

RECLAMATION

Managing Water in the West

Environmental Assessment

Municipal Well Aquifer Storage and Recovery Retrofit Project for Drought Resiliency – Truckee Meadows Water Authority

17-11-MP



U.S. Department of the Interior
Bureau of Reclamation

June 2017

Mission Statements

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

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



List of Acronyms and Abbreviations

APE	area of potential effects
ASR	Aquifer Storage and Recovery
BCC	Birds of Conservation Concern
CALFED	CALFED Water Use Efficiency Grant
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
DS4	Desert Springs 4 Well
EA	Environmental Assessment
FCWD	Firebaugh Canal Water District
GHG	Greenhouse Gas
GPM	Gallons per Minute
IPaC	Information for Planning and Consultation
ITA	Indian Trust Assets
mg/L	milligrams per liter
MCL	Maximum Contaminant Level
NEPA	National Environmental Protection Act
NHPA	National Historic Preservation Act
NO _x	nitrous oxides
PM _{2.5}	Particulate matter less than 2.5 microns in diameter
PM ₁₀	Particulate matter between 2.5 and 10 microns in diameter
Reclamation	Bureau of Reclamation
ROG	Reactive Organic Gases
SHPO	State Historic Preservation Officer
SCADA	Supervisory Control and Data Acquisition
SIP	State Implementation Plan
TMWA	Truckee Meadows Water Authority
USFWS	U.S. Fish and Wildlife Service
USEPA	United States Environmental Protection Agency
VOC	Volatile organic compounds

Section 1 Introduction

In conformance with the National Environmental Policy Act of 1969 (NEPA), Council on Environmental Quality (CEQ) regulations (40 CFR 1500-1508), and Department of Interior regulations (43 CFR Part 46), the Bureau of Reclamation (Reclamation) prepared this Environmental Assessment (EA) to disclose potential environmental effects associated with granting a CALFED Water Use Efficiency Grant (CALFED grant) to the Truckee Meadows Water Authority (TMWA) for its Municipal Well Aquifer Storage and Recovery Retrofit Project for Drought Resiliency (Proposed Action). The Proposed Action would take place in the TMWA service area located north of Reno Nevada (Figure 1: Regional Action Location).

The TMWA proposes to retrofit three existing groundwater production wells located in Spanish Springs Valley (See Figure 2) to be capable of Aquifer Storage and Recovery (ASR). ASR is an effective method to increase reliability and flexibility of water supply delivery by allowing for conjunctive use of both surface water and groundwater. A groundwater production well with ASR allows for surface water to be injected into the aquifer and saved for use during drought periods.

Figure 1: Regional Action Location

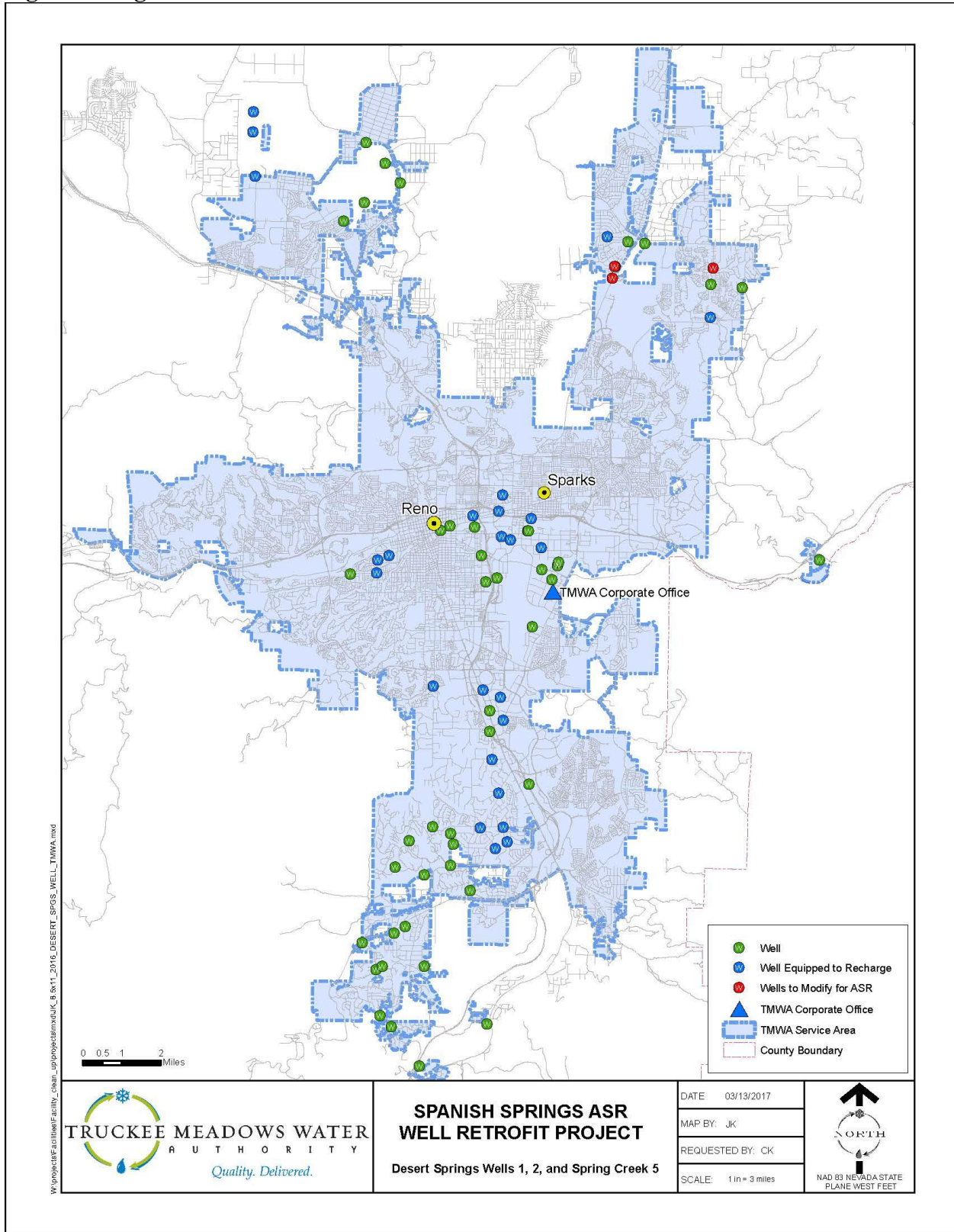
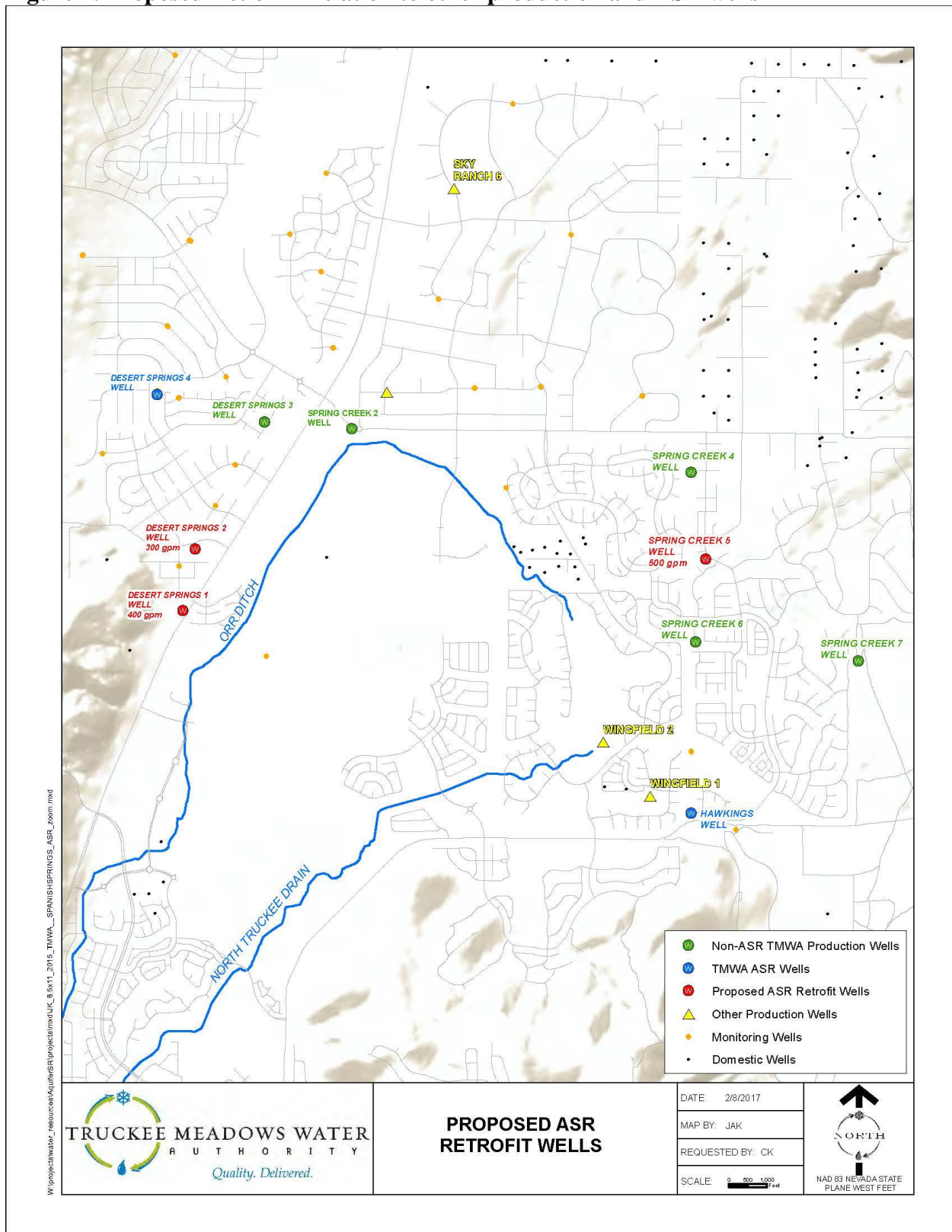


Figure 2: Proposed Action in relation to other production and ASR wells



1.1 Need for the Proposed Action

The water supply for the region is primarily spring runoff from the preceding winter's snowpack. The TMWA uses this spring runoff, via Truckee River flows, to meet the majority of demands. However, due to recent drought, and future possible drought combined with increased demand in the TMWA's northeastern service area, the TMWA needs to further its conjunctive use of surface water to augment its groundwater supplies to meet demand.

