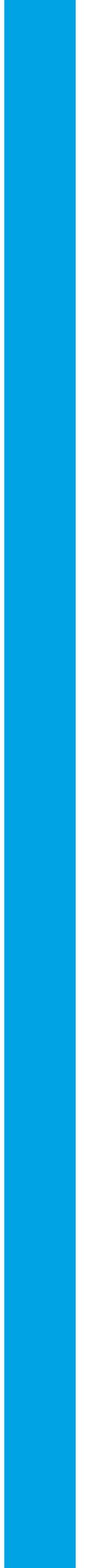


## **APPENDIX G – VEGETATION RESTORATION PLAN**



**DRAFT**

**VEGETATION RESTORATION PLAN  
FOR THE AT&T STATE ROUTE 127 FIBER-  
OPTIC CABLE INSTALLATION PROJECT  
SAN BERNARDINO COUNTY, CALIFORNIA**

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## **SECTION 1.0 – INTRODUCTION**

AT&T Corporation (AT&T) is proposing a fiber-optic cable (FOC) installation project (Project or Proposed Action) from the unincorporated community of Baker to the United States (U.S.) Army National Training Center (NTC) at Fort Irwin in California. The Project would install approximately 12 miles of FOC within previously disturbed areas (Route). The purpose of this Vegetation Restoration Plan (Plan) is to reduce the impacts to native vegetation communities as a result of the Project. This Plan includes the following components: an Invasive Weed Management Plan; a Plant Salvage, Stockpiling, and Transplanting Plan; and a Topsoil Salvage and Reseeding Plan. The Project is located within previously disturbed areas (e.g., road shoulders, around the developed community of Baker, and within highly disturbed dirt roads adjacent to human disturbance areas). Due to the existing disturbed nature of the existing environment, post construction monitoring is proposed for 5 years.

### **1.1 GOALS AND OBJECTIVES**

This document provides a plan to address the impacts of construction to native vegetation communities and to address temporary loss of habitat and the increased risk of establishing nonnative invasive plant species in the disturbance areas. The primary purpose of this Plan is to propose a strategy to restore disturbed Project areas to pre-project grade and to revegetate these areas with the purpose of minimizing soil erosion and vulnerability to weed invasion. The measures described in this Plan, in conjunction with other mitigation measures and Best Management Practices (BMPs) included in the Biological Technical Report (BTR), the Biological Assessment (BA), and the joint Environmental Assessment/Initial Study (EA/IS) for the Project, will reduce construction impacts to native plant communities. The Plan goals are as follows:

- Avoid impacts where practical.
- Where impacts are unavoidable, minimize impacts.
- Salvage acacia, cacti, and yucca located within the disturbance area of the Project in order to conserve species diversity in the area.
- Avoid (i.e., preserve), where practical, mature native trees.
- Avoid removing desert trees where practical by adjusting the route or reducing the width of the right-of-way to avoid desert trees.
- Implement early detection protocols, define containment strategies, and put into practice methods of control to minimize the introduction and spread of invasive weeds during Project construction activities.
- Preserve or restore the native seed bank so that native vegetation may grow back to preconstruction conditions.

### **1.2 PROJECT BACKGROUND**

Under the Proposed Action, BLM would approve a right-of-way (ROW) grant to AT&T to facilitate FOC installation activities from the unincorporated community of Baker, California, to Cell Site 9 at the NTC. Project activities consist of installing three new direct buried 1.5-inch-diameter high-density polyethylene (HDPE) ducts and twenty-five 3-foot by 5-foot by 3-foot direct buried cable splice or access vaults spaced approximately 3,000 feet apart. In addition, marker poles and a buried marker ribbon will also be installed. A potential staging area for installation would be located near the Project Route in developed areas.

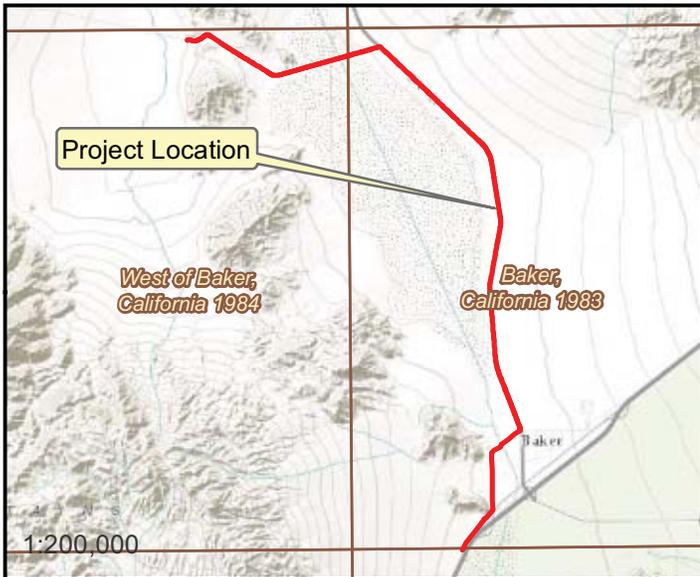
The new FOC is needed to support AT&T's Shoshone Central Office cellular network and the NTC's Combat Training Center – Instrumentation System Range Communications System (CTC-IS RCS).

### **1.3 PROJECT ROUTE DESCRIPTION**

The Project route (Route) follows a path between the intersection of Mill Street and Baker Boulevard and the National Training Center's Cell Tower Site 9 as shown in Figure 1: Project Location. Beginning at the intersection of Mill Street and Baker Boulevard, the Route travels parallel to Mill Road for approximately 1.14 miles. Turning right, the Route parallels Silver Lane for approximately 0.44 mile until it reaches SR-127, north of Baker. The Project Route then crosses to the west side of SR-127 and runs north along SR-127 for approximately 7.20 miles. The Route then turns west onto Silver Lake Road, which crosses Silver (dry) Lake and continues for approximately 3.47 miles to Cell Tower Site 9.

For the purpose of organizing the data, the Project Route has been divided into the following four segments:

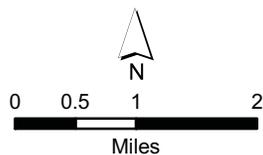
- Segment 1, approximately 1.58 miles, occurs from the intersection of Mill Street and Baker Boulevard northeast around the edge of Baker to SR-127.
- Segment 2 occurs from SR-127, north for approximately 7.20 miles to Silver Lake Road.
- Segment 3, approximately 2.87 miles, occurs from Silver Lake Road west to the Fort Irwin border.
- Segment 4 occurs from the border of Fort Irwin to Cell Tower Site 9 for approximately 0.60 mile.



**Legend**

**Route Alignment**

- Segment #1
- Segment #2
- Segment #3
- Segment #4



**Figure 1**  
 AT&T Highway 127 Project  
 Project Location and Vicinity Map

## **1.4 AREAS OF PROPOSED DISTURBANCE**

The pre-disturbed Project ROW will be 20 feet wide, allowing 10 feet for “minimal use” and 10 feet for proposed “disturbance area”.

Areas used for minimal use during installation activities would not be graded or cleared of vegetation. Vegetation is expected to be crushed by vehicles or equipment. Although the vehicles and equipment that utilize these areas would result in soil compaction, the root systems, topsoil, and seed bank would be left intact to the greatest extent feasible in order to minimize impacts to the native vegetation, habitat to plants and wildlife.

Proposed disturbance areas are areas that may be graded and cleared of vegetation for installation of the new cable. Habitat areas that are graded would be replanted with salvaged plants and re-seeded according to this Agency approved Plan.

Areas where the Project ROW is on portions of existing county or utility corridor dirt roads would not result in impacts since these areas are already disturbed. Existing dirt roads will be backfilled and re-contoured/graded to match the preconstruction conditions of that existing road.

### Segment 1

Within Segment 1 (approximately 1.58 miles), an existing maintained dirt road with an average width of 12.5 feet is within the Project ROW. Of the 20 foot wide ROW, the remaining 7.5 feet of occurs within vegetation. Of the 7.5 feet, an average width of 2.5 feet would be utilized as proposed disturbed areas and an average width of 5 feet would be utilized as potential minimal use areas. Installation of the duct would occur within the existing maintained dirt road. The trench and spoils will be contained within the dirt road to the greatest extent feasible but it is likely spoils will be cast out into vegetated areas.

In areas where habitat is within the proposed disturbance areas and if impacts may or will occur in those areas due to being located where spoils from the trench will be piled, vegetation will be covered with silt fencing (or other plastic covering) prior to trenching activities. The silt fencing/covering is not expected to be used for more than one day at a time because only the amount of trenching and FOC placement that can be accomplished in one day will be planned for that day. If a covering is expected to be used for more than one day at a time during the summer, a lighter color covering will be used to prevent vegetation from getting overheated. Covering the vegetation will minimize the uprooting of vegetation due to backfilling activities as a result of dragging the equipment bucket directly over plants. Backfilling activities would instead consist of carefully pushing soils off the plastic covering to avoid uprooting vegetation, to the greatest extent possible, while keeping the topsoil intact.

Potential minimal use areas within Segment 1 would be used only if it is absolutely necessary for construction vehicles and equipment to pass the maintenance/replacement activities. It is currently unknown if disturbance to these areas will be necessary, and it is very likely that these areas would not be used at all. These areas will be avoided to the greatest extent possible but were identified as areas that may potentially be needed for passing only. If passing does need to occur in any of these areas, the area needed for passing will first be identified and surveyed by a qualified biologist for the presence of sensitive species and biotic crust and documented. Photographs of the area will be taken to document the conditions and a GPS point will be recorded for location prior to use. Once surveyed, the biologist will monitor passing activities by vehicles and/or equipment. The number of passes will be kept to a

minimum at this location to minimize potential impacts and likely would be only one pass by one vehicle or piece of equipment.

### Segment 2

Within Segment 2 (approximately 7.20 miles), the duct would be installed at the foot of the SR 127 western shoulder and inside the existing dirt berm. Of the 20 foot wide ROW, 10 feet would occur within the existing maintained shoulder of the SR 127. The remaining 10 feet would occur within vegetation just outside the berm, and would be utilized as minimal use areas. Equipment used to create the trench for the duct would straddle the trench and therefore, one side of the equipments tires or tracks will be within the vegetation just outside of the berm.

The minimal use areas within Segment 2 would be crushed not graded; therefore, the root system, topsoil, and seed bank would be left intact. Only the necessary equipment for installation of the FOC would be utilized in the minimal use areas. Prior to utilizing these areas, a biologist will be notified. The biologist will survey for the presence of sensitive species and biotic crust and document the results. Photographs of the area will be taken to document the conditions and a GPS point will be recorded for location prior to use. Once surveyed, the biologist will monitor construction activities. The number of passes will be kept to a minimum within minimal use areas. Once construction is complete, minimal use areas will be raked and re-contoured to to smooth out ruts created by construction equipment and to help prevent the area from being utilized by the public.

### Segments 3 and 4

Within Segments 3 and 4, all activities will take place within roadways or disturbed roadway shoulders; therefore, no new ground disturbance will occur and no new ground-disturbing activities will take place within habitat areas.

Approximately 9.59 acres of disturbance may occur within minimal use areas. An area of approximately 0.43 acres of disturbance is anticipated within proposed disturbance areas. The acres of minimal use and proposed disturbance to habitat for each portion of the Route are included in Table 1.

**Table 1: Proposed Acres of Disturbance to Habitat**

Route Segment	Minimal Use* (acres)	Proposed Disturbance (acres)	Total Disturbance (acres)
Segment 1	0.93	0.43	1.36
Segment 2	8.66	0.00	8.66
Segment 3	0.00	0.00	0.00
Segment 4	0.00	0.00	0.00
<b>Total Disturbance</b>	<b>9.59</b>	<b>0.43</b>	<b>10.02</b>

Note: Acreage totals only include impacts to habitat, not non-vegetated areas.

Areas where the Project is within or will utilize previously disturbed or developed county or utility corridor dirt roads, as well as disturbed or developed areas for staging, will not result in Project impacts since no new disturbance will occur. These existing dirt roads are not included in the acreages listed above. Dirt roads and staging areas will be re-contoured to match preconstruction contours.

## SECTION 2.0 – INVASIVE WEED MANAGEMENT PLAN

On February 3, 1999, Executive Order 13112 was signed and calls for the Executive Branch agencies to work to prevent the introduction of invasive species and provide for their control and to minimize the economic, ecological, and human health impacts that invasive species cause (Federal Register 1999).

Invasive weeds include plant species that are not native to the area where they are growing (BLM 2010). Invasive weeds are opportunistic plants that readily colonize disturbed areas and as a result of growing where they did not evolve, the invasive weeds usually do not have natural enemies to limit their reproduction and are therefore able to exclude or out-compete native species and lead to a decrease in overall species diversity in the area. Invasive plant species adversely affect the habitats they invade economically and ecologically. Invasive weeds may also be noxious. Legally, a noxious weed is any plant designated by a Federal, State or county government as injurious to public health, agriculture, recreation, wildlife or property (BLM 2010).

The goal of this Invasive Weed Management Plan (IWMP) is to implement early detection protocols, define containment strategies, and put into practice methods of control to minimize the introduction and spread of invasive weeds during Project construction activities. AT&T acknowledges that construction of the Project may promote the introduction and spread of invasive weeds; therefore, AT&T plans to implement prevention measures during Project construction activities. Measures are meant to prevent introduction and spread, not reduce already present weed populations along the Project. A number of measures are not feasible in areas where weed species are already established and abundant. AT&T agrees to discuss additional weed treatment methods with BLM and California Department of Fish and Wildlife (CDFW) if additional weed treatments are deemed necessary in these areas where weeds are established. This IWMP is applicable to the construction of the proposed AT&T FOC, the associated facilities, and any other disturbances connected with this Project. AT&T and its contractors will be responsible for carrying out the methods described in this IWMP. The IWMD will discuss:

- Target Invasive Weed Species
- Preconstruction and Construction Weed Management
- Postconstruction Invasive Weed Monitoring and Management

### 2.1 TARGET INVASIVE WEED SPECIES

Most invasive species found present along the Project Route will be targeted and managed under this IWMP, including any noxious weeds that may be present and that are listed in Appendices A and B (USDA 2012 AND CDFA 2014, respectively). However, AT&T, BLM, and other federal, state, and local agencies recognize that species such as brome grasses (*Bromus* spp.) and other grass species (e.g., *Schismus* sp.), because of their widespread distribution, are not considered feasible for general control.

An on-the-ground weed inventory will be conducted prior to ground disturbing construction activities. A list of weeds observed during the survey, along with maps of weed locations, will be provided to BLM following the survey. Invasive weeds, if feasible, will be managed according to this IWMP prior to, during, and following construction. Table 2 presents currently known invasive weed species located along the Project ROW.

**Table 2: Invasive Weed Species                      Currently Known to Occur along the Project**

Scientific Name	Common Name	Threat
<i>Brassica tournefortii</i>	Sahara mustard/wild turnip	highly invasive
<i>Salsola tragus</i>	Russian thistle	limited invasiveness
<i>Tamarix aphylla</i>	athel	highly invasive

**2.2                      PRECONSTRUCTION AND CONSTRUCTION INVASIVE WEED MANAGEMENT**

AT&T will implement preventative and control measures for invasive weeds during the preconstruction, construction, and post construction phases of the Project. AT&T contractors will implement the preventive measures listed below to avoid or minimize the spread of invasive weeds during the construction of the Project.

- Qualified biologists will conduct a weed inventory survey to identify occurrences and populations of invasive weed species within the Project ROW prior to the start of construction. Weed occurrences and populations with an estimated percent cover, not including brome grasses and other invasive grass species, will be mapped during the effort, where feasible. Manageable invasive weeds observed along the Route will be noted and addressed appropriately according to this IWMP.
- A qualified biologist will provide to all construction personnel an environmental awareness training (EAT) and information pamphlet that will include a description of target invasive weeds on the Route and describe the importance of staying within the Project ROW and outside of flagged areas.
- AT&T and/or a qualified biologist will locate predisturbed relatively weed-free areas for temporary equipment storage and parking and other areas needed for the storage of equipment and supplies and for onsite meeting locations.
- All Contractor vehicles and equipment for Project-related activities will be cleaned at approved wash/blowdown stations prior to arrival at the worksite using compressed air or high-pressure water spraying equipment. The wash/blowdown will concentrate on tracks, tires, and the undercarriage; and special emphasis will be placed on axles, frame, cross members, and motor mounts and underneath steps, running boards, and front bumper/brush guard assemblies. Vehicle cabs will be swept out, and refuse will be disposed of in waste receptacles. The Contractor will ensure that vehicles and equipment are free of soil and debris capable of transporting invasive weed seeds, roots, or rhizomes before the vehicles and equipment are allowed use of access roads. Seeds and plant parts will be collected, bagged, and deposited in dumpsters destined for local landfills, when practical.
- When vehicles and equipment are washed/blown down, a log will be kept stating the location, date and time, types of equipment, and methods used during cleaning. The crewmember who washed the vehicle will sign the log. Written logs will be included in the monitoring reports.

- Project personnel will inspect, remove, and dispose of weed seed and plant parts found on their clothing, boots, and personal equipment. The product will be bagged and disposed of in a dumpster for deposit in local landfills or other location deemed acceptable by BLM.
- Project personnel will avoid or minimize all types of travel through weed-infested areas or restrict major activities to periods of time when the spread of seed or plant parts is least likely. The Contractor will begin Project operations in weed-free areas, whenever feasible, before operating in weed-infested areas.
- The Contractor will limit the size of any vegetation and/or ground disturbance to the absolute minimum necessary to perform the activity safely and as designed. The Contractor will also avoid creating soil conditions that promote weed germination and establishment.
- In areas where infestations are identified or noted in the field, the Contractor will remove vegetation and topsoil to eliminate the transport of soil-borne invasive weed seeds, roots, or rhizomes. Cleared vegetation and topsoil from weed infested areas will be disposed of properly.
- The Contractor will ensure that straw or hay bales used for sediment barrier installations or mulch distribution are obtained from state-cleared sources that are free of invasive weeds.
- AT&T will implement reseeded of disturbed lands immediately following construction during the appropriate season as outlined in this IWMP.
- Where hydrologic features (i.e., washes or channels) are present, the original surface contours will be restored in order to retain hydrological function.

## **2.3 POSTCONSTRUCTION INVASIVE WEED MONITORING**

### **2.3.1 Monitoring Schedule**

Monitoring of invasive weeds will begin during the growing season of Year 1 following the completion of Project construction to ensure detection of newly seeded weed species. Monitoring will continue once a year in the growing season of Years 2 through 5.

The Project ROW will be monitored for newly seeded species as well as known populations of target invasive weed species. The percent cover of invasive weeds will be mapped during each year of monitoring and compared to the original mapping effort (baseline data) conducted prior to construction. Any areas within the Project ROW where invasive weed infestations are newly occurring (in areas not previously observed) or where pre-existing populations have increased in size will be further evaluated to determine if these areas require remedial action and treatment. Invasive weed information will be included in the annual IWMP monitoring reports and submitted to the reviewing agencies.

### **2.3.2 Success Criteria**

Success criteria will be based on the baseline data. Known weeds should not increase in percent cover within the Project ROW from the baseline by the end of the 5 year monitoring period. Natural recruitment of weed species will also be considered during the monitoring effort.

If it is determined that new weeds have been introduced due to the Project within the Project ROW, a new population of known invasive weeds is found on the Project ROW, or known weed infestations have increased greater than 25 percent of the baseline data, AT&T will implement remedial measures. When feasible, these new populations or increased populations within the Project ROW, will be physically removed carefully by hand to prevent the spread of seeds, particularly for Sahara mustard or Russian thistle. If large populations are observed within the ROW, weeds will be treated with a weed whacker in the early seedling stage or rosette stage, prior to flowering. Plants and/or seeds will be collected in trash bags and disposed of in an approved facility.

### **2.3.3 Post Construction Weed Management**

As remediation for spread or introduction of invasive weeds due to Project construction activities, AT&T may implement chemical weed control measures. Guidelines for the use of chemical control of vegetation on BLM lands are presented in the Chemical Pest Control Manual (BLM 2013). These guidelines require submittal of a Pesticide Use Proposal (PUP) and Pesticide Application Records (PARs) to the Weed Coordinator at the BLM Barstow Field Office (BFO), for the use of herbicides on BLM lands. Weed management methods and schedules must be coordinated and approved by the BFO. Herbicides will be applied in accordance with applicable laws, regulations, and permit stipulations. Only herbicides and adjuvants approved by the State of California and federal agency for use on public lands will be used on or adjacent to the Project ROW (Appendices C and D, respectively).

AT&T will submit PARs for each use of herbicides on BLM lands within 24 hours of application. The occurrence of newly introduced invasive weeds within the Project ROW or the spread of invasive weeds known to be present prior to construction as detected during the weed assessment survey for the Project, will be reported to the BLM district office. The appropriate invasive weed management methods and weed management schedules will be determined in consultation with BLM personnel. AT&T will be responsible for providing the necessary weed contractor personnel required for weed control procedures. Post construction weed management measures, as a result of findings of invasive weed introduction or spread of pre-existing invasive weed species, include the following:

- Disking or other mechanical treatments that would disturb the soil surface within native habitats outside the Project ROW are prohibited..
- Herbicide application is an effective means of reducing the size of invasive weed populations. Applications will be controlled, as described below, to minimize the impacts on the surrounding vegetation. In areas of dense infestation, a broader application will be used and a follow-up seeding program implemented and will be based on the criteria in Section 4.2, if required. The timing of subsequent reseeding efforts will be based on the life of the selected herbicide.
- Treatment methods will be based on species-specific and area-specific conditions (e.g., proximity to water or riparian areas, or agricultural areas, and time of year) and will be coordinated with the local regulatory offices.
- If areas to be reseeded are not seeded until the following spring because of weather or scheduling constraints, all annuals and undesirable vegetation that have become established will be eradicated before seeding. Seed selection will be based on site-specific conditions and the appropriate seed mix identified for those conditions, as presented in Section 4.2.

## **Herbicide Application, Handling, Cleanup, and Reporting**

### Herbicide Application and Handling

Herbicide application will be based on information gathered from the Weed Districts and BLM. Before application of herbicide, AT&T or its Contractors will obtain any required permits from the local authorities. Permits may contain additional terms and conditions that go beyond the scope of this IWMP. Only a state and federally certified contractor who is also approved by BLM will perform herbicide applications. All herbicide application will be conducted in accordance with applicable laws and regulations and permit stipulations. Only herbicides and adjuvants approved by the state and for use on public lands will be used within the Project ROW. A list of approved herbicides and adjuvants is available in Appendix C and Appendix D, respectively.

All herbicide applications and labeling must follow current instructions listed on the United States Environmental Protection Agency website (USEPA 2013). Application of herbicides will be suspended when any of the following conditions exists:

- wind velocity exceeds 6 miles per hour (mph) during application of liquids or 15 mph during application of granular herbicides
- snow or ice covers the foliage of invasive weeds
- precipitation is occurring or is imminent

Vehicle-mounted sprayers (e.g., handgun, boom, and injector) will be used mainly in open areas that are readily accessible by vehicle. Hand application methods (e.g., backpack spraying) that target individual plants will be used to treat small or scattered weed populations in rough terrain. Calibration checks of equipment will be conducted at the beginning of spraying and periodically throughout treatment to ensure that proper application rates are achieved. Herbicides will be transported to the Project ROW daily with the following provisions:

- Only the needed quantity for that day's work will be transported.
- Concentrate will be transported in approved containers only and in a manner that will prevent tipping or spilling and in a location that is isolated from the vehicle's driving compartment, food, clothing, and safety equipment.
- Mixing will be done off site, over a drip-catching device, and at a distance greater than 200 feet from open or flowing water, drainages, washes, or other sensitive resources. No herbicides will be applied at these areas unless authorized by appropriate regulatory agencies.
- All herbicide equipment and containers will be inspected for leaks daily. Disposal of spent containers will be in accordance with the herbicide label.

### Herbicide Spills and Cleanup

All reasonable precautions will be taken to avoid herbicide spills. In the event of a spill, cleanup will be immediate. Contractors will keep spill kits in their vehicles and in herbicide storage areas to allow for quick and effective response to spills. Items to be included in the spill kit are:

- protective clothing and gloves
- absorptive clay, “kitty litter,” or other commercial adsorbent
- plastic bags and bucket
- shovel
- fiber brush and screw-in handle
- dust pan
- caution tape
- highway flares (use on established roads only)
- detergent

Response to herbicide spills will vary with the size and location of the spill, but general procedures include:

- BLM/CDFW notification
- traffic control
- dressing the cleanup team in protective clothing
- stopping the leaks
- containing the spilled material
- cleaning up and removing the spilled herbicide or contaminated adsorbent material and soil
- transporting the spilled herbicide and contaminated material to an authorized disposal site

### Worker Safety and Spill Reporting

All herbicide contractors will be certified by the state and approved by BLM to apply pesticides and will obtain and have readily available copies of the appropriate material safety data sheets for the herbicides used. All herbicide spills will be reported in accordance with applicable laws and requirements.

#### **2.3.4 Notification of Completion**

When yearly monitoring activities are complete, notification of the monitoring will be provided as part of the annual (Years 1 through 4) Plan monitoring report and the final (Year 5) monitoring report. The annual and final Plan reports, submitted by a qualified biologist, will be provided to the reviewing agencies within 60 days of monitoring completion.

Following receipt of the report, the applicant or applicant’s designee may schedule a site visit with the agencies involved, including BLM and CDFW, to confirm the adequate completion of the mitigation effort.

Each annual report will summarize the monitoring and management of all Plan requirements; with the final annual report being submitted after all monitoring schedules (invasive weeds, plant salvage, and reseeded) have been completed.

In addition, if applicable, the annual report will summarize the amount of herbicide used on the Project which must match the submitted PARs. The herbicide use will be reported to the San Bernardino County Department of Agriculture (SBCDA) by BLM.

### SECTION 3.0 – PLANT SALVAGE, STOCKPILING, AND TRANSPLANTING PLAN

According to the California Desert Native Plants Act, desert native plants are to be protected from unlawful harvesting on public and private lands and to provide the people of this state the information necessary to legally harvest native plants so the plants are given the greatest chance possible for survival (CDFW 2014). Also, in coordination of the California Desert Native Plants Act, the San Bernardino County Code 88.01.060 regulates the removal or harvesting of specified desert native plants in order to preserve and protect the plants and to provide for the conservation of desert resources (SBC 2007).

Plant salvage, as defined in this Plant Salvage, Stockpiling, and Transplanting Plan (PSSTP), is the act of carefully digging up a plant that is located within an area that will be graded or trenched and moving it to a stockpiling location where it is cared for until it may be transplanted back to its original location once construction in the area is complete..

The goal of the PSSTP is to salvage acacia, cacti, and yucca located within the disturbance area of the Project in order to conserve species diversity in the area. The above described activities have the potential to occur within Segments 1 and 2 of the Project Route, as vegetation disturbance is not proposed within Segments, 3 and 4.

This PSSTP is applicable to the construction of the proposed AT&T FOC, the associated facilities, and any other disturbances connected with this Project. AT&T and its contractors will be responsible for carrying out the methods described in this PSSTP. The PSSTP elements discussed below are:

- Plant Salvage Criteria and Procedure
- Plant Salvage Stockpiling
- Transplanting Salvaged Plants
- Plant Salvage Monitoring and Management

#### 3.1 PLANT SALVAGE CRITERIA AND PROCEDURE

Prior to construction, a qualified biologist and/or a salvaging contractor will identify all catclaw acacia (*Senigalia greggii*), cacti, and yucca located within the disturbance areas. A list of all trees to be impacted will be compiled after surveys and provided to BLM, CDFW and SBCDA. A qualified biologist, familiar with transplanting cacti and yucca, should conduct these procedures or direct a salvaging contractor. The biologist will flag for avoidance all individuals targeted for transplanting and individuals near disturbance areas. In addition, the biologist will mark the north orientation for all cacti and yucca to be transplanted. The following criteria will be used for plant salvaging: (1) affected catclaw acacia and desert willow with over a 3 inch diameter at breast height (DBH), (2) all yucca (*Yucca* sp.) less than 10 feet in height, (3) all barrel cactus (*Echinocactus* and *Ferocactus* sp.), (4) all hedgehog cactus (*Echibocereous* sp.), (5) all cottontop cactus (*Echinocactus* sp.), (6) all beavertail cactus (*Opuntia basalaris*), and (7) all cholla (*Cholla* sp.) less than 3 feet in height. All whole catclaw acacia plants, cholla greater than 3 feet in height, and Joshua trees (*Yucca brevifolia*) greater than 10 feet in height will not be salvaged. All cholla greater than 3 feet in height will not be salvaged; however, cuttings may be used depending on the health of the individual. This material may be used as vertical mulch and spread over the surface of the restored areas to discourage possible trespass. Vertical mulching techniques are described below.

Prior to removing any cactus, the plant must be inspected by a biologist qualified to determine if nesting birds, such as cactus wren or other passerine bird species, are occupying or nesting in or around the plant if the removal is to occur during the avian nesting season (March 15 to September 15). Furthermore, the area surrounding the removal site will be surveyed for protected plant and animal species prior to the relocation. In the event that protected plant or animal species are present within the disturbance area, protective measures for the species will be implemented according to the Project permits and documents.

Each individual cutting or plant to be salvaged will be assigned an identification number and will be permanently tagged on the north side of the plant. GPS coordinates will be taken at all removal locations and recorded so that each plant will be returned to its original location on the ROW after the FOC is installed. GPS locations will also be taken and recorded for stockpiling locations so that the plants will be easy to locate when the time for transplanting comes. A general health assessment will be noted for each species as well as its likelihood of surviving transplanting. All salvaged cuttings and plants will be transplanted. The optimal time at which plant salvage should occur is between March and November and when nighttime temperatures do not fall below 60 degrees Fahrenheit.

### **3.1.1 Catclaw Acacia**

Catclaw acacia is a long-lived deciduous shrub/tree with a deep root system, making this species very difficult to salvage and transplant successfully in desert regions. Plants of this genus require plenty of irrigation if transplanted. Any acacia found within the Project ROW will be flagged for avoidance; however, if avoidance is not possible, all impacted catclaw with over a 3 inch DBH shall be replaced at a 3:1 ratio.

### **3.1.2 Cacti Species**

Cacti should be dug by hand and carefully removed in order not to damage roots. Numerous important procedures should be followed during cacti removal/transplanting.

- The rooting distance of cactus is typically three to five times the width of the plant. Therefore, the salvaging contractor should begin the digging/excavation no less than 6 inches and an average of 4 times the width of the above-ground stem segments from the base of the cactus to avoid damaging the roots.
- Cacti are very shallowly rooted. The contractor should excavate all cacti with a shovel just below the root ball of the plant, typically 4 to 8 inches below the soil surface.
- Lift cacti out of their original locations using a worn-out garden hose placed slightly below the midpoint of the plant or using foam squares or a blanket to avoid damaging the spines and the vertical segments of multi-branched cacti.
- Carefully trim any damaged roots, if necessary, using sharp, disinfected scissors that have been cleaned in a 10 percent bleach solution to prevent infection. Tools should be re-cleaned in the bleach solution after each cut. No healthy roots should be trimmed. The cut roots should be dusted with a powdered fungicide or sulfur to decrease the likelihood of infection and to hasten callousing. Benalate, Captan, and Maneb are effective fungicides. The roots on all cacti should

dry for a minimum of three days and up to two weeks, depending on ambient temperatures, by allowing them to sit in the shade at the stockpiling area.

### **3.2 PLANT SALVAGE STOCKPILING**

During the process of temporary stockpiling, large plants will require support to prevent tipping. Large stones may be placed over the root area (2 to 4 inches from the stem), or tree stakes and tubing may be used to secure top-heavy specimens. The stockpile location will need to be shaded with a minimum of 30 percent shade-level cloth to minimize stress and water loss from the plants.

If nighttime ambient temperatures remain above 60 degrees and potential for theft is low, salvaged plants may be left onsite adjacent to the ROW during drying. When placing the salvaged plants off the ROW, the Contractor will need to ensure additional native plant species are not impacted. Salvaged plants would need to be individually covered with shade cloth if left on site. A qualified biologist will monitor the salvaged plants once after three days and again each subsequent day thereafter to determine the point at which the roots have calloused and the plants are ready to be replanted.

If the potential for theft is high, salvaged plants will need to be transported to a stockpiling area, which must be a protected location (fenced). The fence will consist of an 8-foot high, chain-link locked enclosure. The equipment staging area on site may suffice if the plants can remain undisturbed in the yard. When transplanting between December and February when nighttime temperatures fall below 60 degrees Fahrenheit, extra precautions will need to be taken to ensure plants do not freeze and new roots can continue to form. Additional drying time to harden roots may be required, and the stockpiling area may require extra protection from the elements. Soil temperatures that are too cool can hinder root development, resulting in either delayed establishment or death of the plant.

If more than two weeks are required before transplantation of salvaged plants back onto the ROW can be completed, the salvaged plants will be transferred to prepared 3-foot-wide, 18-inch-deep stockpiling trenches of any desired length after their roots have calloused. If multiple, parallel trenches are used, they should be far enough apart to allow heavy equipment access to each trench. Trenches shall be watered thoroughly prior to transplanting the plant material. In planting cacti and yucca, they should be placed in the trench and the roots covered with native soil. Care should be taken to properly tamp down and compact all soil around roots of plants to remove all air pockets. A depression around each plant should be formed to hold water. Watering within the fenced enclosure will occur two times per week during plant establishment.

### **3.3 TRANSPLANTING SALVAGED PLANTS**

All salvaged plant material should be replanted in a natural pattern and as close to its original location as possible. Each plant must be replanted at the original depth and orientation and, as much as practicable, in the same soil conditions as its original location.

