LF from the most northwestern edge of the Reservation boundary to the proposed recycled water pipeline connection point with the existing Golf Course Line. Approximately 400 LF of the total length will require jack and bore construction.

The ground terrain throughout Option 2 is relatively easy to traverse and contains noticeably less rocks than Option 1. Since Option 2 will adhere more closely to Barona Rd than Option 1, the shared alignment must lie at least 15 ft from the paved asphalt road to stay outside the easement. Most existing plant growth along Option 2 is small shrubs that can be removed prior to construction. Southeast of the streambed crossing lies a cluster of trees just north of Barona Rd that may impede construction if not removed, as shown in **Figure 15**. There continues to be dense growth beyond the cluster of trees. However, it appears that the large trees are close to the road and can be avoided if the pipeline moves further away from the road. The portion of the alignment from the streambed to the street crossing is the most difficult portion of this alignment due to the vegetation growth.

Once past the large vegetation, the pipeline will cross Barona Road and traverse the hillside on the south side of the road. Although the hillside south of Barona Rd slopes upward, the area is clear of major vegetation and can be accessed by construction equipment, as shown in **Figure 16**. The pipeline will then cross Barona Road a second time at the entrance to the Paintball Park. It will cross the parking lot and then turn south to intersect the recycled water line. The potable water line will then parallel the golf course line.

Figure 15: Tree Growth Southeast of Streambed Crossing

Figure 16: Hillside South of Barona Rd, Prior to Third Jack and Bore Location

3.4.3 Recommendations

It is recommended for the Tribe to proceed with Option 2 for the shared on-Reservation alignment, as it is significantly more constructible and has a lower expected cost than Option 1. **Table 5** presents a summary of the cost comparison between Option 1 and Option 2.

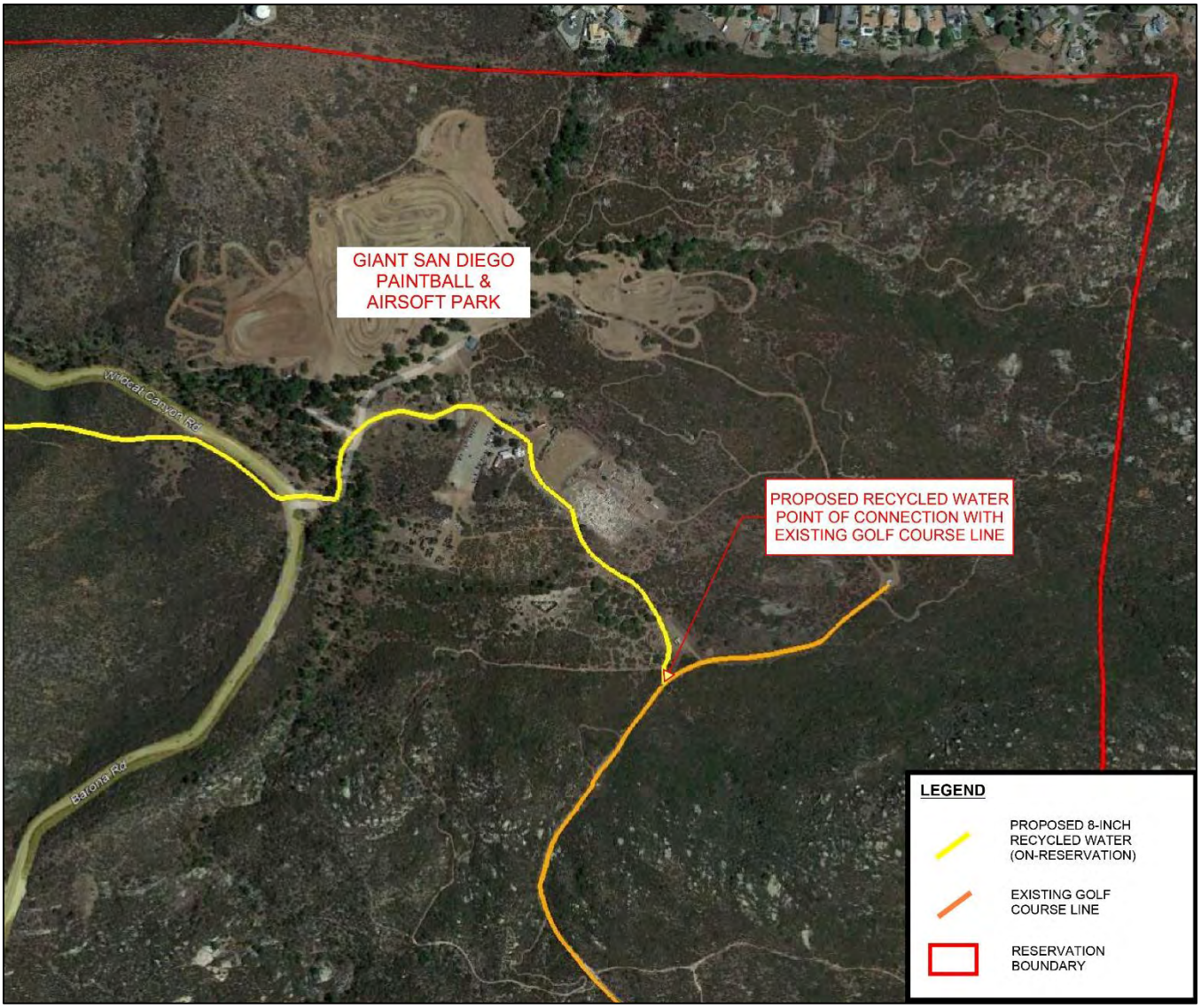
Table 5. Cost Comparison Between Options 1 and 2

On-Reservation Alignment	Option 1 HDD	Option 2 Jack and Bore
Before Recycled Water Connection Point with Existing Golf Course Line	$8,546,000	$4,752,000
After Recycled Water Connection Point with Existing Golf Course Line	$9,476,000	
Total	$18,022,000	$14,228,000

3.4.4 Recycled Water Connection

The proposed 8-inch recycled water line will connect to the Tribe's existing Golf Course Line via hot tap approximately 1200 feet southeast of the Giant San Diego Paintball Park, as shown in **Figure 17** below. Establishing a point of connection near the origin of the Golf Course Line will allow the Tribe to maximize use of its existing recycled water infrastructure. The recycled water supplied by RMWD will be transported via the Golf Course Line before reaching its destination, the golf course irrigation ponds.

Figure 17: Proposed 8-inch Recycled Water Line Point of Connection with Existing Golf Course Line



3.4.5 Potable Water

After the proposed recycled water pipeline joins with the Tribe's existing system, it will be necessary to continue the new 12-inch potable water pipeline to transmit the water to the lower Reservation loop. There is insufficient capacity in the existing upper zone piping to transmit the expected demand to the lower zones, particularly the Casino and Resort. The proposed potable water pipeline will continue south along Ketuull Uunyaa Way for approximately 20,000 LF (3.7 miles) before connecting to the existing southern Reservation loop.

Initially, the potable water line will parallel the existing Golf Course Line. This will include cresting the mountain south of the Paintball Course, which is the high spot of the pipeline at 1762 feet. It will continue paralleling the GCL until it reaches the access road for Tank #5. At that point, the potable pipeline will diverge from the GCL onto Ketuull Uunyaa Way. As shown in **Figure 18**, a pipeline will branch off the main pipeline and connect to the Tank #5 as the first connection point to the Reservation distribution system. The upper pressure zones will be served from this tank.

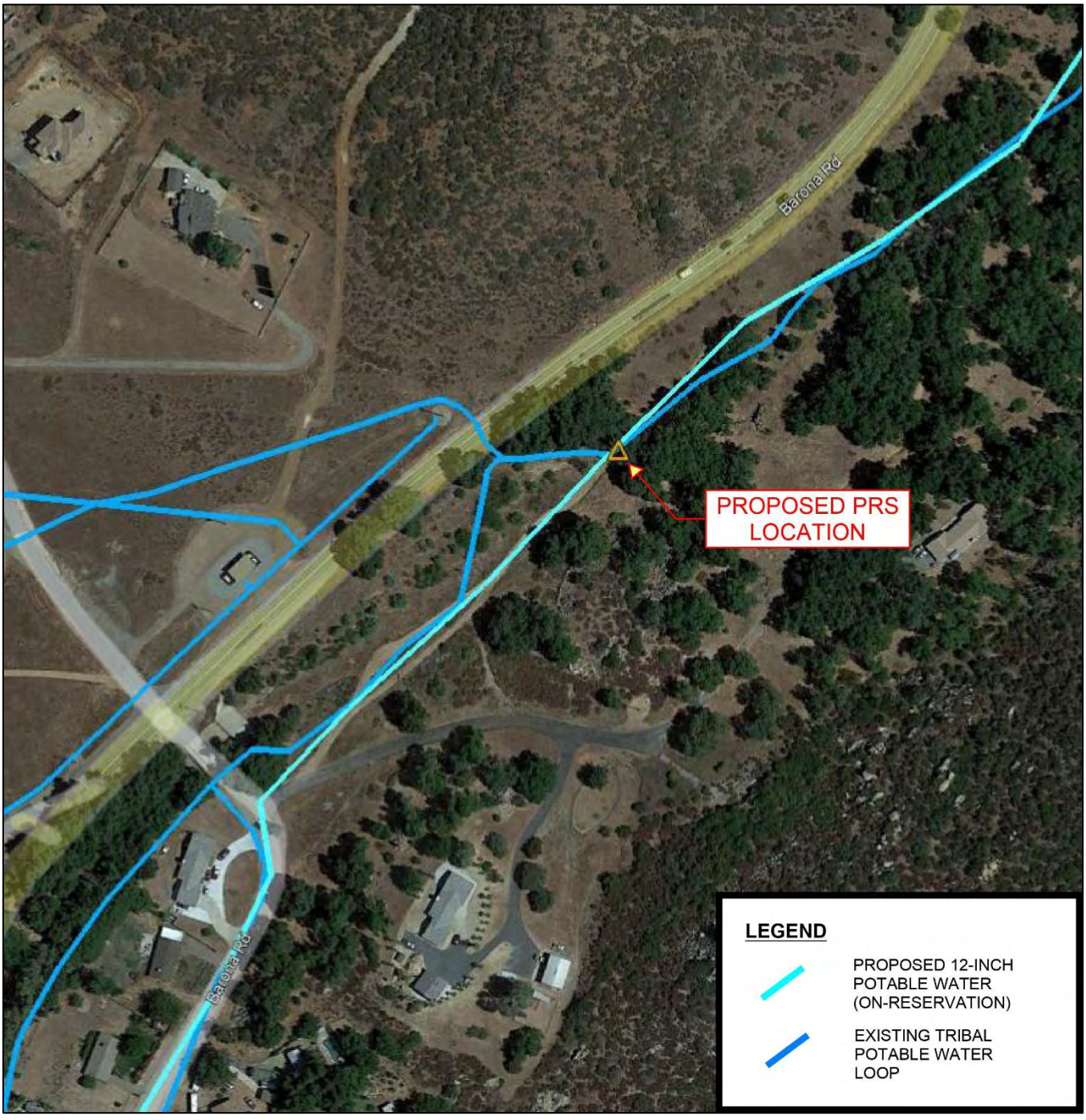
Figure 18: Tank 5 Connection with Proposed Potable Water Line

The pipeline will continue in Ketuull Uunyaa Way for approximately 4,400 feet until it continues straight on a residential road. Near the dead-end of the road, it'll turn west and parallel the Golf Course Line cross country to Featherstone Canyon Road. It briefly runs in Featherstone Canyon Road until it connects to a frontage road parallel to Wildcat Canyon Road. It will continue approximately 3,000 feet until it intersects Barona Road as shown in **Figure 19** below, which is the north end of the lower pressure zone.

Figure 19: Proposed Potable Water Line Alignment North of Reservation Lower Pressure Zone

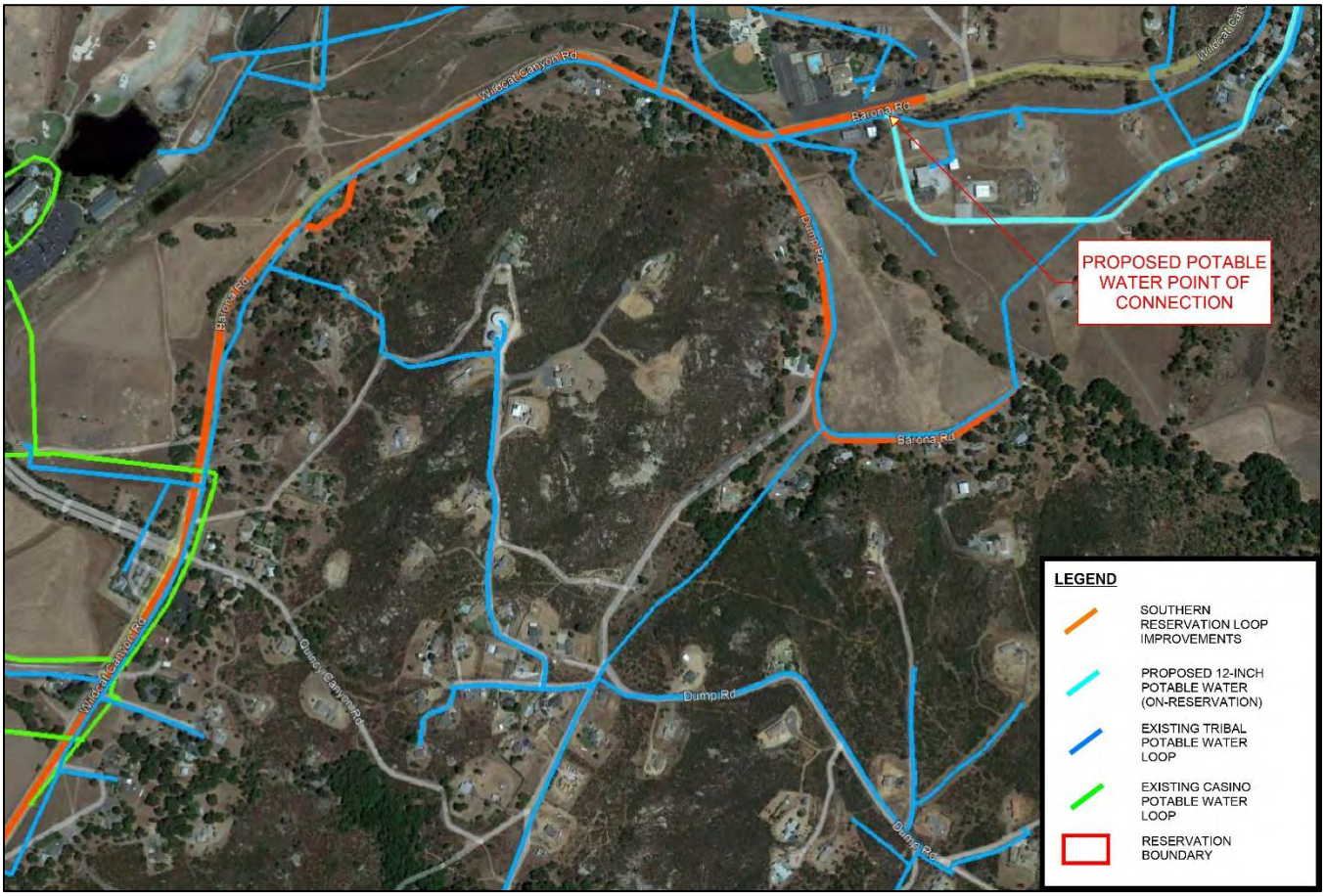
A new pressure reducing station (PRS) is recommended at the approximate location shown on **Figure 20** below, based on a convergence point of the existing potable water system's pressure zones. The PRS will allow the Tribe to deliver water to multiple zones of the distribution system at a single location.

Figure 20: Proposed PRS Location North of Reservation Lower Pressure Zone



Once the proposed 12-inch potable water pipeline connects to the PRS, the existing smaller pipelines can distribute water throughout the area. However, the capacity of the existing pipelines is insufficient to handle the increased water demand, particularly during fire flow scenarios. It will be necessary to continue the proposed 12-inch pipeline south of Barona Rd for approximately 5000 LF before connecting to the existing pipeline 700 feet east of the intersection of Barona Rd and Dump Rd as shown in **Figure 21** below. Figure 20 also depicts a separate improvement project involving replacement of the Tribe's southern potable water transmission main is slated to begin construction in late 2022. It is assumed the southern water main replacement project will be completed prior to the construction of new infrastructure conveying water from RMWD to the Tribe. Once both projects are completed there will be a continuous 12-inch pipeline from Ramona to the entrance of the Casino.