The TMWA proposes to retrofit three existing groundwater wells to allow for ASR capabilities which will increase flexibility in water delivery by allowing the use of the injected and stored surface water to be pumped during drought periods. The project will allow for storage of approximately 600¹ AFY of additional surface water which will be available for withdraw during drought years.

The TMWA anticipates the Proposed Action to benefit:

- Groundwater recharge;
- Decrease elevated nitrate concentrations in the groundwater;
- Provide more drought-storage and operational flexibility;
- Support long-term planning efforts and drought-mitigation strategies; and
- Support the TMWA in moving closer to its goal of having more automated ASR.

Section 2 Proposed Action and Alternatives

2.1 No Action Alternative

Under the No Action Alternative, Reclamation would not award the TMWA with CALFED grant money equal to \$300,000. Although it is possible that the district may find alternate sources of funding for the project, for the purposes of this EA, the consequences of Reclamation not providing funding for the Proposed Action would result in no construction and no flexibility in conjunctive use and groundwater quality improvements.

2.2 Proposed Action

Reclamation proposes to grant the TMWA with \$300,000 to complete the Proposed Action which will allow for the flexibility of future conjunctive use of surface water from the Truckee River and also improve the impaired groundwater quality in and around the existing wells.

¹ 600 AFY estimate is based on 6 months of recharge at 250, 200, and 300 gpm for the three wells (750 gpm*1,440min/day*180 days ÷ 325,851 gal/AF = 600 AFY).

The first step in the well retrofit process will be well rehabilitation. This will not involve any ground disturbance. Once rehabilitated, the wells will undergo modifications to the wellhead piping and above-ground appurtenances critical to the delivery of drought storage water into the wells and aquifers. Modifications will include high tech metering and control valves to monitor and track recharge water deliveries and water response via a SCADA (Supervisory Control and Data Acquisition) system, which will allow for remote operation of recharge wells. These modifications will cause very minimal ground disturbance.

Modifications at Desert Springs Well 1 will disturb an area approximately 1.5' x 12' x 1.5' (width x length x depth). Figure 3 shows the disturbance area next to Desert Springs Well 1 in relation to the well. Modifications at Desert Springs Well 2 will disturb an area of approximately 1.5' x 14' x 1.5' (width x length x depth). Figure 4 shows the disturbance area next to Desert Springs Well 2 in relation to the well. Modifications at Spring Creek Well 5 will disturb an area of approximately 1.5' x 25' x 1.5' (width x length x depth). Figure 5 shows the disturbance area next to Spring Creek Well 5 in relation to the well.

2.2.2 Environmental Commitments

- a) If Project activities overlap with the raptor and migratory bird nesting season (March 1 through August 31), a qualified biologist will conduct pre-construction surveys for active nests in the Action Area 10 days prior to the construction activities. If an active nest is located, TMWA will consult with the U.S. Fish and Wildlife Service (USFWS) to identify a suitable construction-free buffer around the nest and for further instruction. The buffer(s) will be identified on the ground with flagging, fencing or by other easily visible means, and will be maintained and monitored by a qualified biologist.
- b) In the unlikely event that cultural resources or human remains are discovered during project excavation, work shall stop and a Reclamation Regional Archaeologist shall be contacted immediately.

Figure 3: Desert Springs Well 1: 1.5' x 12' x 1.5' (W x L x D)

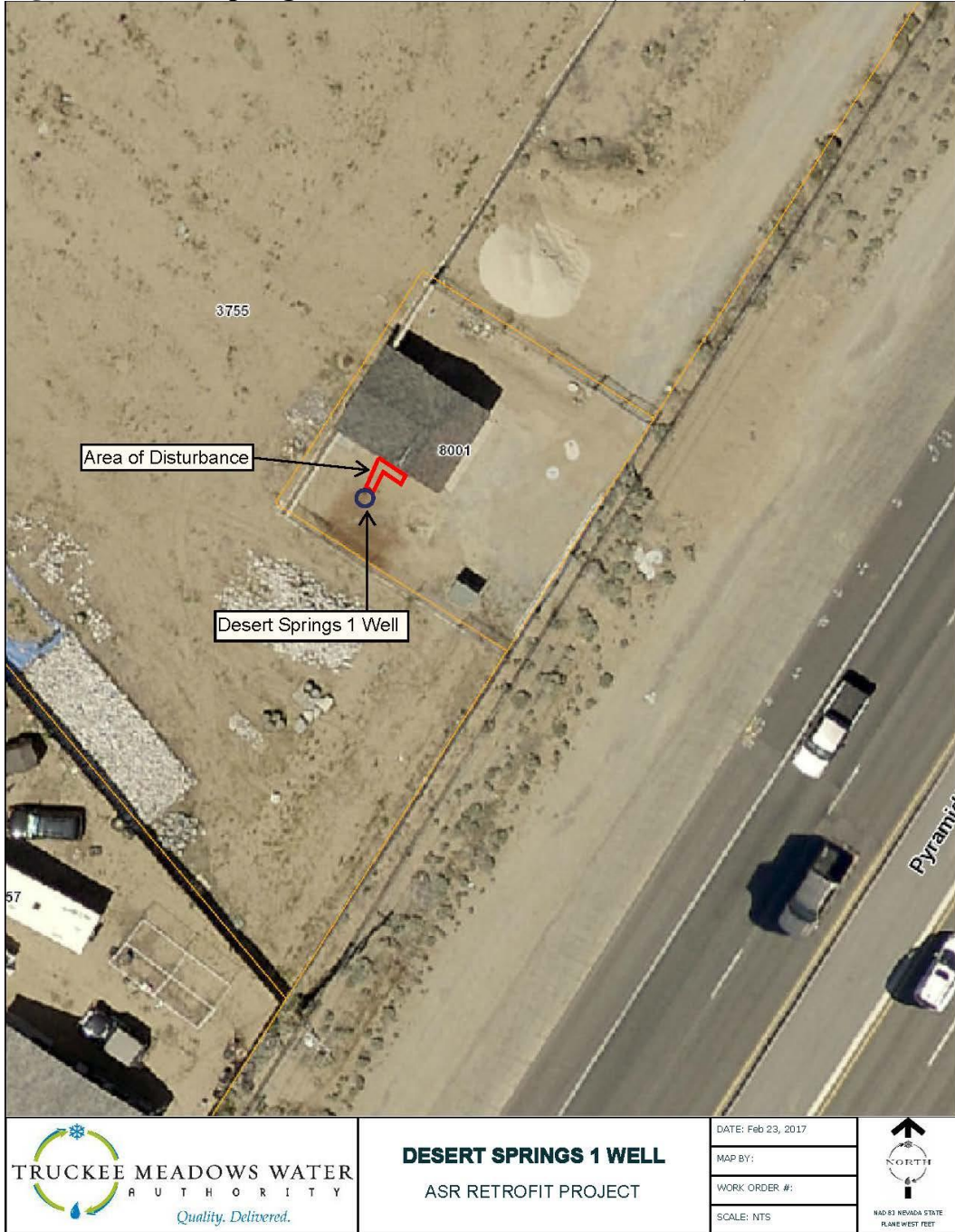


Figure 4: Desert Springs Well 2: 1.5' x 14' x 1.5' (W x L x D)



Figure 5: Spring Creek Well 5: 1.5' x 25' x 1.5' (W x L x D)



Section 3 Affected Environment and Environmental Consequences

This EA will analyze the affected environment of the Proposed Action and No Action Alternative in order to determine the potential impacts and cumulative effects to the following environmental resources:

- Biological resources
- Surface water resources
- Air quality
- Cultural resources

Impacts to the following resources were considered and found to be minor or absent. Brief explanations for their elimination from further consideration are provided below:

- Indian Trust Assets (ITAs): are legal interests in property or rights held in trust by the United States for Indian Tribes or individual Indians. Indian reservations, Rancherias, and Public Domain Allotments are common ITAs in California. The nearest ITA is Reno Sparks Indian Colony about 3.4 miles northwest of the Proposed Action. The proposed action does not have a potential to affect ITAs (see Appendix A).
- Executive Order 13007 (May 24, 1996) requires that federal agencies accommodate access to and ceremonial use of Indian sacred sites by Indian religious practitioners, and avoids adversely affecting the physical integrity of such sacred sites. No Indian sacred sites have been identified within the Proposed Action project area.
- Environmental Justice: Executive Order 12898 requires each Federal agency to identify and address disproportionately high and adverse human health or environmental effects, including social and economic effects of its program, policies, and activities on minority populations and low-income populations. Since there are no minority or low-income populations on or adjacent to the Proposed Action, there would be no disproportionate adverse human health or socio-economic and environmental effects.