Plants will be carefully removed from the stockpiling area or from where they were positioned adjacent to the site, taking care not to damage stems, roots, or the base of the plant. Catclaw acacia cuttings should be placed in containers or into the ground as soon as possible, with up to three-quarters of the cutting buried. Cacti will be planted into holes two to three times the width of the species but only as deep as the root ball. Large, single-stem yucca will be planted into a hole at least 2 feet deep and 3 feet wide. Multiple-stem plantings will be accordingly larger to accommodate the stem size. The salvaged

plants will be planted and the soil tamped by hand or with the handle of a shovel around the plant so that no air pockets are around the roots.

### **3.3.1      Shading**

The plants are to be covered with shade cloth (30 percent) if planting occurs during the summer to protect the plant from the sun and minimize water loss. Shade cloth may be placed directly on the plant or on a support. The shade cloth can be removed at the first sign of establishment and growth (which may take up to one year).

### **3.3.2      Staking**

It will not be necessary to secure plants less than 5 feet in height after transplanting; however, larger plants will require staking. A collar should be placed around the plant using a material that will not cut into the skin. This collar should be attached to wire and connected to rods or stakes that have been driven into the ground. A stake should be placed on each side of the plant. This support should be left on the plant for at least three months if the soil is heavy or for six months if the soil is finer or the location is very rocky. The stakes can be removed when the plant has developed new growth and is stable in the ground.

### **3.3.3      Watering**

Cacti and yuccas should be watered deeply and slowly at the time they are transplanted to remove or minimize any air pockets and ensure proper soil compaction. After the first watering, the backfill soil settles, and the plant may shift or lean. Cuttings should be placed in wetted holes and then backfilled with moist or wet soil and tamped well. The plant should be straightened, the soil firmed, and the stakes resecured, if necessary. An additional watering event approximately 15 days after planting shall occur.

If transplanting takes place in the spring, it will be necessary to water regularly through the first summer. In the hottest days of the summer, this will be every two to three weeks unless rain falls. If the plant is transplanted near the end of the summer, it will need water only two to three times during the winter. A summer water schedule should begin when the weather has warmed and no rain has fallen for 30 days, typically in April. When monsoon rains arrive in July, irrigation should be reduced or discontinued until the end of the monsoon season in September.

To reduce labor associated with hand-watering, DriWater can be applied around the base of each plant at a rate of 1 quart for every foot in plant height instead of manually watering the plants. DriWater is a gelatinous polymer that slowly breaks down into water over time. DriWater comes in biodegradable cartons and is applied by cutting the top of the carton and placing it upside down around the plant to be watered. DriWater cartons are to be buried completely or according to manufacturer's directions. At the soil surface, a watering well will be formed around the plant. After the DriWater is installed at the base of the plant and the soil is tamped, the plant is thoroughly watered to activate the DriWater. Typically, the DriWater will need to be replaced at the end of two months, depending on weather conditions.

### **3.3.4      Vertical Mulch**

Vertical mulching involves installing dead and downed plant materials into the ground. Placing vertical mulch (shrubs, cacti, grasses, etc.) helps obscure closed roads or barren ROWs, which is especially

important to discourage trespass at former access roads or staging areas. Vertical mulch reduces wind speed, facilitates deposition of blowing soil and organic litter, and creates safe sites for plant establishment. Any cacti or yucca species that were beyond the suitable range for transplanting can be installed as vertical mulch on the ROW.

### **3.4 PLANT SALVAGE MONITORING AND MANAGEMENT**

#### **3.4.1 Monitoring Schedule**

Monitoring of transplanted plants will begin during the growing season of Year 1 following the completion of Project construction. Monitoring will continue during the growing seasons in Years 2 through 5 following the completion of construction. Monitoring will be conducted by a qualified biologist and will include visiting each transplanted individual and taking notes on the plant conditions. It should be noted that mortality rates of transplanted plants is high and not unusual.

#### **3.4.2 Success Criteria and Contingency Measures**

Success criteria and contingency measures of transplanted plants will be based on the following:

- During Year 1 monitoring, DriWater will be applied around the base of each plant at a rate of 1 quart for every foot in plant height to all transplanted plants that appear to have less than satisfactory survival conditions, based on the qualified biologists plant health observations, in order to increase the plants chance of survival and in order to be proactive in meeting the success criteria for transplanted species.
- If mortality of any transplanted species is confirmed during monitoring and the total number of mortality falls below a 60 percent survivorship criteria, seeds of that species will be sown in that area. For every full-sized mature plant that was lost, 10 seedlings of the same species will be planted in the vicinity of the original planting with similar soil conditions; and the following contingency measures will be implemented. Individuals that did not survive will be left in place as vertical mulch.
  - Remedial seedlings should be obtained from a local native nursery. If cacti collected from a desert habitat within a 20-mile radius are not available, the contractor may arrange for seed collection or asexual propagation of the cactus species (excluding barrel cactus) to occur under the direct guidance of a nursery and with the approval of the a qualified biologist.
  - Small cuttings (i.e., individual limbs, single pads) from healthy cacti of the same species may be salvaged from areas adjacent to the Project ROW as long as this action will not adversely affect the parent plant and has approval from BLM. The procedure for taking cuttings follows that for trimming roots, as described above. Disinfected tools must be used; sulfur and fungicide must be applied to the cut surfaces of both the parent plant and the cutting; the cutting must be dried prior to planting; and the cutting must be watered immediately after installation on the ROW and again 15 days after planting.

### **3.4.3 Notification of Completion**

When yearly plant salvage monitoring activities are complete, notification will be provided as part of the annual (Year 1 through 4) Plan monitoring report and the final (Year 5) Plan monitoring report. The annual and final Plan reports, submitted by a qualified biologist, will be provided to the reviewing agencies within 60 days of monitoring completion.

Following receipt of the report, the applicant or applicant's designee may schedule a site visit with the agencies involved, including BLM and CDFW, to confirm the adequate completion of the mitigation effort.

Each annual report will summarize the monitoring and management of all Plan requirements; with the final annual report being submitted after all monitoring schedules (invasive weeds, plant salvage, and reseeding) have been completed.

## **SECTION 4.0 – TOPSOIL SALVAGE AND RESEEDING PLAN**

AT&T will be required to preserve, salvage, and replace topsoil or reseed all proposed disturbance areas where vegetation communities occurred prior to construction and according to the vegetation mapping conducted during the biological reconnaissance survey located in the BTR, BA, and EA for this Project.

AT&T will use a combination of topsoil salvage during construction, where feasible, and reseeding after Project construction is complete. The purpose of this Topsoil Salvage and Reseeding Plan (TSRP) is to preserve or restore the native seed bank so that native vegetation may grow back to preconstruction conditions or close to preconstruction conditions, as well as to minimize the possibility of weed infestations.

### **4.1 TOPSOIL SALVAGE AND REPLACEMENT**

Topsoil, as defined in this TSRP, is the soil proposed for avoidance where it occurs outside the trench line or proposed for collection, where necessary, within the trench line where native vegetation occurs. Topsoil includes the first 4 to 8 inches of soil and contains the organic layer with most of the plants' fine roots (roots mostly the thickness of a pencil lead or thinner) and the seed bank of plant species in the area. Topsoil is the soil where most plant growth occurs. Topsoil will not be collected and replaced in weed infested areas. The biological monitor will monitor topsoil salvage to ensure topsoil is not salvaged from weed-infested areas.

#### **4.1.1 Topsoil Salvage Criteria and Procedures**

##### **Topsoil Salvage by Avoidance**

In areas where habitat is within the proposed disturbance areas and if impacts may or will occur in those areas due to being located where spoils from the trench will be piled, vegetation will be covered with silt fencing (or other plastic covering) prior to trenching activities. The silt fencing/covering is not expected to be used for more than one day at a time because only the amount of trenching and FOC placement that can be accomplished in one day will be planned for that day. If a covering is expected to be used for more than one day at a time during the summer, a lighter color covering will be used to prevent vegetation from getting overheated. Covering the vegetation will minimize the uprooting of vegetation due to backfilling activities as a result of dragging the equipment bucket directly over plants. Backfilling activities would instead consist of carefully pushing soils off the plastic covering to avoid uprooting vegetation, to the greatest extent possible, while keeping the topsoil intact. The above described activities have the potential to occur within Segment 1 of the Project Route, as vegetation disturbance is not proposed within Segments 2, 3, and 4.

##### **Topsoil Salvage by Collection**

Trenching activities during AT&T FOC installation typically involve three main steps: digging a length of trench with the length being just enough for a full day's work (on average 3,000 feet), placing conduit in the trench, and backfilling the trench. Therefore, on most days, all spoils as a result of trenching are backfilled the same day they are trenched. To minimize topsoil from mixing with subsoil during trenching and backfilling activities, collection of topsoil will be conducted during construction directly ahead of trenching activities, where required (i.e., if the seed bank of special status plants known to occur in any given area needs to be salvaged). The topsoil may be collected with an excavator, front

loader, or other construction equipment capable of carefully scooping the top 4 to 8 inches of soil for the width and length of the trench line and carefully storing it next to the trench line or in a staging area where it will not be mixed with subsoil. Storage options may include the points below, and the contractor may have additional solutions as long as the procedure is explained to and approved by the Project biologist. Solutions must be in compliance with Project documents and permits.

- Topsoil may be placed where spoils will be casted and covered with plastic after placement in order to keep topsoil separate from subsoil. In this case, a bulldozer would not be acceptable for backfilling but instead an excavator, front loader, or other construction equipment would be required that may carefully backfill so that the plastic cover remains in place until all subsoil is in the trench. Once all subsoil is in the trench, the plastic may be removed and the topsoil will be placed back on top of the trench line. Care must be taken not to remove topsoil from areas where spoils were casted.
- Topsoil storage may also occur within potential minimal-use areas between shrubs if the potential minimal-use areas will not be subject to traffic. When placing topsoil back into the trench, care must be taken not to uproot vegetation present in the potential minimal-use area. Care must also be taken not to remove topsoil from potential minimal use areas. If necessary, plastic should be laid out prior to stockpiling topsoil.
- Topsoil may be transported with a front loader, dump truck, or a heavy duty truck with a trailer to an approved nearby staging area and replaced once subsoil has been backfilled. Topsoil will be stored in separate piles within the staging area so that each pile contains topsoil from a segment no greater than 1,200 feet. Piles must be labeled in a way so that they are replaced in the segment they came from.

Soil types vary along the Project Route, and conditions of growth for specific plant species depend on specific soil types; therefore, salvaged topsoil will be returned as closely to its original location as possible, but within roughly 1,200 feet of the original location.

Topsoil collection will begin by rolling the machinery across the area proposed for trenching to crush any standing brush or other vegetation. Rocks and organic debris will be collected with the soil. All the components of the soil are desired because of their value in carrying soil organisms, propagating native plants, and providing favorable germination sites for seeds. Organic material is especially valuable, and crushed brush adds a very beneficial component to the restoration soil.

Once conduit has been installed in the trench and the trench is backfilled with subsoil, subsoil will be compacted and topsoil placed on top. Topsoil can be easily diluted and degraded if mixed with subsoil. Trenches should be refilled with subsoil to the appropriate depth and recompact to minimize soil differences. Topsoil should not be used to fill a trench cut into shallow caliche soils (a sedimentary rock - hardened natural cement of calcium carbonate that can be bound with gravel, sand, clay and silt). Plants that grow in the fill will be different than those in the surrounding area. If a caliche layer is disturbed, it can be imitated by using a thin slurry of cement installed to block deep roots (Bainbridge 2007). The topsoil should be reapplied dry. Topsoil should be carried to the finished trench by front loader or similar equipment. The positioning of topsoil must be planned so that subsequent trips will not have to cross the first deposits of topsoil. In other words, repeated vehicle traffic must not cross the topsoil once it has been replaced. Hand labor or light equipment may be used to spread the topsoil downward across

a slope. The topsoil may be spread over approximately twice the area from which it was collected if necessary, but a depth of 4 inches is the objective.

Plastic used to cover salvaged topsoil or used to lay topsoil on must be disposed of properly or may be reused for another day if in good condition.

#### **4.1.2 Notification of Completion**

A biological monitor or monitors will be on site during all Project construction activities and will document topsoil salvage if and where it is required. Each monitor will fill out a daily log each day while in the field to record compliance of measures required in Project documents and permits. Construction activities and compliance will be summarized in the post construction annual and final reports submitted for the Project to reviewing agencies. The topsoil method used and an analysis of its success will be included in the construction summary.

#### **4.2 RESEEDING**

Ground disturbance requiring reseeding includes FOC installation activities within Segment 1. If topsoil will not be salvaged, a trench is created by equipment that digs along the trench line or, in the process of removing coaxial cable, not being careful to separate topsoil from subsoil and, as a result, mixing topsoil with subsoil and thus losing the native seed bank located within the existing topsoil. Reseeding, as defined in this TSRP, is the act of sowing native seed of plants that occur adjacent to the disturbance areas into previously vegetated proposed disturbance areas once construction is complete so that the result is topsoil with a native seed bank.

##### **4.2.1 Reseeding Procedure**

Reseeding will occur with the appropriate seed mix within previously vegetated disturbance areas where native vegetation was uprooted as a result of construction activities. Again, reseeding will occur within Segment 1 only, as vegetation disturbance, including the loss of topsoil and the seed bank, is not proposed within Segments 2, 3, and 4.

Pure Live Seed (PLS) is a standardized measurement of the number of live seeds in a given sample. After seeds are cleaned, the PLS is calculated based on the results from purity and germination trials, typically conducted at independent seed testing labs. Quantities represented in the tables below indicate PLS numbers. If lower germination rates are expected, quantities may need to be adjusted. **Error! Reference source not found.** and Table 4 list a recommended seed mix and amounts needed for the Project.

The revegetation site will be seeded with up to 10 to 15 pounds of seed. Depending on availability at the time of purchasing, substitutions and quantities presented below will be adjusted at the biologist's discretion. Major changes to the species composition would be approved by BLM prior to installation. Actual quantities and species installed will be summarized in an As-Built report included with the first annual monitoring report.

**Table 3: Recommended Native Seed Mix for Reseeding Creosote Bush-White Bursage Scrub Series**

Common Name	Scientific Name	Amount for Broadcast Seeding*
Indian ricegrass	<i>Achnatherum hymenoides</i>	1.5lbs./acre
white bursage	<i>Ambrosia dumosa</i>	2 lbs./acre
woolly bursage	<i>Ambrosia eriocentra</i>	1.0 lb./acre
desert marigold	<i>Baileya multiradiata</i>	1.0 lb./acre
sweetbush	<i>Bebbia juncea</i> var. <i>aspera</i>	0.5 lb./acre
golden cholla	<i>Cylindropuntia echinocarpa</i>	0.5 lb./acre
Nevada ephedra	<i>Ephedra nevadensis</i>	0.5 lb./acre
desert trumpet	<i>Eriogonum inflatum</i>	0.5 lb./acre
Pima rhatany	<i>Krameria grayii</i>	0.5 lb./acre
big galleta grass	<i>Hilaria rigida</i>	2.0 lbs./acre
creosote bush	<i>Larrea tridentata</i>	1.5 lbs./acre
beavertail cactus	<i>Opuntia basilaris</i> (1)	0.5 lb./acre
sandpaper plant	<i>Petalonyx thurberi</i>	0.5 lb./acre
wooly plantain	<i>Plangato patagonica</i>	1.0 lb./acre
bladder sage	<i>Salazaria mexicana</i>	0.5 lb./acre
Mojave yucca	<i>Yucca schidigera</i>	0.5 lb./acre
<b>Total</b>		<b>14.5 lbs./acre</b>

\*Based on PLS and seeding with a broadcast spreader.

**Table 4: Recommended Native Seed Mix for Reseeding Mixed Saltbush Series 1**

Common Name	Scientific Name	Amount for Broadcast Seeding*
Indian ricegrass	<i>Achnatherum hymenoides</i>	1.5 lbs./acre
desert needlegrass	<i>Achnatherum speciosum</i>	1.5 lbs./acre
white bursage	<i>Ambrosia dumosa</i>	1.0 lbs./acre
cheesebush	<i>Ambrosia salsola</i> var. <i>salsola</i>	1.0 lbs./acre
four-wing saltbush	<i>Atriplex canescens</i>	1.0 lbs./acre
Mojave saltbush	<i>Atriplex spinifera</i>	1.0 lb./acre
desert holly	<i>Atriplex hymenoletra</i>	1.0 lb./acre
alkali saltbush	<i>Atriplex polycarpa</i>	1.0 lb./acre
desert fiddleneck	<i>Amsinckia tessellata</i>	1.0 lb./acre
inland saltgrass	<i>Distichlis spicata</i>	1.0 lbs./acre
rubber rabbitbrush	<i>Ericameria nauseosa</i>	1.0 lb./acre
<b>Total</b>		<b>128.0 lbs./acre</b>

\*Based on PLS and seeding with a broadcast spreader.

Reseeding will be conducted in November and/or December to take advantage of winter rains. Prior to seeding, a rake will be used to loosely scarify the soil; and shovels or picks may be used for localized decompaction, if necessary. Hand tools will be utilized in small areas while a rake attachment on a

tractor may be utilized in larger areas. The seed mixes provided in **Error! Reference source not found.** and Table 4 will be applied with a broadcast spreader. Once the seed is applied, the soil surface will be raked a second time to ensure the seeds are covered and predation by seed-eating animals (granivores) is minimized.

#### **4.2.2 Reseeding Maintenance and Monitoring**

##### **Monitoring Schedule**

Reseeding will be conducted in Year 1 at the completion of Project construction. Monitoring of the reseeded area will occur in Years 2 through 5. Reseeded areas will be seeded again if the reseeded area does not meet the reseeding criteria, taking into account that the germination and survival of the seeds is completely dependent upon rainfall and other natural conditions. An irrigation system is not an option, as this is a linear project in the Mojave Desert.

##### **Success Criteria**

Reseeding success criteria will be based on the percent cover of vegetation adjacent to the disturbance area; therefore, germination and survivorship is expected to reach 60 percent of the percent cover of vegetation adjacent (within 20 feet) to the disturbed area within the Project ROW. If this goal is not met in areas by Year 5 of monitoring, those areas that did not meet the success criteria will be reseeded once more.

##### **Notification of Completion**

When the yearly reseeding monitoring activities are complete, notification will be provided as part of the annual (Years 1 through 4) Plan monitoring report and the final (Year 5) Plan monitoring report. The annual and final Plan reports, submitted by a qualified biologist, will be provided to the reviewing agencies within 60 days of monitoring completion.

Following receipt of the report, the applicant or applicant's designee may schedule a site visit with the agencies involved, including BLM and CDFW, to confirm the adequate completion of the mitigation effort.

Each annual report will summarize the monitoring and management of all Plan requirements; with the final annual report being submitted after all monitoring schedules (invasive weeds, plant salvage, and reseeding) have been completed.

## SECTION 5.0 – REFERENCES

Bainbridge, D.A.

- 2007 *A Guide for Desert and Dryland Restoration: A New Hope for Arid Lands*. Island Press, Washington, D.C.

Bureau of Land Management (BLM)

- 2007 Final Biological Assessment on Vegetation Treatment on BLM Lands in Seventeen Western States. Reno, Nevada.

- 2010 Definition of Noxious and Invasive. Accessed on June 25, 2014, at [http://www.blm.gov/wo/st/en/prog/more/weeds/weed\\_definition.html](http://www.blm.gov/wo/st/en/prog/more/weeds/weed_definition.html).

- 2013 BLM Manual 9011 – Chemical Pest Control. Accessed on August 13, 2014 at <http://www.blm.gov/ca/st/en/prog/weeds/9011.html>.

California Department of Fish and Wildlife (CDFW)

- 2014 California Desert Native Plants Act. Available online at: <https://www.dfg.ca.gov/habcon/plant/cadesertplantact.html>. Accessed June 2014.

California Department of Food and Agriculture (CDFA)

- 2014 California Noxious Weeds. Integrated Pest Control. Accessed on August 11, 2014 at [http://www.cdfa.ca.gov/plant/ipc/weedinfo/winfo\\_table-sciname.html](http://www.cdfa.ca.gov/plant/ipc/weedinfo/winfo_table-sciname.html).

Federal Register

- 1999 Executive Order 13112 – Invasive Species. Federal Register, Volume 64, Number 25. February 8, 1999.

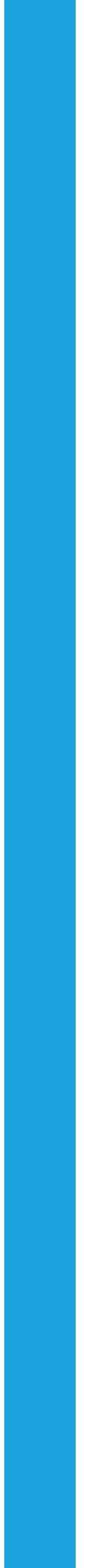
San Bernardino County (SBC)

- 2007 Plant Protection and Management Code 88.01. San Bernardino County Development Code. Available online at <http://www.sbcounty.gov/uploads/lus/Handouts/Plant.pdf>. Accessed June 2014.

United States Department of Agriculture (USDA)

- 2012 Federal Noxious Weed List. Animal and Plant Health Inspection Service. Accessed on August 11, 2014 at [http://www.aphis.usda.gov/plant\\_health/plant\\_pest\\_info/weeds/downloads/weedlist.pdf](http://www.aphis.usda.gov/plant_health/plant_pest_info/weeds/downloads/weedlist.pdf).

**APPENDIX A – UNITED STATES DEPARTMENT OF AGRICULTURE FEDERAL  
NOXIOUS WEED LIST**



# Federal Noxious Weed List

Effective as of December 10, 2010

## Aquatic

Latin Name	Author(s)	Common Name(s)
<i>Azolla pinnata</i>	R. Brown	Mosquito fern, water velvet
<i>Caulerpa taxifolia</i> (Mediterranean strain)	(Vahl) C. Agardh	Killer algae
<i>Eichhornia azurea</i>	(Swartz) Kunth	Anchored waterhyacinth, rooted waterhyacinth
<i>Hydrilla verticillata</i>	(L.) Royle	Hydrilla
<i>Hygrophila polysperma</i>	T. Anderson	Miramar weed
<i>Ipomoea aquatica</i>	Forsskal	Water-spinach, swamp morning glory
<i>Lagarosiphon major</i>	(Ridley) Moss	African elodea
<i>Limnophila sessiliflora</i>	(Vahl) Blume	Ambulia
<i>Melaleuca quinquenervia</i>	(Cavanilles) S.T. Blake	Broadleaf paper bark tree
<i>Monochoria hastata</i>	(Linnaeus) Solms-Laubach	Arrowleaf false pickerelweed
<i>Monochoria vaginalis</i>	(N.L. Burm.) K. Presl	Heartshape false pickerelweed
<i>Ottelia alismoides</i>	(L.) Pers.	Duck lettuce
<i>Sagittaria sagittifolia</i>	Linnaeus	Arrowhead
<i>Salvinia auriculata</i>	Aublet	Giant salvinia
<i>Salvinia biloba</i>	Raddi	Giant salvinia
<i>Salvinia herzogii</i>	de la Sota	Giant salvinia
<i>Salvinia molesta</i>	D.S. Mitchell	Giant salvinia
<i>Solanum tampicense</i>	Dunal	Wetland nightshade
<i>Sparganium erectum</i>	Linnaeus	Exotic bur-reed

## Parasitic

Latin Name	Author(s)	Common Name(s)
<i>Aeginetia</i> spp.	Linnaeus	Varies by species
<i>Alectra</i> spp.	Thunb.	Varies by species
<i>Cuscuta</i> spp.(except for natives)	Linnaeus	Dodders
<i>Orobanchae</i> spp. (except for natives)	Linnaeus	Broomrapes
<i>Striga</i> spp.	Lour.	Witchweeds

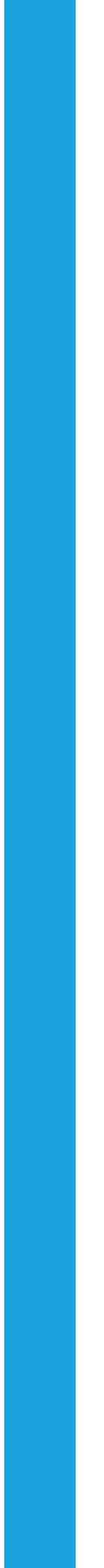
## Terrestrial

Latin Name	Author(s)	Common Name(s)
<i>Acacia nilotica</i>	(L.) Willd. ex Delile	Prickly acacia
<i>Ageratina adenophora</i>	(Sprengel) King & Robinson	Crofton weed
<i>Ageratina riparia</i>	(Regel) King & H. Rob.	Mistflower, spreading snakeroot
<i>Alternanthera sessilis</i>	(L.) R. Brown ex de Candolle	Sessile joyweed
<i>Arctotheca calendula</i>	(L.) Levyns	Capeweed
<i>Asphodelus fistulosus</i>	Linnaeus	Onionweed
<i>Avena sterilis</i>	Durieu	Animated oat, wild oat
<i>Carthamus oxyacantha</i>	M. Bieberstein	Wild safflower
<i>Chrysopogon aciculatus</i>	(Retzius) Trinius	Pilipiliula
<i>Commelina benghalensis</i>	Linnaeus	Benghal dayflower
<i>Crupina vulgaris</i>	Cassini	Common crupina
<i>Digitaria scalarum</i>	(Schweinfurth) Chiovenda	African couchgrass, fingergrass
<i>Digitaria velutina</i>	(Forsskal) Palisot de Beauvois	Velvet fingergrass, annual couchgrass
<i>Drymaria arenariodes</i>	Humboldt & Bonpland ex J.A. Schultes	Lightning weed
<i>Emex australis</i>	Steinheil	Three-corned jack
<i>Emex spinosa</i>	Campdera	Devil's thorn
<i>Euphorbia terracina</i>	Linnaeus	False caper, Geraldton carnation weed
<i>Galega officinalis</i>	Linnaeus	Goatsrue
<i>Heracleum mantegazzianum</i>	Sommier & Levier	Giant hogweed
<i>Imperata brasiliensis</i>	Trinius	Brazilian satintail
<i>Imperata cylindrica</i>	(L.) Raeuschel	Cogongrass
<i>Inula britannica</i>	Linnaeus	British yellowhead
<i>Ischaemum rugosum</i>	Salisbury	Murainograss
<i>Leptochloa chinensis</i>	(Linnaeus) Nees	Asian sprangletop
<i>Lycium ferocissimum</i>	Miers	African boxthorn
<i>Lygodium flexuosum</i>	(L.) Sw.	Maidenhair creeper
<i>Lygodium microphyllum</i>	(Cav.) R. Br.	Old world climbing fern
<i>Melastoma malabathricum</i>	Linnaeus	Malabar melastome
<i>Mikania cordata</i>	(Burman f.) B. L. Robinson	Mile-a-minute
<i>Mikania micrantha</i>	Kunth	Bittervine
<i>Mimosa invisa</i>	Martius	Giant sensitive plant
<i>Mimosa pigra</i>	Linnaeus	Catclaw mimosa
<i>Moraea collina</i>	Thunberg	Cape tulip
<i>Moraea flaccida</i>	(Sweet) Steudel	One leaf cape tulip
<i>Moraea miniata</i>	Andrews	Two leaf cape tulip
<i>Moraea ochroleuca</i>	(Salisbury) Drapiez	Apricot tulip
<i>Moraea pallida</i>	(Baker) Goldblatt	Yellow tulip
<i>Nassella trichotoma</i>	Nees) Hackel ex Arechavaleta	Serrated tussock
<i>Onopordum acaulon</i>	Linnaeus	Stemless thistle
<i>Onopordum illyricum</i>	Linnaeus	Illyricum thistle
<i>Opuntia aurantiaca</i>	Lindley	Jointed prickly pear
<i>Oryza longistaminata</i>	A. Chevalier & Roehrich	Red rice
<i>Oryza punctata</i>	Kotschy ex Steudel	Red rice

<i>Oryza rufipogon</i>	Griffith	Red rice
<i>Paspalum scrobiculatum</i>	Linnaeus	Kodo-millet
<i>Pennisetum clandestinum</i>	Hochstetter ex Chiovenda	Kikuyugrass
<i>Pennisetum macrourum</i>	Trinius	African feathergrass
<i>Pennisetum pedicellatum</i>	Trinius	Kyasumagrass
<i>Pennisetum polystachion</i>	(Linnaeus) Schultes	Missiongrass, thin napiergrass
<i>Prosopis alata</i>	R. A. Philippi	Mesquite
<i>Prosopis argentina</i>	Burkart	Mesquite
<i>Prosopis articulata</i>	S. Watson	Velvet mesquite
<i>Prosopis burkartii</i>	Munoz	Mesquite
<i>Prosopis caldenia</i>	Burkart	Calden
<i>Prosopis calingastana</i>	Burkart	Cusqui
<i>Prosopis campestris</i>	Griseback	Mesquite
<i>Prosopis castellanosi</i>	Burkart	Mesquite
<i>Prosopis denudans</i>	Bentham	Mesquite
<i>Prosopis elata</i>	Burkart	Mesquite
<i>Prosopis farcta</i>	(Banks & Solander) J.F. Macbride	Syrian mesquite
<i>Prosopis ferox</i>	Grisebach	Mesquite
<i>Prosopis fiebrigii</i>	Harms	Mesquite
<i>Prosopis hassleri</i>	Harms	Mesquite
<i>Prosopis humilis</i>	Gillies ex Hooker & Arnott	Algaroba
<i>Prosopis kuntzei</i>	Harms	Mesquite
<i>Prosopis pallida</i>	(Humboldt & Bonpland ex Willdenow) Kunth	Kiawe, algarroba
<i>Prosopis palmeri</i>	S. Watson	Mesquite
<i>Prosopis reptans</i>	Bentham	Tornillo
<i>Prosopis rojasiana</i>	Burkart	Mesquite
<i>Prosopis ruizlealii</i>	Burkart	Mesquite
<i>Prosopis ruscifolia</i>	Grisebach	Mesquite
<i>Prosopis sericantha</i>	Gillies ex Hooker & Arnott	Mesquite
<i>Prosopis strombulifera</i>	(Lamarck) Bentham	Argentine screwbean
<i>Prosopis torquata</i>	(Cavanilles ex Lagasca y Segura) de Candolle	Mesquite
<i>Rottboellia cochinchinensis</i>	(Lour.) W. Clayton	Itchgrass
<i>Rubus fruticosus</i>	Linnaeus	Wild blackberry
<i>Rubus moluccanus</i>	Linnaeus	Wild raspberry
<i>Saccharum spontaneum</i>	Linnaeus	Wild sugarcane
<i>Sagittaria sagittifolia</i>	Linnaeus	Arrowhead
<i>Salsola vermiculata</i>	Linnaeus	Wormleaf salsola
<i>Senecio inaequidens</i>	DC	South African ragwort
<i>Senecio madagascariensis</i>	Poir.	Fireweed
<i>Setaria pumila</i>	(Poir.) Roem. & Schult.	Cattail grass
<i>Solanum torvum</i>	Swartz	Turkeyberry
<i>Solanum viarum</i>	Dunal	Tropical soda apple
<i>Spermacoce alata</i>	Aublet	Winged false buttonweed

<i>Tridax procumbens</i>	Linnaeus	Coat buttons
<i>Urochloa panicoides</i>	Beauvois	Liverseed grass

**APPENDIX B – CALIFORNIA DEPARTMENT OF FOODS AND AGRICULTURE –  
CALIFORNIA NOXIOUS WEEDS**





## ENCYCLOWEEDIA: DATA SHEETS

- **INTEGRATED PEST CONTROL**
- 3294 Meadowview Road, Sacramento, CA 95832
- 916-654-0768 • [ipcinfo@cdfa.ca.gov](mailto:ipcinfo@cdfa.ca.gov)
- **Pest Hotline: 1-800-491-1899**

## CALIFORNIA NOXIOUS WEEDS

GENUS	SPECIES	COMMON NAME	FAMILY	SCIENTIFIC NAME
Acacia	paradoxa	kangaroothorn	Fabaceae	Acacia paradoxa DC.
Acaena	anserinifolia	biddy-biddy	Rosaceae	Acaena anserinifolia J.R. Forst & G. Forst
Acaena	novae-zelandiae	biddy-biddy	Rosaceae	Acaena novae-zelandiae Kirk
Acaena	pallida	pale biddy-biddy	Rosaceae	Acaena pallida (Kirk) Allan
Achnatherum	brachychaetum	punagrass	Poaceae	Achnatherum brachychaetum (Godr.) Barkworth
Acroptilon	repens	Russian knapweed	Asteraceae	Acroptilon repens (L.) DC.
Aegilops	triuncialis	barb goatgrass	Poaceae	Aegilops triuncialis L.
Aegilops	cylindrica	jointed goatgrass	Poaceae	Aegilops cylindrica Host
Aegilops	ovata	ovate goatgrass	Poaceae	see <a href="#">A. geniculata</a>
Aegilops	geniculata	ovate goatgrass	Poaceae	Aegilops geniculata Roth
Aeschynomene	rudis	rough jointvetch	Fabaceae	Aeschynomene rudis Benth.