Figure 21: Proposed 12-inch Potable Water Alignment Connection with Existing Tribal System



3.4.5.1 Potential New Tank

In addition to the zone served by Tank #5, there is an additional small closed zone north of the tank that is served by a small booster pump as shown in **Figure 22**. At this time this configuration will remain the same. However as the northern area of the Reservation is developed, it may be necessary to add a tank to serve this upper pressure zone.

The likely location of the tank would be east of the high point of the water line on the mountain. The elevations of the highest homes in the area appear to be around 1800 feet. In order to serve these homes, the new tank would need to be at an elevation of approximately 1900 feet. **Figure 23** shows the band of elevations for the tank, with a potential location near an existing dirt road highlighted. The approximate cost of the tank is $2.6 million, including the required booster pump station upgrades and pipeline connection to the existing system. A detailed cost estimate of the potential new tank is included in Appendix A.

Figure 22: Existing Tribal Booster Pump Station North of Tank #5

Figure 23: Elevation Band and Proposed Location of Potential New Tribal Tank

3.4.5.2 Cross Connections

Currently there are four potable water wells that are connected to the Golf Course Line, Each of these wells will have to be disconnected from the recycled water line and connected to either the new pipeline or other existing distribution pipelines in the system. If the wells are connected to the new potable water line, the pumps will have to be checked to ensure they can overcome the higher pressure of the new transmission line. The production from the wells may decrease due to the higher head required to overcome system pressure.

3.4.5.3 Pipe Material

Both the proposed recycled water and potable water pipelines will be PVC (poly-vinyl chloride) material. PVC pipe is lightweight, easy to install, and less expensive than other water pipe materials such as galvanized steel. Given the large quantity of new piping required for both the recycled water and potable water alignments, PVC material can provide a significant benefit in maintaining construction schedule and cost.

4 Permitting

4.1 CEQA

Pipelines constructed on Reservation land are not subject to the CEQA process. Therefore, only the portions of pipeline that are constructed within the County of San Diego easement are required to comply with CEQA regulations. According to CCR 21080.21, a pipeline less than one mile qualifies for a statutory exemption. Since the proposed pipeline within the County easement will be less than one mile, we anticipate filing a Notice of Exemption for the project to comply with CEQA.

4.2 County Permits

The portion of the pipeline that will be constructed within the County easement, including the bridge crossing, will require permitting through the County of San Diego. This will require obtaining approval from the planning department. Ramona Water District has a liaison that will route the plans to the Planning Department and through the appropriate County departments for review. The preliminary drawings should be submitted to him directly to begin the review/approval process:
Lawrence M. Hirsch
Utilities Coordinator
CIP Project Development
Department of Public Works
Phone: 858.694.2215
Fax: 858.694.2499
E-mail: lawrence.hirsch@sdcounty.ca.gov

Once the drawings have been approved by the County, three permits will be required prior to construction: Encroachment, Excavation, and Traffic Control. These permits are typically obtained by the construction contractor, but the County has an alternate dual permitting process that can be completed to make the permitting process easier for the construction contractor. This would require that traffic control plans be completed as part of the design.

A copy of the permit requirements are included in Appendix B. The County has design standards on their website, including CAD standards, design standards, title blocks, and standard drawings, at www.sandiegocounty.gov/content/sdc/dpw/pfdlist.html.

Appendix A

Opinion of Probable Construction Cost Detail

Barona Rd New Pipelines -
Ramona Connection to Existing Golf Course Line w/Horizontal Directional Drilling

Item No.	Item Description	Unit	Estimated Quantity	Unit Price	Item Total
1	Barona Rd 8-inch C900 PVC Pipe (Off-Reservation, from San Vicente Wastewater Reclamation Plant to Reservation Boundary)	LF	3,000	$160.00	$ 480,000
2	AC Paving/Concrete Underlay (Off-Reservation Barona Rd only)	SF	15,000	$15.00	$ 225,000
3	Off-Road 8-inch C900 PVC Pipe (On-Reservation, from Reservation Boundary to Connection Point with Ex. Golf Course Line. Excludes horizontal drilling segment.)	LF	5,900	$160.00	$ 944,000
4	Off-Road 12-inch C900 PVC Pipe (On-Reservation, from Reservation Boundary to Point 2 on figure. Excludes horizontal drilling segments.)	LF	3,700	$240	$ 888,000
5	Horizontal Drilling Construction	LF	1,800	$2,200.00	$ 3,960,000
6	8-inch Gate Valves	EA	7	$3,000.00	$ 21,000
7	MagMeter	EA	1	$5,000.00	$ 5,000
				Construction Total	**$ 6,523,000**
				Soft (Non-Construction) Costs	
				Contingency (15%)	$ 978,450
				Planning & Design (8%)	$ 521,840
				Construction Management (8%)	$ 521,840
				Project Total	**$ 8,546,000**

Barona Rd New Pipeline -
Ramona Connection to Existing Golf Course Line w/Jack & Bore

Item No.	Item Description	Unit	Estimated Quantity	Unit Price	Item Total
1	Barona Rd 8-inch C900 PVC Pipe (Off-Reservation, from San Vicente Wastewater Reclamation Plant to Reservation Boundary)	LF	3,000	$160.00	$ 480,000
2	AC Paving/Concrete Underlay (Off-Reservation Barona Rd only)	SF	15,000	$15.00	$ 225,000
3	Off-Road 8-inch C900 PVC Pipe (On-Reservation, from Reservation Boundary to Connection Point with Ex. Golf Course Line. Excludes jack & bore segments)	LF	7,300	$160.00	$ 1,168,000
1	Off-Road 12-inch C900 PVC Pipe (On-Reservation, from Reservation Boundary to Point 2 on figure.	LF	5,100	$240	$ 1,224,000
4	Jack and Bore Construction at Creek (1) and Barona Rd (2) Crossings - Three Segments Total, Each Approx. 100 LF	LF	400	$1,260.00	$ 504,000
5	8-inch Gate Valves	EA	7	$3,000.00	$ 21,000
6	MagMeter	EA	1	$5,000.00	$ 5,000
				Construction Total	**$ 3,627,000**
				Soft (Non-Construction) Costs	
				Contingency (15%)	$ 544,050
				Planning & Design (8%)	$ 290,160
				Construction Management (8%)	$ 290,160
				Project Total	**$ 4,752,000**

Ketuull Uunyaa Way & Southern Loop New PW Pipeline - Required for Both 1a & 1b (PW-2)

Item No.	Item Description	Unit	Estimated Quantity	Unit Price	Item Total
1	Barona Rd 12-inch C900 PVC Pipe (Off-Reservation, from Connection Point with 16-inch RMWD Main to Reservation Boundary)	LF	2,100	$240	$ 504,000
2	AC Paving/Concrete Underlay (Off-Reservation & Southwest of PRS On-Reservation only)	SF	31,750	$15	$ 476,250
3	Booster Pump Station at Northen Reservation Boundary (incl. Building)	LS	1	$250,000	$ 250,000
4	Off-Road 12-inch C900 PVC Pipe (On-Reservation, from Point 2 on figure to Connection Point with Southern Loop	LF	24,850	$240	$ 5,964,000
5	12-inch Gate Valves	EA	21	$4,000	$ 84,000
6	Meters	EA	1	$7,500	$ 7,500
7	Pressure Reducing Station (w/ 8-inch PRV)	EA	1	$100,000	$ 100,000
8	12-inch Connections to Existing Tribal Loop Tanks	EA	5	$5,000	$ 25,000
9	Mob/De-mob, Traffic Control, SWPPP, Pressure Testing, Potholing, etc.	LS	1	$50,000	$ 50,000
				Construction Total	**$ 7,460,750**
				Soft (Non-Construction) Costs:	
				Contingency (15%)	$ 1,119,112.5
				Engineering (6%)	$ 447,645
				Construction Management (6%)	$ 447,645
				Project Total	**$ 9,476,000**

Future New Potable Water Tank - Northern Reservation

Item No.	Item Description	Unit	Estimated Quantity	Unit Price	Item Total
1	Potable Water Tank	Gal	500,000	$2	$ 1,000,000
2	8-inch Pipeline Connection to Tank	LF	1,800	$160	$ 288,000
3	Booster Pump Station Upgrades	LS	1	$25,000	$ 25,000
4	Site Work (e.g. Grading, excavation, site clearing, etc.)	LS	1	$600,000	$ 600,000
				Construction Total	**$ 1,913,000**
				Soft (Non-Construction) Costs:	
				Contingency (20%)	$ 382,600
				Engineering (8%)	$ 153,040
				Construction Management (8%)	$ 153,040
				Project Total	**$ 2,602,000**

Appendix B

San Diego County Excavation, Encroachment, and Traffic Control Application Package

IMPORTANT NOTICE

Section 4216/4217 of the Government Code requires a DigAlert Identification Number (ID) be issued before a "Permit to excavate" will be valid.

For your DigAlert ID Number
Call Underground Service Alert
TOLL FREE 811
Two working days before you dig.

For more information, go to:
www.digalert.org

Applications should be submitted to:

County of San Diego
Planning and Development Services (PDS)
Land Development Counter
5510 Overland Avenue, Suite 110
San Diego, CA 92123

(858) 694-2055
Fax (858) 279-7020

Email: rowpermitcounter@sdcounty.ca.gov

FOR GENERAL INFORMATION ONLY
NOT TO SUPERSEDE THE APPROPRIATE ORDINANCE

DPW Rev. Sep/2021

EXCAVATION PERMIT:

FOR WORK WITHIN THE COUNTY RIGHT-OF-WAY

COUNTY OF SAN DIEGO
DEPARTMENT OF PUBLIC WORKS

www.sdcounty.ca.gov/dpw

EXCAVATION PERMIT

PERMIT REQUIRE

A Excavation Permit is required before starting work related to road construction, improvement or repair, which work shall make or cause to be made any encroachment including an excavation, fill or obstruction, for the purpose of installing utilities including, but not limited to: sanitary sewer, private storm drainage, domestic and irrigation water, oil and natural gas, electric power, telephone, and television signals, both main and lateral lines, or any other related work in the County Right-of-Way.

APPLICATION PROCEDURE

The applicant shall provided the following:

- Location relative to the road Right-of-Way (R/W)
- Type of surface to be cut in R/W
- Dimensions including length, width and depth
- Purpose, extent and nature of excavation, fill or obstruction
- Size and type of pipe where applicable
- Duration of existence
- Signed plans or drawings
- $156.00 permit fee (checks payable to "County of San Diego), OR
- $62.00 Permit renewal fee
- Inspection deposits, $5.00 per lineal foot, first 1000feet; thereafter $1.75 per lineal foot; minimum of $965.00 deposit.
- Traffic control application and traffic control plan
- Licensed contractor number (the County accepts only General Engineering Class A, Excavation/ Pavement Contractor C12, Pipeline Contractor C34 or Sanitation System Contractor C42 for excavation work)
- Financially Responsible Party Agreement
- Environmental Review Questionnaire (CEQA)
- Contractor must also provide: **A CERTIFICATE OF INSURANCE** for General Liability ($500,000 minimum), naming County of San Diego Department of Public Works as **CERTIFICATE HOLDER**.
- Approval from utility company allowing connection to their system, **"Encroachment Only" permit (if applicable).**

SPECIAL REQUIREMENTS

- The County's "Pavement Cut Policy" limits trenching on new and newly resurfaced publicly maintain roads.
- Excavations exceeding 1,000 linear feet or using the "Rock Saw" trenching method require a pre-issuance field review.
- **Permanent Road Division Zones(previously known as County Service Area Roads) require a pre-issuance field review before the work can start.**
- Trenches exceeding five (5) feet in vertical depth require a CAL-OSHA permit. CAL-OSHA's telephone number is (619) 767-2280
- Public notification may be required prior to commencement of construction

FOR COUNTY USE ONLY
RECORD ID:
DPW20 _____
RWEXCP-_____

APPLICATION FOR EXCAVATION PERMIT

COUNTY OF SAN DIEGO
DEPARTMENT OF PUBLIC WORKS

5510 OVERLAND AVENUE, SUITE 110
SAN DIEGO, CA 92123
PHONE (858) 694-2055 • FAX (858) 279-7020
E-mail ROWPERMITCOUNTER@SDCOUNTY.CA.GOV

Date _____

THOMAS GUIDE		
YEAR/ EDITION	PAGE	COORD

Permit Owner _____ Telephone # _____
Last Name *First*

Mailing Address _____
Street *City* *State* *Zip Code*

Hereby makes application for permit to excavate and/or construct the following on the public roads, subject to provisions of Title 7, Div. 1 of San Diego County Code of Regulatory Ordinances. Permit revocable at option of Director, Department of Public Works when necessary.

Application Contact Name _____ Email Address _____ Telephone # _____

Contractor _____ Telephone # _____ License # _____
Name *Ins. Exp. Date*

Email Address _____

Utility Owner (if applicable) _____ Agency Job Number: _____

Is the work part of a larger project or program requiring multiple permits, or currently under review for permit? YES ❒ NO ❒

If yes provide: Related Permits _____ Assessor Parcel # _____

Is this a utility relocation in connection with a County Capital Improvement Project? YES ❒ NO ❒

If yes provide: Name of Project _____

Location of work _____
Street Name and Number and nearest cross street

Standard Drawing: ❒ G-24A Type D or DS-22 ❒ G-25 ❒ SP-02 ❒ WP-02 ❒ Other: _____

Excavation Length _____ Width _____ Depth _____

If pipe is to be placed, state size _____ and kind _____

Detailed Description of Work _____

Requested Permit Duration (ex: 90 days) _____ A general liability insurance certificate is required for this time period.

Surface to be cut: ❒ Asphalt ❒ Concrete ❒ Dirt

Sample Application (link here)
Attachments/Requirements at Application (links to samples provided):

- ❒ Financially Responsible Party Agreement
- ❒ Inspection Deposits and Permit Fee
- ❒ Traffic Control Permit Application
- ❒ Traffic Control Plan or Regional Standard Drawing
- ❒ Location Map (link to tool LAYER NEEDS TO BE DEVELOPED) and Construction Drawing
- ❒ Environmental Review Questionnaire (CEQA)
- ❒ Contractor's License and Proof of Liability Insurance
- ❒ Signed Engineering Plans (excavation over 1,000 LF)
- ❒ Utility Company Connection Approval (if applicable)
- ❒ Linear Underground/Overhead Project form (RWQCB Exemption) (for projects greater than or equal to 1500 LF)

I hereby agree as a condition of the granting of this permit to provide defense and indemnification in accordance with Section 71.103 of the San Diego County Code of Regulatory Ordinances as follows: Permit Owner agrees to indemnify, hold harmless and defend the County and each of its officers and employees from any liability of responsibility for accident, loss or damage to persons or property arising by reason of the work done by Permit Owner, or Permit Owner's agents, employees or representatives.

Permit Owner agrees that all work within the County right-of-way will be accomplished in accordance with Approved Plans, the Standard Specifications of the Department of Public Work, "Special Provisions for Work Done Under Excavation Permit", "Special Provisions and Specifications for Improvement of New Streets", or Regional Standard Drawings and as stated on the Permit, and shall be subject to inspection and approval of the Director, Department of Public Works. If any tank, pipe, conduit, duct, tunnel or other facility (collectively "facilities") placed in the right-of-way interferes with the operation, improvement, grading or realignment of the highway by the County, the above signed will at their own expense completely remove the facilities and restore the right-of-way, or relocate the facilities to a location designated by the Director, Department of Public Works, and restore the right-of-way. All work shall be completed to the satisfaction of the Director, Department of Public Works. The Permit Owner further agrees to pay any damages resulting to County of San Diego from the negligent or improper design, construction or installation of the facilities or performance of permitted work and will restore the right-of-way, as near as may be possible to its former state and so as not to have impaired unnecessarily its usefulness or will repay to County of San Diego its cost of such restoration. Notwithstanding the foregoing, this permit is not to be interpreted to supersede prior rights or franchise rights in the right-of-way that are owned by a Permit Owner, but should be interpreted to supplement or explain those rights whenever practical to do so without contradicting an express term of a title document or grant of franchise.

I declare under penalty of perjury under the laws of the State of California that the statements made herein are true and correct.

Signed _____ _____
Permit Owner *Date*

ISSUANCE FEE AND DEPOSITS ARE PAYABLE IN ADVANCE

IMPORTANT NOTICE

Section 4216/4217 of the Government Code requires a DigAlert Identification Number (ID) be issued before a "Permit to excavate" will be valid.

For your DigAlert ID Number
Call Underground Service Alert
TOLL FREE 811
Two working days before you dig.