3.1 No Action Alternative

Under the No Action Alternative, Reclamation would not award the TMWA with CALFED grant money equal to \$300,000. Although it is possible that the district may find alternate sources of funding for the project, for the purposes of this EA,

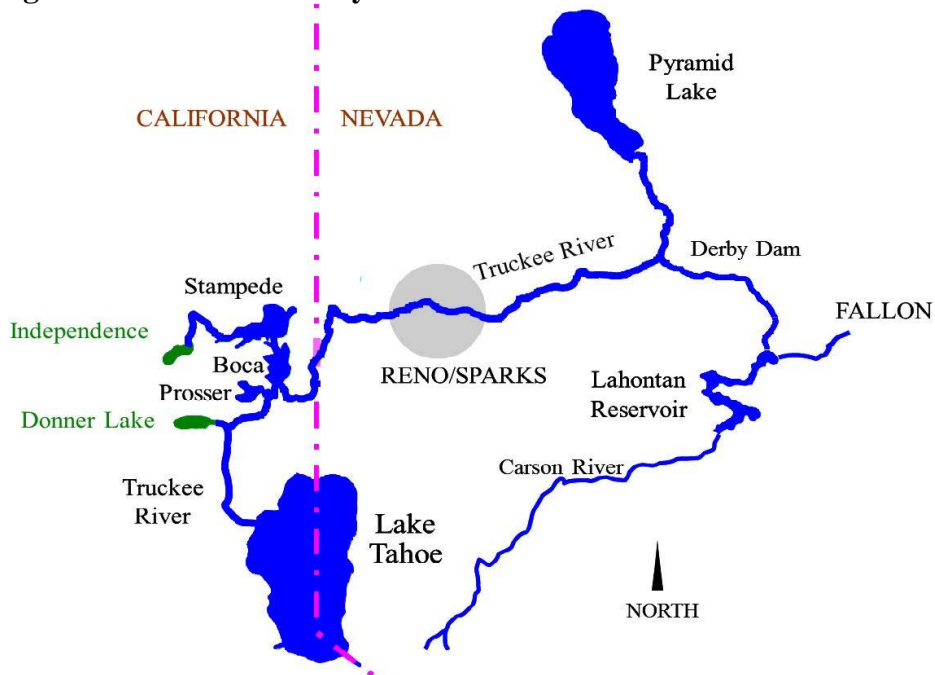
the consequences of Reclamation not providing funding for the Proposed Action would result in no construction and no flexibility in conjunctive use and groundwater quality improvements.

3.2 Proposed Action

3.2.1 Water Resources

Originating in Lake Tahoe, California, the Truckee River flows from the northern Sierra Nevada into the Truckee Meadows area and terminates in Pyramid Lake. Figure 6 provides an overview of the Truckee River system in its entirety. The river is the primary water source for the Truckee Meadows communities of Reno-Sparks, Fernley, and Fallon and will be the source water for the Proposed Action. However, the Proposed Action will not involve any increase in surface water allocation, or timing of potential use of surface water. Additional stakeholders for the river's water include commercial interests in the largest industrial park in the U.S. located on the outskirts of Sparks, agricultural producers and livestock grazers in the region, and the Pyramid Lake Paiute Tribe. The river's terminus, Pyramid Lake, is home to endangered and special status species of fish. Given its many competing stakeholders and uses, the Truckee River has been one of the most litigated rivers in the U.S., and over the last century of litigation, the water rights in the Truckee have become fully appropriated. However, no additional water will be allocated to the TMWA through the Proposed Action.

Figure 6: Truckee River System



Like other communities in the western U.S., the Truckee Meadows region can be affected by drought. The Truckee Meadows is characterized as an arid, high desert region that depends on snow-fed water resources. On a year-to-year basis, these resources are highly variable in terms of overall quantity and form of precipitation (rainfall versus snowpack). Analysis of historical climate records and current weather trends within the Truckee River Basin indicate extreme weather events such as drought will worsen in the foreseeable future. This

increased variability creates significant challenges for water sustainability planning, pushing conservation and efficiency to the forefront of water resource management in the area.

The addition of three new ASR-capable wells will allow the TMWA additional flexibility to meet increased future demands during drought years. Although existing water quality in all three wells meets the U.S. EPA maximum contaminant levels (MCL) for human health² for nitrate, shallow groundwater in the area is elevated with respect to nitrate and could pose a threat to these wells. Elevated nitrate can result in health risks, such as the Blue Baby Syndrome³.

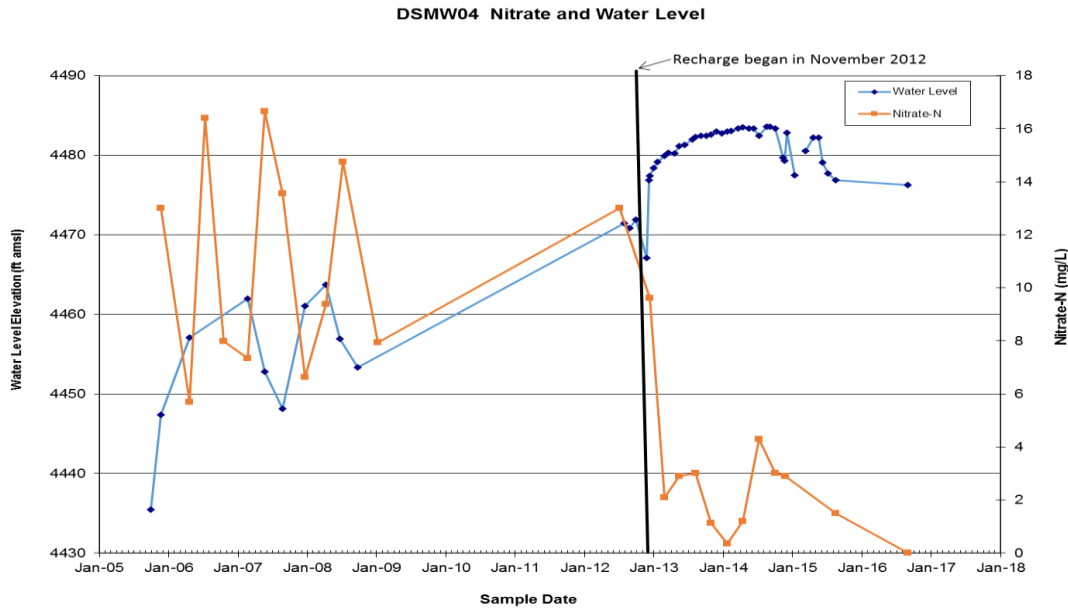
The TMWA decided to pilot-test ASR technology on Desert Springs Well 4 (DS4) to reduce nitrate concentrations in groundwater near the production well and assess the potential for ASR in other production wells in Spanish Springs Valley. Figure 7 shows nitrate concentrations (orange line) in milligrams per liter (mg/L) and water level (blue line) measured above mean seal level. As shown in Figure 7, nitrate concentrations in a nearby monitoring well tend to be elevated well above 10 mg/L during the summer periods and drop slightly below 10 mg/L during the winter periods when rainfall and snowmelt is present. ASR began in November 2012 which resulted in significant lowering of nitrate concentrations (orange line) below the human health criteria of 10 mg/L.

Therefore, implementation of the Proposed Action would provide the TMWA with the means to provide better quality stored groundwater to meet its future increased demands during periods of drought.

Figure 7: Nitrate Response to ASR in Well DS4

² EPAs Maximum Contaminant Level (MCL) for nitrate is 10 mg/L.

³ Also known as methemoglobinemia, caused by nitrate contamination in drinking water resulting in decreased oxygen carrying capacity of hemoglobin.



3.2.2 Special Status Biological Resources

A list of federally threatened or endangered species was received from the U.S. Fish and Wildlife Service on March 13, 2017 from the Information for Planning and Consultation (IPaC) portal. The IPaC list of species is included in Appendix C below. Table includes a list of the Federally threatened or endangered species. There is no evidence of special status species or suitable habitat within the Proposed Action area and no critical habitats, National Wildlife Refuges or Fish Hatcheries located with the Proposed Action area (Appendix A: IPaC List).

Table 1: Federally Threatened or Endangered Species

Scientific Name	Common Name	Federal Status	Effects	Potential habitat utilized by species in Proposed Action Area
FISHES				
<i>Chasmistes cujus</i>	Cui-ui	T	NE	Absent. The Project occurs within the general range of this species. No suitable habitat in the Proposed Action area. No suitable habitat would be disturbed
<i>Oncorhynchus clarkia henshawi</i>	Lahontan Cutthroat Trout	T	NE	Absent. The Project occurs within the general range of this species. No suitable habitat in the Proposed Action area. No suitable habitat would be disturbed
MAMMALS				
<i>Gulo gulo luscus</i>	North American Wolverine	PT	NE	Absent. The Project occurs within the general range of this species. No suitable habitat in the Proposed Action area. No

				suitable habitat would be disturbed
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Key: (T) Threatened – Listed as likely to become endangered within the foreseeable future
 (NE) No Effect – Proposed Action will have no effect on the species
 (PT) Proposed Threatened – Species proposed to be placed on the threatened list

According to the IPaC information portal, there are 22 migratory bird species that could be affected by the Proposed Action and are considered Birds of Conservation Concern (BCC). A total of 10 of these species could be present year-round while the remaining 12 species may be present only during breeding periods.

Due to the limited amount of construction and small amount of ground disturbance (Figures 3, 4 and 5 which equals a total of 0.0017 acres) with the Proposed Action, and the construction footprints are on existing paved surfaces, it is not anticipated that any of these species would be affected by the Proposed Action.