**CALL 1-800-491-1899**



### DATA SHEETS

[California Noxious Weeds](#)

[Federal Weed List](#)

### IPC PROGRAMS

[Home](#)

[Biocontrol](#)

[Curly Top Virus Program](#)

[Hydrilla](#)

[Pink Bollworm](#)

[Vertebrates](#)

[Weed Eradication](#)

### PROJECTS/RESOURCES

[National Pollutant Discharge Elimination System \(NPDES\) Permits](#)

[County Agriculture Departments](#)

[Encycloweedia](#)

[Noxious Times Archive](#)

[Noxious Weed Informaton Project](#)

[Purple Loosestrife Archive](#)

[Yellow Starthistle Leading Edge Project](#)

Ailanthus	altissima	tree-of-heaven	Simaroubaceae	Ailanthus altissima (Mill.) Swingle
Alhagi	maurorum	<a href="#">camelthorn</a>	Fabaceae	Alhagi maurorum Medik
Allium	paniculatum	<a href="#">panicled onion</a>	Alliaceae	Allium paniculatum L.
Allium	vineale	<a href="#">wild garlic</a>	Alliaceae	Allium vineale L.
Alternanthera	sessilis	sessile joyweed	Amaranthaceae	Alternanthera sessilis (L.) R. Br. ex DC.
Alternanthera	philoxeroides	<a href="#">alligatorweed</a>	Amaranthaceae	Alternanthera philoxeroides (Mart.) Griseb.
Ambrosia	trifida	<a href="#">giant ragweed</a>	Asteraceae	Ambrosia trifida L.
Araujia	sericifera	<a href="#">bladderflower</a>	Apocynaceae	Araujia sericifera Brot.
Arctotheca	calendula	<a href="#">capeweed</a>	Asteraceae	Arctotheca calendula Hawksw. & Wiens
Arundo	donax	giant reed	Poaceae	Arundo donax L.
Atriplex	amnicola	river saltbush	Chenopodiaceae	Atriplex amnicola P. G. Wilson
Berteroa	incana	hoary alyssum	Brassicaceae	Berteroa incana (L.) DC.
Cabomba	caroliniana	Carolina fanwort	Cabombaceae	Cabomba caroliniana A. Gray
Cardaria	pubescens	<a href="#">globe-podded hoarycress</a>	Brassicaceae	see <a href="#">Lepidium appelianum</a>
Cardaria	draba	<a href="#">heart-podded hoarycress</a>	Brassicaceae	see <a href="#">Lepidium draba</a>
Cardaria	chalepensis	<a href="#">lens-podded hoarycress</a>	Brassicaceae	see <a href="#">Lepidium chalepense</a>
Carduus	pycnocephalus	<a href="#">Italian thistle</a>	Asteraceae	Carduus pycnocephalus L.

Carduus	tenuiflorus	<a href="#">slenderflowered thistle</a>	Asteraceae	Carduus tenuiflorus Curtis
Carduus	nutans	<a href="#">musk thistle</a>	Asteraceae	Carduus nutans L.
Carduus	acanthoides	<a href="#">plumeless thistle</a>	Asteraceae	Carduus acanthoides L.
Carthamus	baeticus	<a href="#">smooth distaff thistle</a>	Asteraceae	see <a href="#">C. creticus</a>
Carthamus	creticus	<a href="#">smooth distaff thistle</a>	Asteraceae	Carthamus creticus L.
Carthamus	leucocaulos	<a href="#">whitestem distaff thistle</a>	Asteraceae	Carthamus leucocaulos Sibth. & Sm.
Carthamus	lanatus	<a href="#">woolly distaff thistle</a>	Asteraceae	Carthamus lanatus L.
Cenchrus	incertus	<a href="#">coast sandbur</a>	Poaceae	Cenchrus incertus M. Curtis
Cenchrus	longispinus	<a href="#">mat sandbur</a>	Poaceae	Cenchrus longispinus (Hackel) Fernald
Cenchrus	echinatus	<a href="#">southern sandbur</a>	Poaceae	Cenchrus echinatus L.
Centaurea	diffusa	<a href="#">diffuse knapweed</a>	Asteraceae	Centaurea diffusa Lam.
Centaurea	iberica	<a href="#">Iberian starthistle</a>	Asteraceae	Centaurea iberica Spreng.
Centaurea	melitensis	<a href="#">Malta starthistle</a>	Asteraceae	Centaurea melitensis L.
Centaurea	calcitrapa	<a href="#">purple starthistle</a>	Asteraceae	Centaurea calcitrapa L.
Centaurea	sulphurea	<a href="#">Sicilian starthistle</a>	Asteraceae	Centaurea sulphurea Willd.
Centaurea	maculosa	<a href="#">spotted knapweed</a>	Asteraceae	See <a href="#">C. stoebe ssp. micranthos</a>
Centaurea	squarrosa	<a href="#">squarrose knapweed</a>	Asteraceae	Centaurea squarrosa Willd., non Roth

Centaurea	solstitialis	<a href="#">yellow starthistle</a>	Asteraceae	Centaurea solstitialis L.
Centaurea	stoebe ssp. micranthos	<a href="#">spotted knapweed</a>	Asteraceae	Centaurea stoebe ssp. micranthos (Gugler) Hayak
Ceratopteris	thalictroides	watersprite	Pteridaceae	Ceratopteris thalictroides (L.) Brongn.
Chondrilla	juncea	<a href="#">skeletonweed</a>	Asteraceae	Chondrilla juncea L.
Chorispora	tenella	<a href="#">purple mustard</a>	Brassicaceae	Chorispora tenella (Pall.) DC.
Cirsium	vulgare	<a href="#">bullthistle</a>	Asteraceae	Cirsium vulgare (Savi.) Ten.
Cirsium	arvense	<a href="#">Canada thistle</a>	Asteraceae	Cirsium arvense (L.) Scop.
Cirsium	japonicum	Japanese thistle	Asteraceae	Cirsium japonicum DC.
Cirsium	undulatum	<a href="#">wavyleaf thistle</a>	Asteraceae	Cirsium undulatum (Nutt.) Spreng.
Cirsium	ochrocentrum	<a href="#">yellowspine thistle</a>	Asteraceae	Cirsium ochrocentrum A. Gray
Convolvulus	arvensis	<a href="#">field bindweed</a>	Convolvulaceae	Convolvulus arvensis L.
Coronopus	squamatus	<a href="#">swinecress</a>	Brassicaceae	see <a href="#">Lepidium coronopus</a>
Crupina	vulgaris	<a href="#">bearded creeper</a>	Asteraceae	Crupina vulgaris Cass.
Cucumis	melo var. dudaim	<a href="#">dudaim melon</a>	Cucurbitaceae	Cucumis melo L. var. dudaim (L.) Naudin
Cucumis	myriocarpus	<a href="#">paddy melon</a>	Cucurbitaceae	Cucumis myriocarpus Naudin
Cuscuta	spp.	<a href="#">dodder</a>	Convolvulaceae	Cuscuta spp.

Cynara	cardunculus	<a href="#">artichoke thistle</a>	Asteraceae	Cynara cardunculus L.
Cynara	cardunculus ssp. flavescens	<a href="#">artichoke thistle</a>	Asteraceae	Cynara cardunculus ssp. flavescens Wiklund
Cyperus	rotundus	<a href="#">purple nutsedge</a>	Cyperaceae	Cyperus rotundus L.
Cyperus	esculentus	<a href="#">yellow nutsedge</a>	Cyperaceae	Cyperus esculentus L.
Cytisus	scoparius	<a href="#">Scotch broom</a>	Fabaceae	Cytisus scoparius (L.) Link
Delairea	odorata	cape-ivy	Asteraceae	Delairea odorata Lem.
Diodia	virginiana	Virginia buttonweed	Rubiaceae	Diodia virginiana L.
Drymaria	cordata	tropical chickweed	Caryophyllaceae	Drymaria cordata (L.) Willd. Ex Schultd.
Egeria	najas	narrowleaf elodea	Hydrocharitaceae	Egeria najas Planch.
Elymus	caput-medusae	<a href="#">medusahead</a>	Poaceae	see <a href="#">Taeniatherum caput-medusae</a>
Elymus	repens	<a href="#">quackgrass</a>	Poaceae	see <a href="#">Elytrigia repens</a>
Elytrigia	repens	<a href="#">quackgrass</a>	Poaceae	Elytrigia repens (L.) Desv.
Euphorbia	graminea	grassleaf spurge	Euphorbiaceae	Euphorbia graminea Jacq.
Euphorbia	terraccina	<a href="#">carnation spurge</a>	Euphorbiaceae	Euphorbia terraccina L.
Euphorbia	esula	<a href="#">leafy spurge</a>	Euphorbiaceae	see <a href="#">E. virgata</a>
Euphorbia	oblongata	<a href="#">oblong spurge</a>	Euphorbiaceae	Euphorbia oblongata Griseb.
Euphorbia	serrata	<a href="#">serrate spurge</a>	Euphorbiaceae	Euphorbia serrata L.

Euphorbia	virgata	<a href="#">leafy spurge</a>	Euphorbiaceae	Euphorbia virgata Waldst. & Kit.
Fallopia	japonica	<a href="#">Japanese knotweed</a>	Polygonaceae	Fallopia japonica (Houtt.) Ronse Decr.
Fallopia	sachalinensis	<a href="#">giant knotweed</a>	Polygonaceae	Fallopia sachalinensis (F. Schmidt) Ronse Decr.
Fatoua	villosa	hairy crabweed	Moraceae	Fatoua villosa (Thunb.) Nakai
Gaura	drummondii	<a href="#">Drummond's gaura</a>	Onagraceae	see <a href="#">Oenothera xenogaura</a>
Gaura	sinuata	<a href="#">wavy-leaved gaura</a>	Onagraceae	see <a href="#">Oenothera sinuosa</a>
Genista	monspessulana	<a href="#">French broom</a>	Fabaceae	Genista monspessulana (L.) L.A.S. Johnson
Halimodendron	halodendron	<a href="#">Russian salttree</a>	Fabaceae	Halimodendron halodendron (L.) Voss
Halogeton	glomeratus	<a href="#">halogeton</a>	Chenopodiaceae	Halogeton glomeratus (M. Bieb.) C.A. Mey.
Helianthus	ciliaris	<a href="#">blueweed</a>	Asteraceae	Helianthus ciliaris DC.
Heteropogon	contortus	<a href="#">tanglehead</a>	Poaceae	Heteropogon contortus (L.) Roem. & Schult.
Hydrilla	verticillata	<a href="#">hydrilla</a>	Hydrocharitaceae	Hydrilla verticillata (L.f.) Royle
Hygrophila	polysperma	Indian swampweed	Acanthaceae	Hygrophila polysperma (Roxb. ) T. Anders.
Hypericum	canariense	Canary Island St. Johnswort	Hypericum	Hypericum canariense L.
Hyoscyamus	niger	<a href="#">black henbane</a>	Solanaceae	Hyoscyamus niger

				L.
Hypericum	perforatum	Klamathweed	Hypericaceae	Hypericum perforatum L.
Isatis	tinctoria	dyer's woad	Brassicaceae	Isatis tinctoria L.
Lepidium	latifolium	perennial peppergrass	Brassicaceae	Lepidium latifolium L.
Lagarosiphon	major	oxygenweed	Hydrocharitaceae	Lagarosiphon major (Ridl.) Moss
Lepidium	appelianum	globe-podded hoarycress	Brassicaceae	Lepidium appelianum Al-Shehbaz
Lepidium	chalepense	lens-podded hoarycress	Brassicaceae	Lepidium chalepense L.
Lepidium	coronopus	swinecress	Brassicaceae	Lepidium coronopus L.
Lepidium	draba	heart-podded hoarycress	Brassicaceae	Lepidium draba L.
Limnobium	laevigatum	South American spongeplant	Hydrocharitaceae	Limnobium laevigatum (Willd.) Heine
Limnobium	spongia	North American spongeplant	Hydrocharitaceae	Limnobium spongia (Bosc) Steud
Limnobium	spongia ssp. laevigatum	South American spongeplant	Hydrocharitaceae	Limnobium spongia ssp. laevigatum (Bosc) Richard ex Steudel
Limnophila	indica	ambulia	Scrophulariaceae	Limnophila indica (L.) Druce
Limnophila	sessiliflora	Asian marshweed	Plantaginaceae	Limnophila sessiliflora Blume
Linaria	genistifolia ssp. dalmatica	Dalmatian toadflax	Scrophulariaceae	Linaria genistifolia (L.) Mill. ssp. dalmatica (L.) Maire & Petitm.
Ludwigia	peruviana	Peruvian water-primrose	Onagraceae	Ludwigia peruviana (L.) H. Hara

Lythrum	salicaria	purple loosestrife	Lythraceae	Lythrum salicaria L.
Muhlenbergia	schreberi	nimblewill	Poaceae	Muhlenbergia schreberi S. Gmelin
Myosoton	aquatica	giant chickweed	Caryophyllaceae	Myosoton aquatica (L.) Moench
Nothoscordum	inodorum	false garlic	Liliaceae	Nothoscordum inodorum (Ait.) G. Nicholson
Nymphaea	mexicana	banana waterlily	Nymphaeaceae	Nymphaea mexicana Zucc.
Oenothera	sinuosa	wavy-leaved gaura	Onagraceae	Oenothera sinuosa W. L. Wagner & Hoch
Oenothera	xenogaura	Drummond's gaura	Onagraceae	Oenothera xenogaura W. L. Wagner & Hoch
Ononis	alopecuroides	foxtail restharrow	Fabaceae	Ononis alopecuroides L.
Onopordum	illyricum spp.	Illyrian thistle	Asteraceae	Onopordum illyricum L.
Onopordum	acanthium	Scotch thistle	Asteraceae	Onopordum acanthium L.
Onopordum	tauricum	Taurian thistle	Asteraceae	Onopordum tauricum Willd.
Orobanche	ramosa	branched broomrape	Orobanchaceae	Orobanche ramosa L.
Oryza	rufipogon	perennial wild red rice	Poaceae	Oryza rufipogon Griff.
Panicum	antidotale	blue panicgrass	Poaceae	Panicum antidotale Retz.
Peganum	harmala	harmel	Nitrariaceae	Peganum harmala L.
Pennisetum	clandestinum	Kikuyugrass	Poaceae	Pennisetum clandestinum

				Chiov.
Physalis	viscosa	<a href="#">grape groundcherry</a>	Solanaceae	Physalis viscosa L.
Physalis	longifolia	long-leaved groundcherry	Solanaceae	Physalis longifolia Nutt.
Polygonum	sachalinense	<a href="#">giant knotweed</a>	Polygonaceae	see <a href="#">Fallopia sachalanensis</a>
Polygonum	polystachyum	<a href="#">Himalayan knotweed</a>	Polygonaceae	Polygonum polystachyum C.F.W. Meissn.
Polygonum	cuspidatum	<a href="#">Japanese knotweed</a>	Polygonaceae	see <a href="#">Fallopia japonica</a>
Potentilla	recta	sulfur cinquefoil	Rosaceae	Potentilla recta L.
Prosopis	strombulifera	<a href="#">creeping mesquite</a>	Fabaceae	Prosopis strombulifera (Lam.) Benth.
Retama	monosperma	bridal broom	Fabaceae	Retama monosperma (L.) Boiss.
Rorippa	austriaca	<a href="#">Austrian fieldcress</a>	Brassicaceae	Rorippa austriaca (Crantz) Besser
Rorippa	sylvestris	<a href="#">creeping yellow fieldcress</a>	Brassicaceae	Rorippa sylvestris (L.) Besser
Salsola	paulsenii	<a href="#">barbwire Russianthistle</a>	Chenopodiaceae	Salsola paulsenii Litv.
Salsola	australis	<a href="#">southern Russianthistle</a>	Chenopodiaceae	Salsola australis R. Br..
Salsola	collina	<a href="#">spineless Russianthistle</a>	Chenopodiaceae	Salsola collina Benth.
Salsola	damascena	<a href="#">wormleaf salsola</a>	Chenopodiaceae	Salsola damascena Botsch.
Salsola	vermiculata	<a href="#">wormleaf salsola</a>	Chenopodiaceae	see <a href="#">S. damascena</a>
Salvia	virgata	<a href="#">meadow sage</a>	Lamiaceae	Salvia virgata L.
Salvia	aethiopsis	<a href="#">Mediterranean sage</a>	Lamiaceae	Salvia aethiopsis L.

Scolymus	hispanicus	<a href="#">golden thistle</a>	Asteraceae	Scolymus hispanicus L.
Senecio	squalidus	<a href="#">Oxford ragwort</a>	Asteraceae	Senecio squalidus L.
Senecio	jacobaea	<a href="#">tansy ragwort</a>	Asteraceae	Senecio jacobaea L.
Senecio	linearifolius	fireweed groundsel	Asteraceae	Senecio linearifolius A. Rich.
Senecio	mikanioides	cape-ivy	Asteraceae	see <a href="#">Delairea odorata Lem.</a>
Sesbania	punicea	scarlet rattlebox	Fabaceae	Sesbania punicea (Cav.) Benth.
Setaria	faberi	<a href="#">giant foxtail</a>	Poaceae	Setaria faberi R. Herrm.
Solanum	carolinense	<a href="#">Carolina horsenettle</a>	Solanaceae	Solanum carolinense L.
Solanum	cardiophyllum	<a href="#">heartleaf nightshade</a>	Solanaceae	Solanum cardiophyllum Lindl.
Solanum	lanceolatum	<a href="#">lanceleaf nightshade</a>	Solanaceae	Solanum lanceolatum Cav.
Solanum	dimidiatum	<a href="#">Torrey's nightshade</a>	Solanaceae	Solanum dimidiatum Raf.
Solanum	elaeagnifolium	<a href="#">white horsenettle</a>	Solanaceae	Solanum elaeagnifolium Cav.
Solanum	marginatum	<a href="#">white-margined nightshade</a>	Solanaceae	Solanum marginatum L. f.
Sonchus	arvensis	<a href="#">perennial sowthistle</a>	Asteraceae	Sonchus arvensis L.
Sorghum	halepense	<a href="#">Johnsongrass</a>	Poaceae	Sorghum halepense (L.) Pers.
Spartina	alterniflora	smooth cordgrass	Poaceae	Spartina alterniflora Loisel. & hybrids

Spartina	anglica	common cordgrass	Poaceae	Spartina anglica C. E. Hubb.
Spartina	densiflora	dense-flowered cordgrass	Poaceae	Spartina densiflora Brongn.
Spartina	patens	saltmeadow cordgrass	Poaceae	Spartina patens (Aiton) Muhl.
Spartium	junceum	<a href="#">Spanish broom</a>	Fabaceae	Spartium junceum L.
Sphaerophysa	salsula	<a href="#">Austrian peaweed</a>	Fabaceae	Sphaerophysa salsula (Pall.) DC.
Stipa	brachychaeta	<a href="#">punagrass</a>	Poaceae	see <a href="#">Achnatherum brachychaetum</a>
Striga	asiatica	<a href="#">witchweed</a>	Scrophulariaceae	Striga asiatica (L.) Kuntze
Symphytum	asperum	<a href="#">rough comfrey</a>	Boraginaceae	Symphytum asperum Lepechin
Taeniatherum	caput-medusae	<a href="#">medusahead</a>	Poaceae	Taeniatherum caput-medusae (L.) Nevski
Tagetes	minuta	<a href="#">wild marigold</a>	Asteraceae	Tagetes minuta L.
Tribulus	terrestris	<a href="#">puncturevine</a>	Zygophyllaceae	Tribulus terrestris L.
Tamarix	chinensis	chinese saltcedar	Tamaricaceae	Tamarix chinensis Lour.
Tamarix	gallica	French saltcedar	Tamaricaceae	Tamarix gallica L.
Tamarix	parviflora	small-flowered saltcedar	Tamaricaceae	Tamarix parviflora DC.
Tamarix	ramosissima	branched saltcedar	Tamaricaceae	Tamarix ramosissima Ledeb.
Ulex	europaeus	<a href="#">gorse</a>	Fabaceae	Ulex europaeus L.
Viscum	album	<a href="#">European mistletoe</a>	Santalaceae	Viscum album L.
Zostera	japonica	Japanese eelgrass	Zosteraceae	Zostera japonica

				Asch. & Graebn.
Zygophyllum	fabago	Syrian beancaper	Zygophyllaceae	Zygophyllum fabago L.

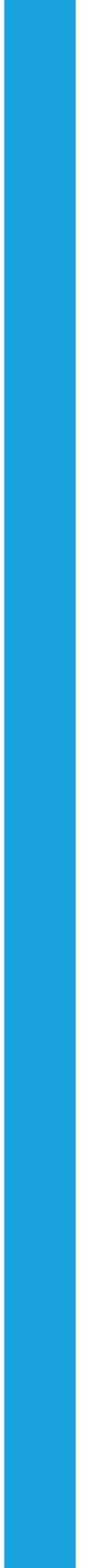
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## **APPENDIX C – HERBICIDES APPROVED ON BLM CALIFORNIA**



**Herbicides Approved for Use on BLM Lands in Accordance with the  
17 Western States PEIS ROD and Oregon EIS ROD\***

Update September 25, 2012

ACTIVE INGREDIENT	STATES WITH APPROVAL BASED UPON CURRENT EIS/ROD	TRADE NAME	MANUFACTURER	EPA REG. NUMBER	CA REG. **
<b>Bromacil</b>	AK, AZ, CA, CO, ID, MT, ND, NE, NM, NV, OK, OR-East, SD, TX, UT, WA, WY	Bromacil 80DF Hyvar X Hyvar XL	Alligare, LLC DuPont Crop Protection DuPont Crop Protection	81927.4 352-287 352-346	Y Y Y
<b>Bromacil + Diuron</b>	AK, AZ, CA, CO, ID, MT, ND, NE, NM, NV, OK, OR-East, SD, TX, UT, WA, WY	Bromacil/Diuron 40/40 Krovar 1 DF Weed Blast Res. Weed Cont. DiBro 2+2 DiBro 4+4 DiBro 4+2 Weed Blast 4G	Alligare, LLC DuPont Crop Protection Loveland Products Inc. Nufarm Americas Inc. Nufarm Americas Inc. Nufarm Americas Inc. SSI Maxim	81927-3 352-505 34704-576 228-227 228-235 228-386 34913-19	Y Y N Y N N N
<b>Chlorsulfuron</b>	AK, AZ, CA, CO, ID, MT, ND, NE, NM, NV, OK, OR-East, SD, TX, UT, WA, WY	Alligare Chlorsulfuron Telar DF Telar XP Nufarm Chlorsulf SPC 75 WDG Herbicide Chlorsulfuron E-Pro 75 WDG	Alligare, LLC DuPont Crop Protection DuPont Crop Protection Nufarm Americas Inc. Nufarm Americas Inc.	81927-43 352-522 352-654 228-672 79676-72	N Y Y N N
<b>Clopyralid</b>	AK, AZ, CA, CO, ID, MT, ND, NE, NM, NV, OK, OR, SD, TX, UT, WA, WY	Spur Pyramid R&P Clopyralid 3 Cody Herbicide Reclaim Stinger Transline CleanState	Albaugh, Inc. Albaugh, Inc. Alligare, LLC Alligare, LLC Dow AgroSciences Dow AgroSciences Dow AgroSciences Nufarm Americas Inc.	42750-89 42750-94 42750-94-81927 81927-28 62719-83 62719-73 62719-259 228-491	Y N Y Y N Y Y Y



ACTIVE INGREDIENT	STATES WITH APPROVAL BASED UPON CURRENT EIS/ROD	TRADE NAME	MANUFACTURER	EPA REG. NUMBER	CA REG. **
2,4-D - cont.	AK, AZ, CA, CO, ID, MT, ND, NE, NM, NV, OK, OR, SD, TX, UT, WA, WY	Weedone LV-6 Formula 40 2,4-D LV 6 Ester Platoon	Nufarm Americas Inc. Nufarm Americas Inc. Nufarm Americas Inc. Nufarm Americas Inc.	71368-11 228-357 228-95 228-145	Y Y Y N
		WEEDstroy AM-40 Hi-Dep	Nufarm Americas Inc. PBI Gordon Corp.	228-145 2217-703	Y N
		2,4-D Amine Barrage LV Ester	Setre (Helena) Setre (Helena)	5905-72 5905-504	N N
		2,4-D LV4 2,4-D LV6	Setre (Helena) Setre (Helena)	5905-90 5905-93	N N
		Clean Crop Amine 4 Clean Crop Low Vol 6 Ester	UAP-Platte Chem. Co. UAP-Platte Chem. Co.	34704-5 CA 34704-125	Y N
		Salvo LV Ester 2,4-D 4# Amine Weed Killer	UAP-Platte Chem. Co. UAP-Platte Chem. Co.	34704-609 34704-120	N N
		Clean Crop LV 4 ES Savage DS	UAP-Platte Chem. Co. UAP-Platte Chem. Co.	34704-124 34704-606	N Y
		Combelt 4 lb. Amine Combelt 4# LoVol Ester	Van Diest Supply Co. Van Diest Supply Co.	11773-2 11773-3	N N
		Combelt 6# LoVol Ester Amine 4	Van Diest Supply Co. Wilbur-Ellis Co.	11773-4 2935-512	N N
		Lo Vol-4 Lo Vol-6 Ester	Wilbur-Ellis Co. Wilbur-Ellis Co.	228-139-2935 228-95-2935	N N
		Base Camp Amine 4 Base Camp LV6	Wilbur-Ellis Co. Wilbur-Ellis Co.	71368-1-2935 2935-553	N N
		Broadrange 55 Agrisolution 2,4-D LV6	Wilbur-Ellis Co. Winfield Solutions, LLC	2217-813-2935 1381-101	N N
		Agrisolution 2,4-D Amine 4 Agrisolution 2,4-D LV4	Winfield Solutions, LLC Winfield Solutions, LLC	1381-103 1381-102	N N
		Phenoxy 088 Rugged	Winfield Solutions, LLC Winfield Solutions, LLC	42750-36-9779 1381-247	N N
		Shredder E-99	Winfield Solutions, LLC	1381-195	N



ACTIVE INGREDIENT	STATES WITH APPROVAL BASED UPON CURRENT EIS/ROD	TRADE NAME	MANUFACTURER	EPA REG. NUMBER	CA REG. **
Diquat	AK, AZ, CA, CO, ID, MT, ND, NE, NM, NV, OK, SD, TX, UT, WA, WY	Alligare Diquat	Alligare, LLC	81927-35	Y
		Nufarm Diquat SPC 2 L Herbicide	Nufarm Americas Inc.	228-675	N
		Diquat SPC 2 L Herbicide	Nufarm Americas Inc.	79676-75	Y
		Diquat E-Ag 2L	Nufarm Americas Inc.	79676-75	Y
		Reward	Syngenta Professional Products	100-1091	Y
Diuron	AK, AZ, CA, CO, ID, MT, ND, NE, NM, NV, OK, OR, SD, TX, UT, WA, WY	Diuron 80DF	Agriance, L.L.C.	9779-318	N
		Diuron 80DF	Alligare, LLC	81927-12	Y
		Karnex DF	DuPont Crop Protection	352-692	Y
		Karnex XP	DuPont Crop Protection	352-692	Y
		Karnex IWC	DuPont Crop Protection	352-692	Y
		Direx 4L	DuPont Crop Protection	352-678	Y
		Direx 80DF	Griffin Company	1812-362	Y
		Direx 4L	Griffin Company	1812-257	Y
		Diuron 4L	Loveland Products Inc.	34704-854	Y
		Diuron 80 WDG	Loveland Products Inc.	34704-648	N
	Diuron 4L	Makeshim Agan of N.A.	66222-54	N	
	Diuron 80WDG	UAP-Plate Chem. Co.	34704-648	N	
	Vegetation Man. Diuron 80 DF	Vegetation Man., LLC	66222-51-74477	N	
	Diuron-DF	Wilbur-Ellis	00352-00-508-02935	N	
	Diuron 80DF	Winfield Solutions, LLC	9779-318	N	
Fluridone	AK, AZ, CA, CO, ID, MT, ND, NE, NM, NV, OK, OR, SD, TX, UT, WA, WY	Avast!	SePRO	67690-30	Y
		Sonar AS	SePRO	67690-4	Y
		Sonar Precision Release	SePRO	67690-12	Y
		Sonar Q	SePRO	67690-3	Y
		Sonar SRP	SePRO	67690-3	Y
Glyphosate	AK, AZ, CA, CO, ID, MT, ND, NE, NM, NV, OK, OR, SD, TX, UT, WA, WY	Aqua Star	Albaugh, Inc./Agri Star	42750-59	Y
		Forest Star	Albaugh, Inc./Agri Star	42570-61	Y
		GlyStar Gold	Albaugh, Inc./Agri Star	42750-61	Y
		Gly Star Original	Albaugh, Inc./Agri Star	42750-60	Y
		Gly Star Plus	Albaugh, Inc./Agri Star	42750-61	Y
		Gly Star Pro	Albaugh, Inc./Agri Star	42750-61	Y



ACTIVE INGREDIENT	STATES WITH APPROVAL BASED UPON CURRENT EIS/ROD	TRADE NAME	MANUFACTURER	EPA REG. NUMBER	CA REG. **
Glyphosate - cont.	AK, AZ, CA, CO, ID, MT, ND, NE, NM, NV, OK, OR, SD, TX, UT, WA, WY	Buccaneer	Tenkox	55467-10	Y
		Buccaneer Plus	Tenkox	55467-9	Y
		Mirage Herbicide	UAP-Plate Chem. Co.	524-445-34704	Y
		Mirage Plus Herbicide	UAP-Plate Chem. Co.	524-454-34704	Y
		Gly-4 Plus	Universal Crop Protection Alliance, LLC	72693-1	Y
		Gly-4 Plus	Universal Crop Protection Alliance, LLC	42750-61-72693	Y
		Gly-4	Universal Crop Protection Alliance, LLC	42750-60-72693	Y
		Glyphosate 4	Vegetation Man., LLC	73220-6-74477	Y
		Agrisolutions Comerstone	Winfield Solutions, LLC	1381-191	Y
		Agrisolutions Comerstone Plus	Winfield Solutions, LLC	1381-192	Y
	Agrisolutions Rascal	Winfield Solutions, LLC	1381-191	N	
	Agrisolutions Rascal Plus	Winfield Solutions, LLC	1381-192	N	
	Comerstone 5 Plus	Winfield Solutions, LLC	1381-241	Y	
Glyphosate + 2,4-D	AK, AZ, CA, CO, ID, MT, ND, NE, NM, NV, OK, OR, SD, TX, UT, WA, WY	Landmaster BW	Albaugh, Inc./Agri Star	42570-62	N
		Campaign	Monsanto	524-351	N
		Landmaster BW	Monsanto	524-351	N
Hexazinone	AK, AZ, CA, CO, ID, MT, ND, NE, NM, NV, OK, OR, SD, TX, UT, WA, WY	Velpar ULW	DuPont Crop Protection	352-450	N
		Velpar L	DuPont Crop Protection	352-392	Y
		Velpar DF	DuPont Crop Protection	352-581	Y
		Velossa	Helena Chemical Company	5905-579	Y
		Pronone MG	Pro-Serve	33560-21	N
		Pronone 10G	Pro-Serve	33560-21	Y
		Pronone 25G	Pro-Serve	33560-45	N
Hexazinone + Sulfometuron methyl	AK, AZ, CA, CO, ID, MT, ND, NE, NM, NV, OK, OR, SD, TX, UT, WA, WY	Westar	DuPont Crop Protection	352-626	Y
		Oustar	DuPont Crop Protection	352-603	Y

NOTE: In accordance with the Record of Decision for the Vegetation Treatments Using Herbicides on Bureau of Land Management Lands in 17 Western States Programmatic Environmental Impact Statement (PEIS), the aerial application of this herbicide (sulfometuron methyl) is prohibited.