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County of San Diego
Planning and Development Services (PDS)
Land Development Counter
5510 Overland Avenue, Suite 110
San Diego, CA 92123

(858) 694-2055
Fax (858) 279-7020

Email: rowpermitcounter@sdcounty.ca.gov

FOR GENERAL INFORMATION ONLY
NOT TO SUPERSEDE THE APPROPRIATE ORDINANCE

DPW Rev. Sep/2021

ENCROACHMENT PERMIT:

TO ENCROACH UPON COUNTY HIGHWAY

COUNTY OF SAN DIEGO
DEPARTMENT OF PUBLIC WORKS

www.sdcounty.ca.gov/dpw

ENCROACHMENT PERMIT

PERMIT PURPOSE

The County may be held all or partially responsible when a person is injured or property is damaged in the County road Right-of –Way

DEFINITION

An encroachment means any tower, pole, pipeline, private pipe, private pipeline, nonstandard driveway, private road, fence, billboard, stand or building, or any structure or object of any kind or character, which is placed in, under or over any portion of the highway

PERMIT REQUIRED

A written Encroachment Permit is required prior to placing, changing or reviewing an Encroachment in, under or over any portion of the County Road R/W in accordance with Section 71 (Highway and Traffic) of the San Diego County code of Regulatory Ordinances.

SPECIAL REQUIREMENTS

- Public notification may be required prior to commencement of construction

APPLICATION PROCEDURE

The applicant shall provide the following:

- Location of Proposed Encroachment
- Description of structure or object
- Justification for encroachment
- Will it interfere with the public use/maintenance?
- Duration for which permit is sought (one day, days, in-definite)
- Date request is to be effective
- $156.00 issuance fee (checks payable t County of San Diego
- $62.00 permit renewal fee.
- An additional deposit may be required
- Drawings or sign plan
- Lights, barriers, warnings signs or other measure de-signed to protect the traveling public, where applicable
- *An Encroachment Removal Agreement may be required and a deposit

POLICY

All permits other than those issued to public agencies or a public utility having legal authority to occupy the public road right-of-Way are revocable on five days' notice and the encroachment must be removed or relocated as may be specified by the Director in the notice revoking the permit and within a reasonable time specified by the Director unless the permit provides a specified time. Encroachments not removed within the period shall be removed by County forces with the cost borne by the owner. Encroachment determined to obstruct or prevent public use of County road Right-of-Way, consist of refuse, cause a traffic hazard, or in violation of other specific regulations will be removed immediately.

NOTE:

PAINTING HOUSE ADDRESS NUMBER ON CURBS:

Vendors must obtain a solicitor's license from the County Sheriff's Department (858) 974-2020 as well as an encroachment permit before painting house numbers on curbs within the unincorporated areas of the County. A copy of the solicitors license must be submitted with the encroachment permit application. Specific guidelines for painting addresses on curbs are available from the Planning and Development Services Construction/ Road Right-of-Way Counter.

FOR COUNTY USE ONLY
RECORD ID:
DPW20 _____
RWENCP-_____

APPLICATION TO ENCROACH UPON COUNTY HIGHWAY

GOVERNED BY CHAPTER 6, DIVISION 1
TITLE 7 OF SAN DIEGO COUNTY CODE
COUNTY OF SAN DIEGO
DEPARTMENT OF PUBLIC WORKS
5510 OVERLAND AVENUE, SUITE 110
SAN DIEGO, CA 92123
PHONE (858) 694-2055 • FAX (858) 279-7020
E-mail ROWPERMITCOUNTER@SDCOUNTY.CA.GOV

Date _____

THOMAS BROTHERS		
YEAR	PAGE	COORD

Permit Owner _____ Telephone # _____
Last Name *First*

Mailing Address _____
Street *City* *State* *Zip Code*

Application Contact Name _____ Email Address _____ Telephone # _____

Is the work part of a larger project or program requiring multiple permits, or currently under review for permit? YES ❒ NO ❒

If yes provide: Related Permits _____ Assessor Parcel # _____

Is this a utility relocation in connection with a County Capital Improvement Project? YES ❒ NO ❒

If yes provide: Name of Project _____

Location of encroachment _____
Street Name and Number and nearest cross street

❒ Fencing ❒ Political Signs ❒ Scaffolding ❒ Storage ❒ Yard ❒ Other

Describe _____

_____

Will encroachment interfere with the public use and maintenance of?

Travelled way	❒ Yes	❒ No	Side path or sidewalk	❒ Yes	❒ No
Shoulder or parking lane	❒ Yes	❒ No	Drainage structure or watercourse	❒ Yes	❒ No

Justification for Encroachment _____

Permit requested: ❒ 1 day ❒ 3 days ❒ 10 days ❒ indefinite ❒ _____ days Effective date _____ 12.01 a.m.

AGREEMENT

In consideration of the granting of this permit, the applicant agrees:

1. I hereby agree as a condition of the granting of this permit to provide defense and indemnification in accordance with Section 71.103 of the San Diego County Code of Regulatory Ordinances as follows: Permit Owner agrees to indemnify, hold harmless and defend the County and each of its officers and employees from any liability of responsibility for accident, loss or damage to persons or property arising by reason of the work done by Permit Owner, or Permit Owner's agents, employees or representatives.
2. To comply with all applicable laws in the establishment, maintenance and removal of the encroachment.
3. That the Permittee and any other person engaged in any work authorized by this permit shall conform to all due safety precautions for the protection of persons and property.
4. To remove or relocate any encroachment placed, changed or renewed under the authority of this permit; prior to its expiration or within 24 hours of notification to remove, if the duration is 10 days or less; or within 5 day of notification to remove, if the permit is of indefinite duration
5. After removing or relocation the encroachment, to restore the highway to the equivalent or better condition than it was prior to the date this permit became effective, or prior to the date the encroachment was first placed, whichever is earlier.

"I declare under penalty of perjury under the laws of the State of California that the statements made herein are true and correct."

Signed _____ _____
Owner *Date*

Rev: Oct/2020

ISSUANCE FEE AND DEPOSITS ARE PAYABLE IN ADVANCE

ENVIRONMENTAL REVIEW QUESTIONNAIRE
FOR WORK WITHIN THE COUNTY OF SAN DIEGO ROAD RIGHT OF WAY
(TO BE FILLED OUT BY APPLICANT)

PERMITTEE NAME OR ORGANIZATION: _____

PROJECT NUMBER OR NAME: _____

PROJECT LOCATION: _____

Please Check YES or NO for the following statements. (Note: further environmental review may be required by applicant and/or County staff for a "Yes" answer.)

YES	NO	
☐	☐	The project proposes grading, filling, or dredging within a creek or wetland area
☐	☐	The project will remove vegetation adjacent to a creek or wetland area
☐	☐	The project will harm or remove healthy, mature, or scenic trees
☐	☐	The project is located on a hazardous waste site per Section 65962.5 of Gov. Code
☐	☐	The project will degrade surface water quality
☐	☐	The project will impact groundwater quality or quantity
☐	☐	The project will have significant impact to aesthetics or visual resources
☐	☐	The project is located on a dedicated trail, or pathway
☐	☐	The project will impact historic, tribal cultural, or prehistoric resources
☐	☐	The project will conflict with the County Noise Ordinance (San Diego County Code of Regulatory Ordinances, Title 3, Division 6, Chapter 4)

The following language shall be placed on the project plans and will become permit conditions:

"If during the course of any ground disturbing activities any historic or pre-historic resources are identified, work will be ceased immediately in that area and the Department of Public Works notified. Work will commence once authorized by the Department of Public Works."

"To avoid harm to any mature trees, the applicant will not place any concrete, fill, or grade within the canopy of any tree with a diameter of 3 inches or greater unless only hand-tools are used or an arborist provides direction and certification that such activities would not cause harm to the tree."

"If existing landscaping is to be removed, the applicant will replace it in kind".

"As defined by the County Noise Ordinance, general sound levels will not exceed the limits defined in Section 36.404 of the Noise Ordinance. Further, construction Activities will not occur before 7 a.m or after 7 p.m. nor will any construction occur on Sundays or holidays without first obtaining a noise variance."

"No grading, fill, or any activities are permitted within a creek or wetland area."

I hereby certify the above answers are true and correct to the best of my knowledge:

SIGNATURE: _____ DATE: _____

County of San Diego, Planning & Development Services
APPLICATION DEPOSIT ACKNOWLEDGEMENT AND AGREEMENT
SUPPORT SERVICES DIVISION

Do you already have an existing active Trust Account with PDS/DPW for the same site/application/project: Yes ☐ No ☐

This can be through a Use Permit, Site Plan, TM, GP, or other Discretionary approval. Grading permits associated with a site that has a Discretionary permit in place should be tied to that trust account.

Are we linking this site/application/project to the existing Trust Account: Yes ☐ No ☐

If the existing Discretionary permit has been approved it should still be tied to the work being done through this action for tracking purposes.

If linking, please provide existing Trust Account number:

No additional information is necessary. The rest of this form does not need to be completed.

If you do not know the trust account number but know the record associated with the Use Permit, Site Plan, TM, or GP, please indicate the discretionary permit number here:

INTRODUCTION

It is the policy of the County of San Diego to recover from applicants for land development approvals the full cost of processing such applications, including all time spent by County staff to review, comment, coordinate and communicate with applicants and the public on the processing of a proposed application. (See Board of Supervisors' Policy B-29: http://www.sdcounty.ca.gov/cob/docs/policy/B-29.pdf). For application types where processing costs vary substantially between individual applications, the County establishes a Trust Account to assure cost recovery. In such cases, an initial **deposit** is required, in an amount as set by ordinance to cover the estimated costs of the initial review (Scoping) of a project following intake of the application. In the event the estimated deposit is not sufficient to cover actual costs of the initial scoping, an additional deposit will be required. At the conclusion of scoping of the project (approximately 30 days after application), a refined project-specific estimate of total costs to process your application to completion, based upon a number of assumptions, will be provided with a complete listing of project specific issues, revisions, and studies required as deemed necessary for compliance with State and County codes and ordinances.

The cost associated with processing a discretionary permit with Planning & Development Services (PDS) varies widely depending on the type of entitlement being applied for and the complexity of the project. Estimates of processing costs for a variety of permit types have been identified based on historic data for recently completed projects. These summaries are available on the PDS website at http://www.sandiegocounty.gov/content/dam/sdc/pds/zoning/formfields/PDS-PLN-369.pdf. Actual cost may vary substantially from the ranges listed online due to project location, environmental issues, planning constraints, appeals or code/ordinance compliance. The applicant is required to pay all costs associated with application processing, regardless of the original estimate provided or historic costs. When the application and case closure process is complete, any remaining funds in the Trust Account will be refunded.

----- OFFICIAL USE ONLY -----

AGREEMENT

The person named below as “Depositor" is herewith depositing, or has previously deposited with the County of San Diego the sum of $ _____ for the initial review (Scoping) of the following application being filed with the County:

Said deposit and any subsequent deposits are made on behalf of the person, corporation or partnership named below as the "Financially Responsible Party". With reference to said application and deposits, Depositor and Financially Responsible Party hereby acknowledge and agree as follows:

1. Said initial deposit and any subsequent deposits shall be held by the County in an account under the name of Financially Responsible Party, and Financially Responsible Party shall be considered the owner of all funds in said account, and Depositor (if different from Financially Responsible Party) releases any interest in said funds. Except as provided below, any funds remaining in said account at the completion of work shall be refunded to the Financially Responsible Party at the address below. In the case that the Financially Responsible Party transfers ownership of the subject property and wishes to transfer responsibility of the Trust Account to the new owner, a Change of Financial Responsibility form must be completed to authorize transfer of ownership of funds in said account. The Financially Responsible Party may contact the Trust Account Customer Service Unit at: PDSDevDep@sdcounty.ca.gov or by calling (858) 694-2320 to request the form

2. All costs incurred by the County in processing said application, including overhead, whether within or over the amount of project-specific estimate provided at the conclusion of the initial Scoping of the project (typically 30 days), shall be paid by the Financially Responsible Party. This is the Financially Responsible Party’s personal obligation and shall not be affected by sale or transfer of the property subject to the application, changes in Financially Responsible Party's business organization, or any other reason. As work proceeds on an application, actual County costs, as established by County Ordinance, will be recorded and invoiced against the deposit account. County is authorized to deduct such costs from said deposits at such times and in such amounts as County determines. The County may allow incremental deposit submittals by the Financially Responsible Party over the course of the project processing such as prior **to** each submittal, public review, and hearing(s), as applicable to the permit. “Costs incurred by the County” as identified in this paragraph may include costs for the services of an outside contractor. Where the County determines it is necessary to engage the services of an outside contractor or other County Departmental staff to assist with application processing, costs for such services are to be paid by the Financially Responsible Party in the same manner identified above. If the Financially Responsible Party withdraws an application not involving a violation of a County ordinance, County will cease processing of the application within one day and will proceed with the case closure process. The Financially Responsible Party is responsible for all case closure costs. Case closure costs will be minimized to the maximum extent practicable.

3. If it is determined that the estimated cost provided in the original cost estimate will not be adequate to cover all costs associated with application processing, the estimate will be refined, and additional monies may be required. County may make a written demand for additional deposit(s) and the Financially Responsible Party shall deposit with County such additional sums demanded within 14 days of the date of County's request. If Financially Responsible Party fails to deposit such additional sums within said period, County staff will cease work on said application until such funds have been deposited. If no deposit is received within 30 days, the County may forward said application to the appropriate decision-maker with a recommendation for denial. The application will not be finalized for hearing or decision until required deposits are paid in full. If at any point in the processing of the project, the deposit account becomes depleted, County staff shall stop work on the project until sufficient funds are restored. When the processing of the application is completed, any unused amount in deposit account will be refunded.

4. If the amount of costs incurred by County exceeds the amount of funds on deposit, and the Financially Responsible Party has failed to pay County sufficient funds to cover said deficit after demand, County may, in addition to ceasing work on said application, take any or all of the following actions:

    a) cease work and refer the account to the County’s collection agency;
    b) commence suit or pursue any other legal or equitable remedies available to it.

5. If County commences suit to recover any deficit in processing costs, the party prevailing in such suit shall be entitled to recover as costs from the other party its costs of litigation, including reasonable attorneys' fees.

FINANCIALLY RESPONSIBLE PARTY

The information of the Financially Responsible Party provided below must be 100% accurate. All Developer Deposit customer statements and refund checks, if any, will be mailed to the name and address stated below.

If the information stated on this form is inconsistent with our system, then the Financially Responsible Party must clarify and correct before the application can be accepted.

If the Financially Responsible Party is a COMPANY or ORGANIZATION, please complete below (*additional information may be required if an agent signed this form*):

Company/Business/Trust Name: _____

If Attention/Care of/ Doing Business as: _____

Billing Address: _____

City: _____ State: _____ Zip Code: _____

Preferred Phone: _____ Alt. Phone: _____

Email: _____

If the Financially Responsible Party is an INDIVIDUAL, please complete below:

First Name: _____ MI: _____ Last Name: _____

Billing Address: _____

City: _____ State: _____ Zip Code: _____

Preferred Phone: _____ Alt. Phone: _____

Email: _____

I have read this form and understand all funds deposited into the Trust Account are owned by and any refund will be sent to the Financially Responsible Party (FINRESP) listed above. I understand and agree that the Financially Responsible Party is responsible for payment of all fees associated with this project including all hourly or other fees which may accrue during the review and/or post-issuance whether the permit is issued or whether the application is canceled or denied before the permit is issued.

Financially Responsible Party Name (Print): _____

Financially Responsible Party's Signature: _____ Date: _____

***Did you know you can request access to your Trust Account online**—which allows you to review charges, make deposits, and see your account balances—in real time? Please go to http://www.sandiegocounty.gov/content/sdc/pds/AccelaUpdates.html for additional instruction.*

----- OFFICIAL USE ONLY -----					
Trust Account No.		**-**		**-**	
Associated Records:					
Associated Records:					

[redacted]

Home | Online Services | Check A License

Check a Contractor License or Home Improvement Salesperson (HIS) Registration

Look up a contractor license or Home Improvement Salesperson (HIS) registration to verify information, including complaint disclosure. Before hiring a contractor or signing a contract, CSLB recommends you read the Hiring a Contractor page.

Enter the contractor license number to check the status of their license.

Contractor License #

SEARCH TIPS

A California contractor license number doesn't contain alphabetic characters. Each contractor's plastic pocket license will show the respective license number. Begin entry of your license number at the left position and don't exceed 8 digits in the license number.

Please note: Our database is unavailable Sundays at 8 p.m. through Monday at 6 a.m. due to scheduled maintenance.

Trying to hire a licensed contractor and don't know where to start? Click here to create a list of licensed contractors by City or ZIP code.