In addition, the USFWS Critical Habitat mapper was used to determine if there are any critical habitat within the vicinity of the Proposed Action. Although the mapping interface does not allow users to add project features, the interface does allow users to measure distances. Based on measuring the distance to the closest well, Figure 8 shows critical habitat located approximately 3.5 miles northwest of the Desert Springs Well 2. The Proposed Action would have no effect on this habitat.

Figure 8: USFWS Critical Habitat for Threatened and Endangered Species



However, in the event that construction of the Proposed Action would overlap with the raptor and/or migratory bird nesting season (March 1 through August 31), implementation of the Environmental Commitment (a) listed above would reduce any potential effects to a no effect level on raptors and migratory birds.

3.2.4 Air Quality

The U.S. Environmental Protection Agency (USEPA) developed air quality standards, known as National and California ambient air quality standards (NAAQS), for criteria air pollutants. Criteria air pollutants consist of carbon monoxide, ozone (volatile organic compounds [VOC] or reactive organic gas [ROG] are ozone precursors), sulfur dioxide, nitrogen dioxide, inhalable particulate matter between 2.5 and 10 microns in diameter (PM₁₀), particulate matter less than 2.5 microns in diameter (PM_{2.5}), and lead. Section 110(a) of the Clean Air Act (42 U.S.C. 7401(a)) requires states to develop plans, known as State Implementation Plans (SIPs), that describe how they will attain NAAQS. Section 176(c) of the Clean Air Act (42 U.S.C. 7506(c)) requires that any entity of the federal government that engages in, supports, or in any way provides financial support for, licenses or permits, or approves any activity to demonstrate that the action conforms to the applicable SIP before the action is otherwise approved. The USEPA promulgated the General Conformity Rule to ensure that such federal actions are consistent with a SIP's purpose of eliminating or reducing the severity and number of violations of the NAAQS for criteria air pollutants and achieving expeditious attainment of those standards. If an action does not conform to the SIP, the Federal agency must submit a conformity determination to the

USEPA, State and local air pollution control agencies, and to the public. The general conformity regulations apply to a proposed Federal action in a non-attainment or maintenance area if the total of direct and indirect emissions of the relevant criteria pollutants and precursor pollutant caused by a proposed action exceed certain emissions thresholds, thus requiring the Federal agency to make a conformity determination. Federal actions that are exempt from the General Conformity Regulations include, but are not limited to, actions with associated emissions clearly at or below specified *de minimis* levels and activities covered under transportation conformity (USEPA 2016).

The USEPA) approved a redesignation of the Truckee Meadows area to attainment status for the 24-hour coarse particle (PM10) standard. Table 2 presents the Federal general conformity *de minimus* emissions thresholds, and attainment status for the Proposed Action.

Table 2: Federal general conformity *de minimus* emissions thresholds

Pollutant	Attainment Status	<i>De Minimis</i> Threshold (tons/year)
VOC (as ozone precursor)	Attainment	10
NO _x (as ozone precursor)	Attainment	10
PM ₁₀	Attainment	15
PM _{2.5}	Attainment	100

Construction emissions would vary from day to day and by activity, depending on the timing and intensity of construction, and wind speed and direction. Generally, air quality impacts from the Proposed Action would be localized in nature and decrease with distance. Ground disturbing activities would result in the temporary emissions of fugitive dust and vehicle combustion pollutants during the small amount of soil disturbance of 0.0017 acres or 76.5 square feet. Standard best management practices, such as stabilizing unpaved roads and stockpiles, pavement track out sweeping, limiting vehicle speeds on unpaved roads, and vehicle maintenance will be employed to minimize these impacts. All construction work will occur previously disturbed or existing paved areas.

For this analysis, a comparative analysis will be used to prove that the Proposed Action will meet Federal conformity. A project similar in nature, but much greater in magnitude, was implemented in California by Firebaugh Canal Water District (FCWD) in January 2015 that involved concrete-lining 2.6 miles of its 2nd Lift Canal, updating turnout connections and a pump station meter structure. This project contained more ground disturbing activities than the Proposed Action; therefore, emissions from the Proposed Action would be fewer. Calculated

emissions from that project were estimated using the 2013 CalEEMOD software (version 2013.2.1), which incorporates emission factors for reactive organic gases (ROG), NO_x, carbon monoxide, sulfur dioxide, and both fugitive and exhaust PM₁₀, and PM_{2.5}. Total emissions from the FCWD project (USBR, 2015) are presented in Table 3.

Table 3. Estimated Emissions for the FCWD 2nd Lift Canal Modernization & Lining Project Phase 4 – Washoe to Douglas Avenue

Pollutant	Construction (tons/year) ^a
ROG/VOC	0.14
NO _x	1.35
PM ₁₀	0.41
PM _{2.5}	0.13
Carbon dioxide equivalents	106.40 (metric tons/year)

^a Source: CalEEMOD version 2013.2.1

As shown in Table 3, the estimated emissions for the FCWD project implemented in 2015 are below the *de minimis* thresholds for NO_x, ROG/VOC as ozone precursors, PM_{2.5}, and PM₁₀; therefore, a Federal general conformity analysis report was not required. Considering that the Proposed Action is much smaller in magnitude, emissions associated with the Proposed Action are expected to be significantly lower than those listed in Table 3 and would not require a Federal general conformity analysis report. As a result, the Proposed Action would have a *de minimus* effect on air quality.

3.2.5 Cultural Resources

A cultural resource is a broad term that includes prehistoric, historic, architectural, and traditional cultural properties. Title 54 USC § 306108, commonly known as Section 106 of the NHPA, and its implementing regulations found at 36 Code of Federal Regulations (CFR) Part 800, is the primary Federal legislation that outlines the Federal Government’s responsibility to historic properties. Section 106 of the NHPA requires the Federal Government to take into consideration the effects of an undertaking on historic properties, which are those cultural resources listed on or eligible for inclusion in the National Register of Historic Places (NRHP). For Federal Proposed Projects, cultural resource significance can be evaluated in terms of eligibility for listing in the NRHP.

The Section 106 process, as outlined in the Federal regulations at 36 CFR § 800, describes the steps that the Federal agency (Reclamation) takes to identify cultural resources and the level of effect that the proposed undertaking would have on historic properties. In summary, Reclamation must first determine if the action is the type of action that has the potential to affect historic properties. If the action is the type of action to affect historic properties, Reclamation must identify the area of potential effects (APE), determine if historic properties are present within that

APE, determine the effect that the undertaking would have on historic properties, and consult with the State Historic Preservation Officer (SHPO) to seek concurrence on Reclamation's findings. In addition, Reclamation is required through the Section 106 process to consult with Indian Tribes concerning the identification of sites of religious or cultural significance, and consult with individuals or groups who are entitled to be consulting parties or have requested to be consulting parties.

Reclamation proposes to provide TMWA with a \$300,000 grant to complete the Proposed Action, which will allow for the flexibility of future conjunctive use of groundwater and also improve the impaired ground water quality in and around the existing wells. The use of Federal appropriations for this project constitutes an undertaking as defined in 36 CFR § 800.16(y). The proposed well development is a type of activity that has the potential to cause effects on historic properties under 36 CFR § 800.3(a). As a result of this determination, Reclamation implemented the steps in the Section 106 process as outlined at §800.3 to §800.6.

In an effort to identify historic properties, Reclamation reviewed its project records, internal records of cultural resources surveys, sites, and project data, and conducted a search of the Nevada Cultural Resource Information System. One cultural resources survey by Kuffner (1983) includes the location of Spring Creek Well 5. A second cultural resources survey by Schmitt (1986) includes the location of Desert Springs Wells 1 and 2. A series of 10 lithic scatters and one multiple-component site were documented within a quarter mile of Spring Creek Well 5, and nine cultural resources were documented within one quarter mile of the APE for Desert Springs Wells 1 and 2. The three wells and appurtenances are of common, modern construction or have been remodeled and do not meet age criteria considerations for significance. No historic properties are documented within the APE for Desert Springs Wells 1 and 2 and Spring Creek Well 5. Due to the nature of the APE with proposed actions in constructed fill and previously disturbed locations, no additional field survey was deemed necessary.

All proposed activities for this undertaking will be conducted entirely within the limits of the built environment, which consists of pavement or engineered gravel/earth fill (roads, well facility) per TMWA records. Therefore, there is no potential for intact buried archaeological resources in the APE, and no sites of religious and cultural significance are expected to be present. As such, Reclamation determined that consultation with Indian tribes was not necessary for this undertaking.

Utilizing these identification efforts, Reclamation entered into consultation with the Nevada SHPO, notifying them of Reclamation's finding that the proposed undertaking will result in "no historic properties affected pursuant to 36 CFR § 800.4(d)(1)." SHPO responded on May 16, 2017 with no objections to Reclamations' findings and determination.

3.3 Cumulative Impacts

According to CEQ regulations for implementing the procedural provisions of NEPA, a cumulative impact is defined as the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time (40 CFR 1508.7).

In addition to air quality impacts, greenhouse gases (GHG) are considered in the context of cumulative effects since any increase in greenhouse gas emissions would add to the existing inventory of gases that could contribute to climate change. In considering when to disclose projected quantitative GHG emissions, the EPA has provided a reference point of 25,000 metric tons of carbon dioxide equivalent emissions on an annual basis below which a GHG emissions quantitative analysis is not warranted unless quantification below that reference point is easily accomplished (EPA 2014). As shown in Table 3, the comparative cumulative total CO₂ emissions are just over a 106 metric tons, which is substantially under the 25,000 metric ton/year reporting threshold. Therefore, there are no cumulative effects associated with GHG emissions.

Section 4 Consultation and Coordination

4.1 Agencies and Persons Consulted

Reclamation consulted and coordinated with the Nevada SHPO.