ACTIVE INGREDIENT	STATES WITH APPROVAL BASED UPON CURRENT EIS/ROD	TRADE NAME	MANUFACTURER	EPA REG. NUMBER	CA REG. **
Imazapic + Glyphosate	AZ, CO, ID, MT, ND, NE, NM, NV, OK, OR, SD, TX, UT, WA, WY	Journey	BASF	241-417	N
	AK, AZ, CA, CO, ID, MT, ND, OR, NE, NM, NV, OK, SD, TX, UT, WA, WY	Imazapyr 2SL Imazapyr 4SL Ecomazapyr 2SL	Alligare, LLC Alligare, LLC Alligare, LLC	81927-23 81927-24 81927-22	N N N
Imazapic	WY	Arsenal Railroad Herbicide	BASF	241-273	N
		Chopper	BASF	241-296	Y
		Arsenal Applicators Conc.	BASF	241-299	N
		Arsenal	BASF	241-346	N
		Arsenal Powerline	BASF	241-431	N
		Stalker	BASF	241-398	N
		Habitat	BASF	241-426	Y
		Polaris	Nufarm Americas Inc.	228-534	Y
		Polaris AC	Nufarm Americas Inc.	241-299-228	Y
		Polaris AC	Nufarm Americas Inc.	228-480	Y
		Polaris AC Complete	Nufarm Americas Inc.	228-570	Y
		Polaris AQ	Nufarm Americas Inc.	241-426-228	Y
Polaris RR	Nufarm Americas Inc.	241-273-228	N		
Polaris SP	Nufarm Americas Inc.	228-536	Y		
Polaris SP	Nufarm Americas Inc.	241-296-228	Y		
Polaris Herbicide	Nufarm Americas Inc.	241-346-228	N		
Habitat Herbicide	SEPRO	241-426-67690	Y		
Imazapic + Glyphosate	AZ, CO, ID, MT, ND, NE, NM, NV, OK, OR, SD, TX, UT, WA, WY	SSI Maxim Arsenal 0.5G	SSI Maxim Co., Inc.	34913-23	N
		Ecomazapyr 2 SL	Vegetation Man., LLC	74477-6	N
		Imazapyr 2 SL	Vegetation Man., LLC	74477-4	N
		Imazapyr 4 SL	Vegetation Man., LLC	74477-5	N

ACTIVE INGREDIENT	STATES WITH APPROVAL BASED UPON CURRENT EIS/ROD	TRADE NAME	MANUFACTURER	EPA REG. NUMBER	CA REG. **
Imazapyr +	AK, AZ, CA, CO, ID, MT, ND, OR, NE, NM, NV, OK, SD, TX, UT, WA, WY	Mojave 70 EG	Alligare, LLC	74477-9-81927	N
Diuron	OR, NE, NM, NV, OK, SD, TX, UT, WA, WY	Sahara DG	BASF	241-372	N
		Imazuron E-Pro	Etiga, LLC	79676-54	N
		SSI Maxim Topside 2.5G	SSI Maxim Co., Inc.	34913-22	N
Imazapyr +	AK, AZ, CA, CO, ID, MT, ND, OR, NE, NM, NV, OK, SD, TX, UT, WA, WY	Lineage Clearstand	DuPont Crop Protection	352-766	N
Metsulfuron methyl					
Imazapyr +	AK, AZ, CA, CO, ID, MT, ND, OR, NE, NM, NV, OK, SD, TX, UT, WA, WY	Lineage HWC	DuPont Crop Protection	352-765	N
Sulfometuron methyl +	OR, NE, NM, NV, OK, SD, TX, UT, WA, WY	Lineage Prep	DuPont Crop Protection	352-767	N
Metsulfuron methyl					
<p><b>NOTE:</b> In accordance with the Record of Decision for the <i>Vegetation Treatments Using Herbicides on Bureau of Land Management Lands in 17 Western States Programmatic Environmental Impact Statement (PEIS)</i>, the aerial application of this herbicide (sulfometuron methyl) is prohibited.</p>					
Metsulfuron methyl	AK, AZ, CO, ID, MT, ND, OR, NE, NM, NV, OK, SD, TX, UT, WA, WY	MSM 60	Alligare, LLC	81927-7	N
		AmTide MSM 60DF Herbicide	AmTide, LLC	83851-3	N
		Escort DF	DuPont Crop Protection	352-439	N
		Escort XP	DuPont Crop Protection	352-439	N
		MSM E-Pro 60 EG Herbicide	Etiga, LLC	81959-14	N
		MSM E-AG 60 EG Herbicide	Etiga, LLC	81959-14	N
		Patriot	Nufarm Americas Inc.	228-391	N
		PureStand	Nufarm Americas Inc.	71368-38	N
		Metsulfuron Methyl DF	Vegetation Man., L.L.C.	74477-2	N
Metsulfuron methyl +	AK, AZ, CO, ID, MT, ND, NE, NM, NV, OK, OR-East, SD, TX, UT, WA, WY	Cinarron X-tra	DuPont Crop Protection	352-669	N
Chlorsulfuron		Cinarron Plus	DuPont Crop Protection	352-670	N

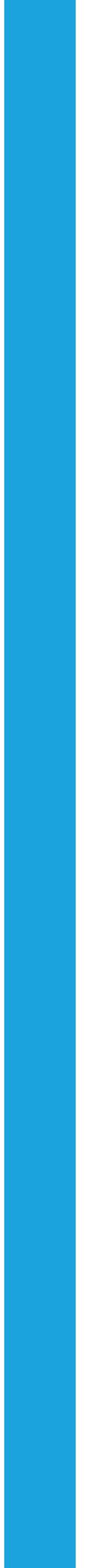
ACTIVE INGREDIENT	STATES WITH APPROVAL BASED UPON CURRENT EIS/ROD	TRADE NAME	MANUFACTURER	EPA REG. NUMBER	CA REG. **
Metsulfuron methyl + Dicamba + 2,4-D	AK, AZ, CO, ID, MT, ND, NE, NM, NV, OK, OR, SD, TX, UT, WA, UT, WA, WY	Cimaron MAX	DuPont Crop Protection	352-615	N
Picloram	AZ, CO, ID, MT, ND, NE, NM, NV, OK, OR, SD, TX, UT, WA, WY	Triumph K Triumph 22K Picloram K Picloram K Picloram 22K Picloram 22K Grazon PC OutPost 22K Tordon K Tordon 22K Trooper 22K	Albaugh, Inc. Albaugh, Inc. Alligare, LLC Alligare, LLC Alligare, LLC Alligare, LLC Dow AgroSciences Dow AgroSciences Dow AgroSciences Dow AgroSciences Dow AgroSciences Nufarm Americas Inc.	42750-81 42750-79 42750-81-81927 81927-17 42750-79-81927 81927-18 62719-181 62719-6 62719-17 62719-6 228-535	N N N N N N N N N N N N
Picloram + 2,4-D	AZ, CO, ID, MT, ND, NE, NM, NV, OK, OR, SD, TX, UT, WA, WY	GunSlinger Picloram + D Picloram + D Tordon 101M Tordon 101 R Forestry Tordon RTU Grazon P+D HiredHand P+D Pathway Trooper 101 Trooper P + D	Albaugh, Inc. Alligare, LLC Alligare, LLC Dow AgroSciences Dow AgroSciences Dow AgroSciences Dow AgroSciences Dow AgroSciences Dow AgroSciences Nufarm Americas Inc. Nufarm Americas Inc.	42750-80 42750-80-81927 81927-16 62719-5 62719-31 62719-31 62719-31 62719-182 62719-182 62719-31 228-561 228-530	N N N N N N N N N N N
Picloram + 2,4-D + Dicamba	AZ, CO, ID, MT, ND, NE, NM, NV, OK, OR, SD, TX, UT, WA, WY	Trooper Extra	Nufarm Americas Inc.	228-586	N

ACTIVE INGREDIENT	STATES WITH APPROVAL BASED UPON CURRENT EIS/ROD	TRADE NAME	MANUFACTURER	EPA REG. NUMBER	CA REG. **
Sulfometuron methyl	AK, AZ, CA, CO, ID, MT, ND, OR, NE, NM, NV, OK, SD, TX, UT, WA, WY	SFM 75	Alligare, LLC	81927-26	Y
		Oust DF	DuPont Crop Protection	352-401	N
		Oust XP	DuPont Crop Protection	352-601	Y
		SFM E-Pro 75EG	Etiga, LLC	79676-16	Y
		Spyder	Nufarm Americas Inc.	228-408	Y
		SFM 75	Vegetation Man., L.L.C.	72167-11-74477	Y
NOTE: In accordance with the Record of Decision for the <i>Vegetation Treatments Using Herbicides on Bureau of Land Management Lands in 17 Western States Programmatic Environmental Impact Statement</i> (PEIS), the aerial application of this herbicide (sulfometuron methyl) is prohibited.					
Sulfometuron methyl +	AK, AZ, CA, CO, ID, MT, ND, NE, NM, NV, OK, OR-East, SD, TX, UT, WA, WY	Landmark XP	DuPont Crop Protection	352-645	Y
Chlorsulfuron					
NOTE: In accordance with the Record of Decision for the <i>Vegetation Treatments Using Herbicides on Bureau of Land Management Lands in 17 Western States Programmatic Environmental Impact Statement</i> (PEIS), the aerial application of this herbicide (sulfometuron methyl) is prohibited.					
Sulfometuron methyl +	AK, AZ, CA, CO, ID, MT, ND, OR, NE, NM, NV, OK, SD, TX, UT, WA, WY	Oust Extra	DuPont Crop Protection	352-622	N
Metsulfuron methyl					
NOTE: In accordance with the Record of Decision for the <i>Vegetation Treatments Using Herbicides on Bureau of Land Management Lands in 17 Western States Programmatic Environmental Impact Statement</i> (PEIS), the aerial application of this herbicide (sulfometuron methyl) is prohibited.					
Tebuthiuron	AZ, CA, CO, ID, MT, ND, NE, NM, NV, OK, OR-East, SD, TX, UT, WA, WY	Alligare Tebuthiuron 80 WG Alligare Tebuthiuron 20 P Spike 20P	Alligare, LLC Alligare, LLC Dow AgroSciences	81927-37 81927-41 62719-121	Y Y Y
		Spike 80DF	Dow AgroSciences	62719-107	Y
		Sprakil S-5 Granules	SSI Maxim Co., Inc.	34913-10	Y
Tebuthiuron +	AZ, CA, CO, ID, MT, ND, NE, NM, NV, OK, OR-East, SD, TX, UT, WA, WY	Sprakil SK-13 Granular Sprakil SK-26 Granular	SSI Maxim Co., Inc. SSI Maxim Co., Inc.	34913-15 34913-16	Y Y
Duron					

ACTIVE INGREDIENT	STATES WITH APPROVAL BASED UPON CURRENT EIS/ROD	TRADE NAME	MANUFACTURER	EPA REG. NUMBER	CA REG. **
Triclopyr	AK, AZ, CA, CO, ID, MT, ND, OR, NE, NM, NV, OK, SD, TX, UT, WA, WY	Triclopyr 4EC	Alligare, LLC	72167-53-74477	Y
		Triclopyr 3	Alligare, LLC	81927-13	Y
		Triclopyr 4	Alligare, LLC	81927-11	Y
		Element 3A	Dow AgroSciences	62719-37	Y
		Element 4	Dow AgroSciences	62719-40	Y
		Forestry Garlon XRT	Dow AgroSciences	62719-553	Y
		Garlon 3A	Dow AgroSciences	62719-37	Y
		Garlon 4	Dow AgroSciences	62719-40	Y
		Garlon 4 Ultra	Dow AgroSciences	62719-527	Y
		Remedy	Dow AgroSciences	62719-70	Y
		Remedy Ultra	Dow AgroSciences	62719-552	Y
		Pathfinder II	Dow AgroSciences	62719-176	Y
		Trycera	Helena Chemical Company	5905-580	Y
		Relegate	Nufarm Americas Inc.	228-521	Y
	Relegate RTU	Nufarm Americas Inc.	228-522	Y	
	Tahoe 3A	Nufarm Americas Inc.	228-384	Y	
	Tahoe 3A	Nufarm Americas Inc.	228-518	Y	
	Tahoe 3A	Nufarm Americas Inc.	228-520	Y	
	Tahoe 4E	Nufarm Americas Inc.	228-385	Y	
	Tahoe 4E Herbicide	Nufarm Americas Inc.	228-517	Y	
	Remove 3	SePRO Corporation	62719-37-67690	Y	
	Remove 3 OTF	SePRO Corporation	67690-42	Y	
	Ecotriclopyr 3 SL	Vegetation Man., LLC	72167-49-74477	N	
	Triclopyr 3 SL	Vegetation Man., LLC	72167-53-74477	N	
Triclopyr + 2,4-D	AK, AZ, CA, CO, ID, MT, ND, OR, NE, NM, NV, OK, SD, TX, UT, WA, WY	Everett	Alligare, LLC	81927-29	Y
		Crossbow	Dow AgroSciences	62719-260	Y
		Candor	Nufarm Americas Inc.	228-565	Y
		Aquasweep	Nufarm Americas Inc.	228-316	N
Triclopyr + Clopyralid	AK, AZ, CA, CO, ID, MT, ND, OR, NE, NM, NV, OK, SD, TX, UT, WA, WY	Prescott Herbicide	Alligare, LLC	81927-30	Y
		Redeem R&P	Dow AgroSciences	62719-337	Y
		Brazen	Nufarm Americas Inc.	228-564	Y

<p><b>* Refer to the complete label prior to considering the use of any herbicide formulation. Label changes can impact the intended use through, such things as, creation or elimination of Special Local Need (SLN) or 24 (c) registrations, changes in application sites, rates and timing of application, county restrictions, etc.</b></p>				
<p><b>** Just because a herbicide has a Federal registration, and is approved under the current EIS, it may or may not be registered for use in California. This column identifies those formulations for which there is a California registration.</b></p>				

## **APPENDIX D – ADJUVENTS APPROVED ON BLM LAND IN CALIFORNIA**







Adjuvant Class	Adjuvant Type	Trade Name	Manufacturer	Comments
Surfactant (cont.)	Silicone-based	SilEnergy	Brewer International	
		Silnet 200	Brewer International	
		Scrimmage	Exacto, Inc.	
		Bind-It MAX	Estes Incorporated	
		Thoroughbred	Estes Incorporated	
		Aero Dyne-Amic	Helena Chemical Company	CA Reg. No. 5905-50080-AA
		Dyne-Amic	Helena Chemical Company	CA Reg. No. 5095-50071-AA
		kinetic	Setre (Helena)	CA Reg. No. 5905-50087-AA
		Freeaway	Loveland Products Inc.	CA Reg. No. 34704-50031
		Phase	Loveland Products Inc.	WA Reg. No. 34704-04005
		Phase II	Loveland Products Inc.	CA Reg. No. 34704-50037-AA
		Silwet L-77	Loveland Products Inc.	CA Reg. No. 34704-50043
		Elite Marvel	Red River Specialties, Inc.	
		Sun Spreader	Red River Specialties, Inc.	
		Syl-coat	Wilbur-Ellis	CA Reg. No. 2935-50189
		Sylgard 309	Wilbur-Ellis	WA Reg. No. 2935-12002
		Syl-Tac	Wilbur-Ellis	CA Reg. No. 2935-50161
		Thoroughbred	Winfield Solutions, LLC.	CA Reg. No. 2935-50167
Oil-based	Crop Oil Concentrate	Alligare Forestry Oil	Alligare, LLC	
		Brewer 83-17	Brewer International	
		CWR Herbicide Activator	Creative Marketing & Research, Inc.	CA Reg. No. 1050775-50020-AA
		Majestic	Crown (Estes Incorporated)	
		Agri-Dex	Helena Chemical Company	CA Reg. No. 5905-50094-AA
		Crop Oil Concentrate	Helena Chemical Company	CA Reg. No. 5905-50085-AA
		Power-Line Crop Oil	Land View Inc.	
		Crop Oil Concentrate	Loveland Products Inc.	
		Maximizer Crop Oil Conc.	Loveland Products Inc.	CA Reg. No. 34704-50059
		Herbimax	Loveland Products Inc.	WA Reg. No. 34704-08002
		Monterey M.S.O.	Monterey AgResources	CA Reg. No. 34704-50032-AA
		Red River Forestry Oil	Red River Specialties, Inc.	WA Reg. No. 34704-04006
		Red River Pacer Crop Oil	Red River Specialties, Inc.	CA Reg. No. 17545-50025
		Cornbelt Crop Oil Concentrate	Van Diest Supply Co.	

Adjuvant Class	Adjuvant Type	Trade Name	Manufacturer	Comments
Oil-based (cont.)	Crop Oil Concentrate (Cont.)	Corrbelt Premium Crop Oil Concentrate	Van Diest Supply Co.	
		R.O.C. Rigo Oil Conc.	Wilbur-Ellis	
		Mor-Act	Wilbur-Ellis	CA Reg. No. 2935-50098
		Agrisolutions Prime Oil	Winfield Solutions, LLC	CA Reg. No. 979-50002-AA
		Agrisolutions Superb HC	Winfield Solutions, LLC	WA Reg. No. 1381-06003
	Methylated Seed Oil	MISO Concentrate	Alligare, LLC	
		SunEnergy	Brewer International	
		Sun Wet	Brewer International	
		Premium MISO	Helena Chemical Company	
		Methylated Spray Oil Conc.	Helena Chemical Company	
		MISO Concentrate	Loveland Products Inc.	CA Reg. No. 34704-50029-AA
		Elite Supreme	Red River Specialties, Inc.	
		Red River Supreme	Red River Specialties, Inc.	
		Sunburn	Red River Specialties, Inc.	
		Sunset	Red River Specialties, Inc.	
		Corrbelt Base	Van Diest Supply Co.	
		Corrbelt: Methylates Soy-Stik	Van Diest Supply Co.	
		Hasten	Wilbur-Ellis	CA Reg. No. 2935-50160
				WA Reg. No. 2935-02004
		Super Kix	Wilbur-Ellis	
		Super Spread MISO	Wilbur-Ellis	
		Agrisolutions Destiny HC	Winfield Solutions, LLC	WA Reg. No. 1381-09002
		Atmos	Winfield Solutions, LLC	
	Methylated Seed Oil + Organosilicone	Inergy	Crown (Estes Incorporated)	
		Inergy	Winfield Solutions, LLC	
	Vegetable Oil	Motion	Exacto, Inc.	
		Noble	Estes Incorporated	
		Amigo	Loveland Products Inc.	CA Reg. No. 34704-50028-AA
				WA Reg. No. 34704-04002
		Elite Natural	Red River Specialties	
		Competitor	Wilbur-Ellis	CA Reg. No. 2935-50173
				WA Reg. No. AW-2935-04001

Adjuvant Class	Adjuvant Type	Trade Name	Munufacturer	Comments
Fertilizer-based	Nitrogen-based	Quest	Setre (Helena)	CA Reg. No. 5905-50076-AA
		Quest	Helena Chemical Company	CA Reg. No. 5905-50076-AA
		Actamaster Spray Adjuvant	Loveland Products Inc.	WA Reg. No. 34704-50006
		Actamaster Soluble Spray Adjuvant	Loveland Products Inc.	WA Reg. No. 34704-50001
		Dispatch	Loveland Products Inc.	
		Dispatch 111	Loveland Products Inc.	
		Dispatch 2N	Loveland Products Inc.	
		Dispatch AMS	Loveland Products Inc.	
		Flame	Loveland Products Inc.	
		Corrbelt Gardian	Van Diest Supply Co.	
		Corrbelt Gardian Plus	Van Diest Supply Co.	
		Bronc	Wilbur-Ellis	
		Bronc Max	Wilbur-Ellis	
		Bronc Max EDT	Wilbur-Ellis	
		Bronc Plus Dry	Wilbur-Ellis	
		Bronc Plus Dry EDT	Wilbur-Ellis	WA Reg. No.2935-03002
		Bronc Total	Wilbur-Ellis	
		Cayuse Plus	Wilbur-Ellis	CA Reg. No. 2935-50171
		Agrisolutions Alliance	Winfield Solutions, LLC	CA Reg. No. 1381-50002-AA
		Agrisolutions Class Act NG	Winfield Solutions, LLC	WA Reg. No.1381-05005
		Agrisolutions Corral AMS Liquid	Winfield Solutions, LLC	WA Reg. No. 1381-01004
				WA Reg. No. 1381-01006
Special Purpose or Utility	Buffering Agent	Yardage	Exacto, Inc.	
		Buffers P.S.	Helena Chemical Company	CA Reg. No. 5905-50062-ZA
		Spray-Aide	Miller Chem. & Fert. Corp.	CA Reg. No. 72-50006-AA
		Oblique	Red River Specialties, Inc.	
		Brimstone	Wilbur-Ellis	
		Tri-Fol	Wilbur-Ellis	CA Reg. No. 2935-50152
	Colorants	HI-Light	Becker-Underwood	
		HI-Light WSP	Becker-Underwood	
		Hash Mark Green Powder	Exacto, Inc.	
		Hash Mark Green Liquid	Exacto, Inc.	
		Hash Mark Blue Powder	Exacto, Inc.	
		Hash Mark Blue Liquid HC	Exacto, Inc.	

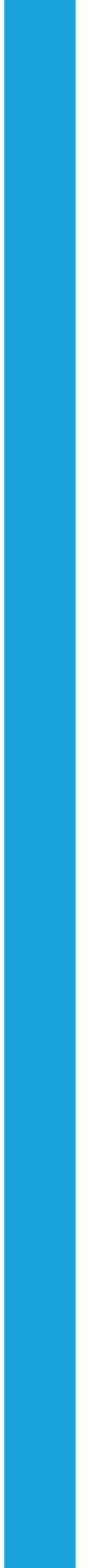
Adjuvant Class	Adjuvant Type	Trade Name	Manufacturer	Comments
Special Purpose or Utility - cont.	Colorants (cont.)	Hash Mark Blue Liquid Spray Indicator XL	Exacto, Inc.	
		Marker Dye	Helena Chemical Company	
		TurfTrax	Loveland Products Inc.	
		TurfTrax Blue Spray Indicator	Loveland Products Inc.	
		Bullseye	Miliken Chemical	
		Mark-It Blue	Monterey AgResources	
		Mark-It Red	Monterey AgResources	
		Signal	Precision	
		SPI-Max Blue Spray Marker	PROKOZ	
		Elite Splendor	Red River Specialties, Inc.	
		E Z MIX	Loveland Products Inc.	CA Reg. No. 36208-50006
	Compatibility/Suspension Agent	Support	Loveland Products Inc.	WA Reg. No. 34704-04011
		Blendex VHC	Setre (Helena)	
	Deposition Aid	Cygnat Plus	Brewer International	CA Reg. No. 1051114-50001
		Poly Control 2	Brewer International	
		CWC Sharpshooter	CWC Chemical, Inc.	
		Offside	Exacto, Inc.	
		Grounded	Helena Chemical Company	
		Grounded - CA	Helena Chemical Company	CA Reg. No. 5905-50096-AA
		Promate Impel	Helena Chemical Company	
		Pointblank	Helena Chemical Company	CA Reg. No. 52467-50008-AA-5905
		Strike Zone DF	Helena Chemical Company	CA Reg. No. 5905-50084-AA
		Compadre	Loveland Products Inc.	CA Reg. No. 34704-50050
				WA Reg. No. 34704-06004
		Intac Plus	Loveland Products Inc.	CA Reg. No. 34704-50030-AA
		Liberate	Loveland Products Inc.	WA Reg. No. 34704-04008
		Reign	Loveland Products Inc.	CA Reg. No. 34704-50045
				WA Reg. No. 34704-05010
		Reign LC	Loveland Products Inc.	CA Reg. No. 34704-50048
		Weather Gard	Loveland Products Inc.	CA Reg. No. 34704-50042-AA
		Mist-Control	Miller Chem. & Fert. Corp.	CA Reg. No. 72-50011-AA
		Sustain	Miller Chem. & Fert. Corp.	CA Reg. No. 72-50015-AA







## **APPENDIX H – WILDLIFE SPECIES OBSERVED/DETECTED ON SITE**

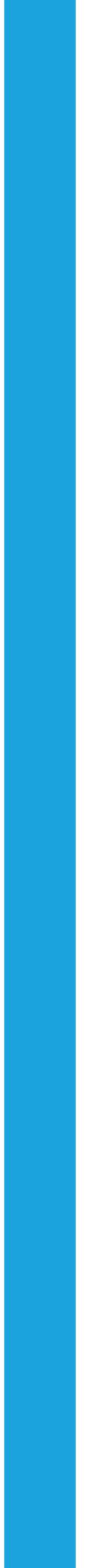


**WILDLIFE SPECIES OBSERVED/DETECTED ON SITE**

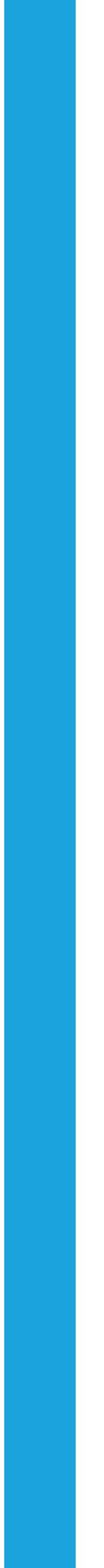
Scientific Name	Common Name
<b>CLASS REPTILIA</b>	<b>REPTILES</b>
<b>TESTUDINIDAE</b>	<b>LAND TORTOISES</b>
<i>Gopherus agassizii</i>	desert tortoise
<b>IGUANIDAE</b>	<b>IGUANAS</b>
<i>Sauromalus obesus</i>	chuckwalla
<i>Dipsosaurus dorsalis</i>	desert iguana
<b>PHYRYNOSOMATIDAE</b>	<b>ZEBRA-TAILED, EARLESS, FRINGE-TOED, SPINY,</b>
<i>Callisaurus draconoides</i>	common zebra-tail lizard
<i>Uta stansburiana</i>	side-blotched lizard
<b>TEIIDAE</b>	<b>WHIPTAIL LIZARDS</b>
<i>Aspidoscelis tigris tigris</i>	Great Basin whiptail
<b>CROTALIDAE</b>	<b>PIT VIPERS</b>
<i>Crotalus cerastes cerastes</i>	Mojave desert sidewinder
<b>CLASS AVES</b>	<b>BIRDS</b>
<b>ANATIDAE</b>	<b>DUCKS, GEESE, SWANS</b>
<i>Anas cyanoptera</i>	Cinnamon teal
<b>SCOLOPACIDAE</b>	<b>SANDPIPERS</b>
<i>Calidris mauri</i>	western sandpiper
<b>CATHARTIDAE</b>	<b>NEW WORLD VULTURES</b>
<i>Cathartes aura</i>	turkey vulture
<b>ACCIPITRIDAE</b>	<b>HAWKS, KITES, &amp; EAGLES</b>
<i>Buteo jamaicensis</i>	red-tailed hawk
<i>Buteo swainsoni</i>	Swainson's hawk
<b>FALCONIDAE</b>	<b>FALCONS</b>
<i>Falco sparverius</i>	American kestrel
<b>STRIGIDAE</b>	<b>TRUE OWLS</b>
<i>Athene cunicularia</i>	burrowing owl
<b>APODIDAE</b>	<b>SWIFTS</b>
<i>Aeronautes saxatalis</i>	white-throated swift
<b>TYRANNIDAE</b>	<b>TYRANT FLYCATCHERS</b>
<i>Tyrannus vociferans</i>	Cassin's kingbird
<b>ALAUDIDAE</b>	<b>LARKS</b>
<i>Eremophila alpestris</i>	horned lark
<b>CORVIDAE</b>	<b>JAYS, MAGPIES, &amp; CROWS</b>
<i>Corvus corax</i>	common raven
<b>ICTERIDAE</b>	<b>BLACKBIRDS</b>
<i>Quiscalus mexicanus</i>	great-tailed grackle

Scientific Name	Common Name
<b>TROGLODYTIDAE</b>	<b>WRENS</b>
<i>Salpinctes obsoletus</i>	rock wren
<b>EMBERIZIDAE</b>	<b>SPARROWS &amp; ALLIES</b>
<i>Amphispiza bilineata</i>	black-throated sparrow
<b>FRINGILLIDAE</b>	<b>FINCHES</b>
<i>Carpodacus mexicanus</i>	house finch
<b>LANIIDAE</b>	<b>SHRIKES</b>
<i>Lanius ludovicianus</i>	loggerhead shrike
<b>STURNIDAE</b>	<b>STARLINGS</b>
<i>Sturnus vulgaris</i>	European starling
<b>CLASS MAMMALIA</b>	<b>MAMMALS</b>
<b>LEPORIDAE</b>	<b>HARES &amp; RABBITS</b>
<i>Lepus californicus</i>	black-tailed jackrabbit
<b>SCIURIDAE</b>	<b>SQUIRRELS</b>
<i>Ammospermophilus leucurus</i>	white-tailed antelope squirrel
<b>CANIDAE</b>	<b>FOXES, WOLVES, COYOTES, &amp; RELATIVES</b>
<i>Vulpes macrotis</i>	kit fox
<i>Canis latrans</i>	coyote
<b>EQUIDAE</b>	<b>HORSES &amp; BURROS</b>
<i>Equus asinus</i>	wild burro (feral ass)

## **APPENDIX I – CULTURAL RESOURCES REPORT**



## **APPENDIX J – SPILL PREVENTION AND CONTINGENCY PLAN**



**Spill Prevention and Contingency Plan for  
Construction**

*Prepared for:*

AT&T Corp.

*Prepared by:*

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July 1 2008

This document should be cited as:

Forkert Engineering & Surveying, Inc. Spill prevention and contingency plan for construction.  
Prepared for AT&T Corp.

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APPENDIX A - SPILL NOTIFICATION CONTACT LIST AND CHECKLIST

APPENDIX B - CONFINED SPACE

## **1.0 PURPOSE OF THE PLAN**

This Spill Prevention and Contingency Plan (Plan) was prepared for the AT&T Corp. (AT&T) conduit construction and fiber optic cable installation project. The Plan should be used as a reference guide and will accompany the project specifications and plans. The main purpose of the Plan is to help contractor personnel prepare for and respond quickly and safely to hazardous spill incidents. If implemented appropriately, the plan will ensure an effective, comprehensive response to prevent injury or damage to the construction personnel, public, and environment during the project.

### **1.1 Project Definition**

The AT&T's project is defined on the construction drawings and covers Las Vegas C. O. to Victorville POP cable replacement activities.

### **1.2 Uses and Organization of the Plan**

The Plan is to be used to inform Contractors of the potential hazardous materials, contamination prevention, emergency spill response, and responsibilities associated with hazardous materials during construction. Contractors are expected to comply with all procedures described in this document, as well as explicit instructions given by AT&T Inspectors in emergency situations. Liability for failure to do so rests with the contractor. Any expense incurred by AT&T during project construction that results from contractor non-compliance with spill procedures, response, or damage will be passed on to the responsible contractor.

The Plan outlines the responsibilities and procedures when responding to hazardous spills involving AT&T contractors on the project. The Plan contents include:

1. General procedures for effective management of spill response within the geographic boundaries of the Plan.
2. Identification of management, equipment, and other resources that can be used during a response operation.
3. Specific spill response procedures that provide guidance for spill response planning and operations.
4. Specific notification and reporting procedures for contacting inspectors, management, and governing agencies.

A copy of this Plan shall be distributed to all personnel that may provide assistance during spill response activities for AT&T operations.

## **2.0 HAZARDS ASSESSMENT**

The hazardous materials that may be on site during installation include those usually associated with the operation and maintenance of vehicles and machinery, and include diesel fuel, gasoline, hydraulic fluid, brake fluid, antifreeze, and lubricants. Other materials considered hazardous are chemicals used in portable toilets and the associated human waste. There is also the possibility of encountering buried hazardous or toxic materials during construction operations. Each of these hazards are discussed briefly below.

### **2.1 Vehicle Fluids**

The materials associated with vehicle operation and maintenance are hazardous to humans, wildlife, and sensitive environments. Spills of diesel fuel, gasoline, hydraulic fluid, brake fluid, engine oil, lubricants, etc. are considered serious and emergency response procedures must be initiated (See Section 4.2.1). These materials can be toxic to skin, eyes, respiratory system, and internal organs. Toxicity can be transmitted in the form of liquid or vapor. These materials may also be flammable and combustible, and proper precautions must be used in handling spills. Antifreeze, freon, and other non-petroleum products are also hazardous toxic substances. The same spill prevention and response actions are to be employed with spills of these materials.

Potential sources of spills of vehicle fluids include mobile refueling trucks and construction vehicles and equipment. Potential causes of vehicle fluid spills include: emergency ruptures in fuel tanks or construction equipment; overflow of fuel from the tank during the refueling of equipment; seepage of fuel or lubricants during normal operation or storage; spills of oil or hydraulic fluid, etc. during on-site vehicle and equipment servicing; vehicle accidents; and natural disasters.

### **2.2 Chemical Toilets and Human Waste**

Proper disposal and disinfection of human waste at the construction site is required. Human waste may contain infectious bacteria, pathogens, or other health hazards. Waste must be contained in portable toilets that receive periodic cleaning and disposal of waste. Chemicals used in toilets are also hazardous to wildlife and sensitive environments. Portable chemical toilets could overflow if not pumped regularly or they could spill if dropped or overturned during moving.

### **2.3 Unknown Hazardous Materials**

The potential exists for encountering unknown buried or illegally deposited hazardous materials along the right-of-way. These may take the form of underground storage tanks, utility pipelines, unmarked drums, septic drain fields and tanks, asbestos pipe, etc. Construction personnel shall be alert to indicators of buried hazardous waste, including partially buried unidentified drums or pipe; encountering unusual resistance with equipment; or encountering unusual or unpleasant odors during construction. If any of these indicators are observed, construction shall stop until the identity of the material encountered is assessed. The hazard associated with unknown buried materials must be assumed to be high due to the unknown nature of the material. Any unknown hazardous materials encountered require special handling and emergency response procedures (See Section 4.2.4).

### 3.0 SPILL PREVENTION AND CONTAINMENT

#### 3.1 Spill Prevention Measures

The number one defense against spill is prevention. The easiest way to prevent spills is to:

- conduct proper vehicle maintenance and inspections;
- never place vehicles or equipment in or near sensitive environments,
- and store all materials in protected areas.

##### 3.1.1 Vehicle Fluids

All personnel shall be trained to maintain and inspect their vehicles and equipment. All machinery found to be a potential source of a future spill shall be removed from the construction site and repaired. Vehicles with chronic or continuous leaks must be removed from the construction site and repaired before returning to operations. No leaking of any material from equipment or vehicles will be tolerated on the job site. The contractor shall make every effort to ensure compliance prior to an incident. Contractors are solely responsible for any spills of hazardous materials and the subsequent cleanup, disposal of waste, and restoration of any contaminated areas. Hazardous materials may be disposed of at various sites within San Bernardino County and non-hazardous materials may be disposed of at either the Victorville or Barstow landfill.

Restrictions will be placed on all equipment refueling, servicing, and maintenance supplies and activities. All maintenance materials, oils, grease, lubricants, antifreeze, etc. shall be stored off-site. If they are required during field operations they shall be placed in a designated area away from site activities and in an approved storage container.

No refueling, storage, servicing, or maintenance of equipment shall take place within 100 feet of drainage or sensitive environmental resources to reduce the potential of contamination by spills. No refueling or servicing shall be done without absorbent material or drip pans properly placed to contain spilled fuel. Any fluids drained from the machinery during servicing shall be collected in leak-proof containers and taken to an appropriate disposal or recycling facility. If these activities result in damage or accumulation of product on the soil, it must be disposed of as hazardous waste (see Section 5.1). Under no circumstances shall contaminated soil be added to a spoils pile and transported to a regular disposal site.

During construction, all vehicles and equipment required on-site shall be parked or stored at least 100 feet away from rivers, streams, wetlands, known archaeological sites, and any other sensitive resource areas. All wash down activities must be accomplished away from sensitive environmental resources.

##### 3.1.3 Unknown Hazardous Materials

Awareness of the potential for encountering unknown hazardous materials, and early recognition of potentially hazardous materials are the best prevention for avoiding

emergencies. Contractors shall visually inspect the alignment prior to trenching activities for any evidence of hazardous waste storage appearing above the surface of the soil. Indicators of buried materials include: old vent pipes; concrete pads; portions of drums; pipes; tanks; discolored or stained soils; and evidence of dumping. Contractors must also be alert to encountering buried hazardous waste while trenching. If any unusual objects are hit, or unusual odors are encountered while trenching, contractors must investigate the source before proceeding. Should underground tanks or pipelines be encountered, the possibility exists for flammable materials, toxic fumes, or explosion. Trenches should be considered “confined space” when potentially hazardous materials are discovered (see Appendix B).