County of San Diego

Planning & Development Services (PDS)
Land Development/Right-of-Way Counter
5510 Overland Ave., Suite 110, San Diego, CA 92123

Information Sheet For Insurance Requirements For Right-of-Way Permits

Please mail or fax proof of insurance to:

County of San Diego
Planning & Development Services (PDS)
Land Development/Right-of-Way Counter
5510 Overland Avenue, Suite 110
San Diego, CA 92123

Contact: **permit coordinator**
Telephone: **(858) 694-2055**
Fax phone: **(858) 279-7020**
Email: ROWPERMITCOUNTER@SDCOUNTY.CA.GOV

Contractors, Organizations, or Persons encroaching in the County maintained Right-of-Way shall provide proof of insurance, in the form of a **CERTIFICATE OF LIABILITY INSURANCE**, from a generally recognized domestic insurance carrier for the duration of the permitted encroachment (please refer to samples) as follows:

1) **CERTIFICATE OF LIABILITY INSURANCE** showing evidence of Commercial General Liability with a $1,000,000 per occurrence limit of liability.
2) The County of San Diego named as **CERTIFICATE HOLDER** and Additionally Insured on **CERTIFICATE OF LIABILITY INSURANCE**.
3) A separate **ADDITIONAL INSURANCE ENDORSEMENT** (CG 20 12 04 13, use latest version if available) naming the County of San Diego, its agents, officers and employees as Additional Insured for above noted Commercial General Liability policy.

NOTE: An insurance policy number must be indicated on the items submitted as proof for # 1 and # 3 above.

Sample of Items 1 & 2

ACORD

CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY): 01/01/2020

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

IMPORTANT: If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must have ADDITIONAL INSURED provisions or be endorsed. If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

PRODUCER	CONTACT NAME: Producer Contact Name
Name & Address of Insurance Company Producing Certificate	PHONE (A/C, No, Ext): (123)456-7890 FAX (A/C, No): E-MAIL ADDRESS:

INSURER(S) AFFORDING COVERAGE		NAIC #
INSURER A:	Name of Insurer A	12345
INSURER B:	Name of Insurer B	12345
INSURER C:		
INSURER D:		
INSURER E:		
INSURER F:		

INSURED
Name & Address
of Insured Contractor/Organization

COVERAGES **CERTIFICATE NUMBER:** **REVISION NUMBER:**

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR LTR	TYPE OF INSURANCE	ADDL INSD	SUBR WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS	
A	X COMMERCIAL GENERAL LIABILITY CLAIMS-MADE X OCCUR GEN'L AGGREGATE LIMIT APPLIES PER: POLICY PRO-JECT LOC OTHER:	X		EXMPL12345	01/01/2020	01/01/2021	EACH OCCURRENCE DAMAGE TO RENTED PREMISES (Ea occurrence) MED EXP (Any one person) PERSONAL & ADV INJURY GENERAL AGGREGATE PRODUCTS - COMP/OP AGG	$ 1,000,000 $ 100,000 $ 5,000 $ 1,000,000 $ 2,000,000 $ 2,000,000 $
	AUTOMOBILE LIABILITY ANY AUTO OWNED AUTOS ONLY HIRED AUTOS ONLY SCHEDULED AUTOS NON-OWNED AUTOS ONLY						COMBINED SINGLE LIMIT (Ea accident) BODILY INJURY (Per person) BODILY INJURY (Per accident) PROPERTY DAMAGE (Per accident)	$ $ $ $ $
	UMBRELLA LIAB OCCUR EXCESS LIAB CLAIMS-MADE DED RETENTION $						EACH OCCURRENCE AGGREGATE	$ $ $
B	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? (Mandatory in NH) If yes, describe under DESCRIPTION OF OPERATIONS below	Y/N Y	N/A	EXMPL12345	01/01/2020	01/01/2021	X PER STATUTE OTH-ER E.L. EACH ACCIDENT E.L. DISEASE - EA EMPLOYEE E.L. DISEASE - POLICY LIMIT	$ 1,000,000 $ 1,000,000 $ 1,000,000

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (ACORD 101, Additional Remarks Schedule, may be attached if more space is required)

RE: Permit.
The County of San Diego, its officers, agents, & employees are included as additionally insured in accordance to General Liability policy provisions.

CERTIFICATE HOLDER

County of San Diego
5510 Overland Avenue, Suite 110
San Diego, CA 92123

CANCELLATION

SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS.

AUTHORIZED REPRESENTATIVE

ACORD 25 (2016/03) The ACORD name and logo are registered marks of ACORD

Sample of Item 3

POLICY NUMBER: EXMPL12345

COMMERCIAL GENERAL LIABILITY
CG 20 12 04 13

THIS ENDORSEMENT CHANGES THE POLICY. PLEASE READ IT CAREFULLY.

ADDITIONAL INSURED – STATE OR GOVERNMENTAL AGENCY OR SUBDIVISION OR POLITICAL SUBDIVISION – PERMITS OR AUTHORIZATIONS

This endorsement modifies insurance provided under the following:

COMMERCIAL GENERAL LIABILITY COVERAGE PART

SCHEDULE

State Or Governmental Agency Or Subdivision Or Political Subdivision:
County of San Diego, its officers, agents, & employees 5510 Overland Avenue, Suite 110 San Diego, CA 92123
Information required to complete this Schedule, if not shown above, will be shown in the Declarations

A. Section II – Who Is An Insured is amended to include as an additional insured any state or governmental agency or subdivision or political subdivision shown in the Schedule, subject to the following provisions:

1. This insurance applies only with respect to operations performed by you or on your behalf for which the state or governmental agency or subdivision or political subdivision has issued a permit or authorization.

   However:

   a. The insurance afforded to such additional insured only applies to the extent permitted by law; and

   b. If coverage provided to the additional insured is required by a contract or agreement, the insurance afforded to such additional insured will not be broader than that which you are required by the contract or agreement to provide for such additional insured.

2. This insurance does not apply to:

   a. "Bodily injury", "property damage" or "personal and advertising injury" arising out of operations performed for the federal government, state or municipality; or

   b. "Bodily injury" or "property damage" included within the "products-completed operations hazard".

B. With respect to the insurance afforded to these additional insureds, the following is added to **Section III – Limits Of Insurance:**

If coverage provided to the additional insured is required by a contract or agreement, the most we will pay on behalf of the additional insured is the amount of insurance:

1. Required by the contract or agreement; or
2. Available under the applicable Limits of Insurance shown in the Declarations;

whichever is less.

This endorsement shall not increase the applicable Limits of Insurance shown in the Declarations.


Overview Map
Aurora Dr
Starland Dr
Amelia Dr
Flaven Ln
Mecill Ave
Google Earth
© 2018 Google
N
400 ft

IMPORTANT NOTICE

Section 4216/4217 of the Government Code requires a DigAlert Identification Number (ID) be issued before a "Permit to excavate" will be valid.

For your DigAlert ID Number
Call Underground Service Alert
TOLL FREE 811 or www.contact811.org
Two working days before you dig.

For more information, go to:
www.digalert.org

Applications should be submitted to:

County of San Diego
Planning and Development Services (PDS)
Land Development Counter
5510 Overland Avenue, Suite 110
San Diego, CA 92123

(858) 694-2055
Fax (858) 279-7020

Email:
rowpermitcounter@sdcounty.ca.gov

FOR GENERAL INFORMATION ONLY
NOT TO SUPERSEDE THE APPROPRIATE ORDINANCE

DPW Rev. (02/2020)

TRAFFIC CONTROL PERMIT: FOR TRAFFIC CONTROL WITHIN COUNTY MAINTAINED ROADS DURING CONSTRUCTION

COUNTY OF SAN DIEGO
DEPARTMENT OF PUBLIC WORKS

www.sdcounty.ca.gov/dpw

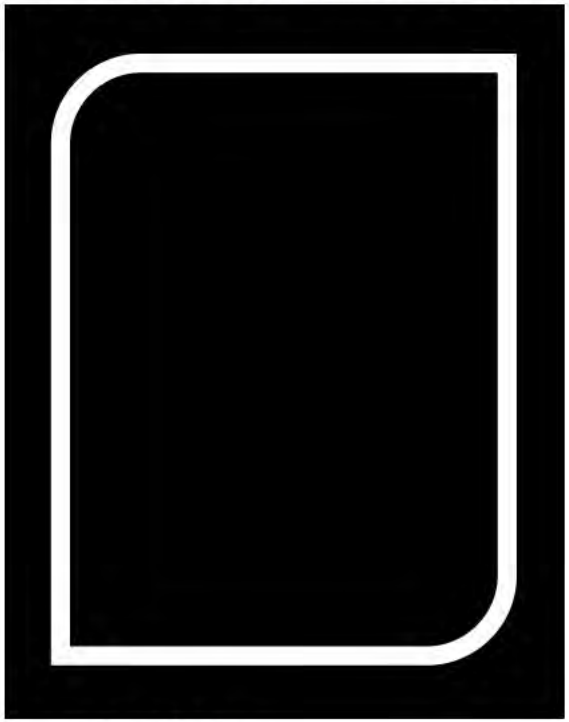
TRAFFIC CONTROL PERMIT

WHAT IS TRAFFIC CONTROL?

Traffic Control is the provision of a safe work area for workers within the public right-of-way (ROW) while maintaining a safe and efficient flow of traffic for all road users including motorists, bicyclists, and pedestrians.

PERMIT REQUIRED

A Traffic Control Permit must be obtained before—starting construction of repair of curbs, gutters, sidewalks, commercial and residential driveways, roadway surfaces, retaining walls, culverts, street light(s) or other work of any nature in the County right-of-way.



DPW Rev. (02/2020)

APPLICATION PROCEDURE

When applying for a traffic control permit, the appropriate (ROW) permits (Encroachment, Excavation, and Construction) should be concurrently applied for from the Planning Development Services (PDS) Land Development Counter. **A Traffic Control Permit will not be processed until the appropriate ROW permits are approved.**

The applicant shall provide the following:

- Complete Traffic Control application form:
  - Reason for Traffic Control Permit;
  - Exact work location; and
  - Desired dates and time of work.
- Traffic Control Permit application submittal checklist
- 11x17 size Traffic Control Plans or current San Diego Regional Standard Drawings (SDRSD) that include the work being performed, exact location of work, and proposed temporary Traffic Control through the work area.

EXTENSION OF PERMITS

All requests for extensions should be submitted through PDS Land Development Counter at least seven days prior to the end of the original finish date. All permit conditions and requirements are to remain in effect.

SPECIAL REQUIREMENTS

- The permit holder must contact **The Department of Public Works Private Development Construction Inspection team at (858) 694-3165** at least **24 Hours** before start and finish of work.
- Appropriate lights, barriers, warning signs or other measures designed to protect the traveling public must be erected by the permittee per the Approved Traffic Control Permit.

NO FEES

There is no fee for a Traffic Control Permit. It takes **approximately six weeks** to process a Traffic Control Permit because it requires review and approval by the County Traffic Engineer.

COUNTY OF SAN DIEGO
DEPARTMENT OF PUBLIC WORKS
TRAFFIC ENGINEERING SECTION

APPLICATION FOR TRAFFIC CONTROL PERMIT _____

Type of traffic control: flag, shift, etc.

County of San Diego
DPW Traffic Engineering Section
Room 470, MS O332
5510 Overland Ave, Suite 410
San Diego, CA 92123-1239

Telephone/voice mail: (858) 694-3863
Secretary (858) 694-3850
Fax (858) 694-3928
DPWTRAFFICCONTROL.PERMIT@SDCOUNTY.CA.GOV

Encroachment/excavation/construction permit #_____

Applicant Information

Company _____

Agent/applicant _____
Last Name *First*

Agent Telephone #_____ Agent Fax #_____

Agent Mailing Address: _____
Street Name and Number *City* *State* *Zip Code*

Agent E-mail Address _____

Reason for Traffic Control: _____

Start Date: _____ Start Time: _____ a.m. / p.m.

Finish Date: _____ End Time: _____ a.m. / p.m.

It is requested that a permit be granted for traffic control on the fallowing street/streets:

STREET 1 _____ From Street _____ To_____

STREET 2 _____ From Street _____ To_____

COMMUNITY _____ Thomas Brothers Map Page and Grid # _____

Signed _____ _____
Agent or Applicant Date

See Attached Plan (s) and Traffic Control Notes

This request is:

APPROVED ☐ **DENIED** ☐

Director, Department of Public Works

By _____
For Road Commissioner

Ref: Section 72.75 County Code of Regulatory Ordinances

DPW COUNTY OF SAN DIEGO
DEPARTMENT OF PUBLIC WORKS

TRAFFIC CONTROL PERMIT APPLICATION SUBMITTAL CHECKLIST

Application package must include the following requirements at a minimum. Application is subject to rejection if any of the following information is not completed.

☐ **Description/type of work being done** *(Ex. access manhole, replace overhead lines on existing poles, replace water service line, etc.)* _____

_____

☐ **Roadway Characteristics:**

☐ **Names of Road(s)** _____

☐ **County Maintained Road(s)** (Yes/No) _____

☐ **Work affecting other jurisdictions** (Yes/No) If yes, please list. _____

☐ **Road Classification on Mobility Element Map** _____
(Ex. 2.2E Light Collector, 4.1A Major Road, Not on Mobility Element Map, etc.)
https://www.sandiegocounty.gov/pds/generalplan.html

☐ **Speed Limit** _____
http://library.amlegal.com/nxt/gateway.dll?f=templates&fn=default.htm&vid=amlegal:sandiegoco_ca_mc

☐ **# of Lanes** _____

☐ **Roadway Width** _____

☐ **Centerline Striping** (Yes/No) _____

☐ **Bike Lanes** (Yes/No) _____

☐ **Sidewalk** (Yes/No) _____

☐ **Traffic Signal in County Right of Way** (Yes/No) _____

☐ **Traffic Signal in other jurisdiction** (Yes/No) _____

☐ **School zone within ½ mile of work zone** (Yes/No) If yes, list school hours. _____

☐ **Bus route or bus stops within work zone** (Yes/No) _____

https://www.sdmts.com/
http://www.gonctd.com/

☐ **Overview map.** Show location and limits of work area (length, width), including road name and distance to cross streets. See Example #1.

☐ **Traffic control plans or appropriate San Diego Regional Standard Drawing (SDRSD) Traffic Control Plan**. If submitting an SDRSD, please denote roadway width and work area dimensions on TCP. Include offsets of work area to points of interest (edge of pavement, adjacent lanes, etc.). See Example #2.

I hereby certify the above information and attachments are true and correct to the best of my knowledge.

_____	_____	_____
Applicant Printed Name	Applicant Signature	Date

For County Use Only:

☐ Contractor Insurance _____

☐ Encroachment Permit Approval and/or Pavement Cut Policy _____

RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE

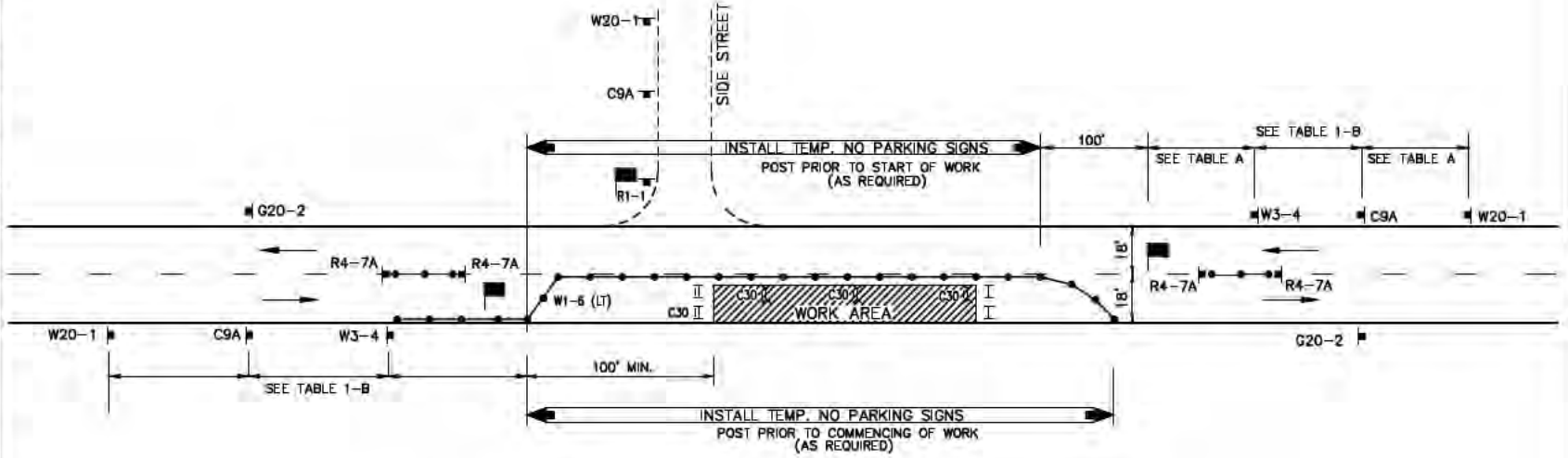
Chairperson R.C.E. 19246 — 12/17/15

DRAWING NUMBER **TCP-09**

SAN DIEGO REGIONAL STANDARD DRAWING

SIDE OF ROAD WORK AREA

TWO LANE TRAFFIC CONTROL WITH FLAGGERS



LEGEND

CONE | BARRICADE | FLAGGER | SIGN | FLASHING ARROW SIGN | WORK AREA | TRAFFIC DIRECTION

AGENCY ENGINEER'S COMMENTS

APPLICANT USE AGENCY USE

SUBMITTED BY:

NAME_____

COMPANY_____

ADDRESS_____

PHONE_____

POSTED SPEED LIMIT	APPROACH SPEED	TAPER LENGTH	SPACING OF CONES	SIGN SPACING

GENERAL NOTES

FOR HOURS OF DARKNESS, CHANGE COMES TO VERTICAL BARRICADES WITH STEADY BURN LIGHTS. THIS PLAN MAY NOT APPLY TO SIGNALIZED OR MULTI-WAY STOP INTERSECTIONS. CONSULT THE LOCAL JURSIDICTION WHEN PREPARING TRAFFIC CONTROL PLANS NEAR THESE INTERSECTIONS. THIS PLAN MAY NOT APPLY WHEN THE WORK AREAS AFFECT BIKE LANES, SIDEWALKS PEDESTRIAN ACCESS AND CURVED OR NARROW ROADWAYS. CONSULT THE APPROVING AGENCY WHEN PREPARING THE TRAFFIC CONTROL PLANS OR THESE AREAS.