4.2 Endangered Species Act (16 USC § 1531 et seq.)

Section 7 of the Endangered Species Act requires Federal agencies, in consultation with the Secretary of the Interior, to ensure that their actions do not jeopardize the continued existence of endangered or threatened species, or result in the destruction or adverse modification of the critical habitat of these species.

Reclamation determined that the project would have no effect on federally-listed endangered or threatened species. Furthermore, designated critical habitat will not be affected by the project. Therefore, no consultation is needed.

4.3 Title 54 U.S.C. § 306108, Commonly Known as Section 106 of the National Historic Preservation Act

Reclamation initiated Section 106 consultation with the SHPO, and made a finding of “no historic properties affected” pursuant to 36 CFR §800.4(d)(1), for the proposed undertaking. SHPO responded on May 16, 2017 with no objections to Reclamations’ findings and determination, which concludes the Section 106 process for the proposed undertaking.

Section 5 References

California Emissions Estimator Model (CalEEMOD). 2013. Windows Version 2013 2.1. October 28, 2013.

California Environmental Protection Agency. 2016. Air Resources Control Board. Assembly Bill 32 Overview. Available: <https://www.arb.ca.gov/cc/ab32/ab32.htm>. Accessed: 11/22/2016.

Kuffner, Carmen S. 1983. Preliminary Archaeological Investigation of Pyramid Ranch Homes Development Parcels in Spanish Springs Valley, Washoe County, Nevada. Nevada SHPO Report Number 16-269, on file at the Nevada State Museum, Carson City, Nevada.

Schmitt, D.1986 The Cultural Resources Survey of the Proposed Springwood Subdivision, Spanish Springs Valley, Washoe County, Nevada. Nevada SHPO Report Number 16-436, on file at the Nevada State Museum, Carson City, Nevada.

USEPA. 2016. Frequent Questions. *General Conformity: Frequent Questions*. U.S. Environmental Protection Agency. Available: <https://www3.epa.gov/airquality/genconform/faq.html>. Accessed: March 21, 201

U.S. Environmental Protection Agency (USEPA). 2014. Greenhouse Gas Reporting Program. <http://www.epa.gov/ghgreportin>

USBR. 2014. *Firebaugh Canal Water District 2nd Lift Canal Modernization and Lining Project Phase 4 – Washoe to Douglas Avenue*: U.S. Bureau of Reclamation. Available: http://www.usbr.gov/mp/nepa/nepa_projdetails.cfm?Project_ID=18861. Accessed: July 27, 2015.



Appendix A: ITA Concurrence

Requested by (office/program)	Nathaniel Martin
Fund	16XR0680A1
WBS	RX3308001150220E
Fund Cost Center	RR02015200
Region # (if other than MP)	
Project Name	Municipal Well Aquifer Storage and Recovery Retrofit Project for Drought Resiliency – Truckee Meadows Water Authority
CEC or EA Number	NA
Project Description (attach additional sheets if needed and include photos if appropriate)	<p>The TMWA proposes to retrofit three existing groundwater production wells in Spanish Springs (See Figure 2 & Figure 3) to be capable of Aquifer Storage Recovery (ASR). ASR is an effective method to increase reliability and flexibility of water supply delivery by allowing for conjunctive use of both surface water and groundwater. A groundwater production well with ASR allows for surface water to be injected into the aquifer and saved for use during drought periods.</p> <p>The project will allow for storage of approximately 600⁴ AFY of additional surface water which will be available for withdraw during drought years.</p>

⁴ 600 AFY estimate is based was based on 6 months of recharge at 300, 220, and 300 gpm for the three wells (750 gpm*1,440min/day*180 days*325,851 gal/AF = 600 AFY)

<p>*Project Location (Township, Range, Section, e.g., T12 R5E S10, or Lat/Long cords, DD-MM-SS or decimal degrees). Include map(s)</p>	<p>Northern Extent: Latitude 39° 40' 59.07" N, Longitude 119° 53' 53.01" W Section 18, T21N R19E MDB&M Southern Extent: Latitude 39° 24' 40.56" N, Longitude 119° 46' 13.68" W Section 20, T18N R20E MDB&M Western Extent: Latitude 39° 31' 17.57" N, Longitude 119° 57' 37.63" W Section 09, T19N R18E MDB&M Eastern Extent: Latitude 39° 37' 22.70" N, Longitude 119° 39' 44.15" W Section 06, T20N R21E MDB&M</p>
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Nathaniel Martin	Nathaniel Martin	12/21/2016
Signature	Printed name of preparer	Date

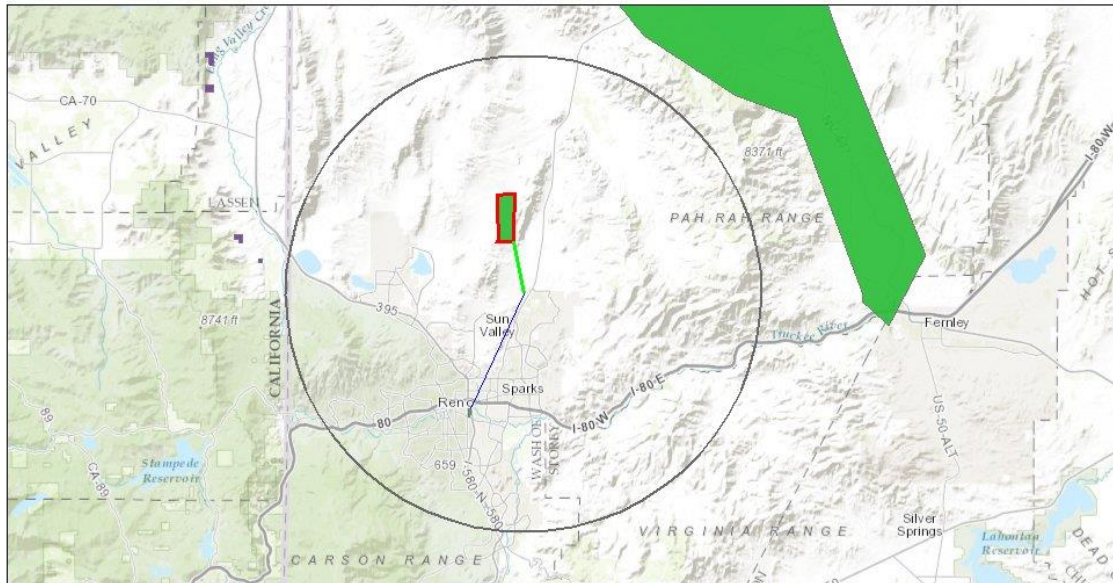
ITA Determination:

The closest ITA to the proposed **Municipal Well Aquifer Storage and Recovery Retrofit Project for Drought Resiliency** activity is the **Reno-Sparks Indian Colony** about **3.34** miles to the **northwest**. (See attached image).

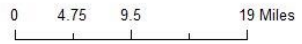
Based on the nature of the planned work it **does not** appear to be in an area that will impact Indian hunting or fishing resources or water rights nor is the proposed activity on actual Indian lands. It is reasonable to assume that the proposed action **will not** have any impacts on ITAs.

<i>K. Clancy</i>	Kevin Clancy	01/05/2017
Signature	Printed name of approver	Date

TMWA ITA



- | | | |
|--|---|---|
| Native American Lands FL | Colony | PDA |
| American Indian Reservation | Community | Rancheria |
| PDA | Federally Recognized Tribal Entity | Reservation |
| Native American Lands | Federally Recognized Tribal Entity (no land base) | State Designated American Indian Statistical Area |
| <all other values> | Not Provided | Tribal Designated Statistical Area |
| Alaska Native Regional Corporation | Off-Reservation Trust Land | Tribal Jurisdiction Statistical Area |
| Alaska Native Village Statistical Area | Off-reservation Trust Land | Village |
| American Indian Reservation | | |



RECLAMATION
Managing Water in the West

Appendix B: NHPA, Section 106 Concurrence

NEVADA
STATE HISTORIC PRESERVATION OFFICE

Department of Conservation and Natural Resources

Brian Sandoval, Governor
Bradley Crowell, Director Rebecca L. Palmer, Administrator, SHPO

May 16, 2017

Anastasia T. Leigh
Regional Environmental Officer
Bureau of Reclamation
Mid-Pacific Regional Office
2800 Cottage Way
Sacramento CA 95825-1898

RE: Truckee Meadows Water Authority (TMWA) Municipal Well Aquifer Storage and Recovery Retrofit Project, Washoe County (Undertaking #2017-4896 Report Number 22642; Project #16-LBA0-169)

Dear Ms. Leigh:

The Nevada State Historic Preservation Office (SHPO) has reviewed the subject documents in compliance with Section 106 of the National Historic Preservation Act (NHPA) of 1966, as amended.

Area of Potential Effect (APE)

Reclamation has defined the APE as a 0.28-acre area that includes all of the construction described in the submission and staging areas at each of the three well locations. The SHPO concurs with the adequacy of the APE for this undertaking.

Identification and Evaluation of Historic Properties

Reclamation conducted background investigations of the APE and determined that there is no potential for subsurface archaeological deposits due to the ground disturbance at the site. The SHPO concurs that this identification effort was adequate given the disturbances documented in the submission.

Native American Consultation

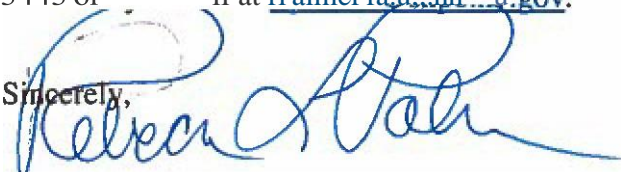
Reclamation has determined that since all proposed activities will be conducted in significantly disturbed locations, there is little potential to encounter sites of religious and cultural significance pursuant to the regulations at 36 CFR § 800.3(f)(2) and 36 CFR § 800.4(a)(4).