### **3.2 Spill Containment Measures**

Several measures can be taken to prepare for quick and effective containment of any potential spills prior to undertaking construction activities. First and foremost, each contractor shall keep adequate supplies of spill containment equipment at the construction sites. These shall include both specialized spill containment equipment (listed below in Section 3.3 “Spill Containment Equipment”) and excess supplies of straw bales, silt fencing, and portable vacuum pumps, to be available as needed.

Other spill containment measures include using drip pans and/or absorbent materials underneath vehicles and equipment every time refueling, servicing, or maintenance activities are undertaken.

### **3.3 Spill Containment Equipment**

The following equipment shall be on-site with each construction crew in the event prevention techniques are not adequate and a spill does occur.

1. Emergency Spill Kit - (general contents may vary with manufacturer) contains at a minimum:
  - a) three sorbent socks
  - b) three disposal bags and ties
  - c) one pair of safety glasses
  - d) one pair of rubber gloves
  - e) one sorbent drip pillow
  - f) sorbent pads, 18" x 18"
  - g) one Emergency Response Guide Book
  - h) two sorbent spill pillows, 24" x 18"
  - I) four hazardous labels
  - j) one bag Lite-Dri Absorbent (or equal)
  - k) dedicated shovel and broom
2. Absorbent Pads - These pads (18" x 18") are 100% polypropylene fabric that absorb 11 times their weight in liquids. Pads absorb 10 gallons of liquid per bale of 100 pads. Each crew will have 100 absorbent pads.
3. Absorbent Skimmers Booms - Skimmers will float indefinitely before or after saturation

with oils. Skimmers are made of 100% meltdown polypropylene fill that repels water. They absorb ten times their weight and can be used in lakes, streams, or on the ground. Each skimmer has a harness kit attached that is made of yellow polypropylene rope with grommets that are used to connect skimmers. Each boom is 8 ft x 10 ft. No absorbent skimmer booms will be required because no water bodies are within this project .

4. One 55 gallon clean drum, lined with polypropylene material (overpack). The drum can be used to store spill response materials until needed. When a spill occurs, all soiled pads, pillows, skimmers, contaminated soil, etc. shall be placed in the drum for disposal after the cleanup is accomplished.

It is the contractor's responsibility to make sure these materials are on-site at all times and personnel are trained in their use and disposal prior to spill response.

## 4.0 EMERGENCY RESPONSE PROCEDURES

### 4.1 Initial Notification and Activation

A formal notification process shall be initiated when a spill or potential spill is first observed. Immediate actions are necessary. The first individual who discovers a spill (spill observer) will be responsible for initiating notification and response procedures. All personnel responsible for responding to spills must have completed training in recognition and response to spills of hazardous materials. The contractor is responsible for providing spill recognition and response training for all contractor employees. AT&T will be responsible for providing spill recognition and response training for all their project personnel. The project personnel who must be notified and will assist in hazardous spill response include, but are not limited to:

1. Spill Observer
2. Contract Compliance Inspector
3. Chief Contract Compliance Inspector
4. Contractor's Job Superintendent
5. Resident Project Engineer
6. Spill Response Team

General responsibilities of the designated personnel are outlined as follows:

**Spill Observer** is the first person to witness a spill. They must immediately:

1. Make an assessment of the incident as observed;
2. If the incident can be safely controlled, take steps to do so. For example, shut off the source of spill;
3. Notify the Contract Compliance Inspector. Provide as much information as possible;
4. Begin to fill out the Spill Notification Checklist (Appendix A).

**Contract Compliance Inspectors** will be assigned to construction crews. The Inspectors will initiate the following actions:

1. Notify the Lead Contract Compliance Inspector and the Chief Contract Compliance Inspector;
2. Make sure all personnel are removed from the spill area;
3. Take immediate steps to minimize any threat to public safety (cordon off the spill area); and
4. Monitor contractor's personnel.

**Lead Contract Compliance Inspectors** will initiate the following actions:

1. Notify the Resident Project Engineer and the Contractor's Job Superintendent, and
2. Make sure all personnel are removed from the spill area;
3. Take immediate actions to minimize any threat to public safety (verify the spill area has been cordoned off);
4. Secure the source of the spill, if safely possible to do so; and
5. Maintain close observation of the spill.
6. Monitor contractor's personnel.

**Contractor's Representative** is the Contractor's Job Superintendent, or other Contractor personnel designated to fulfill the Contractor's responsibilities. They will:

1. Determine if the spill response team is needed to accomplish cleanup;
2. Determine if additional spill response support is necessary;
3. Coordinate with the Resident Project Engineer to initiate spill response;
4. Initiate Spill Response Team;
5. Complete containment, cleanup and disposal of hazardous waste;
6. Complete Spill Notification Checklist (Appendix A); and
7. Complete all reporting to AT&T and Resident Project Engineers.

**Resident Project Engineers** will:

1. Coordinate with the Contractor's Representative regarding level of spill response required;
2. Notify governmental agencies if necessary.

**Spill Response Team** are Contractor employees or outside companies hired by the Contractor who are designated to respond to spills. The Spill Response Team will:

1. Follow the Spill Response Flow Chart (Figure 1);
2. Follow the specific spill response procedures outlined in the Plan; and
3. Take direction from the Contractor's Representative for additional actions needed for spill response.

## 4.2 Specific Response Procedures

Specific response procedures have been developed for various kinds of spills including vehicle fluid spills; chemical toilet and human waste spills; and discovery of an unknown hazardous material. Some response procedures common to all spills are to keep people away from the spilled material, secure the source of the spill if this can be done safely, and determine the material spilled and the volume, extent, and potential for danger of the spill. Follow the steps outlined in the Spill Response Flow Chart (Figure 1), and the Spill Notification Checklist (Appendix A).

The first step at the discovery of any spill is keep people away from the spilled material. Close off the area and do not leave the site unattended.

Securing the source of the spill is an extremely important step in response activities. However, a source should be secured only if it can be performed safely without risk to human life or health. Steps to be taken to secure the source include turning off machinery, clamping or disabling hoses, etc.

The second step at the discovery of any spill is to fill out the Spill Notification Checklist (Appendix A). Another key element in early response to all spills is determining of the type of material spilled and the volume and extent of the spill. These facts should be determined as soon as possible in order to facilitate planning and initiate proper response operations. The volume will be needed to evaluate equipment and personnel needs, as well as requirements for storage and disposal of recovered waste. A rough estimate of the spill volume can be generated from visual observation and source identification. Minor spills are those that have the least probability of environmental damage, not necessarily the smallest volume.

#### 4.2.1 Vehicle and Machinery Spills

Incidents of loss of a petroleum product from equipment or vehicles shall be considered a spill. After the spill has been flagged to warn people to stay away, the volume and extent of the spill estimated, and initial notification procedures accomplished, the spill must be confined. Do not handle materials without wearing protective clothing (i.e. gloves, etc.). Use the Spill Response Flow Chart to determine the level of cleanup and response team necessary to handle the incident (Figure 1).

Generally follow the steps listed below:

1. When the spill is discovered begin making notations on the Spill Notification Checklist.
2. Determine if the Spill Team Response is needed to complete cleanup.
  - a) if the answer is NO, submit incident reports to AT&T and the Resident Project Engineer.
  - b) if the answer is YES, go to step 3.
3. Activate the local spill response team. Generally these are personnel designated on a construction crew, but the team may be supplemented by other contractor personnel.
4. Determine if additional cleanup contractors are necessary for a major incident. a)if the answer is NO and the incident is determined to be a minor spill, conduct internal cleanup, review and evaluate the cleanup, determine if the cleanup is beyond the local response team ability or equipment; if the answer is NO, complete the cleanup, restore the damaged areas, properly dispose of all waste, and submit incident reports to AT&T and the Resident Project Engineer.

If during cleanup, the incident is determined to be beyond the abilities of the local response team, hire additional contractors to help with the cleanup.

  - b) if the answer is YES, hire additional contractors to help with the cleanup.
5. The local spill response team shall coordinate cleanup activities with AT&T, the Resident Project Engineer, and agencies as appropriate.
6. Arrange for proper testing (if substance is unknown, the Barstow laboratory or other laboratories within San Bernardino County are potential testing facilities) and disposal of all waste.
7. Closely monitor all cleanup activities.
8. Ensure proper disposal of absorbent materials, containers, and soils, as required.

9. Complete the cleanup and restore damaged areas.
10. Submit incident reports to AT&T and the Resident Project Engineer.

Cleanup may range from very simple removal of minor spills, to installation of skimmers around large spills or between sensitive areas and spills for longer, prolonged cleanups. Cleanups can be on pavement or on soil surfaces. Contractor personnel shall be trained in the proper use of the cleanup materials.

All spills on pavement shall be thoroughly removed with absorbent socks, pillows, or pads and Lite-Dry (or equal) granules. After absorption the granules shall also be removed. All materials used in cleanup, shall then become hazardous waste. Place all materials in a 55 gallon lined drum, seal it, and label the contents. The drum must then be sent to a designated disposal site. A chain of custody form must accompany the drum (provided by disposal company). It is strongly recommended that all contractors determine a disposal site in advance of a spill incident.

All spills on soil require the same treatment as on pavement, with the exception that contaminated soil is also part of the generated hazardous waste and must be handled as such and removed from the site.

Absorbent materials shall remain in use until it has been determined by the AT&T and Contract Compliance Inspectors that a spill cleanup is complete and the incident is closed.

#### **4.2.2 Chemical Toilet Spill**

Chemical toilets are self-contained and pose little threat to the construction site. Chemicals used in portable toilets are biodegradable and generally non-toxic to humans. However, they can pose a danger to wildlife and sensitive habitats by virtue of heavy concentration of chemicals and human waste. They shall be pumped out at least one time per week. Toilets shall never be placed in or near an environmentally sensitive area.

In the unlikely event that a portable toilet spills during transport or relocation, the same procedures for other hazardous material spills shall be used. Disposal of absorbent materials shall be handled the same as other spills, with proper disposal by the toilet supply company. Use the Spill Response Flow Chart to determine the level of cleanup and response team necessary to handle the incident (Figure 1).

#### **4.2.3 Unknown Hazardous Materials**

There is always a possibility that personnel may unexpectedly encounter a hazardous situation when working in the field. The most likely materials that may be encountered during excavation would be buried underground tanks, utility pipelines, drums, or asbestos pipe.

If there is any doubt regarding the degree of hazard of a particular circumstance and

personnel are unsure as to what measures to take, the following steps shall be taken immediately to ensure the health and safety of the personnel involved.

1. STOP WORK IMMEDIATELY.
  - Personnel shall remove themselves from the hazard or suspected area.
2. OBTAIN AS MANY DETAILS OF THE SITUATION AS POSSIBLE, WITHOUT ENDANGERING YOURSELF OR OTHERS.
  - a) While obtaining information details:
    - Never enter confined spaces (i.e. excavation trench). See appendix B for description.
    - Do not handle any materials.
    - Extinguish all flames (i.e. welders, torches, cigarettes).
    - Do not remove objects from trenches or refill excavated area.
  - b) Things to note:
    - Site location/address or closest cross street and station.
    - What was encountered (i.e. tank, drum, pipe, sewage, etc.).
    - Approximate size of object.
    - Odors or any discoloring of soils.
    - Material object is made of (i.e. steel, fiberglass, plastic, etc.).
    - Was there or is there a potential for a spill, release, discharge, etc. of toxic or hazardous liquid, gas, vapor, dust, or mist?
    - Estimated amount of chemical released.
3. CONTACT SUPERVISORS IMMEDIATELY (CREW FOREMAN, AT&T LEAD CONTRACT COMPLIANCE INSPECTORS, AND CONTRACT COMPLIANCE INSPECTORS)
4. IF YOU MUST LEAVE THE SITE TO NOTIFY SUPERVISORS:
  - Appoint personnel to police the site until you return.
  - Mark off area of concern (i.e. flagging, cones, etc.).
  - Do not allow anyone to enter the site.

Following these actions, personnel shall be given proper direction from supervisors on how to proceed. By simply removing personnel from the hazard and maintaining good communications, many accidents can be avoided. Remember if there is any doubt about the safety of on-site employees in a particular circumstances, initiate the proceeding course of action. Use the Spill Response Flow Chart to determine the level of cleanup and response team necessary to handle the incident (Figure 1).

### **4.3 Reporting of Major Spills**

Upon recognition of a major spill, notification is critical to immediate response. The first notification shall be given to the nearest construction crew supervisor and the AT&T Lead Contract

Compliance Inspector so that appropriate spill response can begin immediately. After initial spill response has begun, notification and reporting to agency personnel shall occur. The following guidelines should be followed when reporting major spills:

1. Never include information that has not been verified;
2. Never speculate as to the cause of the incident or make any acknowledgment of liability;
3. Do not delay reporting because of incomplete information;
4. Notify persons/agencies and document notification and the content of the message; and
5. Complete the Spill Notification Checklist as information is confirmed (See Appendix A).

The agencies to be notified will vary depending on the spill location. Appendix A contains a listing of the agencies requiring notification, along with contact names and numbers.

## 5.0 CLOSING OF THE SPILL INCIDENT

### 5.1 Disposal of Waste

Following the cleanup of a spill, the waste, absorbent materials, protective clothing, and any soil that has been contaminated must be removed to a designated hazardous waste disposal area. All contaminated materials shall be sealed in 55 gallon drums and labeled with the contents. If the contaminant is unknown, a sample of the material must be collected and analyzed before disposal. A permit or approval in writing must be obtained prior to disposal of the drum. A copy of the permit and a chain-of-custody form (obtained from the disposal contractor or testing laboratory) must accompany the material and copies must be attached to the Spill Notification checklist submitted to AT&T and the Resident Project Engineer. It is advisable for contractors to establish a relationship with a disposal facility before an incident occurs. Local landfills may be able to receive some petroleum products. However, it is up to the contractor to perform sampling, testing, and coordination with landfills or a disposal company. Transporting hazardous waste is regulated by federal and state agencies under the Resource Conservation and Recovery Act (RCRA) and other statutes. The contractor is responsible for the proper disposal of all waste and understanding the responsibilities under federal and state statutes.

### 5.2 Final Reporting

Spill incidents that require cleanup must be reported on the Spill Notification Checklist. Notification must begin as soon as the incident occurs. The checklist shall be submitted to AT&T and the Resident Project Engineer as soon as it is complete. Forms must be submitted no longer than five days after an incident is closed. A copy of the permit or disposal approval and the chain-of-custody for the disposal must be attached to the Spill Notification Checklist. The forms shall be reviewed and filed in the contractor's file. No exceptions will be tolerated.

If a situation arises involving an unknown hazardous material, the Spill Notification Checklist can be used to report the incident. This incident may require a very different approach to removing the hazard and the contractor may be required to remove the material. The incident must still be reported by the contractor.

### 5.3 Follow-up Investigation

A critique following a spill response is beneficial to evaluate the actions taken or omitted. Recommendations and suggested modifications will be made to prepare for the possibility of future spills. Should a contractor have an abnormally high incident of spills, corrective actions may become necessary. Contractors should consider the following examples of questions that are likely to be appropriate at each stage of a critique:

#### Detection

- Was the spill detected promptly?
- How was it detected and by whom?
- Could it have been detected earlier? How?

Are any procedures available to consider which might aid in spill detection?

#### Notification

Engineer? Were proper procedures followed in notifying AT&T and the Resident Project

Agencies?

Were notifications prompt?

Was management response appropriate?

Was the Engineer notified promptly? If not, why not?

#### Assessment/Evaluation

Was the magnitude of the problem assessed correctly at the start?

What means were used for this assessment?

Was there adequate measurement or estimation of the spill volume?

What was the initial strategy for response to this spill?

Is the strategy defined in the spill plan?

How did the strategy evolve and change during this spill and how were these changes implemented?

What caused such changes?

Are there improvements needed? More training?

#### Response

What steps were taken to mobilize spill countermeasures?

What resources were mobilized?

Was mobilization prompt?

Could it have been speeded up or should it have been?

How could this be improved?

Were outside spill contractors needed and called in promptly?

Was containment effective and prompt?

How could it have been improved?

#### Command Structure

Who was initially in charge of spill response?

What sort of organization was initially setup?

Was there adequate surveillance?

Were communications adequate?

What improvements are needed?

Is more planning needed?

What are the roles and effects of the various government agencies involved?

Were government agencies adequately informed at all stages?

Were too many agencies involved?

Was there adequate agreement with the government agencies on cleanup criteria?

How was this agreement developed?

All contractors and subcontractors are responsible for their actions. AT&T and the Resident Project Engineer will provide guidance and recommendations, if necessary. Contractors shall be liable for any costs incurred by AT&T or the Resident Project Engineer as a result of their negligence regarding hazardous materials.

**APPENDIX A**  
**SPILL NOTIFICATION CONTACT LIST**

**Fiber Optic Cable Installation**

**The following information is provided as a convenience. No warranty on the accuracy or completeness is given nor should be assumed. The contractor is responsible for compiling the appropriate spill response agency contact information for their work.**

ENTITY	CONTACT	PHONE NO.	EMERGENCY
California Department of Fish and Game	Rebecca Jones Eastern Sierra Inland Deserts Region 407 West Line Street Bishop, CA 93514	(661) 285-5867	
US Army Corps of Engineers	Gerardo Salas Regulatory Branch P.O. Box 532711 Los Angeles, CA 90053-2325	(213) 452-3417	
Regional Water Quality Control Board	Tobi Tyler 2501 Lake Tahoe Blvd. South Lake Tahoe, CA 96150	(530)542-5435	
US Bureau of Land Management	Kathleen O'Connell BLM-Needles Field Office 1303 S. Hwy 95 Needles, CA 92363	(760) 326-7006	
County of San Bernardino	Grant C. Mann, PE /Contracts Department of Public Works 825 East Third Street, Room 120 San Bernardino, CA 92415	(909) 387-7920	
US Fish and Wildlife Service	Brian Croft 2493 Portola Rd, Suite B Ventura, CA 93003	(951) 697-5365	
County of San Bernardino	Mark Rodabaugh Department of Public Works/Stormwater 825 E. Third Street, San Bernardino 92415	(909) 387-8112	

**NOTE: In case of emergency call 911.**

**SPILL NOTIFICATION CHECKLIST**

Date: \_\_\_\_\_

Time: \_\_\_\_\_

Name: \_\_\_\_\_

Contractor: \_\_\_\_\_

Location/Station#: \_\_\_\_\_

Description of Spill (color, length, width, type): \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Type of Product: \_\_\_\_\_

Estimated Quantity: \_\_\_\_\_

Source of Spill (vehicle, machine, etc.): \_\_\_\_\_

\_\_\_\_\_

Describe initial containment procedures: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Weather Conditions: \_\_\_\_\_

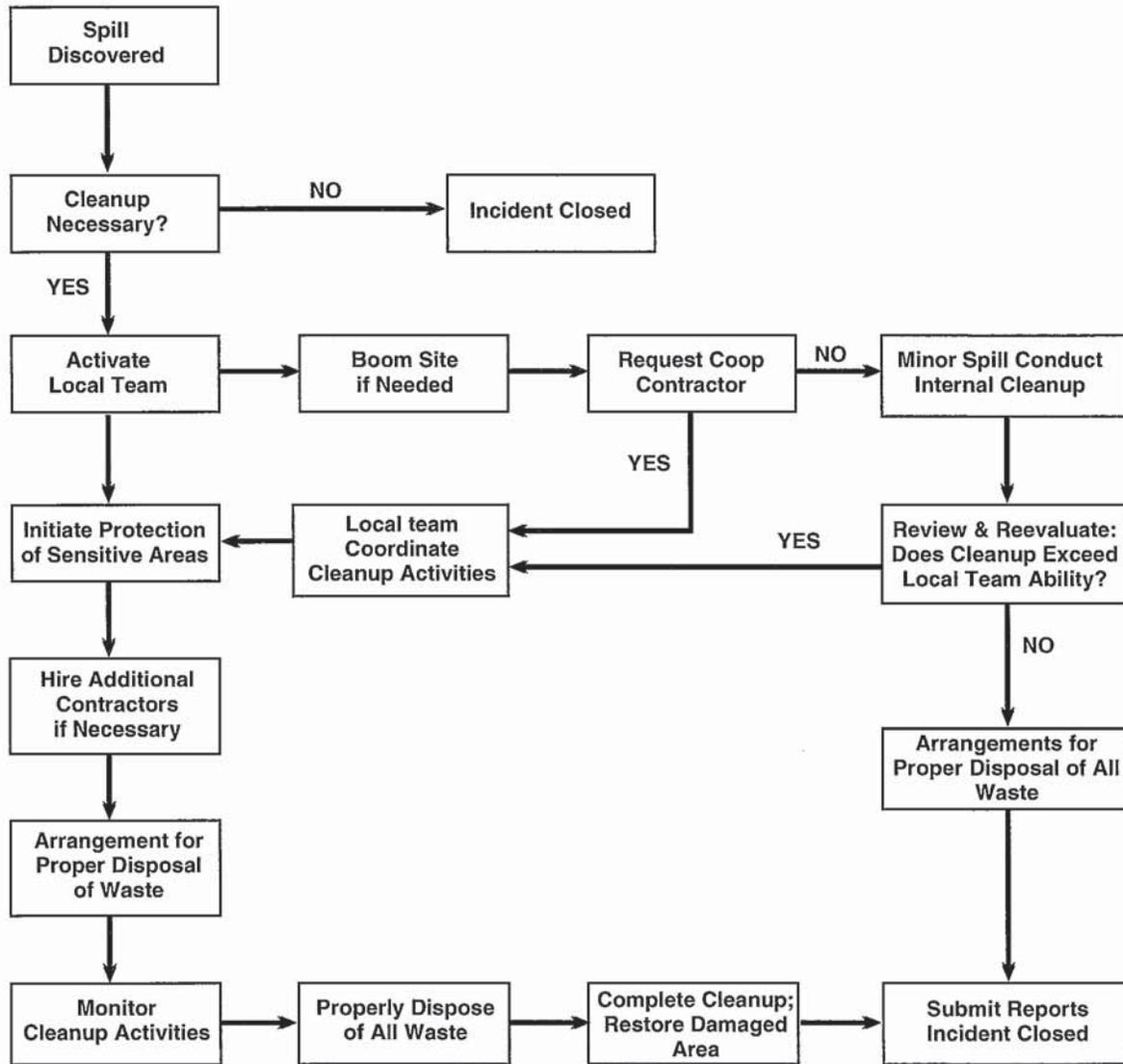
Note if spill reached any body of water: \_\_\_\_\_

Individuals notified of spill (include name, company, date, time and response): \_\_\_\_\_

\_\_\_\_\_

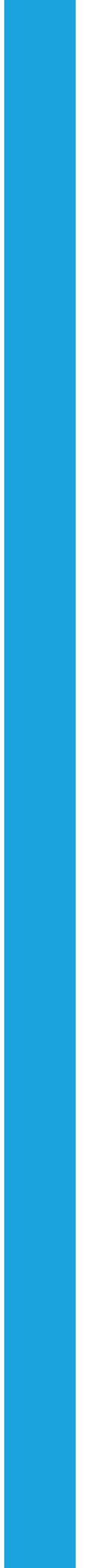


# Spill Prevention and Contingency Plan



**SPILL RESPONSE FLOW CHART**  
Figure 1

**APPENDIX K – HORIZONTAL DIRECTIONAL DRILLING (HDD) CONTINGENCY AND  
RESOURCE PROTECTION PLAN**



**HORIZONTAL DIRECTIONAL DRILLING:  
CONTINGENCY AND RESOURCE  
PROTECTION PLAN  
CONSTRUCTION OF THE AT&T FIBER OPTIC  
CABLE INSTALLATION PROJECT  
LAS VEGAS TO VICTORVILLE FTB  
CLARK COUNTY, NEVADA, AND SAN BERNARDINO COUNTY'S,  
CALIFORNIA**

*Prepared for:*

**AT&T**

*Prepared by:*

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## I. INTRODUCTION

Horizontal Directional Drilling (HDD) methods are often employed to avoid direct effects to sensitive resources such as stream crossings and archeological sites. However, indirect effects to sensitive resources may occur as a result of the inadvertent release of drilling fluids. This document provides a brief summary of HDD procedures, including an explanation of the role of drilling fluids. Furthermore, the potential effects to sensitive resources associated with HDD operations are examined followed by the presentation of a plan to avoid and minimize these potential environmental effects.

## II. GENERAL HDD OPERATING PROCEDURES AND PROJECT SPECIFIC MEASURES

Conventional HDD operations have three main steps: the pilot bore, back-reaming and the pulling of product (i.e. conduit and/or casing). The pilot bore involves drilling the length of the bore with a small-diameter drill head to establish an accurate bore path. Once the entire bore path has been pilot-bored a reamer is placed on the drill head. The reamer is then pulled back through the borehole to widen the hole (back-reaming). The final step entails attaching the product to the drill head and pulling it back through the entire length of the borehole.

HDD operations for this project range from 100 to 1000 feet in length. The depth of the bore shall be at least 10 feet below the lower extent of the sensitive resource being avoided. This depth shall increase as determined by site-specific conditions.

General commitments to be enforced project wide:

- HDD operations shall be limited to daytime hours for wet drainages and dry drainages when the National Weather Service forecast indicates a 50% or greater chance of rain within the following 24 hours;
- Depth of bore below sensitive resource shall be at least ten feet;
- Dye shall be mixed into drilling fluids to help spot surface releases at wet crossings;
- Drilling fluid materials and their respective Material Safety Data Sheets (MSDS) shall be disclosed; and
- Drilling fluids shall be monitored to assure pH values remain neutral (between 6.5 and 8.0).

The operator shall study the site-specific conditions for each drainage crossing (Table 6.3-1). Based on this information, operator shall highlight potential problem areas, prepare an appropriate site specific plan and commit to employing all measures necessary to maximize the success of the HDD operation. For example, these measures may include substituting drill bits or reamers, altering the viscosity of the drilling fluid, and introduce drilling fluid additives as indicated by soil types and varying substrates found throughout the bore profile. The following information are required aspects to be evaluated when analyzing the site-specific conditions:

- Specific geo-technical studies (only for Arroyo Santa Rosa and Calleguas Creeks);
- General geology and upland soils (from NRCS soil survey maps);
- Summary of sensitive resources present or potentially present;
- Existing conditions of bed and bank (from field visit);
- Topographic map showing the location of the stream crossing;
- Photos showing the existing setting; and
- Sketch of bore site, including equipment staging areas, approximate location of drilling entry and exit (subject to minor change at time of construction due to soil conditions encountered during bore process), approximate location of access roads in relation to surrounding area

### **III. DRILLING FLUIDS**

Typically, the drilling fluid is composed of two basic elements: water and clay particulates. The clay particulate component typically consists of bentonite. Bentonite is composed essentially of montmorillonite clay, which has a relatively high shrink-swell capacity. The structure of bentonite resembles a sandwiched deck of cards. When mixed in water, these cards or clay platelets rearrange for increased surface area exposure. Bentonite attracts water to its negative face and magnetically bonds to water molecules. Because of this unique characteristic, bentonite is capable of absorbing seven to ten times its own weight in water, and swelling up to eighteen times its dry volume (<http://www.bhbentonite.com>). Together, the bentonite and water mixture acts to lubricate and cool the drill head, seal and fill the pore spaces surrounding the drill hole, prevent the bore hole walls from collapsing inward, and suspend cuttings (native soil removed during the boring process) within the drill hole.

In some cases, inert and non-toxic Loss Circulation Materials (LCMs) are added to the mixture. These materials include, but are not limited to, cotton dust, cotton seed hulls, wood fiber, M-1 mica and cedar fiber. Specific information on all of these materials is presented in Appendix A of this plan.

During typical HDD operations, some drilling fluids are absorbed by the lateral and subterranean fractures within the formation. This is a fairly normal occurrence during HDD operations that does not necessarily mean the drilling fluid is rising to the surface or migrating great distances from the borehole. However, it is possible that drilling fluids may reach the surface by following a vertical fracture in the formation. This event is commonly referred to as a hydro-geologic fracture (frac-out). The released drilling fluids may contain a lower concentration of bentonite when they surface because they can be filtered as they pass through certain types of ground material such as sandy soils.

### **IV. POTENTIAL IMPACTS TO BIOLOGICAL RESOURCES**

The release of drilling fluid from fractures in the earth's surface may be terrestrial or aquatic in nature and vary in quantity. Terrestrial frac-outs occurring in upland areas are typically easy to contain and therefore result in relatively minor effects to the surrounding environment. Frac-outs occurring in aquatic environments are more difficult to contain primarily because bentonite readily disperses in flowing water and quickly settles in standing water. Bentonite is non-toxic, but there are two specific indirect effects of bentonite on aquatic life. Initially, the suspended bentonite may inhibit respiration of fishes, although this is typically short-lived. Once the bentonite settles, secondary long-term effects can result. For example, egg masses of fish could be covered by a layer of bentonite inhibiting the flow of dissolved oxygen to the egg masses. Secondly, benthonic invertebrates and/or the larval stages of pelagic organisms may be covered and suffocate due to fouled gills and/or lack of oxygen.

### **V. ON-SITE MONITORING**

During drilling operations, visual inspection along the bore path of the alignment shall take place at all times. Additionally, at stream crossings with flowing water monitors shall be stationed approximately 50 feet upstream and downstream of the crossing point, access permitting. On-site training shall be provided for all monitors, and names and phone numbers of the monitors shall be provided to the on-site agency representatives.

The Contractor shall supply the following information to the monitoring team throughout the duration of the HDD operation at specific time intervals (e.g. upon completion of each drill rod):

- Position of the drilling head relative to the drilling point of entry;
- Estimated total volume of drilling fluid that has been pumped during the drilling operation;

- Comparison of the current total volume of drilling fluid used and the estimated current total volume of returns;
- Equipment breakdowns and repairs;
- Any abnormal drilling fluid pressure at the time of occurrence; and
- Any change of drilling fluid contents (e.g. new bentonite mixture or introduction of LCMs).

## **VI. FIELD RESPONSE PLAN**

During the drilling process, the operator shall adjust the thickness of the bentonite mixture to match the substrate conditions and ensure continuous flow. Subsequently, the operator shall closely monitor drilling pressures and penetration rates so use of fluid pressure shall be optimal to penetrate the formation.

Some loss of returns may be inevitable as drilling fluids are absorbed by the lateral and subterranean fractures within the formation. In case of a gradual loss of approximately fifty- percent of expected returns, the Contractor shall act to restore returns, including:

- Modifying drilling fluid properties (viscosity and gel strength);
- Modifying pressure and volume;
- Advance or retreat pilot stem and/or wash over pipe (i.e. swab the borehole); and
- Introduce LCMs according to manufacturer's instructions.

A complete and sudden loss of returns serves as a signal to both the operator and the monitor that something more significant may be occurring and to watch closely for a possible surface release. This plan uses the loss of returns or pressure, the use of a tracing dye and visual indications, to trigger response and mitigation actions.

In the event of a sudden loss of approximately 75 percent of expected returns, or in the event that a surface release of drilling fluid or dye are detected, the contractor shall temporarily cease operations to determine what actions need to be taken. In areas containing sensitive resources, agency notifications shall be made and the decision to resume operations shall be determined in consultation with the appropriate agencies' representatives (Section VII). Any release to the surface shall be addressed in accordance with the release response plan (see below).

All equipment required to contain and clean up a frac-out release would either be available at the work site or readily available at an offsite location within 10 minutes of the bore site. This equipment includes the following:

- Heavy weight plastic clean gravel filled sand bags (at least 20 bags);
- Geotek filter bags 10-by-12-foot size or equivalent (at least 3 bags per segment);
- Several hard plastic (5-gallon) buckets;
- One wide heavy-duty push broom;
- Three flat blade shovels;
- Silt fence;
- Hay bales;
- Two bundles of absorbent pads to use with plastic sheeting for placement beneath motorized equipment while in operation in the vicinity of a riparian/stream zone;
- Straw logs (wattles or fiber rolls)(at least two 10-foot rolls);
- Portable pumps;
- A minimum of 100 feet of hose; and
- Vacuum truck (800 and 3000-gallon).

All primary containment equipment (i.e., all of the above items except the portable pumps and 3000-gallon vacuum truck) would be kept onsite at each bore location. 800-gallon vacuum trucks and portable pumps would be maintained onsite under the following circumstances:

(1) the crossing contains sensitive species and/or there exists flowing or standing water; or, (2) the bore has experienced a previous frac-out. General responses to frac-out releases related commitments are as follows:

- Directional boring would stop immediately;
- The bore stem would be pulled back to relieve pressure on frac-out;
- The Project Environmental Inspector (PEI) would be notified to ensure adequate response actions are taken and notifications are made;
- Terrestrial releases would be cleaned up using on-site equipment;
- A dike/berm may be constructed around the frac-out (terrestrial only) to entrap released drilling fluid;
- Response equipment stored offsite in readily accessible locations (e.g., portable pumps and fully equipped 800 or 3,000 gallon vacuum trucks) would be mobilized to recover larger releases of drilling fluid;
- Access to the frac-out release area would be via existing roads and temporary work easements. Additional access needed to perform cleanup activities would be coordinated with and require the approval of all regulating entities;
- All equipment or vehicles driven or operated adjacent to a water body or wetland would be checked and maintained daily to prevent leaks of hazardous materials.

The directional bore activities would be designed to avoid and otherwise minimize the potential for affects to sensitive biological and cultural resources. Additionally, the crew, with the guidance of on-site monitors and the PEI, would construct barriers (i.e. straw bales or silt fences) around the perimeter of all sensitive resources (e.g. stream bank, riparian vegetation, or known cultural sites) prior to the commencement of work. This technique is aimed to prevent released material from reaching the sensitive resources.