NOTHING CONTAINED ON THIS DRAWING SHALL PREVENT LOCAL JURISDICTIONS FROM MODIFYING CHANGING OR ADOPTING NEW SPECIFICATIONS DEEMED NECESSARY. CRITERA FOR POSITION, LOCATION AND USE OF TRAFFIC CONTROL DEVICES IS SOLELY FOR THE PURPOSE OF GUIDANCE TO ASSIST IN THE SET UP OF THE TRAFFIC CONTROL PLANS.

TCP IS REQUIRED FOR ALL TRAFFIC CONTROL PLANS.

Revision	By	Approved	Date
Reviewed			
Revised	BUSS		2/11
	DG	T.Stanton	9/15

Appendix D-1

December 2021

Water Supply Feasibility Study by Dudek

DUDEK
MAIN OFFICE
605 THIRD STREET
ENCINITAS, CALIFORNIA 92024
T 800.450.1818 F 760.632.0164

TECHINICAL MEMORANDUM

To:	Art Bunce, Barona Legal and Sheila Alvarez, Barona
From:	Elizabeth Caliva, P.E., Greg Ripperger, P.E., Dudek
Subject:	Water Supply Feasibility Study
Date:	December 14, 2021
cc:	
Attachment(s):	

As a result of ongoing concerns with drought conditions in southern California, the Barona Tribe (Tribe) has expressed a desire to acquire an imported source of water. The purpose of this study is to evaluate the potential for acquiring and transporting imported water to the Reservation. Assembly Bill 1361, passed in 2017, allows interagency agreements to be established between Tribal communities and California Water District. This analysis evaluates water import options available to the Tribe, with recommendations on the most appropriate option for implementation.

1 Project Background

1.1 Historical Perspective

The Capitan Grande Reservation was originally located along the San Diego River, in and around the flood zone of what is now El Capitan Reservoir. The City of San Diego purchased these lands in 1919 and 1932, to allow construction of the El Capitan Dam. After many years of legal struggle, a portion of the Capitan Grande community relocated to Barona Ranch, located northwest of Capitan Grande, now the Barona Reservation. The remainder of the community relocated to Barona Long Ranch, located southeast of Capitan Grande, now the Viejas Reservation. The large Capitan Grande Reservation continues to be owned collectively by the Barona and Viejas people as "successors in interest," which now serves as an ecological preserve.

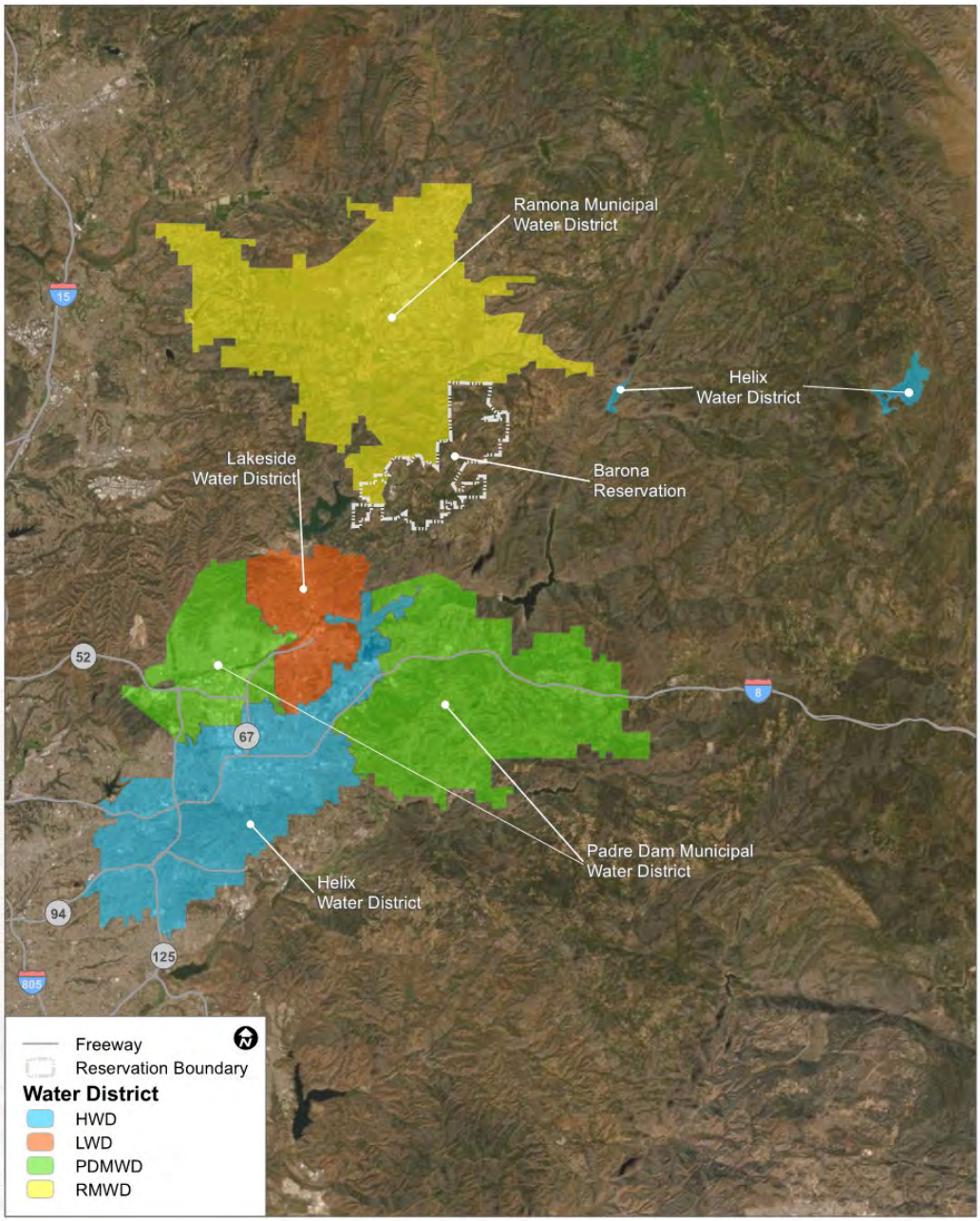
1.2 Contemporary Perspective

The Barona Tribe's economic challenges continued through the early 1990s. In 1994, the Tribe opened the Barona Casino "Big Top", which became the world-class Barona Valley Ranch Resort and Casino. The casino has become the means to a restoration of self-sufficiency, prosperity, and renewal for the Barona people. With this prosperity, the Tribe has seen increased Reservation development, which has subsequently increased stress on the Reservation's existing water resources. As a result, the Tribe hired Dudek to evaluate various import water options, with a recommendation on the most beneficial project to implement.

2 Project Purpose & Approach

The purpose of this Water Study is to identify and evaluate imported water resources from adjacent California water districts that may be available for the Tribe's use. As shown on **Figure 1**, the Barona Reservation is bordered on the north by the Ramona Municipal Water District (RMWD) water service area. Similarly, the Reservation is bordered on the south by the Lakeside Water District (LWD), Helix Water District (HWD), and Padre Dam Municipal Water District (PDMWD). Lands to the west of the Reservation belong to the cities of San Diego and Poway.

Figure 1. Barona Reservation and Surrounding Water Districts



2.1 Legal Authority

The Reservation is currently outside the service areas of these existing water agencies. However, California Water Code Section 71611.5 (AB-1361) allows service by California Water Districts to existing Reservation lands by agreement, without annexation, and stipulates approval by the Local Area Formation Commission (LAFCO). Water Code Section 71611.5 stipulates with request by the Tribe and satisfaction of conditions established by the Code, a District can provide water service at substantially the same terms as other District customers. Tribal lands not located within the Water District boundary are required to be treated as if they were fully annexed for provision of this water service.

Section 71611.5 has a sunset clause of January 1, 2023. This sunset clause does not preclude extension of this legislation but is a condition that is critical for the completion of this Water Study. The Tribe wants to identify the most appropriate water service and negotiate the necessary agreements prior to the January 1, 2023, date to avoid potential loss of these water opportunities, if the legislation is not extended. Agreements that are sent to LAFCO before January 1, 2023, must be approved by LAFCO, and may continue to extend service to the Tribe after January 1, 2023, provided the agreement continues to comply with any conditions imposed by LAFCO.

In addition, before a district provides water service, the Tribe must satisfy the following conditions:

- Comply with federal and tribal laws.
- Acquire federal and tribal approvals necessary for the District to provide water service at substantially the same terms applicable to customers of the District.
- Accept, by agreement, terms of, and payments to (including service payments), the District and any public agency providing water to said District, as if the Tribe's lands were fully annexed into the District and into the service area of any other public agency, which terms and payments are also a condition of continued service by a District and by any public agency providing water to said District.

The water service period is defined to be the longest of the following: (1) The time water service is provided by the District to the Tribe, (2) The time moneys are owed by the Tribe to the District for water service, or (3) The term of any agreement between the District and Tribe.

Section 71611.5 specifically designates that water service must be provided by a Water District. As such, the cities of San Diego and Poway, adjacent to the Reservation, are not eligible to provide water service to the Reservation. For each of the four adjacent Water Districts, Dudek conducted a comprehensive evaluation of the financial, engineering, hydraulic and political requirements of each agency for provision or needed water service. The resulting water service agreement, when negotiated, is intended to be a long-term arrangement, and the providing agency will need to have both current and long-term ability to meet the Tribe's water needs. It may be determined that the most beneficial water service for the Tribe includes agreements with one or more Districts, where direct or indirect (water wheeling) supply of treated water, untreated water, recycled water, and/or advanced treated water are considered. Each adjacent District may have a variety of service options that are evaluated.

Finally, the facilities needed to consistently provide water service to the Reservation are defined relative to each option identified. These facilities need to be consistent with the existing infrastructure of the Reservation, and may involve revisions to current Reservation facilities, including potential increasing or decreasing of currently proposed system improvements. Construction and annual operating costs for the various water service options are defined. Identification of the most beneficial water supply option(s) for the Tribe is identified and prioritized for presentation

to the Tribal Council. As always, cost is a critical decision factor in any public water works plan. However, other non-monetary and political considerations are also critical to the decision-making process.

3 Service Provider Information Summary

In August and September of 2021, Dudek staff met with staff from the four adjacent water districts to discuss potential water service to the Tribe. The following discussions summarize the initial discussions and findings with those Districts, including their interest in providing service, the available water supplies, and the facilities from which the water service could or would be provided.

3.1 Lakeside Water District

Dudek met with Brett Sanders, General Manager of Lakeside Water District (LWD), on August 24, 2021. Approximately 80 percent of LWD's treated water is derived from Helix Water District, with the remaining 20 percent being derived from local groundwater wells. These water resources include treated water with chloramine disinfection. No other water supplies were determined to be available from LWD.

LWD currently has a limited water distribution system. The Muth Valley development (up to 650 new homes) is resulting in a northward extension the water distribution system, with a 550-psi pressure required to serve this new development and a maximum pipeline size of 12-inch. It was noted by LWD that they currently do not possess sufficient infrastructure capability to convey water to the Barona Reservation.

3.2 Padre Dam Municipal Water District

Dudek met with Kyle Swanson, AWP Manager, and Allen Carlisle, General Manager, of Padre Dam Municipal Water District (PDMWD) on August 30, 2021. PDMWD expressed interest in supplying water to the Barona Reservation. Presently, PDMWD receives treated water from the San Diego County Water District (SDCWA) and from Helix Water District (HWD) via the Levy Water Treatment Plant. PDMWD's Advanced Water Purification (AWP) water is developed to replace imported water supplies when placed into service. Future AWP water will be jointly owned by HWD (69 percent) and PDMWD (31 percent), with a total anticipated average production of 11.5 MGD. PDMWD has an extensive recycled water distribution system within its Western Service Area. However, PDMWD is presently evaluating whether to continue recycled water service, considering the success of the AWP project.

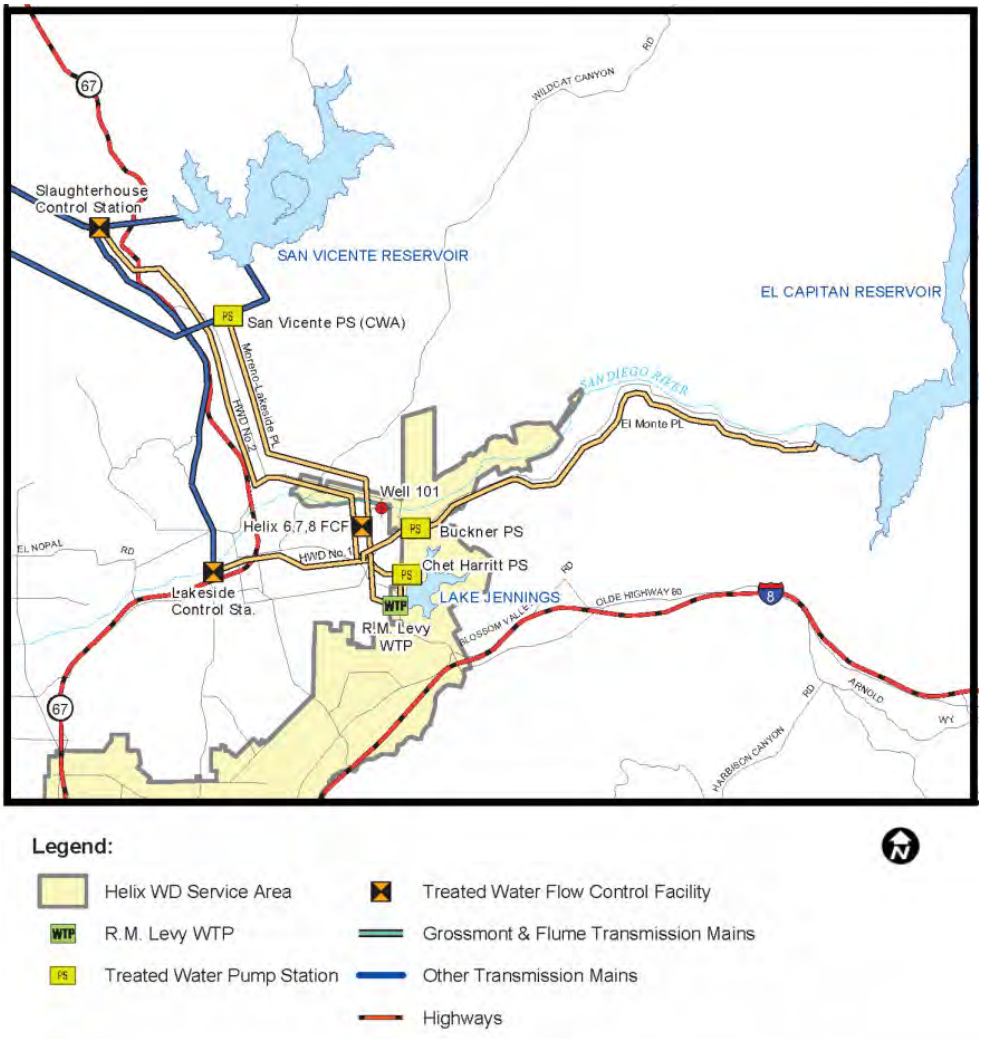
Padre Dam currently provides water service to the Sycuan Reservation. As such, PDMWD understands the interagency agreement process necessary to serve the Barona Reservation. Water served to the Sycuan Reservation is treated water with chloramine disinfection, derived from the SDCWA (CWA Connections #4 and #6) and HWD (Helix/Padre #2) water supplies within its Eastern Service Area. As with the Sycuan Reservation, water service to the Barona Reservation would be focused on treated water from this District. PDMWD does not have untreated water available, and its recycled water is not positioned to effectively meet the Tribe's needs. However, PDMWD has sufficient water resources to provide treated water to the Barona Reservation. The closest water distribution pipeline is located within Lakeside Avenue. Delivery of water from this pipeline would result in an approximate 925-foot hydraulic grade differential, requiring a minimum of two pump stations and approximately 6.7 miles of new pipeline, the majority of which would not be constructed on Reservation property.