Determination of Effect

The SHPO concurs with Reclamation's determination that the undertaking will not pose an effect to any historic properties.

Should you have any questions concerning this correspondence, please contact me at (775) 684-3443 or [ii at rlalmer@ra.usbr.gov](mailto:rlalmer@ra.usbr.gov).

Sincerely,



Rebecca Lynn Palmer

State Historic Preservation Officer

Appendix C: IPac List



United States Department of the Interior



FISH AND WILDLIFE SERVICE

Reno Fish and Wildlife Office
1340 FINANCIAL BOULEVARD, SUITE 234
RENO, NV 89502
PHONE: (775)861-6300 FAX: (775)861-6301
URL: www.fws.gov/nevada/

Consultation Code: 08ENV00-2017-SLI-0247

March 13, 2017

Event Code: 08ENV00-2017-E-00455

Project Name: Municipal Well Aquifer Storage and Recovery Retrofit Project for Drought Resiliency

Subject: List of threatened and endangered species that may occur in your proposed project location, and/or may be affected by your proposed project

To Whom It May Concern:

The attached species list indicates threatened, endangered, proposed, and candidate species and designated or proposed critical habitat that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act of 1973, as amended (ESA, 16 U.S.C. 1531 *et seq.*), for projects that are authorized, funded, or carried out by a Federal agency. Candidate species have no protection under the ESA but are included for consideration because they could be listed prior to the completion of your project. Consideration of these species during project planning may assist species conservation efforts and may prevent the need for future listing actions. For additional information regarding species that may be found in the proposed project area, visit <http://www.fws.gov/nevada/es/ipac.html>.

The purpose of the ESA is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the ESA and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and

endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2) (c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or

designated or proposed critical habitat. Guidelines for preparing a Biological Assessment can be found at: http://www.fws.gov/midwest/endangered/section7/ba_guide.html.

If a Federal action agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species, and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

<http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF>.

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this species list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally listed, proposed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the ESA, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally, as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation, for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the attached list.

The Nevada Fish and Wildlife Office (NFWO) no longer provides species of concern lists. Most of these species for which we have concern are also on the Animal and Plant At-Risk Tracking List for Nevada (At-Risk list) maintained by the State of Nevada's Natural Heritage Program (Heritage). Instead of maintaining our own list, we adopted Heritage's At-Risk list and are partnering with them to provide distribution data and information on the conservation needs for at-risk species to agencies or project proponents. The mission of Heritage is to continually evaluate the conservation priorities of native plants, animals, and their habitats, particularly those most vulnerable to extinction or in serious decline. In addition, in order to avoid future conflicts, we ask that you consider these at-risk species early in your project planning and explore management alternatives that provide for their long-term conservation.

For a list of at-risk species by county, visit Heritage's website (<http://heritage.nv.gov>). For a specific list of at-risk species that may occur in the project area, you can obtain a data request form from the website (http://heritage.nv.gov/get_data) or by contacting the Administrator of Heritage at 901 South Stewart Street, Suite 5002, Carson City, Nevada 89701-5245, (775) 684-2900. Please indicate on the form that your request is being obtained as part of your coordination with the Service under the ESA. During your project analysis, if you obtain new information or data for any Nevada sensitive species, we request that you provide the information to Heritage at the above address.

Furthermore, certain species of fish and wildlife are classified as protected by the State of Nevada (<http://www.leg.state.nv.us/NAC/NAC-503.html>). You must first obtain the appropriate

license, permit, or written authorization from the Nevada Department of Wildlife (NDOW) to take, or possess any parts of protected fish and wildlife species. Please visit

<http://www.ndow.org> or contact NDOW in northern Nevada (775) 688-1500, in southern Nevada (702) 486-5127, or in eastern Nevada (775) 777-2300.

Please be aware that bald and golden eagles are protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668 *et seq.*), and projects affecting these species may require development of an eagle conservation plan (http://www.fws.gov/windenergy/eagle_guidance.html). Additionally, wind energy projects should follow the Service's wind energy guidelines (<http://www.fws.gov/windenergy/>) for minimizing impacts to migratory birds and bats.

The Service's Pacific Southwest Region developed the *Interim Guidelines for the Development of a Project Specific Avian and Bat Protection Plan for Wind Energy Facilities* (Interim Guidelines). This document provides energy facility developers with a tool for assessing the risk of potential impacts to wildlife resources and delineates how best to design and operate a bird- and bat-friendly wind facility. These Interim Guidelines are available upon request from the NFWO. The intent of a Bird and Bat Conservation Strategy is to conserve wildlife resources while supporting project developers through: (1) establishing project development in an adaptive management framework; (2) identifying proper siting and project design strategies; (3) designing and implementing pre-construction surveys; (4) implementing appropriate conservation measures for each development phase; (5) designing and implementing appropriate post-construction monitoring strategies; (6) using post-construction studies to better understand the dynamics of mortality reduction (*e.g.*, changes in blade cut-in speed, assessments of blade “feathering” success, and studies on the effects of visual and acoustic deterrents) including efforts tied into Before-After/Control-Impact analysis; and (7) conducting a thorough risk assessment and validation leading to adjustments in management and mitigation actions.

The template and recommendations set forth in the Interim Guidelines were based upon the Avian Powerline Interaction Committee's Avian Protection Plan template (<http://www.aplic.org/>) developed for electric utilities and modified accordingly to address the unique concerns of wind energy facilities. These recommendations are also consistent with the Service's wind energy guidelines. We recommend contacting us as early as possible in the planning process to discuss the need and process for developing a site-specific Bird and Bat Conservation Strategy.

The Service has also developed guidance regarding wind power development in relation to prairie grouse leks (sage-grouse are included in this). This document can be found at: http://www.fws.gov/southwest/es/Oklahoma/documents/te_species/wind%20power/prairie%20gr

Migratory Birds are a Service Trust Resource. Based on the Service's conservation responsibilities and management authority for migratory birds under the Migratory Bird Treaty Act of 1918, as amended (MBTA; 16 U.S.C. 703 *et seq.*), we recommend that any land clearing or other surface disturbance associated with proposed actions within the project area be timed to avoid potential destruction of bird nests or young, or birds that breed in the area. Such destruction may be in violation of the MBTA. Under the MBTA, nests with eggs or young of migratory birds may not be harmed, nor may migratory birds be killed. Therefore, we

recommend land clearing be conducted outside the avian breeding season. If this is not feasible, we recommend a qualified biologist survey the area prior to land clearing. If nests are located, or if other evidence of nesting (*i.e.*, mated pairs, territorial defense, carrying nesting material,

transporting food) is observed, a protective buffer (the size depending on the habitat requirements of the species) should be delineated and the entire area avoided to prevent destruction or disturbance to nests until they are no longer active.

Guidance for minimizing impacts to migratory birds for projects involving communications towers (e.g., cellular, digital television, radio, and emergency broadcast) can be found at: <http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/towers.htm>; <http://www.towerkill.com>; and <http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/comtow.html>.

If wetlands, springs, or streams are ~~are~~ known to occur in the project area or are present in the vicinity of the project area, we ask that you be aware of potential impacts project activities may have on these habitats. Discharge of fill material into wetlands or waters of the United States is regulated by the U.S. Army Corps of Engineers (ACOE) pursuant to section 404 of the Clean Water Act of 1972, as amended. We recommend you contact the ACOE's Regulatory Section regarding the possible need for a permit. For projects located in northern Nevada (Carson City, Churchill, Douglas, Elko, Esmeralda, Eureka, Humboldt, Lander, Lyon, Mineral, Pershing, Storey, and Washoe Counties) contact the Reno Regulatory Office at 300 Booth Street, Room 3060, Reno, Nevada 89509, (775) 784-5304; in southern Nevada (Clark, Lincoln, Nye, and White Pine Counties) contact the St. George Regulatory Office at 321 North Mall Drive, Suite L-101, St. George, Utah 84790-7314, (435) 986-3979; or in California along the eastern Sierra contact the Sacramento Regulatory Office at 650 Capitol Mall, Suite 5-200, Sacramento, California 95814, (916) 557-5250.

We appreciate your concern for threatened and endangered species. Please include the Consultation Tracking Number in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

The table below outlines lead FWS field offices by county and land ownership/project type. Please refer to this table when you are ready to coordinate (including requests for section 7 consultation) with the field office corresponding to your project, and send any documentation regarding your project to that corresponding office. Therefore, the lead FWS field office may not be the office listed above in the letterhead.