In addition to the aforementioned procedures, the following containment procedures and commitments shall be implemented for all frac-out releases located within a water body:

- A standing pipe (such as a 55-gallon drum with the top and bottom removed, heavy PVC pipe or CMP or culvert type material) shall be placed around the frac-out to contain the drilling mud;
- Sand bags would be used (if necessary) to seal the base of the standing pipe;
- Any existing berms, barriers, or silt fence established to protect sensitive resources would be strengthened, as necessary, to contain drilling fluids and prevent their encroachment on sensitive biological and cultural resources and divert drilling fluid from entering jurisdictional waters;
- Secondary containment (plastic sheeting) for the pump unit would be used;
- A trailer mounted vacuum or vacuum truck shall be deployed to vacuum out contained drilling fluids;
- Vacuumed drilling fluids shall be disposed in accordance with local, state and federal regulations;
- No refueling would occur within 100 feet of the stream zone;
- All other response activities would take place on the authorized ROW unless otherwise approved in writing.

The following commitments shall be adhered to at all sites where sensitive species have the potential to occur:

- Focused pre-construction surveys shall be conducted within two weeks prior to construction by qualified biologists to identify all species potentially affected by drilling operations;
- The results of the pre-construction surveys shall be conveyed to the appropriate agencies (Section VII);
- If focused pre-construction surveys conclude that sensitive species are absent from the site, construction would proceed.

- If sensitive species are identified in the project area, the PEI would seek advice from the appropriate regulatory agencies to determine whether or not the proposed construction would result in any adverse impact to the species. If it were decided that no adverse impact would result, then construction would commence. If it were decided that the proposed construction would result in potential adverse impacts to any sensitive species, drilling operations would not commence until further measures, developed in consultation with the appropriate agencies, ensure the full protection of all sensitive species.
- Prior to any construction activity, biological monitors would flag and demarcate all sensitive biological resources. Flagging would remain in place for the duration of the construction effort; and
- A qualified biological monitor would be onsite for the duration of the drilling operation.

## **VII. PROPER NOTIFICATION AND DOCUMENTATION**

If a frac-out occurs or any degree of dye were detected within the water column of the stream, the PEI shall immediately notify the appropriate permitting agencies, and additional follow-up response actions would be developed in coordination with agency representatives. The following entities shall be contacted by phone with a written report to follow:

- The appropriate county office, or designated county representative, shall be notified if there were a release of any amount of drilling fluids.
- The appropriate California Department of Fish and Game (CDFG) office, or designated CDFG representative, shall be notified if there were potential adverse affect to a stream, wetland, or State listed threatened or endangered species or its habitat.
- The appropriate United States Fish and Wildlife Service (USFWS) office, or designated USFWS representative, shall be contacted if a federally listed threatened or endangered species or its habitat were potentially affected by a release.
- The appropriate National Marine Fisheries Service (NMFS) office, or designated NMFS representative, shall be contacted if a federal-listed threatened or endangered fish species (e.g., southern steelhead trout) or its habitat were potentially affected by a release.
- The appropriate Regional Water Quality Control Board (RWQCB) office shall be contacted in the event of a release in any Waters of the State where standing or flowing water were present, or if a release has the potential to affect a stream channel.
- The appropriate United States Corps of Engineers (Corps) office shall be contacted in the event of a release in any Waters of the United States where standing or flowing water were present, or if a release has the potential to affect a stream channel.

Documentation of environmental compliance would include written reports of observations, documentation of events and follow-up, and project tracking. The following forms of documentation shall be submitted to the noted agencies on a timely manner:

- Pre-construction survey reports for biological and botanical resources shall be provided to the appropriate county, CDFG, and USFWS prior to construction.
- Pre-construction geo-technical evaluations at major bore sites would be provided to the appropriate county, CDFG, and RWQCB prior to construction.
- Monthly Monitoring Reports would summarize construction activity and daily monitoring logs for the previous month of construction, and would be provided to the appropriate county, CDFG, and RWQCB.
- Post-Construction Summary Report would summarize the construction activity and monitoring results for the Project, and would be submitted to the appropriate county, CDFG, RWQCB, NMFS, and USFWS.
- Post-Construction Revegetation Monitoring Reports would be prepared annually for the first 3 years following construction. These reports would be provided to the appropriate county, CDFG, and USFWS.

## VII. TRAINING OF PROJECT PERSONNEL

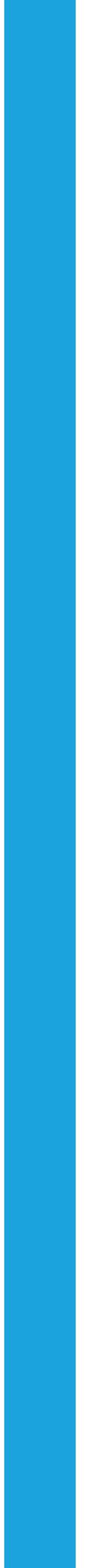
Prior to the commencement of construction, the Contractor's and engineer's personnel shall attend a training session on-site. The training session shall cover the following topics:

- Details of the information found within this Plan;
- Specific permitting conditions and requirements;
- Requirement to retain copies of all appropriate permits on the site during all operations;
- Sensitive resources located at or near the site;
- Requirement to monitoring during all operations;
- Situations that invoke a halt of operation;
- Proper lines of communication (see attached flow diagram);
- Proper lines of authority and responsibility(see attached flow diagram);
- Information the Contractor shall provide to the monitoring personnel and engineering site representative;
- Contact names and phone numbers of the appropriate individuals and agencies; and,
- Types of events that the Contractor is required to report and to whom.

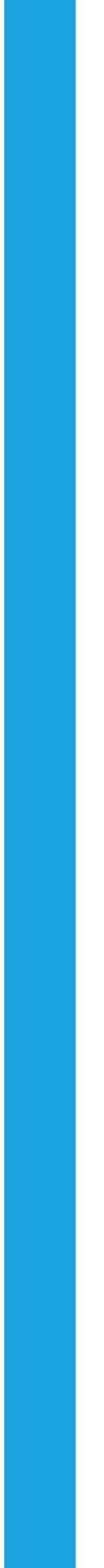
The Contractor shall provide an overview of the drilling operation in their work plan. The training session shall ensure that Contractor personnel recognize the authority of the on-site monitors to stop drilling.

The focus on environmental orientation would be to both educate and motivate all project personnel to minimize disturbance to the surrounding environment and to take actions to protect sensitive resources. Knowledgeable environmental compliance team members would be available to answer questions and provide relevant information as requested. The worker orientation program would inform project workers of their responsibilities in regards to sensitive biological resources. The PEI would serve as a contact for issues that may arise concerning implementation of protection measures, and to document and report on adherence to these measures.

**APPENDIX L – AT&T SAFETY PLAN**



## **APPENDIX M – JURISDICTIONAL DELINEATION REPORT**



**JURISDICTIONAL DELINEATION REPORT  
FOR THE  
AT&T STATE ROUTE 127 FIBER-OPTIC  
CABLE INSTALLATION PROJECT  
SAN BERNARDINO COUNTY, CALIFORNIA**

***Prepared for:***

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**August 2014**

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## **SECTION 1.0 – INTRODUCTION**

The AT&T Corporation (AT&T) proposes a fiber optic cable (FOC) installation project from the unincorporated community of Baker, California, to the United States (U.S) Army National Training Center (NTC) at Fort Irwin (Project or Proposed Action). The Project would install approximately 13 miles of FOC within previously disturbed areas (Route). The majority of the Route roughly parallels SH-127, and proceeds from the Baker Regeneration Station southwest of the community of Baker northeast to Cell Tower Site 9 at the NTC. The new FOC is needed to support AT&T's Shoshone Central Office cellular network and the NTC's Combat Training Center – Instrumentation System Range Communications System (CTC-IS RCS).

Currently, the AT&T cellular network along SH-127 and the AT&T Shoshone district is interconnected by wireless microwave transmitters. The system has limited bandwidth and increasing maintenance requirements as it ages. Replacement and upgrade of the current system with additional microwave transmitters represents higher costs of equipment and maintenance, and involvement of a greater amount of natural resources. The Proposed Action would add the needed bandwidth and reliability to the system at reduced operational cost and reduced involvement of natural resources.

The NTC's CTC-IS RCS provides tools to analyze training performance information and provide detailed and tailored performance feedback to the units undergoing training at Fort Irwin. There are currently two lines of FOC connecting Fort Irwin with NTC's cellular and data network; one operated by Verizon Wireless and the other operated jointly by the NTC and China Lake Naval Air Weapons Station. Both lines lack needed bandwidth capability and/or connective reliability. The Proposed Action adds connective redundancy to the NTC's cellular and data network and needed bandwidth to meet present and future communication needs at the NTC and provides a first stage link to the Shoshone district.

### **1.1 PROPOSED ACTION**

Under the Proposed Action, United States Bureau of Land Management (BLM) would approve a Right of Way (ROW) Grant to AT&T to facilitate FOC installation activities from the unincorporated community of Baker, California, to Cell Site 9 at the NTC. The Proposed Action would perform installation activities along the approximately 13-mile Route, the majority of which roughly parallels SH-127, from the Baker Regeneration Station southwest of the community of Baker northeast to the NTC site located approximately one-half mile inside the installation's Eastern boundary.

Project activities within the Route consist of installing three (3) new direct buried 1.5" diameter high density polyethylene (HDPE) ducts and twenty-five (25) 3'x5'x3' direct buried cable splice vaults spaced approximately 3,000 feet apart. In addition, marker poles and a buried marker ribbon will also be installed. Staging areas for installation would occur near the Route in developed areas.

All installation activities would take place within roadways or disturbed roadway shoulders. No Project activities would take place within the surrounding habitat. Existing access roads would only be used to access the Route and for parking during Project activities. The access roads would not be blocked and public or maintenance vehicles would not be prevented from passing through.

### **1.2 ROUTE DESCRIPTION**

The Route follows a path between AT&T's existing Baker Regeneration Station and the National Training Center's Cell Tower Site 9 as shown in Figure 2. Beginning at AT&T's existing Baker Regeneration Station

approximately 1.5 miles southwest of Baker, the Route travels northeast through Baker following AT&T’s existing power line maintenance road approximately 1.00 mile, paralleling Baker Boulevard. The Route then turns left and travels parallel to Mill Road for approximately 1.00 mile. Turning right, the Route parallels Silver Lane for approximately 0.44 miles until it reaches SH-127, north of Baker. The Route then crosses to the east side of SH-127 and runs north along SH-127 for approximately 7.21 miles. The Route then turns west onto Silver Lake Road and continues for approximately 3.48 miles to Site 9.

For the purpose of organizing the data, the Route has been divided into the following four segments;

- Segment 1, approximately 2.44 miles, occurs from the existing Baker Regeneration Station northeast through the unincorporated community of Baker to SH-127.
- Segment 2 occurs from SH-127, north for approximately 7.21 miles to Silver Lake Road.
- Segment 3, approximately 2.88 miles, occurs from Silver Lake Road west to the Fort Irwin border.
- Segment 4 occurs from the border of Fort Irwin to Site 9 for approximately 0.6 miles.

The Route crosses through land owned and/or managed by BLM, Fort Irwin, State Lands Commission, and private individuals and entities. Table 1 lists the miles of land owners/managers crossed per Route segment.

**Table 1: Land Ownership or Management per Segment**

LAND OWNER	LENGTH PER SEGMENT (MILES)				TOTALS
	1	2	3	4	
BLM	0.47	5.88	2.70	0.01	9.06
Fort Irwin	0.00	0.00	0.00	0.59	0.59
State Lands Commission	0.00	1.16	0.00	0.00	1.16
Private	1.97	0.17	0.18	0.00	2.32
<b>Total</b>	<b>2.44</b>	<b>7.21</b>	<b>2.88</b>	<b>0.60</b>	<b>13.13</b>

Source: BLM California State Office, Mapping Sciences Sacramento, CA (Accessed March 24, 2014).

## **SECTION 2.0 – CONSTRUCTION SPECIFICS**

### **1.1 FIBER OPTIC CABLE AND CONDUIT**

#### **2.1.1 Fiber Optic Cable**

FOC resembles a traditional copper conductor telephone cable in outward appearance. Instead of copper conductors, however, it contains multiple glass fiber strands used to transmit pulses of highly concentrated light. The glass fibers are protected by various internal cable components, including buffer tubes, mylar tape, an inner polyethylene sheath, a steel shield, and a waterproof outer polyethylene sheath. The total outside diameter of the cable is approximately 0.7 inch.

#### **2.1.2 Fiber Optic Cable Conduit**

The Project will consist of installing three (3) new direct buried 1.5" diameter high density polyethylene (HDPE) ducts bundled together at a depth of approximately 4 feet. After the conduits are installed, FOC would be pulled through one of the empty conduits. There are no current plans for use of the other conduits; however, as with its other current-day cable projects, AT&T proposes to install extra conduits so that the Project area would not have to be disturbed again when need for a spare conduit arise in the future.

#### **2.1.3 Access Vault/Manholes**

Additional underground components include approximately twenty-five (25) access vaults buried with 18 inches of coverage to ground surface. Vaults would be placed approximately every 3,000 feet to enable access to the underground conduits. The buried access vaults measure 3.0 by 5.0 by 3.0 feet and are not visible from the surface. The vaults will be installed and contained along the Route.

#### **2.1.4 Subsurface Warning Tape**

A continuous ribbon of Buried Cable Warning Tape would be placed 18 inches above, and parallel to, the installed conduit. The warning tape would be imprinted with a warning message at 2-foot intervals. This tape serves as a final warning to excavators that FOC is buried below. The high-density tape is a 6-inch wide, 6-ply, co-polymer and is impervious to soil acid alkali and/or other natural soil agents.

#### **2.1.5 Marker Posts**

Above-ground warning marker posts will be installed along the entire Route at intervals of approximately 500 to 700 feet. Posts are installed to provide visible evidence of the presence of buried cable, identify the owner of the cable, and provide a telephone number for emergency notifications. Marker posts will be installed securely, to a minimum depth of 3 feet.

#### **2.1.6 Distance from Other Utilities**

Consistent with AT&T Plant Project Guidelines, placement of the New Conduit would not be any closer than 2 feet to any other existing underground utility line.

## **1.2 CONSTRUCTION AND CABLE INSTALLATION METHODS**

The proposed conduit would be placed using various construction techniques. Those techniques would be conducted as explained below and would be selected based on terrain conditions and any existing sensitive environmental constraints.

### **2.2.1 Cable Plowing**

Cable plowing is a technique that can be used to install new cable conduits directly into the ground without excavation of a trench. Ground disturbance during plowing is typically limited to a relatively small furrow of earth (approximately 16 inches in width) pushed through by the plow shank. After the conduits are installed, the furrow is compacted back in place by the back end of the plow. This method is typically used in open areas with suitable terrain and no sensitive environmental constraints.

### **2.2.2 Trenching**

Trenching, where necessary, will be implemented using either backhoes, trenching machines or excavators. Trenching consists of excavating linear ditches, installing fiber optic cable conduit into the ditch, backfilling and compacting. Trenching is expected to be limited during the course of construction and no more trench than can be backfilled on one day will be allowed. Trenches will not be left open overnight unless steel plates are placed on top for safety.

Trench backfilling will be accomplished with a rubber-tired backhoe/loader, motor graders, vibrator compactors, and small dozers. Backfill material will be compacted to prevent erosion and soil settlement. Backfill material consists of native soils or imported aggregate base. In most cases, the native material excavated during installation will be placed back in the trench as backfill and compacted to its pre-construction condition.

### **2.2.3 Directional Boring**

The directional boring construction method consists of subsurface boring using a guided drill head and installation of fiber optic cable conduit into the bore. Ground surface disturbance is minimized by use of this construction method. Directional boring uses a bentonite/water mixture that is pumped down the drill stem to run the drill head, lubricate the drill pipe, maintain the bore hole, and remove bore cuttings. Bentonite is a fine clay that, when mixed with water, provides the necessary lubricant and operating fluid for the drilling process. Directional bores, if necessary, would occur intermittently in conjunction with construction of various phases. The minimum depth of the bore will be 60 inches.

In the event that limited directional boring is required, AT&T will implement a Horizontal Directional Drilling Contingency and Resource Protection Plan.

### **2.2.4 Staging and Laydown Areas**

During construction, staging areas for construction, equipment, materials, fuels, lubricants, and solvents will be established to allow efficient use and distribution of materials and equipment. Staging areas would be located in existing contractor yards, existing staging areas established by other utility companies, previously cleared, graded, or paved areas, or level areas where grading and vegetation clearing are not required. No grading to establish new staging areas will occur. No new access roads will be constructed as part of this Project. Parking would not take place within habitat.

### **2.2.5 Soil Compacting and Restoration**

Disturbed portions of the Route would be restored to pre-Project contours and conditions. All trenches would be backfilled immediately after the conduits are installed. Any trenches that cannot be backfilled at the end of the working day would be covered with steel plates or plywood sheets overnight. Backfilling would be accomplished with a rubber-tired backhoe/loader, motor graders, vibrator compactors, and small dozers. Backfill material would be compacted to prevent erosion and soil settlement. Backfill material consists of native soil or imported aggregate base. In most cases, the native material excavated during installation would be placed back in the trench as backfill and compacted to its preconstruction condition.

## **1.3 FIBER OPTIC CABLE INSTALLATION METHODS**

### **2.3.1 Fiber-Optic Cable Conduit Proving**

Installation of FOC through new conduit may be hampered by blockages, snags, or other problems. To remedy this problem, the conduit would be tested or “proved” as soon as the conduit installation is complete and the pull boxes/splice boxes have been set. Prior to installing the FOC, a mandrel (small piece of wood or metal) would be pulled through the conduit on a line to ensure clear passage.

### **2.3.2 General Installation of Fiber-Optic Cable**

Traditionally, the most common method of installing communication cable into a conduit is through a method called “cable pulling.” A limitation of this method is that the maximum force allowed on the cable (tensile strength) restricts the length of installation during a pull. To overcome these limitations, air-assisted installation or “cable blowing” methods have been developed for the installation of lightweight and lower tensile cable (i.e., FOC). The following sections provide a more detailed description of the general procedures, equipment, and personnel involved in a FOC pulling (traditional) and air-assisted cable blowing installation process.

### **2.3.3 Pulling of Fiber-Optic Cable**

The cable installation process is initiated by accessing the conduit system through opening existing buried vaults or manholes (approximately 2 per mile). Generally, a cable pulling crew opens only the vaults or manholes needed to install a predetermined length of cable. These vaults or manholes are then closed or plated at the end of each day to ensure safety. Access to selected vaults or manholes may be required for approximately 1 to 3 days during the time required to pull each cable segment of approximately 16,000 feet.

The cable pulling process begins by moving the cable reel and cable-placing equipment to an open access point for a section of conduit in which the cable is to be installed. The location of this access point along the section is selected based upon the crew’s chosen placement technique. In the placement technique called “figure-eighting,” the reel is brought to the first access point along the section of conduit to be pulled, and the pulling equipment is moved to the access point at the end of the first section. After threading or blowing the pull-line through the first section of conduit and attaching it to the cable, the total length of cable segment is then pulled through the first section. The excess cable is laid out neatly in a figure-eight pattern (approximately 20 feet in length) on the ground at the second vault. The pulling equipment is then moved to the access vault of the next section of conduit. The line is threaded or blown back through the conduit and re-attached to the cable. The figure-eight of cable is

then pulled through this second section of conduit. This process is continued from access vault to access vault until the complete section of cable is installed.

Another placement method is called “bi-directional” pulling. Bi-directional pulling involves starting the cable installation process in the middle of the conduit section to be installed. The cable is then threaded or blown in both directions. During this placement method, the cable reel sits at an access vault in the middle of the conduit section, while pulling equipment is placed at each end of the section. This method reduces the length of cable that is pulled and figure-eighted through each access vault.

The placement technique that is selected for an FOC pulling operation is dependent upon site-specific variables relating to the section of conduit to be installed. Cable installation experts make the decision regarding which technique to use at the time of cable placement. Cable can typically be pulled at a speed of 75 to 200 feet per minute for a length of 1,500 to 3,500 feet. To aid in the speed and length that a cable can be pulled, lubricants are manually placed into the conduit during the threading of pull rope and applied to the cable itself during cable pulling. The quality used is dependent on how the operator feeds the lubrication. A cable-pulling operation typically requires 5 to 10 gallons of lubricant for one 16,000-foot reel of cable. Typical modern lubricants are composed of non-toxic, water-based polymer materials.

#### **2.3.4 Blowing of Fiber-Optic Cable**

As with cable pulling, the cable blowing process is initiated by accessing the conduit system by opening existing buried vaults or manholes. Also like cable pulling, the installation crew begins the cable blowing process by moving the cable reel and all cable blowing equipment to an access point at either the beginning or middle of the section to be installed. Using either the figure-eighting or bi-directional placement technique, the cable is then blown through the conduit using a method such as the high air speed blowing (HASB) or the piston (push/pull) method.

In the HASB method, a large air volume is blown through the conduit during installation. The air suspends the cable in the conduit, and a mechanical pusher advances the cable through the conduit. Air suspension of the cable in the conduit reduces friction during the installation process, thus reducing the need for lubrication.

The piston (push/pull) method attaches a piston/missile carrier to the front of the cable. The carrier is pushed through the conduit by air pressure force and pulls the cable along with it through the conduit, assisted by the mechanical drive unit. Because the conduit is partially blocked by this carrier, this method does not require as much airflow as the HASB method.

The placement technique and blowing method that is selected for an FOC blowing operation is dependent upon site-specific variables relating to the section of conduit to be installed. At the time of cable placement, cable installation experts decide which technique and method to use.

Cable can typically be blown at a speed of 200 to 350 feet per minute for a length of 3,000 to 8,000 feet. To aid in the speed and length that a cable can be blown, lubricants are applied to the insides of the conduit walls by blowing a lubricant-soaked sponge through the conduit. To coat the cable itself as it is blown, lubrication is also filled into blocks that are clamped around the cable-blowing machine. The typical quantity of lubricant used in a blowing operation is quite small, only about 12 ounces per reel of cable. As with cable pulling lubricants, modern cable blowing lubricants are comprised of non-toxic, water-based polymer materials.

### 2.3.5 Equipment

Due to the variety of equipment that may be used to accomplish installation of the FOC and conduits associated with the Project and the fact that each contractor has a slightly different equipment inventory, it is not feasible to provide a completely accurate list of the type and quantity of engine-driven equipment that would actually be used. Based on the size of the job and AT&T's past experience, a list of equipment that would likely be used during the construction process is included in Table 2. All equipment will stay within the confines of the Project area.

**Table 2: Fiber-Optic Cable Installation Typical Equipment List**

Equipment by Construction Activity	Number	Crew Size
<b>Conduit Installation</b>		
D-9 Caterpillar	1	10-13
Backhoe	2	
10-wheeler truck	1	
Semi-trailer truck	1	
¾ Ton pickup truck	5	
Excavator	1	
Trencher	1	
Dozer/Plow	1	
Loader	1	
Water Truck	1	
<b>Cable Placing</b>		
One-ton truck (tows cable trailer)	1	6-9
Cable reel trailer	1	
Cable reel	1	
¾ Ton pickup truck (tows air compressor)	1	
Semi-trailer truck	1	
Air blower device	1	
Mechanical pusher/puller	1	
Pull line	1	
Backhoe	1	

## 1.4 CONSTRUCTION TIMELINE AND SCHEDULE

### 2.4.1 Timeline

AT&T estimates that the Project will take approximately 6 weeks to complete with construction activities beginning September 2014 and ending October 2014. During this time, various aspects of construction will be occurring simultaneously, including the following: conduit plowing, trenching, directional drilling, cable pulling, splicing and testing, and final restoration of the disturbed areas.

## **2.4.2 Schedule**

Construction crews would generally work a minimum 5-day workweek and an 8- to 10-hour workday. Unless required by specific restrictions, workdays typically begin at 6:00 a.m. and end at 4:00 p.m. (daylight to dusk), and depending upon the time of year.

## **1.5 RESTORATION ACTIVITIES**

Final restoration is the last phase of the work and includes detailed grooming of the disturbed access road area to pre-project contours and conditions, removal of construction debris, and repair of existing erosion control devices. The restored dirt road will meet AT&T's compaction standards.

## **1.6 OPERATION AND MAINTENANCE**

Operation and maintenance activities will be implemented along the Route for the life of the Project. No new access roads will be constructed for operation and maintenance activities. Ground-disturbing activities associated with ongoing operation and maintenance procedures are normally minor. These activities will consist mainly of repair of erosion control devices or cable conduits in the event of storm damage, landslides, or other emergencies. In most emergency situations, review of damaged areas would be accessed via public roads and route access roads.

## **1.7 COMPLIANCE WITH ALL LAWS**

AT&T contractually requires its contractors to comply with all federal, state and local laws (including all statutes, ordinances, regulations, orders, and codes).

## **1.8 APPLICANT-INITIATED ENVIRONMENTAL CONSTRUCTION MEASURES**

In order to minimize adverse impacts to the environment, AT&T would be required to comply with BLM standard operating procedures (SOP) for the use of public lands as required by law, regulation, and/or other BLM guidelines and County of San Bernardino guidance. The proposed Applicant-Initiated Environmental Construction Measures (CM) that would be employed by AT&T and/or the construction superintendent are provided in Appendix A.

### **General Commitments**

- No wetlands will be filled or disturbed.
- All Project activities would be confined to the Route and approved access roads and storage areas. The Project construction boundaries would be clearly delineated with fencing, stakes, or flagging. If unforeseen circumstances require disturbance beyond the Route, AT&T would notify the BLM or the County of San Bernardino immediately, as appropriate. AT&T would not create any new dirt or paved roads. Leftover excavated material shall not be left in place, but would be disposed of in designated areas and in a manner approved by BLM and the County of San Bernardino.
- Pre-construction biological surveys will occur to ensure that the work will not impact any sensitive plant or animal species.

- Biological and cultural resource monitors will be present for the construction work.
- All construction equipment and personnel will be confined to the Route.
- A spill prevention and response plan will be implemented.
- All cable installation debris, construction spoils, remaining installation materials, and miscellaneous litter will be collected for proper offsite disposal.
- No pets or firearms (excluding law enforcement personnel) are to be permitted on the Route.
- AT&T would implement a trash-abatement program during pre-construction phases of the Project and would continue the program throughout the duration of Project construction. No trash would be left onsite. All trash and food items would be contained within Project vehicles and not left on the roadside or out in the open. Trash and food items would be disposed of promptly in predator-proof containers with re-sealable lids. Trash containers would be removed at the end of each work day to reduce the attractiveness of the area to ravens and other predators of the covered species.
- Equipment access, off road travel, use of staging areas, and disposal or temporary storage of excess fill are prohibited activities in drainages outside of the identified construction zone.
- Project vehicles would be restricted to existing roads. Off-road or cross-country travel would be prohibited except in emergency situations; whereas the BLM or the County of San Bernardino would be notified immediately. No additional dirt or paved roads would be created.
- Vehicle speeds would not exceed 20 miles per hour (mph) during construction activities. The speed limit would be maintained along the Route and on unpaved access roads while driving in desert tortoise habitat. Limiting all onsite vehicle speeds to 20 mph would also control fugitive dust emissions.
- Within temporary disturbance areas, spoils from the trench would be piled and vegetation would be covered with silt fencing (or other plastic covering) prior to trenching activities. Backfilling activities would consist of carefully pushing soils off the plastic covering to avoid uprooting vegetation to the greatest extent possible. In areas where the trench line is located within temporary disturbance areas, vegetation would be transplanted with salvaged plants and re-seeded according to the approved Project Restoration Plan.

#### **Air Quality/Fugitive Dust Control**

- The construction superintendent would cease all earth moving or excavation activities during periods of high winds (i.e., winds greater than 20 mph averaged over 1 hour).
- The construction superintendent would sufficiently water or secure all material transported offsite to control the release of dust.
- The construction superintendent would control Ozone precursor emissions from mobile equipment by keeping all engines in good condition and in proper tune according to manufacturer's specifications.

- The construction superintendent would monitor onsite mobile equipment, which should not be left idling for periods longer than 60 seconds. Implementation of previously described general commitment would control fugitive dust emissions by limiting all onsite vehicle speeds to 20 mph.

## **Biological Resources**

- Provisions would be made to inform the construction contractor, prior to beginning of construction, of the biological constraints associated with this Project.

A field contact representative (FCR) would be retained to oversee all aspects of construction monitoring that pertain to biological resources protection, and to ensure compliance with all CMs and mitigation measures. The FCR would be responsible for the contractor education program and would monitor all maintenance/replacement activities in areas supporting listed and/or proposed species and critical habitats. The FCR would be responsible for scheduling and/or implementing pre-construction surveys, and would have the authority to stop maintenance/replacement activities that threaten significant biological resources for which no avoidance, minimization, or compensation procedures have been established in this document. The FCR would serve as the liaison between AT&T and the contractor and would act in AT&T's interest in resolving conflicts between resource protection and Project implementation. At least 30 days prior to ground- or vegetation-disturbing activities, AT&T would submit the name, qualifications, business address, and contact information for the proposed FCR to the BLM. To ensure compliance with the all Project conditions, the FCR would have the authority to immediately stop any activity that is not in compliance, and/or to order any reasonable measure to avoid the take of a covered species.

- A contractor education program would be implemented to ensure that contractors and all construction personnel are fully informed of the biological resources and constraints associated with this Project. Only workers who have successfully completed the education program would be allowed to work on the Route.

The FCR would arrange to provide all construction personnel with an orientation and information pamphlet that includes: distribution of the desert tortoise, behavior and ecology of the tortoise, sensitivities to human activities, legal protection, penalties of violation of state and federal laws, reporting requirements, and project protective mitigation measures.

The education program would focus on:

- the purpose for resource protection;
- the identification of sensitive resources involved in the Project;
- construction practices to be employed to protect sensitive resources;
- protocol to resolve conflicts that may arise during the construction process;
- ramifications of noncompliance;
- measures designed to minimize the effects of construction activities;
- the means by which employees can help facilitate this process; and
- reporting procedures.

This program would be conducted by the FCR or a qualified designee, and would be required of all construction personnel.

## **Cultural Resources**

- Cultural resource monitors would be present for maintenance/replacement activities.
- If buried cultural materials are identified during maintenance/replacement activities, the construction superintendent would halt all work in that area until a qualified archaeologist can evaluate the nature and significance of the finds.
- Upon discovery of potential human skeletal remains, all activity in the area of discovery would cease immediately. The County Coroner would be notified immediately (within 24 hours) to make a determination as to human or nonhuman skeletal remains, and the circumstances, manner and cause of death. At the same time, BLM and/or CSLC would also be notified of the discovery. If the Coroner determines that the remains are Native American, BLM, CSLC, and/or the proponent would contact the NAHC to identify a Most Likely Descendent. BLM would also notify the potentially affected tribe(s).

## **Erosion and Sediment Control**

- AT&T has prepared a Stormwater Pollution and Prevention Plan (SWPPP) to address controlling construction-related erosion and sedimentation and would be operating under the General Stormwater permit from the SWRCB.
- BMPs would be employed to prevent loss of habitat due to erosion caused by Project-related impacts (i.e., grading or clearing). All detected erosion would be remedied as quickly as feasibly possible after discovery.
- The construction superintendent would be responsible for constructing and installing all BMPs outlined in the SWPPP to limit sediment movement. Flow dissipation and sediment control structures would also be constructed in appropriate locations. Small sediment areas, designed for catching runoff and storing sediment from exposed and erodible surfaces, would be built prior to construction start-up where they are deemed necessary. These structures would be maintained and cleaned out as often as necessary for as long as erodible surfaces were exposed. Small, certified weed-free hay bale dams would be placed below slopes as temporary erosion control measures.

## **Excavation and Trenching**

- All excavations would take place within the Route. BMPs would be incorporated to prevent the soil from becoming airborne or being washed away as sediment. Stockpile areas, if warranted, shall be reviewed and approved by the FCR.
- All trenches and holes would be inspected for desert tortoises and other animals at least three times daily (start of shift, mid-day, and end of shift). Each hole or trench would be inspected for desert tortoises prior to its being closed. Trenches would not be left open overnight. They would either be backfilled or covered with steel plates or plywood sheets. All trenches would be inspected for desert tortoise occupancy before work begins the following day. Any desert tortoises found in the Route would be relocated by the Project Biologist according to the protocol previously discussed.

## **Fueling Equipment**

- Fueling of equipment would not occur adjacent to or in drainages. “No-fueling zones” would be designated on construction maps and would be a minimum of 50 feet (15 meters) from drainages. No wetlands exist along the Route.

## **Invasive and Noxious Weeds**

- The FCR would survey the Project corridor, including access roads, for population of invasive and noxious weeds prior to the start of construction. All populations of invasive and noxious weeds within 50 feet or less of the Route would be flagged prior to construction only in the areas of narrow roads or access zones.
- The Construction Contractor would implement control measures for invasive and noxious weeds as defined in the BLM management guidelines and the Project Restoration Plan (Appendix \*\*), including specific measures to control introduction and spread of noxious weeds in the Project corridor; worker training, specifications, and inspection procedures for construction materials and equipment used in the Project corridor; post-construction monitoring for noxious weeds; and eradication and control methods.
- To prevent contamination into new habitat, the construction superintendent would establish wash stations in staging areas to remove any seeds that may have attached to construction vehicles.
- Construction personnel would power wash construction vehicles and equipment, including body, bumpers, and undercarriages, at the staging area wash stations prior to moving the equipment onsite and beginning earthmoving activities.
- When vehicles and equipment are washed, a log must be kept stating the location, date and time, types of equipment, and methods used. The crewmember who washed the vehicle shall sign the log. Written logs would be included in the FCR monitoring reports.
- All gravel and fill materials required during Project construction and maintenance would be certified weed free.
- The AT&T would be responsible for implementing an invasive species monitoring program to identify and remove any invasive species. Post-project monitoring would be implemented for invasive vegetation and would occur within the spring flowering period of the following year.
- Implementation of erosion and sediment control measure, described previously, would ensure that small, certified weed-free hay bale dams would be used for erosion and sediment control to prevent the spread of invasive and noxious weeds.