3.3 Helix Water District

On September 9, 2021, Dudek met with Tim Ross, Assistant Director of Engineering, Aneld Anub, Associate Engineer, and Michelle Berens, System Operations Manager, of Helix Water District (HWD). HWD purchases both untreated and treated water from the SDCWA. HWD owns and operates the Levy Water Treatment Plant, rated at 106 MGD, of which approximately 40 to 60 MGD of this capacity is being used. Approximately one-third of Levy WTP production is owned by the SDCWA. Treated water is disinfected with chloramines.

Untreated water is conveyed to the Levy WTP through a 36-inch pipeline (HWD No. 2), located within the Willow Road right-of-way, as shown in **Figure 2**. The hydraulic grade of this untreated water pipeline is approximately 90 to 120 psi. Additionally, the SDCWA maintains a parallel untreated water pipeline within Willow Road, the Moreno-Lakeside Pipeline. These untreated water resources represent a potential significant benefit to the Barona Reservation. Untreated water provided to Barona can be used to recharge groundwater supplies, irrigate agricultural and recreational areas, and be treated by Barona for drinking water distribution. Disinfection with free chlorine can continue if an untreated water supply is provided. However, the differences between groundwater and surface water disinfection must be addressed (trihalomethane production), potentially requiring improvements to the Tribe's existing treatment plant.

Figure 2. HWD Infrastructure near Barona Road (Source: 2015 HWD UWMP)

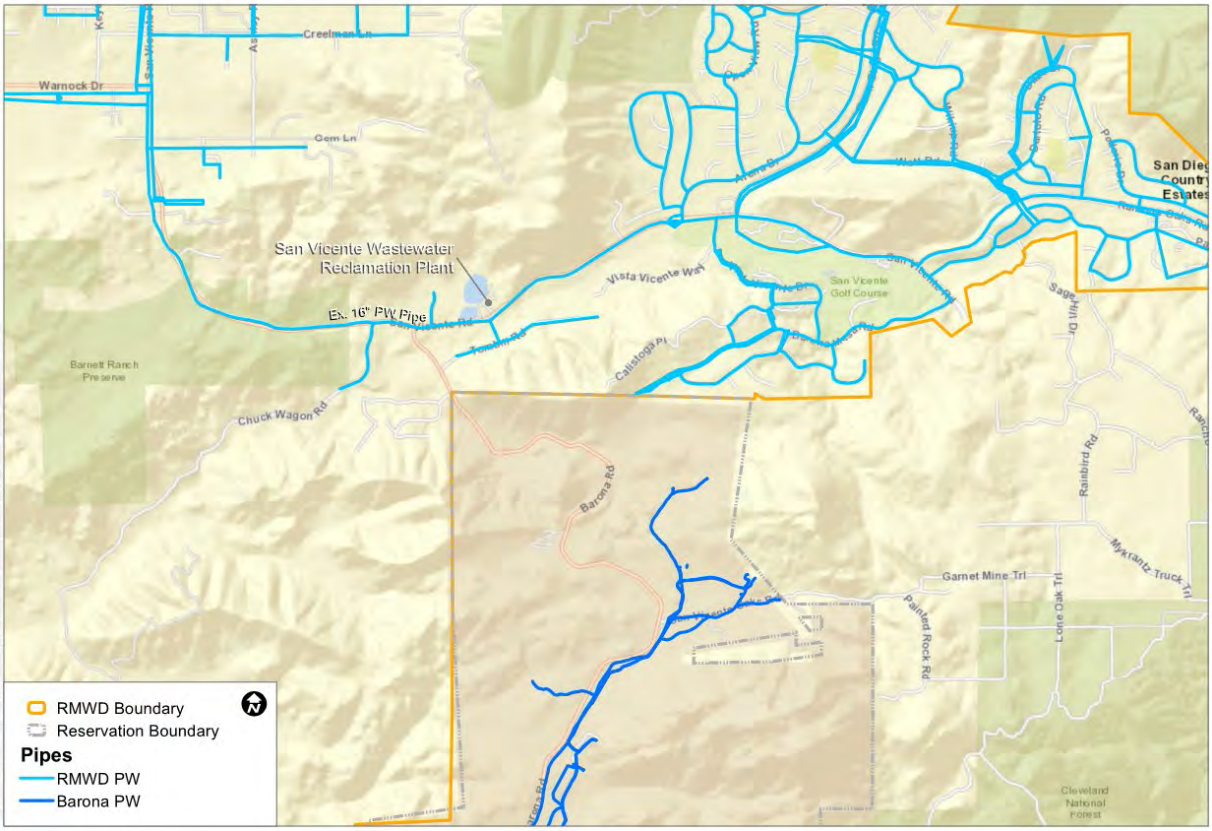


Following our first meeting with HWD, we were notified that continued discussions with HWD staff would require payment of a $2,915 fee, including $305 project initiation fee plus $2,610 special study/investigation deposit.

3.4 Ramona Municipal Water District

Dudek met with Craig Schmollinger, Acting General Manager, of RMWD on September 16, 2021. At present, RMWD can provide treated water, derived from the Water Authority, and recycled water, from the San Vicente Water Reclamation Plant, to the Barona Reservation. RMWD is the only agency able to provide service from north of the Reservation. Treated water is derived from the Ramona #1 turnout, located in Poway. Title 22 recycled water is produced at the San Vicente WRP. Both water services are available to the Reservation at the intersection of Barona Road and San Vicente Road, as shown in **Figure 3**. Like other districts, treated water is disinfected with chloramines.

Figure 3. RMWD Infrastructure near the Barona Service Area



RMWD operates a 16-inch treated water pipeline at the intersection of Barona and San Vicente Roads. Treated water service requires overcoming a hydraulic grade of approximately 472 feet, requiring approximately 27,800 feet of new treated water pipeline, including 2,100 feet of water line to the Reservation boundary plus 25,700 feet to connect from the boundary to the existing system. The treated water infrastructure necessary for service from RMWD is less costly than that from PDMWD or untreated water service from HWD, primarily because of the pumping facilities required to overcome the hydraulic grade difference from these southern agencies.

Recycled water service is available to the Reservation from RMWD, with an existing pump station capable of overcoming the required hydraulic grade. Recycled water can be used for groundwater recharge, if required distances from existing drinking water wells are maintained. Also, recycled water can be used as irrigation water for agricultural and recreational (golf course) uses. Ramona has identified that a total of 150 to 200 acre-feet per year (afy) of recycled water may be available, with a potential up to 250 afy. Ramona also indicated that it would be willing to provide recycled water at a reduced cost over the time if necessary for Barona to recoup the cost of the infrastructure required for this service.

4 Barona Supply and Demand Projections

The Barona Reservation has an estimated groundwater demand of more than 500 acre-feet per year (afy) and has in the past exceeded the sustainable yield of the local groundwater basin. The Barona Tribal Water Authority (BTWA) prepared a report in 2002 detailing the Need for Emergency Water Supply. That report documented ongoing depletion of groundwater supplies for the Reservation and concluded that the groundwater basin would not be able to supply current demand without significantly exceeding the basin safe yield. Groundwater levels, at that time, were reported to be at historic lows and some existing wells were reported to only operate for short durations. In 2007, the Tribe reportedly was required to truck water to supplement the declining groundwater supply.

In 2010, the County of San Diego prepared a Groundwater Study as part of its General Plan Update. According to this document, 2010 Barona Reservation groundwater use was approximately 476 afy for the golf course, casino, event center, convention center, and hotel, with an additional 162 afy for residential housing units. Projected groundwater demand by 2030 was identified to be approximately 567 afy. For that study, housing units were derived from the San Diego Association of Governments (SanDAG) with an allocation of approximately 0.5 afy per home. It is critical, prior to implementation of an imported water system, to develop an accurate understanding of current, near-term, and long-term water demand throughout the Reservation. Current estimates of long-term water demand have been estimated in the range of 1,000 to 1,500 afy.

While the Tribe relies primarily on groundwater for it drinking water, recycled water is also available to serve non-treated water needs. Phase I of the Barona Water Recycling Facility (WRF) has a design capacity of 0.75 MGD and treats high strength commercial wastewater from the casino resort and hotel. The WRF receives tributary flow from the casino, governmental office building, 18-hole golf course, the hotel/resort and approximately 12 private homes. Based on available information, it is estimated that the WRF is currently operating at a capacity of approximately 250,000 gallons per day (gpd). As such, additional recycled water production capacity is available, should the Tribe continue to experience increased wastewater generation. Increasing recycled water volumes may be accomplished either through increased development or expansion of the hotel and/or casino.

New housing development is currently taking place along the east side of Barona Road, in the northern extents of the Reservation. It is projected that new development, on the order of up to 5 to 10 homes per year, will be experienced. As such, this water study has defined the anticipated boundary of the proposed water service area (Section 8). This water service area is important to accurately define the type and numbers of anticipated homes and/or other land use types. In addition, since new water supplies may include treated water deliveries from the San Diego County Water Authority and Metropolitan Water District, the water service area is defined to develop the connection fees imposed by these agencies. Of the approximate 8,000 acres of the Barona Reservation, approximately 1,000 acres are projected to be included in the Water Service Area.

5 Alternatives Development

After initial discussions with each agency, a captative evaluation of the potential options was developed to assist in determining which options are worth further consideration.

5.1 Lakeside Water District

While LWD expressed initial interest in participating in this project, staff ultimately agreed they do not currently have the infrastructure necessary to convey water to the Tribe. This water service option was therefore eliminated.

5.2 Padre Dam Municipal Water District and Helix Water District

Padre Dam understands the interagency agreement and has the water capacity to provide water to Barona. PDMWD does not have untreated water supplies readily available, and its recycled water is not positioned to effectively meet the Tribe's needs. As a result, treated water is the only water service option available from this agency. The closest PDMWD distribution pipeline defines an approximate 925-foot hydraulic grade differential and approximately 6.7 miles of new pipeline, the majority of which would not be constructed on Reservation property.

Like PDMWD, Helix has the infrastructure required to provide water service to the Tribe. Unlike PDMWD, Helix has both treated and raw water available to the Tribe. The projected cost of untreated water from HWD is lower than treated water service from PDMWD or HWD. Service of untreated water from the HWD requires overcoming approximately a 1,100-foot hydraulic grade and a pipeline distance of approximately 5.5 miles.

Comparing these two alternatives, the infrastructure cost is projected to be significantly higher for PDMWD water service than untreated water service from HWD, primarily a result of higher hydraulic grade difference and the longer length of pipeline. In addition, the cost of water from PDMWD is higher, as it is treated water. Based on this, PDMWD water service was eliminated in favor of the HWD untreated water alternative.

5.3 Ramona Municipal Water District

RMWD has both recycled and treated water available to the Tribe, near its northern Reservation boundary. Based on the proximity of the Ramona and Barona boundaries, water service from RMWD results in most required infrastructure being able to be constructed on Reservation property. This fact is a significant difference between Ramona service and that of the southern agencies. For this reason, both recycled water and treated water service from RMWD continued for further evaluation.

Of the four initial water service options, only RMWD and HWD offer viable combinations of constructability and cost that justify additional hydraulic and budgetary analysis requirements. The following discussions summarize the hydraulic and cost consideration of these available water service options.

6 Hydraulic Analysis and Construction Cost Opinion

The following sections describe proposed alignments for RMWD recycled water, RMWD treated water, and HWD raw water service to the Reservation. These discussions provide a broad overview of the infrastructure required to convey water from its source or connection point to the Reservation, followed by an opinion of probable cost.

6.1 RMWD Recycled Water

Recycled water supplied by RMWD is sourced from the San Vicente Wastewater Reclamation Plant (SVWWRP), located near the intersection of San Vicente Road and Barona Road, as shown on **Figure 4**. RMWD produces a total recycled water volume of approximately 450 afy. The San Diego County Estates San Vicente Golf Resort currently consumes approximately 300 afy of this recycled water supply, leaving approximately 150 afy available to the Tribe. Future water conservation measures by San Vicente Golf Resort may result in a reduction of recycled water consumption by 50 afy, leaving 200 afy available for use by the Tribe. Based on current projections, it is possible that the San Vicente Golf Resort may continue to reduce their consumption by up to an additional 50 afy. In the future, it may be possible that the Tribe could receive up to 250 afy. 200 afy is used for this analysis, as it is the current anticipated demand over the near-term.

There exists a 6-inch pipeline (commonly referred to by Tribal staff as "Golf Course Line") designed to irrigate the golf course surrounding the Barona Ranch Resort (Resort). The Golf Course Line originates southeast of the Giant San Diego Paintball Park and continues along Ketuull Uunyaa Way, ending at the Resort's golf course irrigation ponds. The most cost-effective method of transporting recycled water from RMWD to the Tribe's recycled water system is to make use of this existing pipeline.

Using a projected recycled water supply of 200 afy, it was determined that a 6-inch pipe has sufficient capacity to convey recycled water to Barona with a projected flow velocity of less than seven feet per second (fps). It is anticipated that RMWD would construct a 6-inch pipeline from the recycled water source to the connection to the existing 6-inch Golf Course Line. The pipeline size will assure that no additional pumping will be required, and the existing 6-inch pipeline flows essentially by gravity to the golf course pond.

RMWD currently operates a pump station at SVWWRP that transports recycled water to an existing spray field approximately 3,000 feet northeast of the plant site. The existing pump is designed to overcome approximately 530 feet of total dynamic head (TDH). The elevation difference between SVWWRP and the highest point of the proposed recycled water alignment along Barona Road is approximately 472 feet. Therefore, the existing pump can convey recycled water to Barona with no additional pumping.

Approximately 3,000 ft of 6-inch recycled water pipeline is required off-reservation, in San Vicente Road and Barona Road. The pipeline continues in Barona Road on the reservation for 5,200 feet, then runs 2,500 feet cross-country through the Paintball Park until it intersects the Golf Course Line east of the parking lot.

Figure 4: Proposed RMWD Recycled Water Line Alignment

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Table 1 presents an opinion of probable cost for constructing a new 6-inch recycled water line from SVWWRP to the proposed connection with the Golf Course Line (Project ID: RW-1a). As the new 6-inch line will be constructed in Barona Road and thus subject to County of San Diego requirements, additional cost associated with environmental and CEQA compliance have been included in the cost opinion. An alternative opinion of probably cost (Project ID: RW-1b) is also presented representing the cost if the Golf Course Line is not sufficiently viable and it is necessary to construct a new 6-inch pipeline to the irrigation ponds

Table 1: RMWD Recycled Water Service Cost Opinion Summary

Project ID	Project Name	Description	Justification	Project Costs ($1000)
Ramona Recycled Water Pipeline Projects				
RW-1a	Barona Rd New RW Pipeline - Connect to Existing Golf Course Line	Build 16,200 LF of 6-inch Recycled Water pipeline and connect to existing 6-inch line on reservation	RW pipeline connects to existing 6-inch line to supply Resort's golf course irrigation ponds	$ 3,402
RW-1b	Barona Rd & Ketuull Uunyaa Way New RW Pipeline - Abandon Ex. Golf Course Line & Construct New Line to Golf Course Irrigation Ponds	Build 36,800 LF of 6-inch Recycled Water pipeline emptying into Resort irrigation ponds; abandon existing 6-inch line	If site investigations reveal existing 6-inch line should be abandoned due to age or poor condition, this project includes construction of new line to irrigation ponds	$ 7,728

6.2 RMWD Potable Water

Treated water from RMWD is sourced from a connection with the existing RMWD-operated 16-inch water line in San Vicente Road. Two demand scenarios (1,000 afy and 1,500 afy) were evaluated to better assist the Tribe in planning for projected growth. Table 2 presents the criteria for each scenario and its conversion to gpm and cfs.

Unlike recycled water, treated water demands are sensitive to seasonal peaking factors. For example, water usage typically reaches a maximum during the warm summer months before receding to a minimum in the winter. A properly designed treated water system should be sized to accommodate the maximum demand. Based on typical seasonal peaking factors, a peaking factor of 1.5 was applied to each demand scenario shown in **Table 2**.

Table 2: Summary of Average Demand Scenarios

Demand (afy)	Demand (gpm)	Demand (cfs)
1,000	620	1.38
1,500	930	2.07

Table 3 presents the demand scenarios analyzed in this section, after application of peaking factors. The maximum demands were used to determine the appropriate pipe size for each scenario.