Lead FWS offices by County and Ownership/Program

County	Ownership/Program	Species	Office Lead*
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Alameda	Tidal wetlands/marsh adjacent to Bays	Salt marsh species, delta smelt	BDFWO
Alameda	All ownerships but tidal/estuarine	All	SFWO

Alpine	Humboldt Toiyabe National Forest	All	RFWO
Alpine	Lake Tahoe Basin Management Unit	All	RFWO
Alpine	Stanislaus National Forest	All	SFWO
Alpine	El Dorado National Forest	All	SFWO
Colusa	Mendocino National Forest	All	AFWO
Colusa	Other	All	By jurisdiction (see map)
Contra Costa	Legal Delta (Excluding ECCHCP)	All	BDFWO
Contra Costa	Antioch Dunes NWR	All	BDFWO
Contra Costa	Tidal wetlands/marsh adjacent to Bays	Salt marsh species, delta smelt	BDFWO
Contra Costa	All ownerships but tidal/estuarine	All	SFWO
Del Norte	All	All	AFWO
El Dorado	El Dorado National Forest	All	SFWO
El Dorado	LakeTahoe Basin Management Unit		RFWO
Glenn	Mendocino National Forest	All	AFWO

Glenn	Other	All	By jurisdiction (see map)
Humboldt	All except Shasta Trinity National Forest	All	AFWO
Humboldt	Shasta Trinity National Forest	All	YFWO
Lake	Mendocino National Forest	All	AFWO
Lake	Other	All	By jurisdiction (see map)
Lassen	Modoc National Forest	All	KFWO
Lassen	Lassen National Forest	All	SFWO
Lassen	Toiyabe National Forest	All	RFWO
Lassen	BLM Surprise and Eagle Lake Resource Areas	All	RFWO
Lassen	BLM Alturas Resource Area	All	KFWO
Lassen	Lassen Volcanic National Park	All (includes Eagle Lake trout on all ownerships)	SFWO
Lassen	All other ownerships	All	By jurisdiction (see map)
Marin	Tidal wetlands/marsh adjacent to Bays	Salt marsh species, delta smelt	BDFWO

Marin	All ownerships but tidal/estuarine	All	SFWO
Mendocino	Russian River watershed	All	SFWO
Mendocino	All except Russian River watershed	All	AFWO
Modoc	Modoc National Forest	All	KFWO
Modoc	BLM Alturas Resource Area	All	KFWO
Modoc	Klamath Basin National Wildlife Refuge Complex	All	KFWO
Modoc	BLM Surprise and Eagle Lake Resource Areas	All	RFWO
Modoc	All other ownerships	All	By jurisdiction (See map)
Mono	Inyo National Forest	All	RFWO
Mono	Humboldt Toiyabe National Forest	All	RFWO
Napa	All ownerships but tidal/estuarine	All	SFWO
Napa	Tidal wetlands/marsh adjacent to San Pablo Bay	Salt marsh species, delta smelt	BDFWO
Nevada	Humboldt Toiyabe National Forest	All	RFWO
			By jurisdiction (See

Nevada	All other ownerships	All	map)
Placer	Lake Tahoe Basin Management Unit	All	RFWO
Placer	All other ownerships	All	SFWO
Sacramento	Legal Delta	Delta Smelt	BDFWO
Sacramento	Other	All	By jurisdiction (see map)
San Francisco	Tidal wetlands/marsh adjacent to San Francisco Bay	Salt marsh species, delta smelt	BDFWO
San Francisco	All ownerships but tidal/estuarine	All	SFWO
San Mateo	Tidal wetlands/marsh adjacent to San Francisco Bay	Salt marsh species, delta smelt	BDFWO
San Mateo	All ownerships but tidal/estuarine	All	SFWO
San Joaquin	Legal Delta excluding San Joaquin HCP	All	BDFWO
San Joaquin	Other	All	SFWO
Santa Clara	Tidal wetlands/marsh adjacent to San Francisco Bay	Salt marsh species, delta smelt	BDFWO
Santa Clara	All ownerships but tidal/estuarine	All	SFWO

Shasta	Shasta Trinity National Forest except Hat Creek Ranger District (administered by Lassen National Forest)	All	YFWO
Shasta	Hat Creek Ranger District	All	SFWO
Shasta	Bureau of Reclamation (Central Valley Project)	All	BDFWO
Shasta	Whiskeytown National Recreation Area	All	YFWO
Shasta	BLM Alturas Resource Area	All	KFWO
Shasta	Caltrans	By jurisdiction	SFWO/AFWO
Shasta	Ahjumawi Lava Springs State Park	Shasta crayfish	SFWO
Shasta	All other ownerships	All	By jurisdiction (see map)
Shasta	Natural Resource Damage Assessment, all lands	All	SFWO/BDFWO
Sierra	Humboldt Toiyabe National Forest	All	RFWO
Sierra	All other ownerships	All	SFWO
Siskiyou	Klamath National Forest (except Ukonom District)	All	YFWO
Siskiyou	Six Rivers National Forest and Ukonom District	All	AFWO

Siskiyou	Shasta Trinity National Forest	All	YFWO
Siskiyou	Lassen National Forest	All	SFWO
Siskiyou	Modoc National Forest	All	KFWO
Siskiyou	Lava Beds National Volcanic Monument	All	KFWO
Siskiyou	BLM Alturas Resource Area	All	KFWO
Siskiyou	Klamath Basin National Wildlife Refuge Complex	All	KFWO
Siskiyou	All other ownerships	All	By jurisdiction (see map)
Solano	Suisun Marsh	All	BDFWO
Solano	Tidal wetlands/marsh adjacent to San Pablo Bay	Salt marsh species, delta smelt	BDFWO
Solano	All ownerships but tidal/estuarine	All	SFWO
Solano	Other	All	By jurisdiction (see map)
Sonoma	Tidal wetlands/marsh adjacent to San Pablo Bay	Salt marsh species, delta smelt	BDFWO
Sonoma	All ownerships but tidal/estuarine	All	SFWO

Tehama	Mendocino National Forest	All	AFWO
Tehama	Shasta Trinity National Forest except Hat Creek Ranger District (administered by Lassen National Forest)	All	YFWO
Tehama	All other ownerships	All	By jurisdiction (see map)
Trinity	BLM	All	AFWO
Trinity	Six Rivers National Forest	All	AFWO
Trinity	Shasta Trinity National Forest	All	YFWO
Trinity	Mendocino National Forest	All	AFWO
Trinity	BIA (Tribal Trust Lands)	All	AFWO
Trinity	County Government	All	AFWO
Trinity	All other ownerships	All	By jurisdiction (See map)
Yolo	Yolo Bypass	All	BDFWO
Yolo	Other	All	By jurisdiction (see map)
All	FERC-ESA	All	By jurisdiction (see map)

All	FERC-ESA	Shasta crayfish	SFWO
All	FERC-Relicensing (non-ESA)	All	BDFWO
*Office Leads:			
AFWO=Arcata Fish and Wildlife Office			
BDFWO=Bay Delta Fish and Wildlife Office			
KFWO=Klamath Falls Fish and Wildlife Office			
RFWO=Reno Fish and Wildlife Office			
YFWO=Yreka Fish and Wildlife Office			

Attachment



United States Department of Interior
Fish and Wildlife Service

Project name: Municipal Well Aquifer Storage and Recovery Retrofit Project for Drought Resiliency

Section 1 Official Species List

Provided by:

Reno Fish and Wildlife Office
1340 FINANCIAL BOULEVARD, SUITE 234
RENO, NV 89502
(775) 861-6300
<http://www.fws.gov/nevada/>

Consultation Code: 08ENV00-2017-SLI-0247

Event Code: 08ENV00-2017-E-00455

Project Type: WATER SUPPLY / DELIVERY

Project Name: Municipal Well Aquifer Storage and Recovery Retrofit Project for Drought Resiliency

Project Description: The Truckee Meadows Water Authority proposes to retrofit three existing groundwater production wells ~~on the west side of in~~ Spanish Springs (See Figure 2) to be capable of Aquifer Storage Recovery (ASR). ASR is an effective method to increase reliability and flexibility of water supply delivery by allowing for conjunctive use of both surface water and groundwater. A groundwater production well with ASR allows for surface water to be injected into the aquifer and saved for use during drought periods.

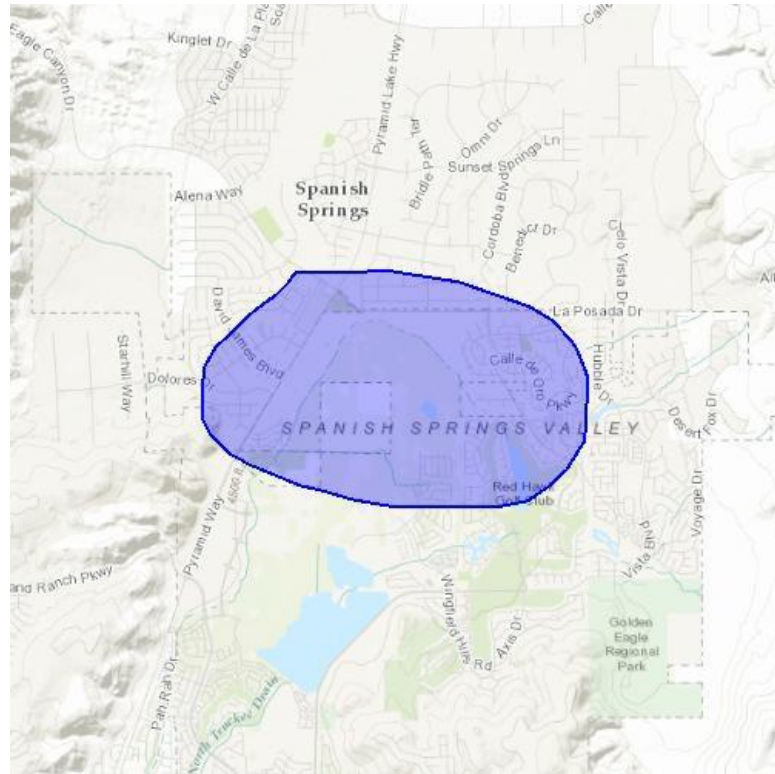
Please Note: The FWS office may have modified the Project Name and/or Project Description, so it may be different from what was submitted in your previous request. If the Consultation Code matches, the FWS considers this to be the same project. Contact the office in the 'Provided by' section of your previous Official Species list if you have any questions or concerns.



United States Department of Interior
Fish and Wildlife Service

Project name: Municipal Well Aquifer Storage and Recovery Retrofit Project for Drought Resiliency

Project Location Map:



Project Coordinates: The coordinates are too numerous to display here.