## **Noise**

- The construction superintendent will ensure compliance with San Bernardino County Municipal Code Section 83.01.080(g)(3) timing requirements. The Project proponent utilizes standard construction equipment that complies with established noise standards.

## **Occupational Safety and Health Administration**

- Construction activities along the Route will be subject to the Occupational Safety Health Administration (OSHA) rules and regulations, which set forth mandatory health and safety standards for construction sites. These standards include mandatory incident reporting, weekly tailgate meetings, and monthly safety meetings with the contractor to discuss potential health and safety issues. In addition, the construction superintendent would be responsible for verifying that all construction personnel working on the Route are legal citizens of the United States or possess an approved employment visa.

## **Public Health and Safety/Hazardous Materials**

- AT&T will follow the Spill Prevention and Control Plan, which outlines the storage and use of hazardous materials, the prevention of spill incidents, and emergency response procedures. The plan also describes the various chemicals to be stored and used on the Route (i.e., fertilizers, cable lubricants, etc.). This plan also establishes procedures and methods to transport, store, and clean up a spill involving hazardous materials in compliance with state and county regulations and ordinances. In addition, the plan outlines construction measures and operational procedures to follow in the event of an emergency.
- All leaks, spills, or releases of fuel or other hazardous materials would be reported immediately to the BLM or the U.S. Army if on federal lands, or the County of San Bernardino if on non-federal lands. All such material that leaks, spills, or is otherwise released would be removed immediately. The FCR would ensure that all appropriate measures are implemented during the removal of the hazardous materials.
- Hazardous materials would not be stored or handled in the construction zone and any unused or leftover hazardous products would be properly contained and disposed of offsite.
- Traffic detour signs and/or personnel would be posted to direct traffic during the staged construction period.

## **Staging Areas**

- Staging areas are prohibited in sensitive biological areas. Staging areas would be located in existing contractor yards; existing staging areas established by other utility companies; previously cleared, graded, or paved areas; or level areas where grading and vegetation clearing are not required. Staging areas would be reviewed and approved by the FCR. If necessary, changes in location would be incorporated into the construction contract. Equipment fueling would not occur adjacent to or in drainages.
- Off-road travel and temporary storage areas outside the staging areas or construction zones are prohibited. Within the authorized surface use areas, disturbances such as temporary staging areas or parking areas for equipment are to be confined to the smallest practical location, considering; topography, placement of facilities, location of burrows, and public health and safety. Such areas would be marked to minimize surface disturbance associated with vehicles straying. Special habitat features, such as burrows, identified by the authorized biologist would be avoided.

## **Surface Hydrology and Groundwater**

- A Spill Prevention and Control Plan would be implemented.
- AT&T will follow the Spill Prevention and Control Plan, which outlines the storage and use of hazardous materials, the prevention of spill incidents, and emergency response procedures. The plan also describes the various chemicals to be stored and used on the Route (i.e., fertilizers, cable lubricants, etc.). This plan also establishes procedures and methods to transport, store, and clean up a spill involving hazardous materials in compliance with state and county regulations and ordinances. In addition, the plan outlines construction measures and operational procedures to follow in the event of an emergency.

### **1.9 APPLICABLE PERMITS**

The following permits may be required for construction of the Project:

#### **Federal**

- Bureau of Land Management
  - Right-of-Way Grant Amendment
- U.S. Army Corps of Engineers
  - Section 404 of the Clean Water Act (Nationwide Permit 12)
- Section 106 consultation by BLM with SHPO and Native American tribes
- Section 7 consultation by BLM with United States Fish and Wildlife Services (USFWS)

#### **State**

- Department of Fish and Wildlife
  - Streambed Alteration Agreement
  - 2081 authorization for desert tortoise
- California Regional Water Quality Control Board, Lahanton Region
  - Section 401 Water Quality Certification
- State Water Resources Control Board
  - National Pollutant Discharge Elimination System (NPDES) General Permit For Storm Water Discharges Associated with Construction and Land Disturbing Activities
- Native American Heritage Commission consultation

## **Local Agencies**

- County of San Bernardino
  - County Right-of-Way encroachment permit
- Electric Utility
  - Right-of-Way encroachment

Figure 1 - Vicinity Map

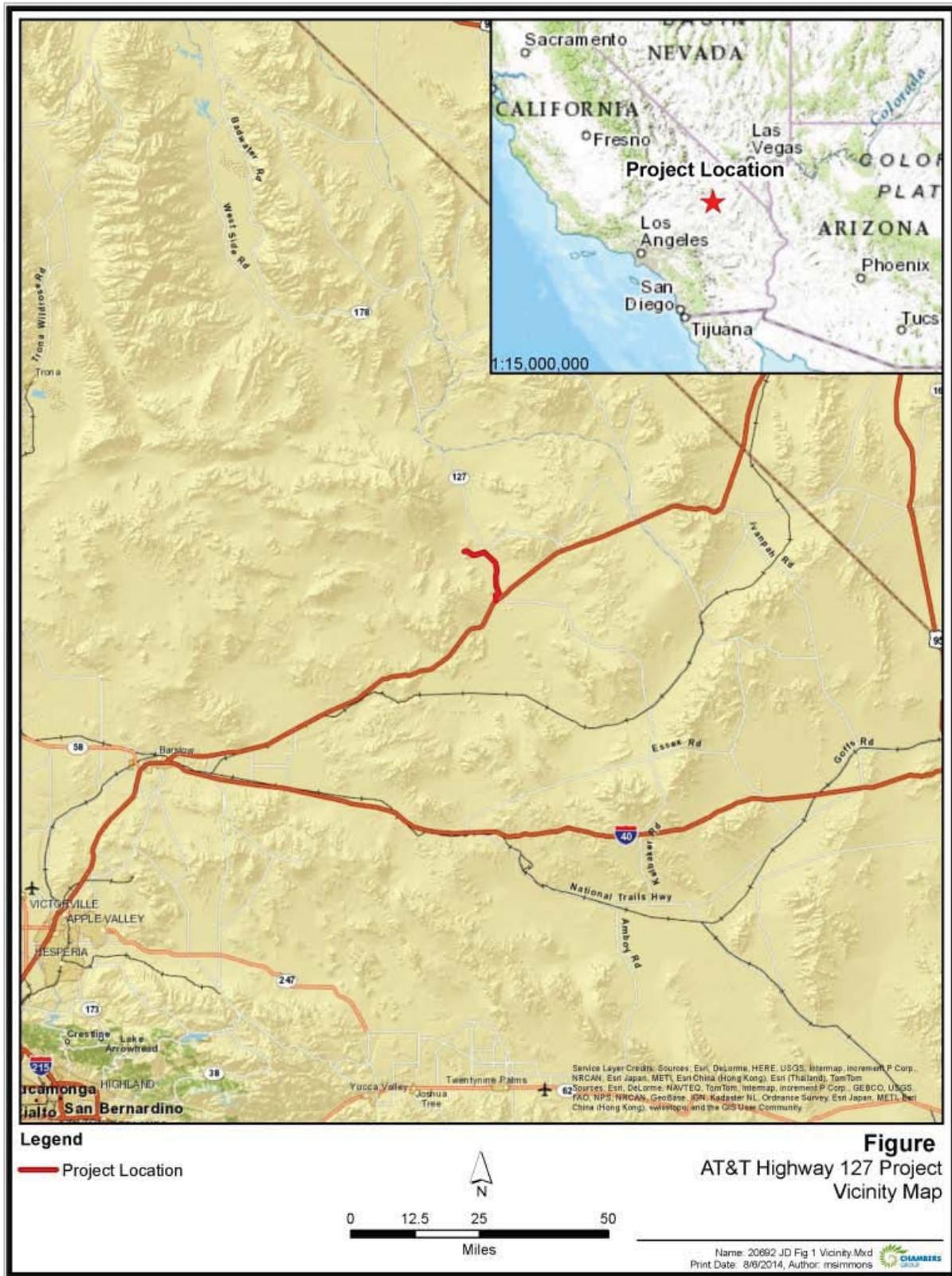
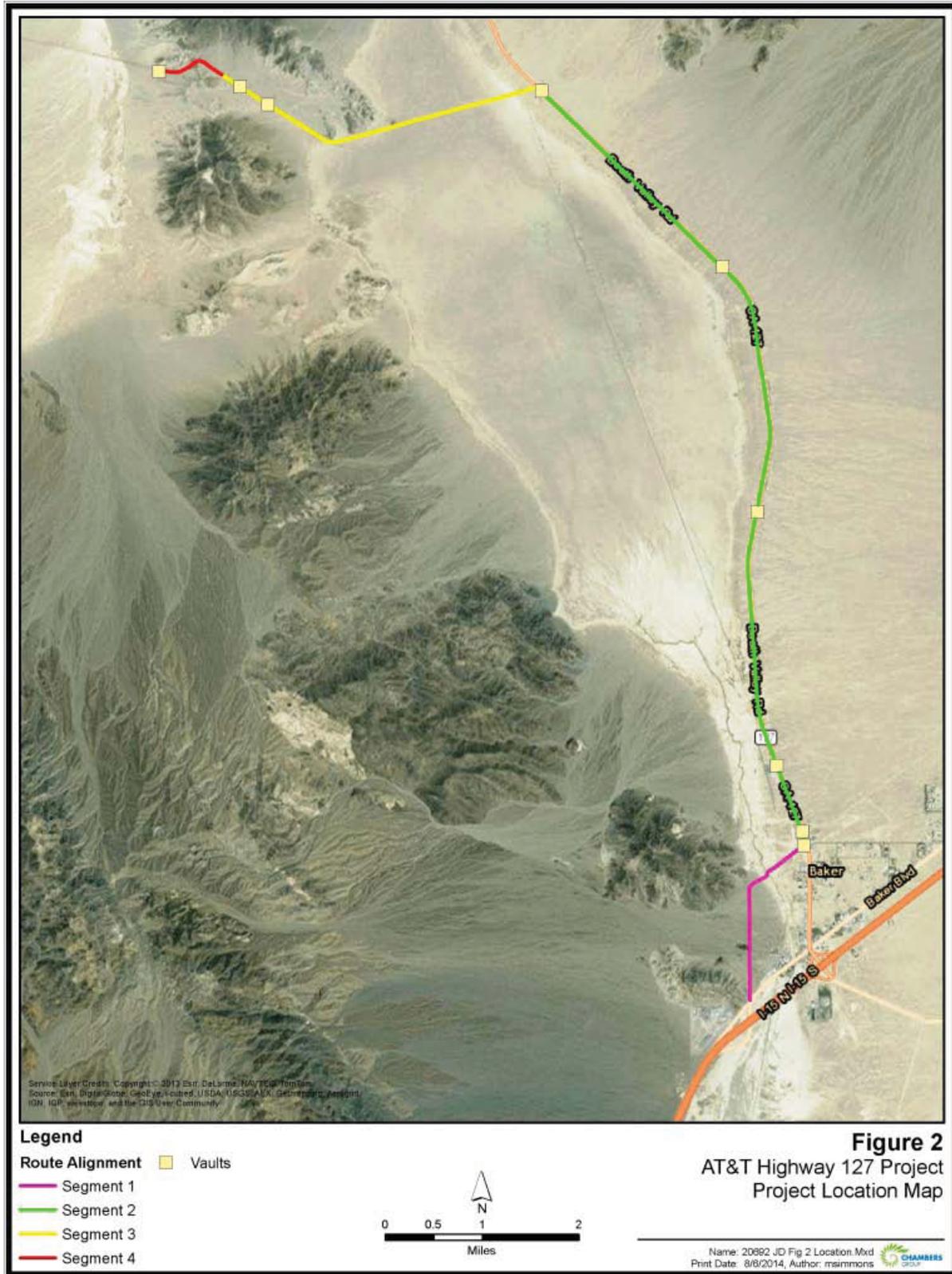


Figure 2 - Location Map



### **SECTION 3.0 – REGULATORY OVERVIEW**

The limits of jurisdictional waters regulated by the United States Army Corps of Engineers (USACE), Regional Water Quality Control Board (RWQCB), and California Department of Fish and Wildlife (CDFW) were delineated for the proposed Project study area. Pursuant to Section 404 of the Clean Water Act, USACE regulates the discharge of dredged and/or fill material into waters of the United States (WOUS). The State of California (State) regulates discharge of material into waters of the State pursuant to Section 401 of the Clean Water Act and the California Porter-Cologne Water Quality Control Act (California Water Code, Division 7, §13000 et seq.). Pursuant to Division 2, Chapter 6, Sections 1600-1602 of the California Fish and Game Code, CDFW regulates all diversions, obstructions, or changes to the natural flow or bed, channel, or bank of any river, stream, or lake which supports fish or wildlife. Additional discussion of the regulatory framework is provided in Appendix B.

## **SECTION 4.0 – METHODS**

### **1.1 LITERATURE REVIEW**

Prior to the field delineation, high-resolution aerial photographs, U.S. Fish and Wildlife Service (USFWS) National Wetlands Inventory (NWI) maps (USFWS 2014), USGS topographic maps, and Google Earth (Google 2013) images were examined to determine the potential areas that may contain waters subject to USACE, RWQCB, and CDFW jurisdiction in the Project area. Topographic maps and aerial photographs were used to identify drainage patterns and potential connectivity (nexus) through the Project site. Aerial photos (Google 2013), NWI maps (USFWS 2014), and USGS quadrangle (USGS 2012) were used to identify potential hydrologic connectivity to traditional navigable waters (TNW); features indicating connectivity were investigated in the field.

#### **Soils**

The U.S. Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) Web Soil Survey (USDA 2013) and the Soil Survey (SSURGO) Database GIS Data (USDA 2014) were reviewed for soil types identified within the Project footprint area (Figure 3). Available lists of hydric soils were reviewed to identify the occurrence of hydric soils listed to potentially occur within the Route (USDA 2012).

### **1.2 FIELD SURVEY**

A field delineation of waters was conducted along the Route in Segment 1-4 in areas where maintenance activities would include ground-disturbing activity (i.e., survey area excluded areas along the route with existing buried conduit). Project areas where existing conduit will be utilized will not include ground-disturbing work. Jurisdictional features crossing the Route where existing conduit is planned will not be impacted by the Project; these features were not mapped.

The Project delineation of waters included, from south to north, the Project footprint starting in Segment 1 from the Baker Regeneration Station located west of Baker, following along I-15, then heading north along Mill Road, then northeast along Silver Lane to SR-127. From here, Segment 2 begins and the survey area heads north on both sides of the highway, following along Silver Lake to Silver Lake Road. Segment 3 then begins and heads west along Silver Lake Road then continues northwest along Silver Lake Road just past Powerline Road. The survey area then enters Segment 4 and continues north and west until it ends at the vault on Fort Irwin.

In the field, boundaries and dimensions of jurisdictional water features and additional notes were recorded on Trimble GeoXT units. Features (e.g., drainages, water bodies, wetland habitats, potential wetlands) within the Project limits were investigated for the presence of ordinary high water marks (OHWM), bank to bank (BTB) measurements, and connectivity. The existing width of the water feature (OHWM or BTB) crossed by the proposed Route was measured (linear feet) in the field perpendicular to the drainage path.

Potential USACE/RWQCB/CDFW jurisdictional areas identified during the literature search were verified in the field for the presence of definable channels, soils, wetland vegetation, riparian habitat, and hydrology. The lateral extent of each jurisdictional water feature was measured. In the absence of a defined wetland, the presence of a bed and bank or the upper limit of the OHWM was recorded.

Potential wetland habitats under USACE jurisdiction were evaluated using the methodology set forth in the 1987 Wetland Manual and the 2008 Arid West Supplement. Potential wetland habitats under CDFW jurisdiction were evaluated using the criteria identified by USFWS, as described in the regulatory framework discussion in Appendix A.

Data from the delineations were digitized and recorded using Geographic Information System (GIS) software and displayed on aerial maps for this report (Appendix B). Reference photographs were taken during this survey and are included as Appendix B.

## Vegetation

Vegetation communities along the Route were mapped during the biological reconnaissance level survey conducted by Chambers Group. Plant communities were determined in accordance with the categories set forth in Holland (1986), Gray and Bramlet (1992), or Lichvar and Dixon (2007). Plants within drainage features were categorized according to their probabilities to occur in wetlands and nonwetlands in accordance with the categories in the *National List of Species that Occur in Wetlands* (Reed 1988) and the current National Wetlands Plant List from the USACE (Lichvar et al. 2014). More specifically, the California Land Resource Region (Region 0) wetlands plant list, a regional adaptation of the *National List*, was used. The wetland species categories are:

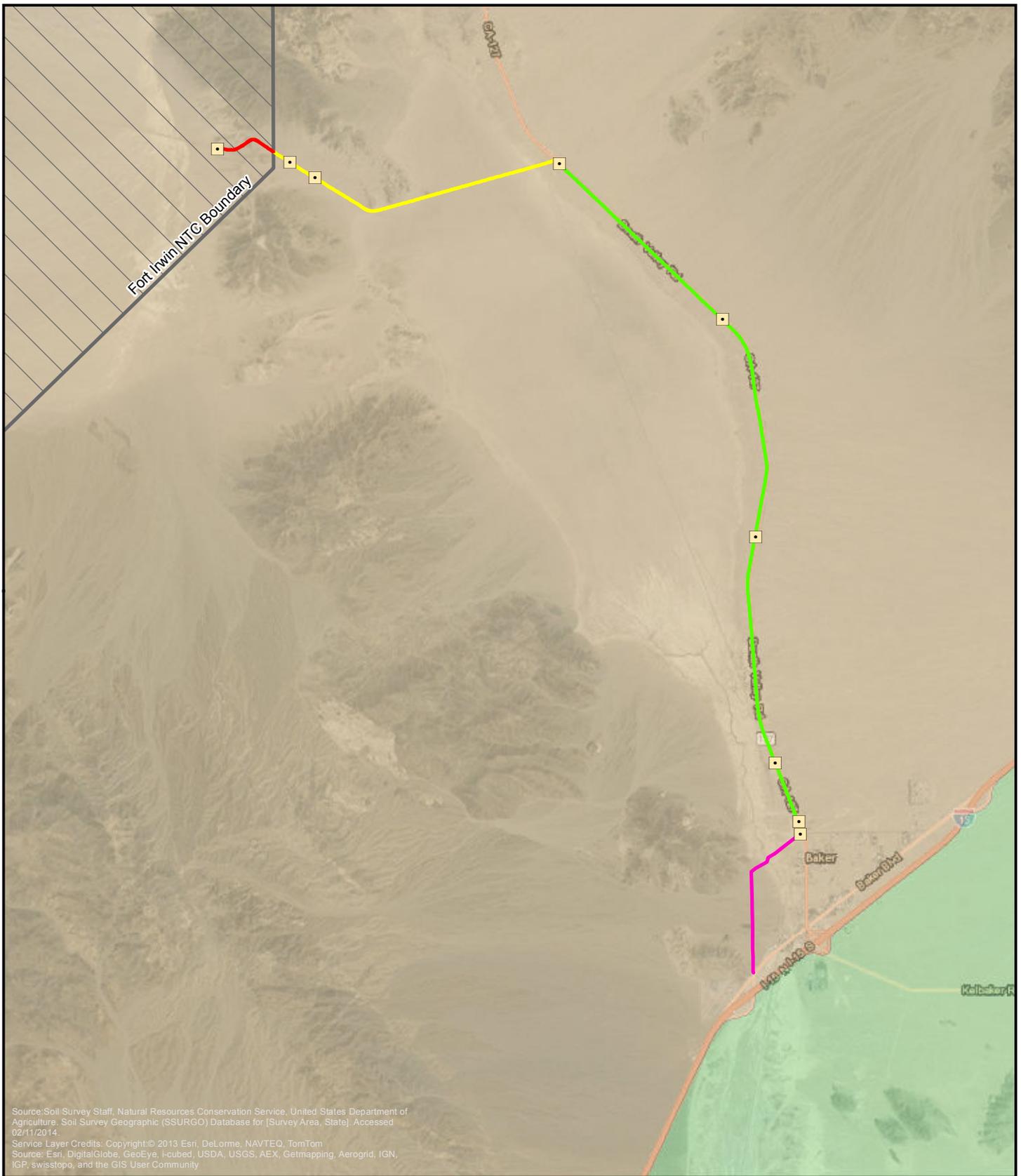
- I. **Obligate Wetland (OBL)** – Occur almost always (estimated probability >99 percent) under natural conditions in wetlands.
- II. **Facultative Wetland (FACW)** – Usually occur in wetlands (estimated probability 67 to 99 percent) but occasionally found in nonwetlands.
- III. **Facultative (FAC)** – Equally likely to occur in wetlands or nonwetlands (estimated probability 34 to 66 percent).
- IV. **Facultative Upland (FACU)** – Usually occur in nonwetlands (estimated probability 67 to 99 percent) but occasionally found in wetlands.
- V. **Obligate Upland (UPL)** – May occur in wetlands in another region but occur almost always (estimated probability >99 percent) under natural conditions in nonwetlands in southern California. All species not listed on the *National List of Species that Occur in Wetlands* (Reed 1988) are considered to be UPL.
- VI. **No Indicator (NI)** – NI is recorded for those species for which insufficient information was available to determine an indicator status.

## **SECTION 5.0 – RESULTS**

A field delineation of waters for Segment 1 was conducted in April 2012, by Chambers Group, Inc. (Chambers Group) staff Heather Franklin, Sarah Harris, and Saraiah Skidmore. A field delineation of waters for Segments 2, 3, and 4 was conducted on February 18 and 19, 2014, by Chambers Group staff Michael Simmons and Ana Davis. The following sections provide context and background by describing soils, vegetation, and hydrological features crossed by the Route.

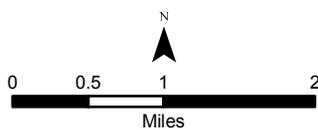
### **1.1 SOILS**

There is no digital data of soils within the Project area available upon review of the USDA NRCS Web Soil Survey (USDA 2012), and the SSURGO GIS database indicates that the Project is within unmapped areas (USDA 2014). Topographic features adjacent to the cable route include alluvial fans, playas, and basins. Among the moderate slopes of terraces and alluvial fans, runoff is moderate to slow and erosion is moderate to low and may exhibit more developed soils. Alluvial plains and playas exhibit very slow to no runoff and typically no erosion, and soils are generally poorly developed with high salt content.



**Legend**

- |                        |                                      |
|------------------------|--------------------------------------|
| <b>Route Alignment</b> | <b>Mojave Subbasin Soils Mapunit</b> |
| Segment 1              | Mapping not complete                 |
| Segment 2              | Obsolete term for unmapped areas     |
| Segment 3              |                                      |
| Segment 4              |                                      |
| Vaults                 |                                      |



**Figure 3**  
 AT&T Highway 127 Project  
 Soils Map

## **1.2 HYDROLOGY AND CONNECTIVITY**

The Project is located primarily in the Mojave Subbasin Hydrologic Unit and the northern part of the Project is partially in the Death Valley-Lower Amargosa Subbasin Hydrologic Unit (USDA 2014). The Project is located primarily within the Mojave Watershed with an approximate 1,950 feet of Segment 4 located in the Death Valley-Lower Amargosa Watershed, located within San Bernardino County, California (Figure 4). The Mojave Watershed is bound on the south by the San Gabriel and San Bernardino mountains and to the north and east by multiple smaller mountain ranges including the Granite, Bristol, and Providence Mountains (DWR 2009). A number of dry lake beds occur in the Mojave Watershed including Silver Lake, Soda Lake, West Cronise, and East Cronise (DWR 2009). The Mojave River and Deep Creek are the major water sources for the Mojave Watershed. The headwaters of the Mojave River are located in the San Bernardino Mountains, and snowmelt provides most of the water for the river. It is estimated that 65,000 acre feet (af) of water from the Mojave River recharges the Mojave Groundwater Basin annually (DWR 2009). The Mojave River is dammed and impounded at the Mojave River Forks Reservoir (approximately 125 river miles (RM) upstream from the southernmost portion of the Route); and the reservoir is used for water supply, flood management, recreation, and water conservation. Downstream of the dam, the riverbed is dry for much of the year, except at the Narrows near Victorville and at Afton Canyon southwest of Cronise Lake, where groundwater is forced to the surface by geological structures (DWR 2009). Deep Creek also originates in the San Bernardino Mountains; it flows most of the year and joins the Mojave River at Mojave Forks Reservoir. The Route does not cross Deep Creek.

Figure 5 provides the groundwater basins crossed by the Route. Figure 6 provides the location of the 100-year flood zones identified by the Federal Emergency Management Agency (FEMA).

Water flow in the vicinity of the Project generally occurs immediately after rainfall events; and only a small fraction of the total precipitation results in surface runoff due to evapotranspiration and infiltration. In addition to drainages, one dry lake bed, Silver Lake, is crossed by the Route.

Water flow along Segment 1 generally flows south/southeast to north/northwest; along Segment 2 water flow is generally east to west; and along Segment 3 and Segment 4 water flow is northwest to southeast.

Dry lake beds and playas are also known as alkali sinks (Lichvar and Dixon 2007). Soils within these features are high in alkalinity and have poorly drained soils. Low spots of lake beds and playas are occasionally resupplied with water by heavy winter rainfall, but standing water evaporates quickly. The driest areas of alkali sinks are the edges where vegetation communities are dominated by saltbush, mesquite, or alkali sink habitat (Lichvar and Dixon 2007).

Connectivity for each segment is described below.

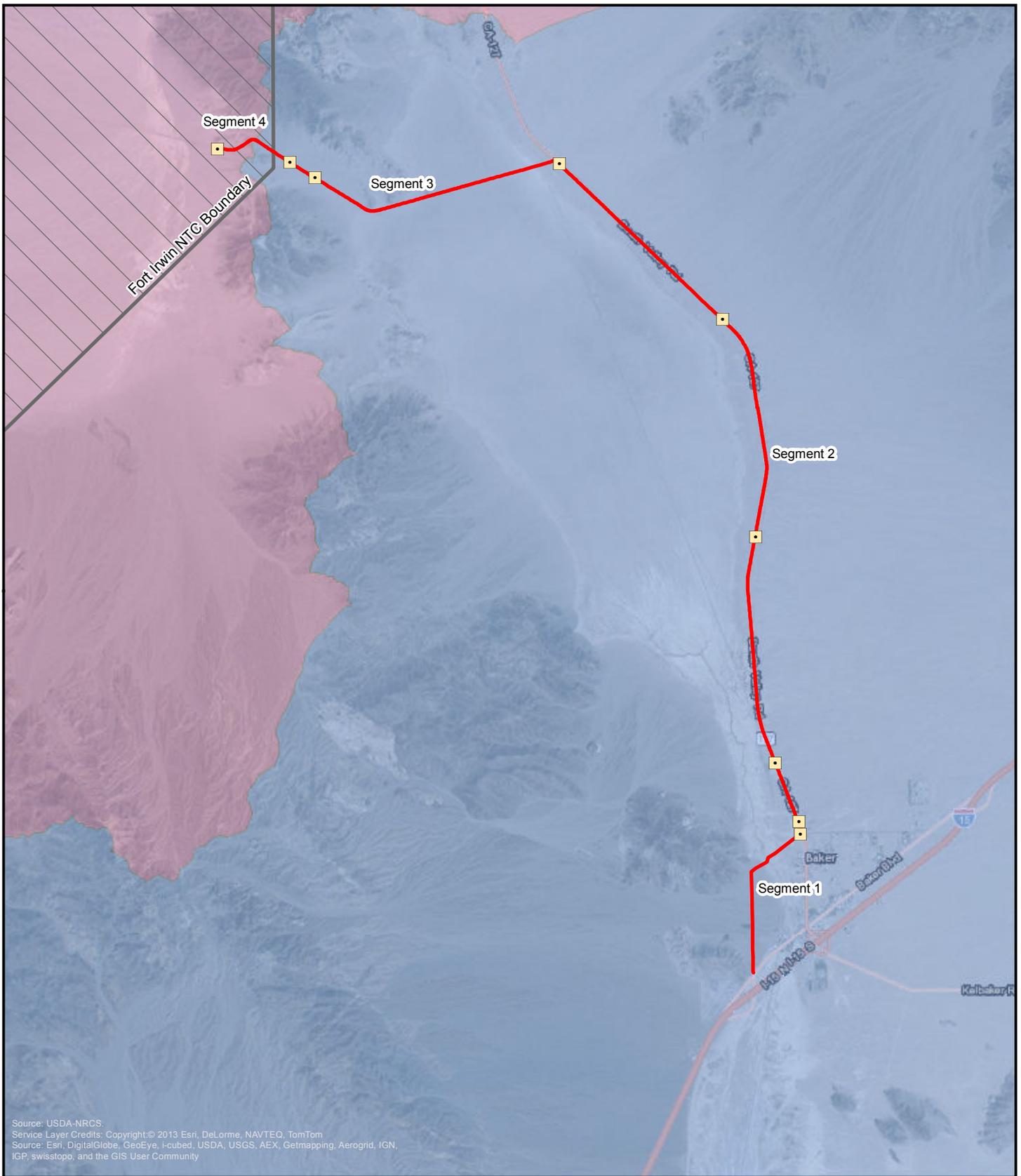
**Segment 1:** Waters along this segment of the Route originate from Otto Mountain and Soda Mountain. Generally, flow moves from south/southeast to north/northwest and terminates in Silver Lake.

**Segment 2:** Waters in this segment originate from the mountains of Solomon's Knob and the Hollow Hills Wilderness Area to the east of the Project, and generally flow from east to west and terminate in Silver Lake. Upon reaching the eastern side of the maintained shoulders of SR- 127, water flow that is contained in identifiable channels cease and turns to sheetflow across the eastern shoulder, the paved

portion of SR-127, and the western maintained shoulder, and begins to channelize again outside of the western maintained shoulder.

**Segment 3:** This segment occurs within a dry lake bed.

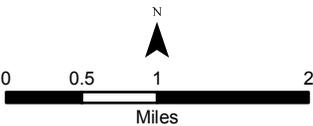
**Segment 4:** No waters occur in Segment 4.



**Legend**

- Route Alignment
- Vaults
- Watershed, HUC (8-digit)**
- Death Valley-Lower Amargosa, 18090203
- Mojave, 18090208

**Figure 4**  
 AT&T Highway 127 Project  
 Watershed Map

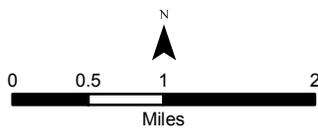




Source: California Department of Water Resources, 2010.  
 Service Layer Credits: Copyright © 2013 Esri, DeLorme, NAVTEQ, TomTom  
 Source: Esri, DigitalGlobe, GeoEye, i-cubed, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

**Legend**

- Route Alignment
- Vaults
- Groundwater Basin**
- Riggs Valley
- Silver Lake Valley
- Soda Lake Valley



**Figure 5**  
 AT&T Highway 127 Project  
 Groundwater Basins Map

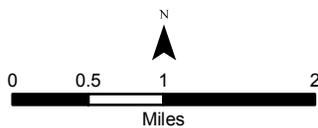


Source: Federal Emergency Management Agency, Publication Date: 20120816.  
 Service Layer Credits: Copyright © 2013 Esri, DeLorme, NAVTEQ, TomTom  
 Source: Esri, DigitalGlobe, GeoEye, i-cubed, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

**Legend**

- Route Alignment
- FEMA 100-year Flood Zone
- Vaults

**Figure 6**  
 AT&T Highway 127 Project  
 FEMA 100-Year Flood Zones Map



## 1.3 OBSERVED VEGETATION COMMUNITIES

### Desert Saltbush Scrub

Desert Saltbush Scrub is typically characterized by low, grayish, small-leaved shrubs between 1 to 3 feet in height with some succulent species. Cover is typically low with bare ground between widely spaced shrubs. Stands are strongly dominated by multiple saltbush species (*Atriplex* spp.). Soils are fine-textured and poorly drained with high alkalinity and/or salinity, usually surrounding playas (Holland 1986).

Desert saltbush scrub is present adjacent to the Route, along SR 127 near the southern portion of the route as well as along Silver Lake Road near the dry lakebed. Plant species found on the adjacent to the Route typical of this vegetation community included: mostly allscale (*Atriplex polycarpa*), with some cheesebush, and four-wing saltbush (*Atriplex canescens*). These species are not typically indicative of wetland habitat.

### Mojave Creosote Bush Scrub

Mojave Creosote Bush Scrub is characterized by widely spaced shrubs growing 2 to 10 feet in height, typically with bare ground in between, and dominated by creosote bush (*Larrea tridentata*) and white bursage (*Ambrosia dumosa*). Growth in this community occurs in spring if rainfall is sufficient, but is prevented by cold in the winter and limited by drought during other seasons. Ephemeral herbs flower in late March and April with sufficient rainfall, while other annual herbs appear after summer thunderstorms. Soils found on slopes, fans, and valleys in this community are typically well-drained secondary soils with very low available water-holding capacity. Soils on more upland sites are thin, residual soils that have high soil salinity. Mojave Creosote Bush Scrub is found at elevations below 4,000 feet amsl (Holland 1986).

Creosote Bush-White Bursage Scrub is present adjacent to the Route along most of SR 127 and Silver Lake Road. Plant species observed adjacent to the Project typical of this vegetation community include: creosote bush, white bursage, brittlebush (*Encelia farinosa*), desert holly (*Atriplex hymenelytra*), and spiny hopsage (*Grayia spinosa*). These species are not typically indicative of wetland habitat.