Table 3: Summary of Maximum Demand Scenarios

Average Demand (afy)	Maximum Demand (afy)	Maximum Demand (cfs)
1,000	1,500	2.07
1,500	2,250	3.11

Pipelines are sized for each water service scenario at the maximum demand with a maximum velocity under 7 fps. For an average demand of 1,000 afy (maximum demand of 1,500 afy), an 8-inch pipeline is the minimum standard-size at which flow velocity does not exceed 7 fps. Similarly, for an average demand of 1,500 afy (maximum demand of 2,250 afy), a 12-inch pipeline is the minimum standard-size at which flow velocity does not exceed 7 fps.

According to RMWD staff, the existing system pressure at the proposed connection point with the 16-inch treated water line is 230 psi. Like the recycled water alignment, the maximum ground elevation along the proposed treated water alignment is 1,752 feet. Given the connection point will be at approximately 1,280 feet elevation, it is expected that pressure from the RMWD system is sufficient to deliver treated water to the Reservation.

Figure 5 depicts the alignment of the proposed new treated water pipeline under the 1,000 afy average demand scenario which follows that of the recycled water pipeline along Barona Road and Ketuul Uunyaa Way, up to the Resort. Approximately 2,100 feet of 8-inch treated water pipeline would be constructed on off-reservation land. The 8-inch pipeline continues for 37,100 feet on-reservation and connect to the Casino treated water system. The pipe connects to the existing Tribal Loop Tank 5 and fire protection tank. Connecting to existing tanks allows the Tribe to fill those tanks directly from the transmission line, while also having a connection point to the distribution system at the pressure reducing station (PRS). The on-reservation pipelines are proposed to be built, maintained, and operated by the Tribe. A new PRS will need to be installed approximately 25,400 feet from the intersection of Barona Road and Little Klondike Road. The PRS location is selected based on where the Tribe's pressure zones converge, allowing the Tribe to make connections and deliver water to multiple zones of the distribution system at a single location. A 6-inch PRV and corresponding PRS are included in the cost opinion summary for both average demand scenarios as outlined in **Table 4**

Under the 1,500-afy average demand scenario, the alignment shown on **Figure 6** is required with 2,100 LF of new 12-inch treated water pipeline off-reservation and 25,500 LF of 12-inch pipeline on-reservation to PRS. The new pipeline transitions from 12-inches to 8-inches downstream of the PRS and travels approximately 11,600 LF before terminating at the Casino Loop. The reduction in pipeline diameter is justified as a decrease in flow within the line is anticipated after the PRS, because it is expected that water will be delivered to the system at Tank 5 and the PRS. No reduction in pipeline diameter was suggested for the 1,000 afy average demand scenarios as 8-inch is the industry standard minimum for treated water lines.

Figure 5: Proposed RMWD Potable Water Alignment – 1,000 afy Average Demand

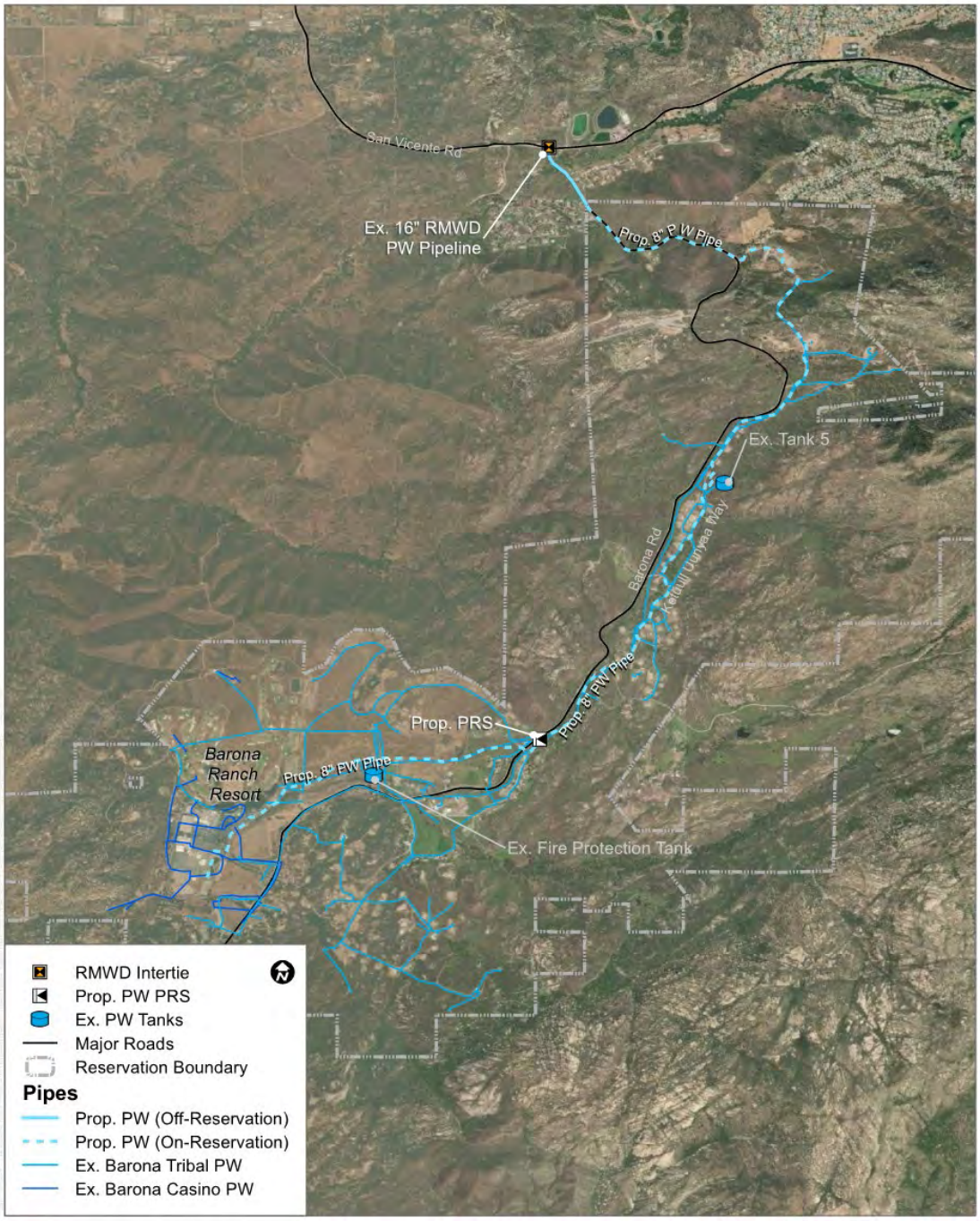


Figure 6: Proposed RMWD Potable Water Alignment – 1,500 afy Average Demand

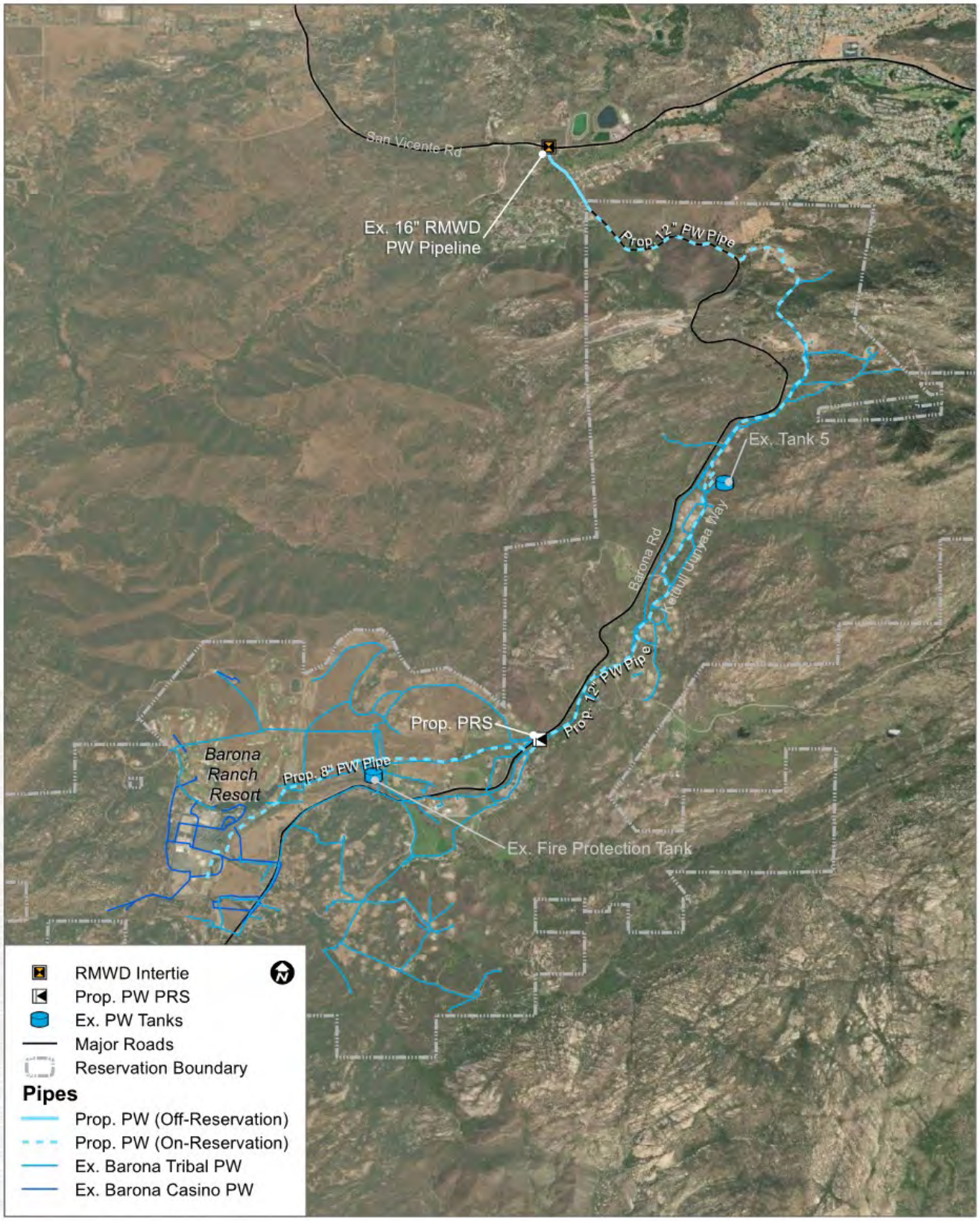


Table 4: Ramona Potable Water Service Cost Opinion Summary

Project ID	Project Name	Description	Justification	Project Costs ($1000)
Ramona Potable Water Pipeline Projects				
PW-1	Barona Rd & Ketuull Uunyaa Way New PW Pipeline - 1,000 afy Average Demand	Build 39,200 LF of 8-inch Potable Water Pipeline, construct one PRS, build pipeline connections to existing tribal loop tanks	Satisfy 1,000 afy average demand scenario	11,508
PW-2	Barona Rd & Ketuull Uunyaa Way New PW Pipeline - 1,500 afy Average Demand	Build 27,600 LF of 12-inch and 11,600 LF of 8-inch Potable Water Pipeline, construct one PRS, build pipeline connections to existing tribal loop tanks	Satisfy 1,500 afy average demand scenario	15,568

6.3 HWD Raw Water

Raw water provided by HWD is sourced from a HWD No. 2 connection in Willow Road, as shown in **Figure 7**. For raw water service, two separate average demand scenarios of 1,000 afy and 1,500 afy were analyzed. As discussed in Section 6.2, a peaking factor of 1.5 was applied to each average demand to properly size the new raw water pipeline and pump stations for maximum demands.

Although an 8-inch pipeline can accommodate maximum demand in the 1,000 afy average demand scenario without violating typical velocity criteria, the HWD raw water alternative requires the construction of two pump stations to overcome an 890-foot hydraulic grade change between the connection point and the Tribal water treatment plant. The additional head loss resulting from flow in an 8-inch pipeline increases the total dynamic head at each pump station, resulting in the need for a pump with greater horsepower. Therefore, a 12-inch pipeline is suggested for both the 1,000 afy and 1,500 afy average demand scenarios to reduce the size of the pump motors.

Figure 7 depicts a proposed alignment of the new raw water pipeline. Approximately 29,000 LF of new pipeline is required to transport raw water from the HWD No. 2 connection point to the Resort. Roughly 23,000 LF of pipeline will be constructed off-reservation along Barona Road, followed by 6,000 LF of pipeline on-reservation before terminating at the Barona Water Treatment Plant. For raw water services, the Tribe would be responsible for building, maintaining, and operating the entire reach of pipeline (both off-reservation and on-reservation) beginning at the HWD No. 2 connection point.

According to HWD staff, the HWD No. 2 pipeline typically operates between 90 and 120 psi. The ground elevation at the intersection of Willow Road and Barona Road, where the Tribe's new raw water service would connect to the HWD No. 2 line, is approximately 420 feet. Assuming a conservative operating pressure of 90 psi in the HWD No. 2 pipeline, raw water can only be conveyed along Barona Road to an elevation of approximately 630 feet before requiring a booster pump station. **Figure 7** also includes proposed locations of the two required pump stations along Barona Road. At the pump station elevations shown in **Figure 7**, the total dynamic head each pump station (Pump Stations #1 & #2) must overcome is essentially the same, and results in the same size (horsepower) pumps required at each station.

Under the 1,000 afy average demand scenario, each pump station must be sized to provide 200 hp. To meet this capacity while providing redundancy, it is recommended to install two 100-hp duty pumps and a third identical standby pump. Similarly, under the 1,500 afy average demand scenario, each pump station must be sized to provide 250 hp. It is recommended to install two 125-hp duty pumps and a third identical standby pump to accommodate the demand. **Table 5** summarizes projected costs of constructing the raw water pipeline and pump stations.

In addition to construction costs, the Tribe will also need to consider the costs of operating both pump stations. **Table 6** summarizes projected annual operating costs for each average demand scenario. It was assumed that both pump stations will be operating twenty-four hours a day, 365 days a year.

Figure 7: Proposed HWD Raw Water Line Alignment

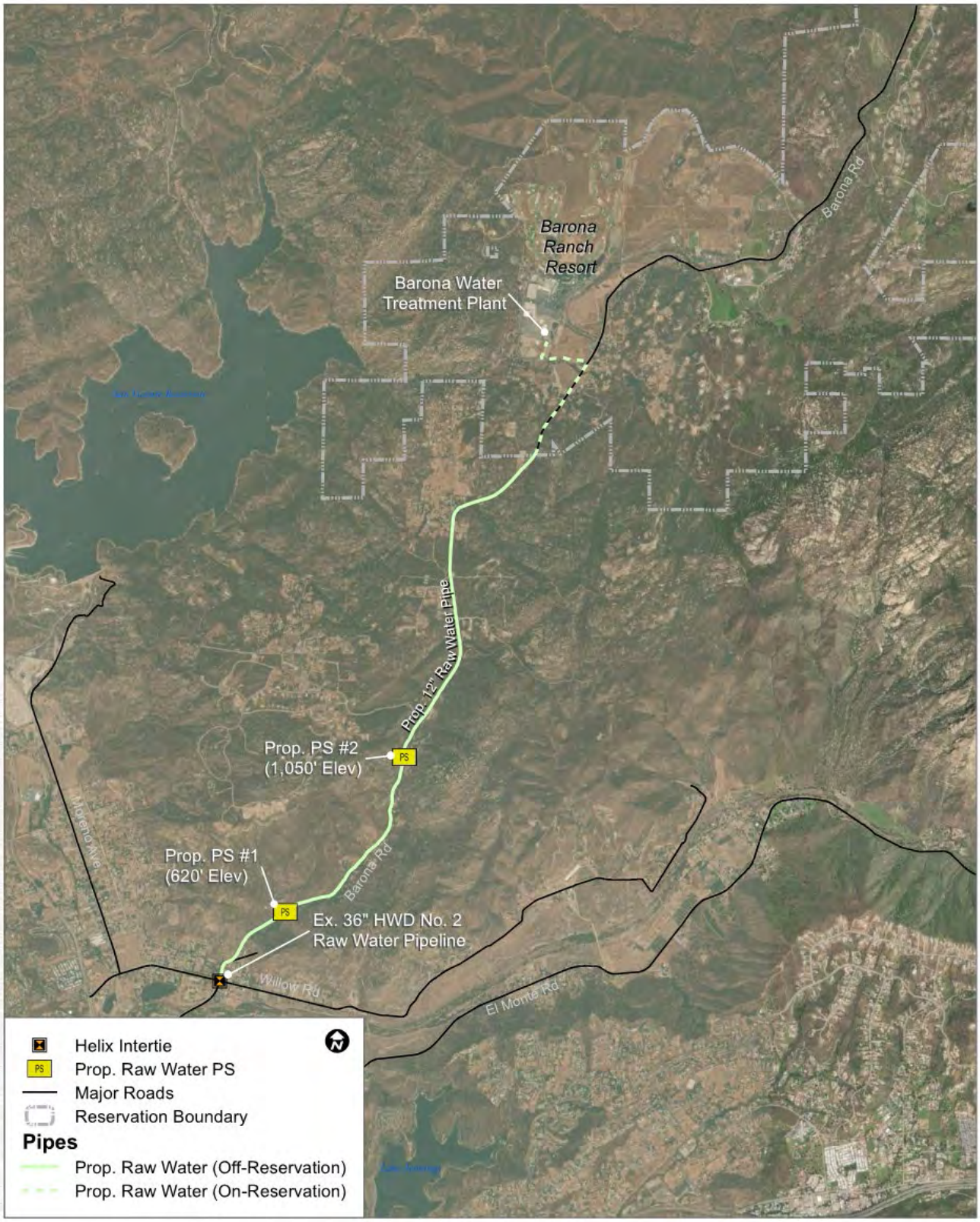


Table 5: HWD Raw Water Service Cost Opinion Summary

Project ID	Project Name	Description	Justification	Project Costs ($1000)
Helix Raw Water Pipeline Projects				
RawW-1	Barona Rd New Raw Water Pipeline - 1,000 afy Demand	Build 28,800 LF of 12-inch Raw Water Pipeline, construct two pump stations each containing two 100 HP duty pumps and one standby	Satisfy 1,000 afy demand scenario	$ 15,066
RawW-2	Barona Rd New Raw Water Pipeline - 1,500 afy Demand	Build 28,800 LF of 12-inch Raw Water Pipeline, construct two pump stations each containing two 125 HP duty pumps and one standby	Satisfy 1,500 afy demand scenario	$ 15,936

Table 6: Annual Pump Stations Operations Cost Summary

Average Demand (afy)	Annual Operations Costs
1,000	$523,000
1,500	$654,000

7 Alternatives Analysis

Considering the three alternatives, the recycled water from RMWD is unique from the other two options. If the Tribe can use the recycled water to offset current treated water demand, it is very beneficial alternative. But it is not treated water, so it may have uses limited to irrigation and agriculture. Recycled water is also a significantly lower cost than treated water under the other alternatives, assuming the Tribe can use the Golf Course Line. As the Tribe has beneficial uses for recycled water, this project is highly recommended.