Project Counties: Washoe, NV



United States Department of Interior
Fish and Wildlife Service

Project name: Municipal Well Aquifer Storage and Recovery Retrofit Project for Drought Resiliency

Section 2 Endangered Species Act Species List

There are a total of 3 threatened or endangered species on your species list. Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species. Critical habitats listed under the **Has Critical Habitat** column may or may not lie within your project area. See the **Critical habitats within your project area** section further below for critical habitat that lies within your project. Please contact the designated FWS office if you have questions.

Fishes	Status	Has Critical Habitat	Condition(s)
cui-ui (<i>Chasmistes cujus</i>) Population: Wherever found	Endangered		
Lahontan cutthroat trout (<i>Oncorhynchus clarkii henshawi</i>) Population: Wherever found	Threatened		
Mammals			
North American wolverine (<i>Gulo gulo luscus</i>) Population: Wherever found	Proposed Threatened		



United States Department of Interior
Fish and Wildlife Service

Project name: Municipal Well Aquifer Storage and Recovery Retrofit Project for Drought Resiliency

Section 3 Critical habitats that lie within your project area

There are no critical habitats within your project area.



United States Department of Interior
Fish and Wildlife Service

Project name: Municipal Well Aquifer Storage and Recovery Retrofit Project for Drought Resiliency

Section 4 Appendix A: FWS National Wildlife Refuges and Fish Hatcheries

There are no refuges or fish hatcheries within your project area.



United States Department of Interior
Fish and Wildlife Service

Project name: Municipal Well Aquifer Storage and Recovery Retrofit Project for Drought Resiliency

Section 5 Appendix B: FWS Migratory Birds

The protection of birds is regulated by the Migratory Bird Treaty Act (MBTA) and the Bald and Golden Eagle Protection Act (BGEPA). Any activity, intentional or unintentional, resulting in take of migratory birds, including eagles, is prohibited unless otherwise permitted by the U.S. Fish and Wildlife Service (50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)). The MBTA has no otherwise lawful activities. For more information regarding these Acts see: <http://www.fws.gov/birds/policies-and-regulations/laws-legislations/migratory-bird-treaty-act.php>
<http://www.fws.gov/birds/policies-and-regulations/laws-legislations/bald-and-golden-eagle-protection-act.php>

All project proponents are responsible for complying with the appropriate regulations protecting birds when planning and developing a project. To meet these conservation obligations, proponents should identify potential or existing project-related impacts to migratory birds and their habitat and develop and implement conservation measures that avoid, minimize, or compensate for these impacts. The Service's Birds of Conservation Concern (2008) report identifies species, subspecies, and populations of all migratory nongame birds that, without additional conservation actions, are likely to become listed under the Endangered Species Act as amended (16 U.S.C 1531 et seq.).

For information about Birds of Conservation Concern, go to:

<http://www.fws.gov/birds/management/managed-species/birds-of-conservation-concern.php>

For information about conservation measures that help avoid or minimize impacts to birds, please visit:

<http://www.fws.gov/birds/management/project-assessment-tools-and-guidance/conservation-measures.php>

To search and view summaries of year-round bird occurrence data within your project area, go to the Avian Knowledge Network Histogram Tools at:

<http://www.fws.gov/birds/management/project-assessment-tools-and-guidance/akn-histogram-tools.php>



United States Department of Interior
Fish and Wildlife Service

Project name: Municipal Well Aquifer Storage and Recovery Retrofit Project for Drought Resiliency

Migratory birds that may be affected by your project:

There are 22 birds on your migratory bird list. The list may include birds occurring outside this FWS office jurisdiction.

Species Name	Bird of Conservation Concern (BCC)	Seasonal Occurrence in Project Area
Bald eagle (<i>Haliaeetus leucocephalus</i>)	Yes	Year-round
Black Rosy-Finch (<i>Leucosticte atrata</i>)	Yes	Year-round
Brewer's Sparrow (<i>Spizella breweri</i>)	Yes	Breeding
Burrowing Owl (<i>Athene cunicularia</i>)	Yes	Breeding
Calliope Hummingbird (<i>Stellula calliope</i>)	Yes	Breeding
Eared Grebe (<i>Podiceps nigricollis</i>)	Yes	Breeding
Fox Sparrow (<i>Passerella iliaca</i>)	Yes	Year-round
Greater sage-grouse (<i>Centrocercus urophasianus</i>)	Yes	Year-round
Green-tailed Towhee (<i>Pipilo chlorurus</i>)	Yes	Breeding
Loggerhead Shrike (<i>Lanius ludovicianus</i>)	Yes	Year-round
Long-Billed curlew (<i>Numenius americanus</i>)	Yes	Breeding
Olive-Sided flycatcher (<i>Contopus cooperi</i>)	Yes	Breeding
Peregrine Falcon (<i>Falco peregrinus</i>)	Yes	Year-round
Pinyon Jay (<i>Gymnorhinus cyanocephalus</i>)	Yes	Year-round
Sage Thrasher (<i>Oreoscoptes montanus</i>)	Yes	Breeding



United States Department of Interior
Fish and Wildlife Service

Project name: Municipal Well Aquifer Storage and Recovery Retrofit Project for Drought Resiliency

Short-eared Owl (<i>Asio flammeus</i>)	Yes	Year-round
Snowy Plover (<i>Charadrius alexandrinus</i>)	Yes	Breeding
Swainson's hawk (<i>Buteo swainsoni</i>)	Yes	Breeding
tricolored blackbird (<i>Agelaius tricolor</i>)	Yes	Breeding
Western grebe (<i>aechmophorus occidentalis</i>)	Yes	Breeding
White-headed Woodpecker (<i>Picoides albolarvatus</i>)	Yes	Year-round
Williamson's Sapsucker (<i>Sphyrapicus thyroideus</i>)	Yes	Year-round



United States Department of Interior
Fish and Wildlife Service

Project name: Municipal Well Aquifer Storage and Recovery Retrofit Project for Drought Resiliency

Section 6 Appendix C: NWI Wetlands

The U.S. Fish and Wildlife Service is the principal Federal agency that provides information on the extent and status of wetlands in the U.S., via the National Wetlands Inventory Program (NWI). In addition to impacts to wetlands within your immediate project area, wetlands outside of your project area may need to be considered in any evaluation of project impacts, due to the hydrologic nature of wetlands (for example, project activities may affect local hydrology within, and outside of, your immediate project area). It may be helpful to refer to the USFWS National Wetland Inventory website. The designated FWS office can also assist you. Impacts to wetlands and other aquatic habitats from your project may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal Statutes. Project Proponents should discuss the relationship of these requirements to their project with the Regulatory Program of the appropriate U.S. Army Corps of Engineers District.

The Service's objective of mapping wetlands and deepwater habitats is to produce reconnaissance level information on the location, type and size of these resources. The maps are prepared from the analysis of high altitude imagery. Wetlands are identified based on vegetation, visible hydrology and geography. A margin of error is inherent in the use of imagery; thus, detailed on-the-ground inspection of any particular site may result in revision of the wetland boundaries or classification established through image analysis.

The accuracy of image interpretation depends on the quality of the imagery, the experience of the image analysts, the amount and quality of the collateral data and the amount of ground truth verification work conducted. Metadata should be consulted to determine the date of the source imagery used and any mapping problems.

Wetlands or other mapped features may have changed since the date of the imagery and/or field work. There may be occasional differences in polygon boundaries or classifications between the information depicted on the map and the actual conditions on site.

Exclusions - Certain wetland habitats are excluded from the National mapping program because of the limitations of aerial imagery as the primary data source used to detect wetlands. These habitats include seagrasses or submerged aquatic vegetation that are found in the intertidal and subtidal zones of estuaries and nearshore coastal waters. Some deepwater reef communities (coral or tubercid worm reefs) have also been excluded from the inventory. These habitats, because of their depth, go undetected by aerial imagery.

Precautions - Federal, state, and local regulatory agencies with jurisdiction over wetlands may define and describe wetlands in a different manner than that used in this inventory. There is no attempt, in either the design or products of



United States Department of Interior
Fish and Wildlife Service

Project name: Municipal Well Aquifer Storage and Recovery Retrofit Project for Drought Resiliency

this inventory, to define the limits of proprietary jurisdiction of any Federal, state, or local government or to establish the geographical scope of the regulatory programs of government agencies. Persons intending to engage in activities involving modifications within or adjacent to wetland areas should seek the advice of appropriate federal, state, or local agencies concerning specified agency regulatory programs and proprietary jurisdictions that may affect such activities.

The following NWI Wetland types intersect your project area in one or more locations. To understand the NWI Classification Code, see <https://ecos.fws.gov/ipac/wetlands/decoder>. To view the National Wetlands Inventory on a map go to <http://www.fws.gov/wetlands/Data/Mapper.html>.

Wetland Types	NWI Classification Code
Freshwater Emergent Wetland	PEMC
Freshwater Emergent Wetland	PEMAh
Freshwater Emergent Wetland	PEMA
Freshwater Emergent Wetland	PEMFh
Freshwater Emergent Wetland	PEMCh
Freshwater Emergent Wetland	PEMFx
Freshwater Forested/Shrub Wetland	PSSA
Freshwater Pond	PUBHx
Freshwater Pond	PUBHh
Freshwater Pond	PUBFx
Freshwater Pond	PABHx
Freshwater Pond	PUBH
Freshwater Pond	PUBF
Other	PUSCx
Other	PUSAx



United States Department of Interior
Fish and Wildlife Service

Other	Project name: Municipal Well Resiliency	Aquifer Storage and Recovery Retrofit Project for Drought R4USJx
Riverine		R4USJx