Comparing treated water from RMWD and raw water from HWD is more complicated. In addition to the cost difference between the two water sources, there are several additional factors to consider. As the cost analysis for the infrastructure identifies a strong preference for receiving water from RMWD, these other considerations are discussed on a non-monetary basis.

7.1 Cost of Water

The water available from RMWD is treated water, which will be more expensive than raw untreated water from HWD. The costs of water from both agencies will require negotiations between the Tribe and those Districts. However, it is noted that long-term untreated water rates from the Water Authority have been increasing significantly as the demand for untreated water diminishes. Advanced water projects, such as the PDMWD AWP project, the San Diego AWP project, and others, reduce the need for imported raw water, which would be treated at local water treatment plants. RMWD is in the process of decommissioning its untreated water system, as the significant reduction in demand has made the operation and maintenance of the system untenable. Therefore, the cost of treated water will increase, as will the cost of untreated water in the future.

7.2 Treatment

Untreated water from HWD requires treatment before entering the Tribe's distribution system. The Tribe currently operates a water treatment plant for the Casino, but it may require upgrades to handle the additional volume required to supply the reservation or additional treatment if the raw water requires additional treatment that the plant is not currently capable of providing. There are also additional costs to treat the imported untreated water compared to the groundwater traditionally used by the Tribe. This additional cost may be offset somewhat by the lower water cost but would require additional analysis of the Tribe's current treatment operational costs and capabilities.

While water from RMWD is treated, it is disinfected with chloramines. The Tribe currently uses free chlorine disinfection at each of its well-head sites, as well at its treatment plant. As the Tribe will continue to use water from their wells as a redundant source of water, it would require modification of their well-head disinfection to chloramine disinfection.

7.3 Environmental

The pipeline from RMWD will be 2,100 feet off-reservation and 37,100 feet on-reservation, compared with HWD alternative where the length of pipeline is 22,900 feet off-reservation and 5,900 feet on-reservation. The pipelines constructed on-reservation are not subject to federal, state, and local regulations. The Tribe could avoid a CEQA document or obtain permits from any governmental agency to construct for the portions of pipeline on-reservation. This avoided cost is difficult to quantify. Depending on the CEQA/permitting requirements, it could be substantial.

7.4 Operation and Maintenance

This study focused on capital costs required to construct facilities necessary to deliver water to the Tribe. The cost of power is quantified for the pump stations required from HWD, but no other costs are defined. These facilities have ongoing operation and maintenance costs, including costs to maintain the pump stations (HWD) and PRS (RMWD), ongoing treatment costs that were identified in the previous section, and maintenance of the pipelines. It is projected that the HWD alternative will have higher operational costs because of the pump station requirements.

In addition, it is projected that there will be additional maintenance costs associated with the pump stations. Large capacity pumps require ongoing, continuous maintenance. In addition, the high operating pressures in conjunction with the cycling of the pumps at the pump stations will increase the risk of pipeline leaks or failures and require transient control to handle water hammer conditions. This increased complexity and risk is projected to add additional cost to the Tribe over the life of the pump stations.

7.5 Real Estate Acquisition

The two pump stations required to deliver water from HWD will need to be constructed on private property adjacent to Barona Road. Since this area is off-reservation, it will be necessary for the Tribe to purchase or lease property at the two locations of the pump stations. This requirement is typically not a significant cost for an easement, but if land acquisition is required, costs could be significantly higher. Also, the off-reservation facilities bring outside forces into the discussion, which can result in project delays and additional project costs beyond the scope of this analysis.

7.6 Transmission Costs

Receiving water from both agencies (and SDCWA) require the Tribe to pay a portion of the agency's costs for transmission of the water to the Tribe's connection point. These costs have not been quantified at this time. However, the distance of travel from the Water Authority facilities to the HWD connection point is significantly longer than that through the RMWD system.

The Tribe is required to pay their fair share of costs to SDCWA and MWD, buying into these water systems. The cost will be different based on the two alternatives because SDCWA uses different facilities to transmit treated and untreated water. The cost of these two fees is based on the assumed Water Service Area, discussed in Section 8.

7.7 Difficulty of Construction

Most of the facilities would be constructed in difficult mountainous terrain. The soil is rocky and there is the potential for significant unexpected construction impacts. This fact is a similar concern for both projects since they are similar lengths and terrain. However, whether the construction is on- or off-reservation will significantly impact this cost.

7.8 Consolidation Cost Savings

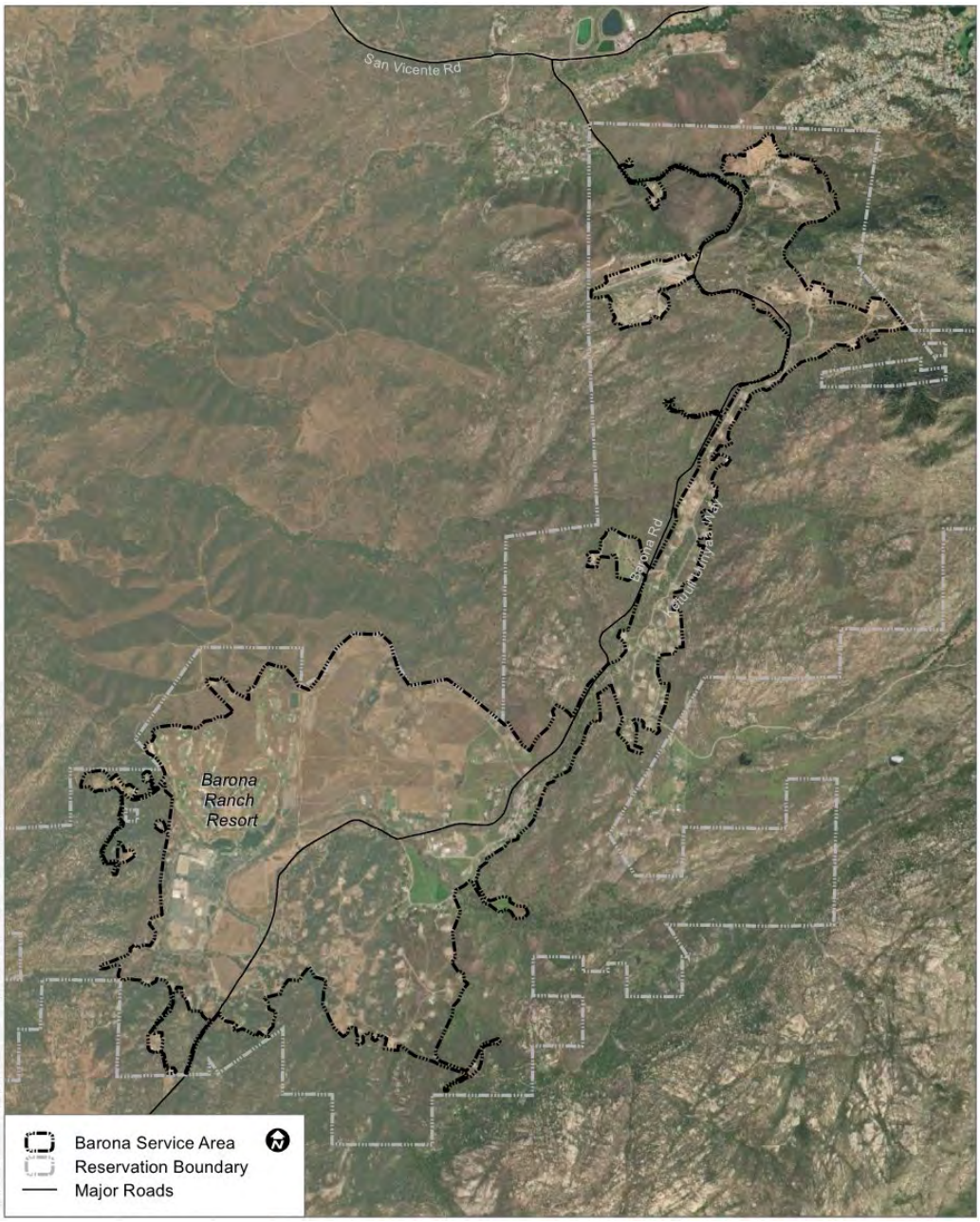
If the Tribe constructs the recycled water line from RMWD, it would be constructed in the same alignment as the treated water pipeline. The Tribe will experience cost savings during design and construction for these sections of pipeline that are parallel. There will be separation requirements for the treated and untreated pipelines, so the recycled and treated line should not be constructed in the same trench.

8 Water Service Area

As discussed previously, the Tribe will be required under California Water Code Section 71611.5 (AB-1361) to define the Water Service Area (WSA). The reason for this definition is derived from the fact that the water agency is not required to annex the tribal area into its district to provide service. However, for the purposes of defining Water Authority and MWD fees, the WSA is required. Therefore, based on this requirement, Dudek has prepared **Figure 8** illustrating the proposed WSA for the Tribe under a potential water service agreement with a local water agency. Of the approximate 7,000 acres of the Barona Reservation, approximately 1,000 acres are projected to be included in the WSA.

Figure 8 – Proposed Barona Service Area Boundary

9



Summary & Recommendations

After completing a capital cost valuation and a qualitative analysis of several additional consideration, the following summary is provided for the three identified water service options.

9.1 RMWD Recycled Water

Table 7: RMWD Recycled Water Summary Table

Project ID	Project Name	Project Costs ($1,000)
Ramona Recycled Water Pipeline Projects		
RW-1a	Barona Road New RW Pipeline - Connect to Existing Golf Course Line	$2,247
RW-1b	Barona Road & Ketuull Uunyaa Way New RW Pipeline - Abandon Ex. Golf Course Line & Construct New Line to Golf Course Irrigation Ponds	$7,749
Advantages		
• Lowest cost alternative • Minimal Transmission/O&M Costs • Potential to consolidate with treated water design and construction		
Disadvantages		
• Specifically Used for Irrigation Purposes (untreated)		
Summary		
As the Tribe can effectively utilize the water, this option is recommended to be implemented		

9.2 RMWD Potable Water

Table 8: RMWD Potable Water Summary Table

Project ID	Project Name	Project Costs ($1,000)
Ramona Recycled Water Pipeline Projects		
PW-1	Barona Road & Ketuull Uunyaa Way New PW Pipeline - 1,000 afy Average Demand	$11,508
PW-2	Barona Road & Ketuull Uunyaa Way New PW Pipeline - 1,500 afy Average Demand	$15,568
Advantages		
• No treatment required • Constructed Primarily on the reservation (Reduced environmental and real estate costs) • Minimal Operation and Maintenance Costs • Potential to consolidate with recycled water design and construction		
Disadvantages		
• Cost of Water is higher than untreated water • Requires conversion of water system to chloramine disinfection • Difficulty of Construction within Barona Road		
Summary		
While the construction costs are high, this option provides treated water to the Tribe with minimal operating costs.		

9.3 HWD Raw Water

Table 9: HWD Raw Water Summary Table

Project ID	Project Name	Project Costs ($1000)
Ramona Recycled Water Pipeline Projects		
RawW-1	Barona Road New Raw Water Pipeline - 1,000 afy Demand, with $500,000 per year in additional pump station operating cost (not included here – Present Worth = $7 million over 15 years)	$15,066
RawW-2	Barona Road New Raw Water Pipeline - 1,500 afy Demand, with $650,000 per year in additional pump station operating cost (not included here – Present Worth = $9 million over 15 years)	$15,936
Advantages		
• Cost of Water is likely lower		
Disadvantages		
• Pump Station operating costs have a present worth of approximately $7 to $9 million over the typical 15-year useful life of the pump stations • Will require treatment at Barona Treatment Plant • Higher environmental/permitting costs • Higher Operation and Maintenance costs (Electrical, pump station operation, pipeline maintenance) • Will require acquisition of real estate • Difficulty of Construction		
Summary		
While the construction costs are like Ramona PW-2, it is likely that the qualitative costs will be significantly more expensive. The Tribe will need to assess if the reduced cost of water outweighs the other disadvantages.		

Recommendation

Based on the information developed throughout this study, it is recommended that the Tribe proceed with conversations with RMWD for both treated water and recycled water service. These options result in the highest portion of needed facilities being constructed on Reservation land and provide the least long-term operation and maintenance cost to the Tribe. We are pleased to meet with you and discuss the findings of this report in detail.

10 Project Costs of Recommended Projects

The project will include ongoing annual costs in addition to the construction cost. Since several of these costs are unknown at this time, they were included as part of the contingency of the construction costs. However, the costs that can currently be identified are estimated and summarized for each of the recommended projects. The costs are preliminary estimates based on discussions with Ramona.

10.1 Recycled Water

The additional costs for recycled water should be minimal other than the cost of the water. Based on the 2018 rate study conducted by Bartie Wells Associates for the recycled water produced by San Vicente, the current rate for recycled water is $1050/AF. Based on an expected volume of 200 afy, the annual costs for the recycled water will be $210,000.

Table 10: Cost of Ramona Recycled Water

Fee	Annual Cost
Commodity	$210,000

Table 11: Total Costs Ramona Recycled Water

Fee	Annual Cost
Construction	$2,250,000
Annual Cost of Water	$210,000

10.2 Potable Water

The Ramona potable water will require additional costs compared to the recycled water. The additional costs will include the costs that Ramona will incur to transmit water from SDCWA to the reservation. These costs will include cost-sharing for the facilities that the District will use to deliver water from CWA to the reservation. Initial discussions with Ramona provide the following estimated breakdown of costs for the water. There could potentially be additional fees that are not included.

Table 12: Cost of Ramona Potable Water

Fee	Cost per AF
Commodity	$1,500
Fixed Fee	$450
Ramona O&M	$250
Ramona CIP Fee	$500
Administration Costs	$350
Total	**$3,050**

Based on the expectation that the tribe will use 1000 afy, the annual cost of water would be $3.050.000.

Based on the California Water Code cited in 2.1 Legal Authority, Ramona will be required to annex the areas of the reservation that they are serving water to. Since they are serving imported water, they will be required to pay fees to MET and SDCWA based on the acres of annexed land. The District will pass these fees on to the Tribe. Additionally, the Tribe will be required to become a member agency of the SDCWA. SDCWA has been contacted to determine the fees that they will require, but the fees that will be incurred are not known at this point.

Table 13: Total Costs Ramona Recycled Water

Fee	Annual Cost
Construction	$15,600,000
Annual Cost of Water	$3,050,000