### Disturbed/Developed

Developed areas are unvegetated areas that have been altered by humans and now display manmade structures such as houses, paved roads, buildings, parks, and other maintained areas. Disturbed areas are altered and maintained by humans to be devoid of vegetation (cleared or graded) such as dirt roads or heavily compacted areas (Gray and Bramlet 1992).

Disturbed/Developed areas occur along the length of the Route and include Silver Lake Road, SR-127 and its associated shoulders, Silver Lane, and Mill Road.

### Dry Lakebed

Dry lake beds and playas are also known as alkali sinks (Lichvar and Dixon 2007). Soils within these features are high in alkalinity and have poorly drained soils. Low spots of lake beds and playas are occasionally resupplied with water by heavy winter rainfall, but standing water evaporates quickly. The

driest areas of alkali sinks are the edges where vegetation communities are dominated by saltbush, mesquite, or alkali sink habitat (Lichvar and Dixon 2007).

The Route crosses Silver Lake within an unvegetated existing dirt road, Silver Lake Road, within the portion of Silver Lake Road that runs east and west.

#### **1.4 WATER FEATURES CROSSED BY THE PROJECT**

A majority of the water features crossed by the Route are dry washes, typical of the Mojave Desert, which generally have little to no plant cover due to frequent disturbances from storm discharge events, lack of developed soils, and well drained soils that lack moisture. Dry washes may either be ephemeral or intermittent drainages or streams. Ephemeral drainages are crossed by the Route.

The Route is located on the currently maintained shoulders of SR-127 and maintained dirt roads (i.e., Mill Road, Silver Lane, and Silver Lake Road). Current maintenance activities of the highway shoulder and dirt roads conducted by CalTrans causes an artificial dirt berm along most of the Route, preventing continuous flow of drainages during low flow rain events and causing disruption of natural bed and bank measurements. In addition, some of these drainages are traversed by off-highway vehicles (OHVs), also making a clear OHWM mark difficult to discern. Photographs of water features are located in Appendix C; and details, including OHWM and bank to bank measurements for all four segments, are included as Appendix D.

##### **5.4.1 Drainage Features**

A summary of the drainages crossed by the Project in each segment are described below.

**Segment 1:** Segment 1 included only ephemeral drainages. There were 17 ephemeral drainages that crossed the Route in this segment, each draining east to a tributary eventually discharging into Silver Lake.

**Segment 2:** Due to the maintenance of the shoulders of SR-127, there were no observed definable, continuous drainages that crossed the Project. There were a total of 54 ephemeral drainages that discharged onto SR-127 from the east, and 93 ephemeral drainages that collected and channeled water to the west from SR-127.

**Segment 3:** Segment 3 included crossing the bed of Silver Lake via Silver Lake Road. There were no other drainages observed crossing this segment of the Route.

**Segment 4:** There were no drainages observed crossing the Route in all of Segment 4.

##### **5.4.2 Wetlands**

The Segment 3 crossing of Silver Lake was the only portion of the Project to cross a wetland feature. Silver Lake is identified as a lacustrine, littoral, unconsolidated shore wetland (L2USJ) (USFWS 2014). This portion of Silver Lake does not meet the 3-parameter definition of a USACE jurisdictional wetland as it was unvegetated, but contained surface soils cracks, and evidence of saturation and ponding. The presence of these wetland characteristics meet the 1-parameter criteria of a CDFW wetland feature.

## 1.5 JURISDICTIONAL FINDINGS

The analysis of wetland presence and WOUS and waters of the State are provided below. Soil that is impacted by the plow blade or trenching equipment/bucket would be replaced to preconstruction conditions, as practicable. Project-related impacts from plowing or trenching may include 16 inches of soil disturbance. Permanent impacts were identified separately for each agency, as described below. For purposes of this report, temporary impacts were considered as the area temporarily impacted by Project construction activities within the entire 20-foot ROW minus any permanent impact area. The actual temporary impact area would be less than this calculation because Project construction activities typically are not expected to require the entire 20-foot width of ROW.

## 1.6 USACE JURISDICTION

For USACE only, this jurisdictional delineation (JD) is a Preliminary JD. The limits of USACE jurisdiction were defined by the OHWM of all jurisdictional features within the Project ROW. For the purpose of calculating Project impacts to USACE jurisdictional waters, Project impact areas where conditions would be returned back to pre-Project conditions were considered temporary impacts. Areas where directional boring will be utilized was considered no impact. The Project does not propose any permanent changes to waters that would change the general characteristic of the waters; therefore, no permanent impacts to WOUS would result from this project.

Existing maintenance of the shoulders of SR 127 results in an OHWM that is located outside of the maintained shoulder and Project impact area. Wetlands under the jurisdiction of USACE are defined by three parameters. No wetland feature within the Project ROW exhibited all three wetland parameters (i.e., hydrology, hydric soil, *and* hydrophytic vegetation). Based on the low water table and less than 5 percent cover of wetland vegetation at the edge of Silver Lake within the Project ROW, Silver Lake is not considered a wetland under USACE jurisdiction. Therefore, no impacts to wetlands under USACE jurisdiction will occur from this Project.

- Segment 1 of the Route crosses USACE-jurisdictional drainage features that exhibit an OHWM. Segment 1 of the Project may temporarily impact up to 0.04 acres of jurisdictional waters.
- Segment 2 of the Route crosses jurisdictional features. Segment 2 of the Project will not impact USACE jurisdictional waters because work will be performed in the dry with no resulting permanent impacts to the nature of the drainage..
- Segment 3 of the Project will not impact USACE jurisdictional waters.
- Segment 4 of the Project will not impact USACE jurisdictional waters.

## 1.7 RWQCB JURISDICTION

RWQCB jurisdiction includes all USACE jurisdictional areas, OHWMs or HWMs in non-RPW, isolated wetlands, and any other features that have an effect on surface or subsurface water quality within California. The limits of RWQCB jurisdiction were defined by the OHWM and surface waterbody features (i.e., Silver Lake) within the Route ROW. Similar to USACE, for the purpose of calculating Project impacts to RWQCB jurisdictional waters, areas where conditions would be returned back to pre-Project conditions were considered temporary impacts. Areas where directional boring will be utilized was considered no impact. The Project does not propose any permanent changes to waters that would

change the general characteristic of the waters; therefore, no permanent impacts to RWQCB jurisdictional waters would result from this project. Based on the calculations, the following summarizes the temporary impacts for each Segment of the Project.

- Segment 1 of the Project may temporarily impact up to up to 0.04 acres of jurisdictional waters.
- Segment 2 of the Project crosses jurisdictional waters. The Project will not impact RWQCB jurisdictional waters because work will be performed in the dry with no resulting permanent impacts to the nature of the drainage.
- Segment 3 of the Project may temporarily impact up to 1.56 acres of RWQCB jurisdictional waters.
- Segment 4 of the Project will not impact RWQCB jurisdictional waters.

## 1.8 CDFW JURISDICTION

For the purposes of calculating impacts to CDFW jurisdictional waters, Project-related impacts include 16 inches of soil disturbance from plowing or trenching as permanent impacts as a conservative approach for impact calculations. In addition, the area of the conduit installed via directional boring was considered a permanent impact. The entire 20-foot ROW minus any permanent impact area was considered temporary impacts.

CDFW takes jurisdiction to the top of the bank on either side of a drainage or to the outer edge of all riparian vegetation, whichever measurement is greater. In the case of an alluvial fan area, such as where this Project is located, CDFW jurisdiction of a watercourse boundary is defined not only by the individual channels, but rather by the larger flow zone bounding the channel network, and within which channel relocations are likely to occur. Segments 1, 2, and 3 are within the larger flow area of the numerous channels conveying water flow in the local landscape. Water flow does occur within the maintained dirt roads, maintained highway shoulders, and the paved portion of SR-127 and these flow areas contribute to the larger flow zone. Due to the absence of riparian or hydrophytic vegetation communities of water features within the Project limits, CDFW jurisdiction was defined by the bank-to-bank formations and potentially the larger flow zone area bounding the channel network.

As described above, the larger flow zone area of the Project limits contains maintained and graded dirt roads, maintained and graded highway shoulders, and a maintained and paved highway system. The larger flow zone area contains existing impacts to habitat and offer low resource value. Those areas may be considered jurisdictional to CDFW; however, the low resource value may mean that CDFW may not regulate the Project in these areas.

Silver Lake is a dry lake bed that supports a variety of wildlife. Fairy shrimp (*Branchinecta* sp.) were observed in wetted portions of the lake bed adjacent to the Project during biological reconnaissance level surveys. CDFW jurisdiction extends to the Project area within Silver Lake.

Based on the calculations, the following summarizes temporary and permanent impacts for each Segment of the Project.

- Segment 1 of the Project may temporarily impact up to 0.09 acres of CDFW jurisdictional waters and may permanently impact up to 0.04 acre of CDFW jurisdictional waters.

- Segment 2 of the Project may temporarily impact CDFW jurisdictional waters. Project equipment supporting wheels may cross over these waters during dry times, and it is not expected that this action will result in the nature of these waters being changed or otherwise compromised. The Project may temporarily impact 0.115 acres of CDFW jurisdictional waters..
- Segment 3 of the Project may temporarily impact up to 1.03 acres of CDFW jurisdictional waters and may permanently impact up to 0.53 acre of disturbance.
- Segment 4 of the Project will not impact CDFW jurisdictional waters.

## 1.9 JURISDICTION SUMMARY

Temporary impacts were considered as the area temporarily impacted by Project construction activities (e.g., trucks driving over dry drainages) within the entire 20-foot ROW minus the permanent impact area. The actual temporary impact area would be less than this calculation since Project construction activities typically are not expected to require the entire 20-foot width of ROW. Table 3 shows the jurisdictional acreage for permanent impacts per Segment per agency and Table 4 shows the jurisdictional acreage for temporary impacts by Segment by agency.

**Table 3  
Jurisdictional Acreage – Potential Permanent Impacts Per Segment (acres)**

Agency	Wetland	Riparian	Perennial/ Intermittent Waters	Ephemeral Waters	Total Permanent Impacts
<b>Segment 1</b>					
USACE	0.000	0.000	0.000	0.000	0.000
RWQCB	0.000	0.000	0.000	0.01	0.01
CDFW	0.000	0.000	0.000	0.04	0.04
<b>Segment 2</b>					
USACE	0.000	0.000	0.000	0.00	0.00
RWQCB	0.000	0.000	0.000	0.00	0.00
CDFW	0.000	0.000	0.000	0.00	0.00
<b>Segment 3</b>					
USACE	0.000	0.000	0.000	0.00	0.00
RWQCB	0.000	0.000	0.000	0.00	0.00
CDFW	0.000	0.000	0.000	0.53	0.53
<b>Segment 4</b>					
USACE	0.000	0.000	0.000	0.00	0.00
RWQCB	0.000	0.000	0.000	0.00	0.00
CDFW	0.000	0.000	0.000	0.00	0.00

**Table 4  
Jurisdictional Acreage – Potential Temporary Impacts Per Segment (acres)**

Agency	Wetland	Riparian	Perennial/ Intermittent Waters	Ephemeral Waters	Total Temporary Impacts
<b>Segment 1</b>					
USACE	0.000	0.000	0.000	0.04	0.04
RWQCB	0.000	0.000	0.000	0.04	0.04
CDFW	0.000	0.000	0.000	0.09	0.09
<b>Segment 2</b>					
USACE	0.000	0.000	0.000	0.00	0.00
RWQCB	0.000	0.000	0.000	0.00	0.00
CDFW	0.000	0.000	0.000	0.115	0.115
<b>Segment 3</b>					
USACE	0.000	0.000	0.000	0.00	0.00
RWQCB	0.000	0.000	0.000	1.60	1.60
CDFW	0.000	0.000	0.000	1.03	1.03
<b>Segment 4</b>					
USACE	0.000	0.000	0.000	0.00	0.00
RWQCB	0.000	0.000	0.000	0.00	0.00
CDFW	0.000	0.000	0.000	0.00	0.00

- Total USACE jurisdictional acreage for all four segments of the Project, as defined by the OHWMs, is 0.04 acre. Impacts to USACE jurisdictional waters will result from Project activities.
- Total RWQCB jurisdictional acreage for all four segments of the Project, as defined by the OHWMs and surface waterbodies, is 1.60 acres. Impacts to RWQCB jurisdictional waters will result from Project activities.
- Total CDFW acreage for all four segments of the Project, as defined by the bank-to-bank measurements and aquatic habitat within Silver Lake, is 1.80 acres. Impacts to CDFW jurisdictional waters will result from Project activities.

## **SECTION 6.0 – CONCLUSION**

Construction activities will temporarily and permanently impact drainage features along the Route. Below is a summary of the regulatory permits required for the impacts to jurisdictional acreages for USACE, RWQCB, and CDFW for the Project.

### **1.1 FEDERAL PERMITS**

Based on this preliminary JD, USACE has jurisdiction over a total of 0.04 acres of WOUS; 0.04 acres may be temporarily impacted by construction activities. Based on a total of less than 0.5 acre of disturbance impacts, this Project qualifies for a Section 404 Nationwide Permit 12, Utility Line Activities.

### **1.2 STATE PERMITS**

RWQCB has jurisdiction over a total of 1.60 acres of waters of the State; 1.60 acres may be temporarily by construction activities. Under Section 401 of the CWA, the RWQCB regulates any activity that requires a federal permit for discharges to a water body. A 401 Water Quality Certification will be required from the RWQCB for this Project.

The CDFW has jurisdiction over a total of 1.80 acres of waters of the State; 1.23 acres may be temporarily impacted, and 0.57 acre may be permanently impacted by construction activities. Features within the Project ROW do not contain riparian vegetation. CDFW regulates impacts or alterations to streambeds, including any obstruction or diversion to the natural flow of a stream, substantial change or use of material from a stream, or a deposit or disposal of any debris into a stream as part of Fish and Game Code Sections 1600-02. A Streambed Alteration Agreement (SAA) will be required from CDFW for this Project.

## SECTION 7.0 – REFERENCES

### California Department of Water Resources (DWR)

- 2009 California Water Plan Update 2009. South Lahontan – Integrated Water Management, Available at  
<[http://www.waterplan.water.ca.gov/docs/cwpu2009/0310final/v3\\_southlahontan\\_cw\\_p2009.pdf](http://www.waterplan.water.ca.gov/docs/cwpu2009/0310final/v3_southlahontan_cw_p2009.pdf)> Accessed January 2011.

### Chambers Group, Inc. (Chambers Group)

- 2014 Biological Technical Report for the AT&T State Route 127 Fiber-Optic Cable Installation Project, San Bernardino County, California

### Cowardin, L.M., V. Carter, F.C. Golet, and E.T. LaRoe

- 1979 Classification of Wetland and Deepwater Habitats of the United States. Performed for the U.S. Department of the Interior, Fish and Wildlife Service, Office of Biological Services, Washington, D.C.

### Google Earth

- 2013 Google Earth Imagery, Current and Historical Maps. Baker, California. Accessed February 2014.

### Gray, J. and D. Bramlet

- 1992 Habitat Classification System, Natural resources, Geographic Information System (GIS) Project. County of Orange Environmental Management Agency, Santa Ana, California.

### Hickman, J. C., editor

- 1993 *The Jepson Manual: Higher Plants of California*. University of California Press, Berkeley and Los Angeles.

### Holland, R.F.

- 1986 *Preliminary Descriptions of the Terrestrial Natural Communities of California*. Unpublished report available from the California Department of Fish and Game, Sacramento, California.

- Lichvar, R.W., M. Butterwick, N.C. Melvin, and W.N. Kirchner. 2014. The National Wetland Plant List: 2014 Update of Wetland Ratings. *Phytoneuron* 2014-41: 1-42.

### Lichvar, R., and Lindsey Dixon.

- 2007 *Wetland Plants of Specialized Habitats in the Arid West*. U.S. Army Corp of Engineers, Cold Regions Research and Engineering Laboratory. Hanover, NH.

### Reed, Jr., Porter B.

- 1988 National List of Plant Species That Occur in Wetlands: California (Region 0). U.S. Fish and Wildlife Service Biological Report 88 (26.10).

### U.S. Army Corps of Engineers (USACE)

- 1987 *U.S. Army Corps of Engineers Wetlands Delineation Manual*, Technical Report Y-87-1, U.S. Army Engineer Waterways Experimental Station, Vicksburg, Mississippi.

- 2008 Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (Version 2.0), ed. J. S. Wakeley, R. W. Lichvar, and C. V. Noble. ERDC/EL TR-08-28. Vicksburg, MS: U.S. Army Engineer Research and Development Center.

U.S. Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS)

- 2014 Soil Survey Staff, Natural Resources Conservation Service, United States Department of Agriculture. Official Soil Series Descriptions [Online WWW]. Available URL: <https://soilseries.sc.egov.usda.gov/osdname.asp>. Accessed March 2014.

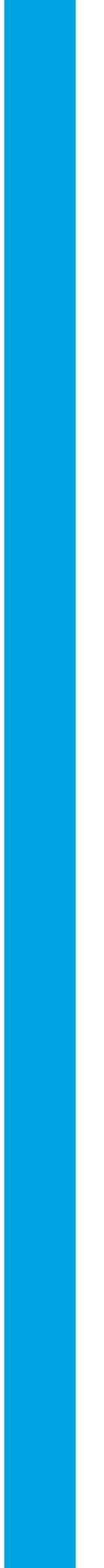
- 2014 Soil Survey Staff, Natural Resources Conservation Service, United States Department of Agriculture. Soil Survey Geographic (SSURGO) Database for [San Bernardino County, CA]. Available online at <http://soildatamart.nrcs.usda.gov> . Accessed February 2014.

- 2013 Web Soil Survey, Natural Resources Conservation Service, United States Department of Agriculture. URL: <http://soils.usda.gov/technical/classification/osd/index.html>. Accessed March 2014.

U.S. Geological Service (USGS)

- 2012 7.5-minute topographic quadrangle maps for *Baker, North of Baker, Silurian Valley, Soda Lake North, West of Baker, and West of Soda Lake*, California.

## **APPENDIX A – REGULATORY FRAMEWORK DISCUSSION**



## **APPENDIX A. REGULATORY FRAMEWORK**

### **1.1 UNITED STATES ARMY CORPS OF ENGINEERS**

Pursuant to Section 404 of the Clean Water Act, the U.S. Army Corps of Engineers (USACE) regulates the discharge of dredged and/or fill material into WOUS. WOUS include navigable waterways and wetlands adjacent to navigable waterways, and non-navigable waterways and wetlands adjacent to non-navigable waters that are contiguous with navigable waterways. The term “waters of the United States” is defined by 33 Code of Federal Regulations (CFR) Part 328 and currently includes (1) all navigable waters (including all waters subject to the ebb and flow of the tide), (2) all interstate waters and wetlands, (3) all other waters (e.g., lakes, rivers, intermittent streams) that could affect interstate or foreign commerce, (4) all impoundments of waters mentioned above, (5) all tributaries to waters mentioned above, (6) the territorial seas, and (7) all wetlands adjacent to waters mentioned above.

Wetlands are defined by 33 CFR 328.3(b) as “those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support...a prevalence of vegetation typically adapted for life in saturated soil conditions.” In 1987 USACE published a manual to guide its field personnel in determining jurisdictional wetland boundaries. This manual was amended in 2008 by the USACE 2008 Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (Version 2.0). Currently, the 1987 Wetland Manual and the 2008 Arid West Supplement provide the legally accepted methodology for identification and delineation of USACE-jurisdictional wetlands in southern California.

The methodology set forth in the 1987 Wetland Manual and updated by the Arid West Supplement generally requires that, in order to be considered a wetland, the vegetation, soils, and hydrology of an area must exhibit at least minimal hydric characteristics. While the manual provides great detail in methodology and allows for varying special conditions, a wetland should normally meet each of the following three criteria:

- More than 50 percent of the dominant plant species at the site must be typical of wetlands (i.e., rated as facultative or wetter in the 1988 National List of Plant Species that Occur in Wetlands [Reed 1988]). These plants are known as “hydrophytic vegetation.”
- Soils must exhibit physical and/or chemical characteristics indicative of permanent or periodic saturation (e.g., a gleyed color or mottles with a matrix of low chroma indicating a relatively consistent fluctuation between aerobic and anaerobic conditions). Such soils, known as “hydric soils,” have characteristics that indicate they are developed in conditions where soil oxygen is limited by the presence of saturated soil for long periods during the growing season.
- Hydrologic characteristics must indicate that the ground is saturated to within 12 inches of the surface for at least 5 percent of the growing season during a normal rainfall year. For most of low-lying southern California, 5 percent of the growing season is equivalent to 18 days.

In the absence of wetlands, the limits of USACE jurisdiction in non-tidal waters, including intermittent relatively permanent waters (RPW), extend to the High Water Mark (HWM) defined by the total capacity of the infrastructure or extends to the Ordinary High Water Mark (OHWM) which is defined by 33 CFR 328.3(e) as:

*...that line on the shore established by the fluctuation of water and indicated by physical characteristics such as clear, natural line impressed on the bank, shelving, changes in the character of soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas.*

On January 9, 2001, the U.S. Supreme Court ruled (in *Solid Waste Agency of Northern Cook County v. U.S. Army Corps of Engineers*) (SWANCC) that the USACE jurisdiction does not extend to “isolated, non-navigable, intra-state waters or wetlands,” including but not limited to isolated ponds and wetlands. Examples of isolated waters that are affected by this ruling include: vernal pools, stock ponds, lakes (without outlets), playa lakes, and desert washes that are not tributary to navigable or interstate waters or to other jurisdictional waters.

A joint guidance by the U.S. Environmental Protection Agency (EPA) and USACE was issued on June 5, 2007, to clarify circumstances where a Clean Water Act (CWA) Section 404 permit would be required before conducting activities in wetlands, tributaries, and other waters. This guidance is consistent with the Supreme Court’s decision in the consolidated cases *Rapanos v. United States* and *Carabell v. United States* (126 S. Ct. 2208 (2006)) (“Rapanos”), which address the jurisdiction over WOUS under the Clean Water Act (33 U.S.C. §1251 et seq.). This Rapanos guidance does not supersede the 2003 guidance interpreting SWANCC, and the agencies will continue to evaluate jurisdiction over isolated waters on a case-by-case basis. USACE and EPA also jointly published and authorized the use of the *Jurisdictional Determination Form Instructional Guidebook* (USACE 2007). The guidebook defines how to determine if an area is jurisdictional and if there is a significant nexus per the Rapanos decision. A nexus is defined as some property of a drainage that has an effect on the physical, chemical, or biological integrity of downstream traditional navigable waters (TNW). A nexus must have more than insubstantial and speculative effects on the downstream TNW to be considered a significant nexus.

USACE will continue to assert jurisdiction over TNW, wetlands adjacent to TNW, non-navigable tributaries of TNW that are RPW where the tributaries typically flow year-round or have continuous flow at least seasonally (e.g., typically three months), and wetlands that directly abut such tributaries. USACE generally will not assert jurisdiction over swales or erosional features (e.g., gullies or small washes characterized by low volume or infrequent or short duration flow) or ditches (including roadside ditches) excavated wholly in and draining only uplands and that do not carry a relatively permanent flow of water.

USACE will use fact-specific analysis to determine whether waters have a significant nexus with traditional navigable water for non-navigable tributaries that are not relatively permanent (non-RPW), wetlands adjacent to non-navigable tributaries that are not relatively permanent, and wetlands adjacent to but not directly abutting a relatively permanent non-navigable tributary. According to USACE, “a significant nexus analysis will assess the flow characteristics and functions of the tributary itself and the functions performed by all wetlands adjacent to the tributary to determine if they significantly affect the chemical, physical and biological integrity of downstream traditional navigable waters,” including consideration of hydrologic and ecologic factors. A primary component of this determination lies in establishing the connectivity or nonconnectivity of the subject drainages to a TNW; therefore, the

drainages of the Project site must be analyzed from their origins to their terminus for any USACE jurisdictional determination.

For the purposes of this Project, this report will serve as a Preliminary Jurisdictional Delineation for USACE. As such, features encountered during the field survey that meet the criteria outlined above are considered under the jurisdiction of USACE without further investigation of connectivity or significant nexus.

## **1.2 REGIONAL WATER QUALITY CONTROL BOARD**

The State of California (State) regulates discharge of material into waters of the State pursuant to Section 401 of the Clean Water Act and the California Porter-Cologne Water Quality Control Act (California Water Code, Division 7, §13000 et seq.). Porter-Cologne reserves the right for the State of California to regulate activities that could affect the quantity and/or quality of surface and/or ground waters, including isolated wetlands, within the State. Waters of the State determined to be jurisdictional for these purposes require, if impacted, waste discharge requirements and a 401 Certification (in the case of the required USACE permit). The State Water Resources Control Board (SWRCB) and the local Regional Water Quality Control Boards (RWQCB) are the relevant permitting agencies.

## **1.3 CALIFORNIA DEPARTMENT OF FISH AND WILDLIFE**

Pursuant to Division 2, Chapter 6, Sections 1600-1602 of the California Fish and Game Code, the California Department of Fish and Wildlife (CDFW) regulates all diversions, obstructions, or changes to the natural flow or bed, channel, or bank of any river, stream, or lake which supports fish or wildlife.

CDFW defines a “stream” (including creeks and rivers) as “a body of water that flows at least periodically or intermittently through a bed or channel having banks and supports fish or other aquatic life. This includes watercourses having surface or subsurface flow that supports or has supported riparian vegetation.” The jurisdiction of CDFW may include areas in or near intermittent streams, ephemeral streams, rivers, creeks, dry washes, sloughs, blue-line streams that are indicated on the United States Geological Survey (USGS) maps, watercourses that may contain subsurface flows, or within the flood plain of a water body. CDFW’s definition of “lake” includes “natural lakes or man-made reservoirs.” CDFW limits of jurisdiction typically include the maximum extents of the uppermost bank-to-bank distance and/or the outermost extent of riparian vegetation dripline.

Artificial waterways, such as ditches (including roadside ditches), canals, aqueducts, irrigation ditches, and other artificially created water conveyance systems also may be under the jurisdiction of CDFW. CDFW may claim jurisdiction over these features based on the presence of habitat characteristics suitable to support aquatic life, riparian vegetation, and/or stream-dependent terrestrial wildlife. As with natural waterways, the limit of CDFW jurisdiction of artificial waterways includes the uppermost bank-to-bank distance and/or the outermost extent of riparian vegetation dripline.

CDFW jurisdiction within altered or artificial waterways is based upon the value of those waterways to fish and wildlife, including but not limited to:

- Natural waterways that have been subsequently modified and that have the potential to contain fish, aquatic insects, and riparian vegetation will be treated like natural waterways.

- Artificial waterways that have acquired the physical attributes of natural stream courses and which have been viewed by the community as natural stream courses should be treated as natural waterways.
- Artificial waterways without the attributes of natural waterways should generally not be subject to Fish and Game Code provisions.

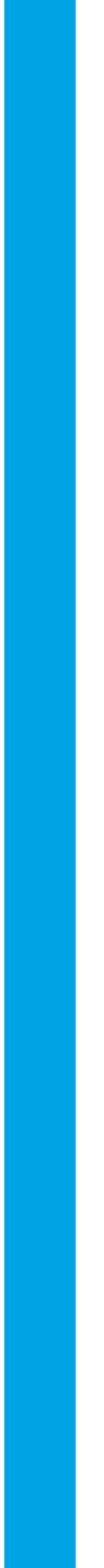
CDFW finds that the USFWS definition of wetlands is the most biologically valid. USFWS defines and classifies wetlands in accordance with the *Classification of Wetland and Deepwater Habitats of the United States* (Cowardin 1979) which states:

*Wetlands are lands transitional between terrestrial and aquatic systems where the water table is usually at or near the surface or the land is covered by shallow water. For purposes of this classification, wetlands must have one or more of the following three attributes: (1) at least periodically, the land supports hydrophytes, (2) the substrate is predominantly undrained hydric soil; and (3) the substrate is non-soil and is saturated with water or covered by shallow water at some time during the growing season of each year.*

USFWS wetlands would include:

*swamps; freshwater, brackish water, and saltwater marshes; bogs; vernal pools, periodically inundated saltflats; intertidal mudflats; wet meadows; wet pastures; springs and seeps; portions of lakes, ponds, rivers and streams; and all other areas which are periodically or permanently covered by shallow water, or dominated by hydrophytic vegetation, or in which the soils are predominantly hydric in nature.*

## **APPENDIX B – JURISDICTIONAL DELINEATION MAPS**





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 Source: Esri, DigitalGlobe, GeoEye, i-cubed, USDA, USGS, AEX,

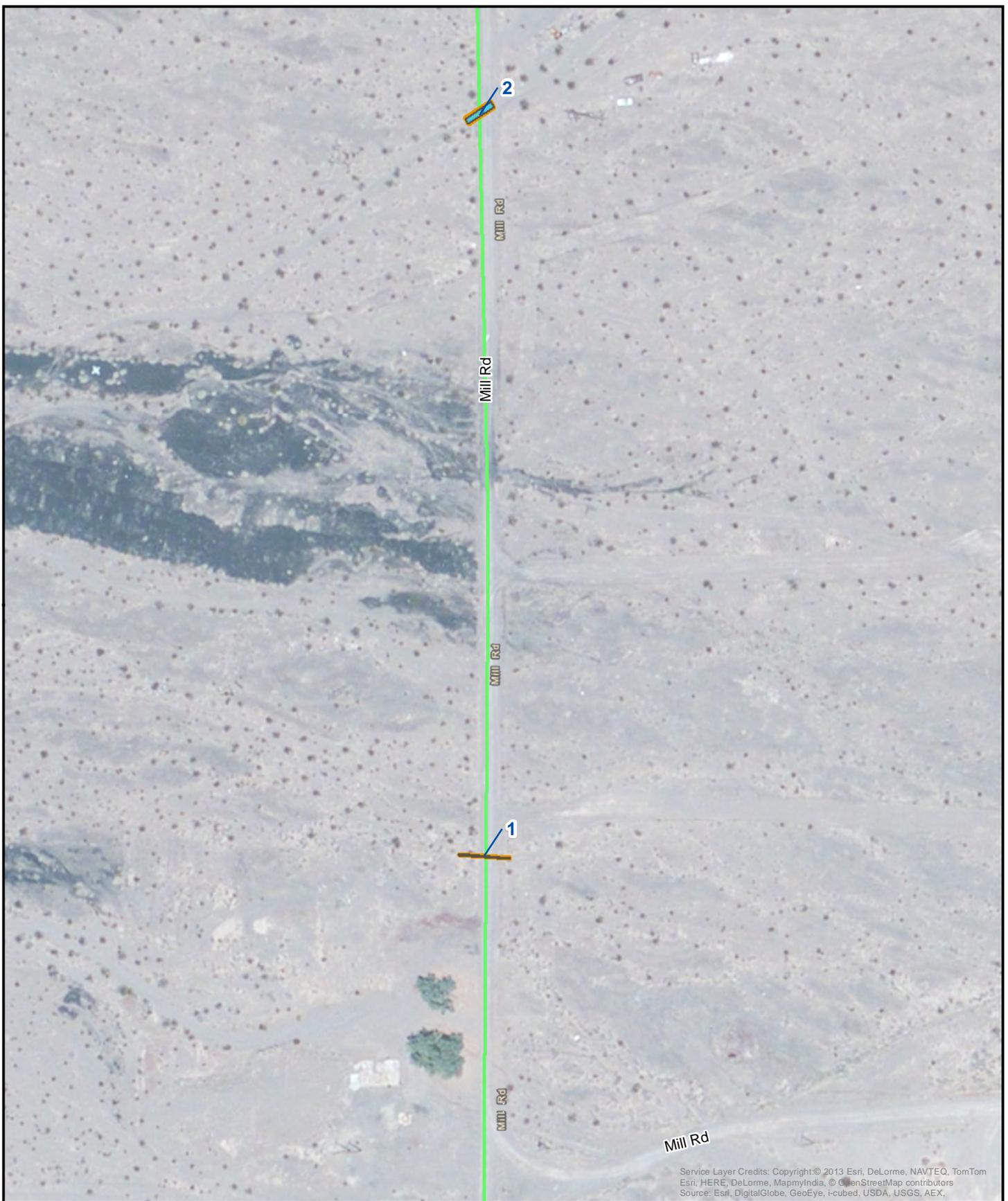
**Legend**

- Segment 1
- Segment 2
- Segment 3
- Segment 4
- Vault
- Potential Staging Area



**Appendix B**  
 AT&T Highway 127 Project  
 Jurisdictional Delineation Maps

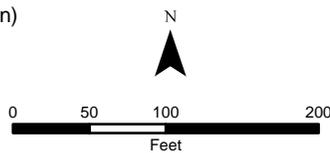
**Overview Map**



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**Legend**

Project Alignment	Jurisdictional Features
<span style="color: green;">—</span> Segment 1	<span style="background-color: lightblue; border: 1px solid black; display: inline-block; width: 15px; height: 10px;"></span> OHWM (USACE & RWQCB Jurisdiction)
<span style="color: purple;">—</span> Segment 2	<span style="background-color: orange; border: 1px solid black; display: inline-block; width: 15px; height: 10px;"></span> Bank-to-Bank (CDFW Jurisdiction)
<span style="color: orange;">—</span> Segment 3	<span style="background-color: yellow; border: 1px solid black; display: inline-block; width: 15px; height: 10px;"></span> Lakebed (USACE & RWQCB & CDFW Jurisdiction)
<span style="color: cyan;">—</span> Segment 4	
<span style="background-color: magenta; border: 1px solid black; display: inline-block; width: 15px; height: 10px;"></span> Vault	



**Appendix B**  
AT&T Highway 127 Project  
Jurisdictional Delineation Maps

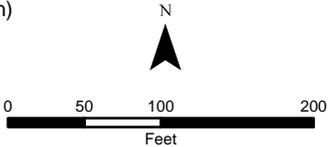




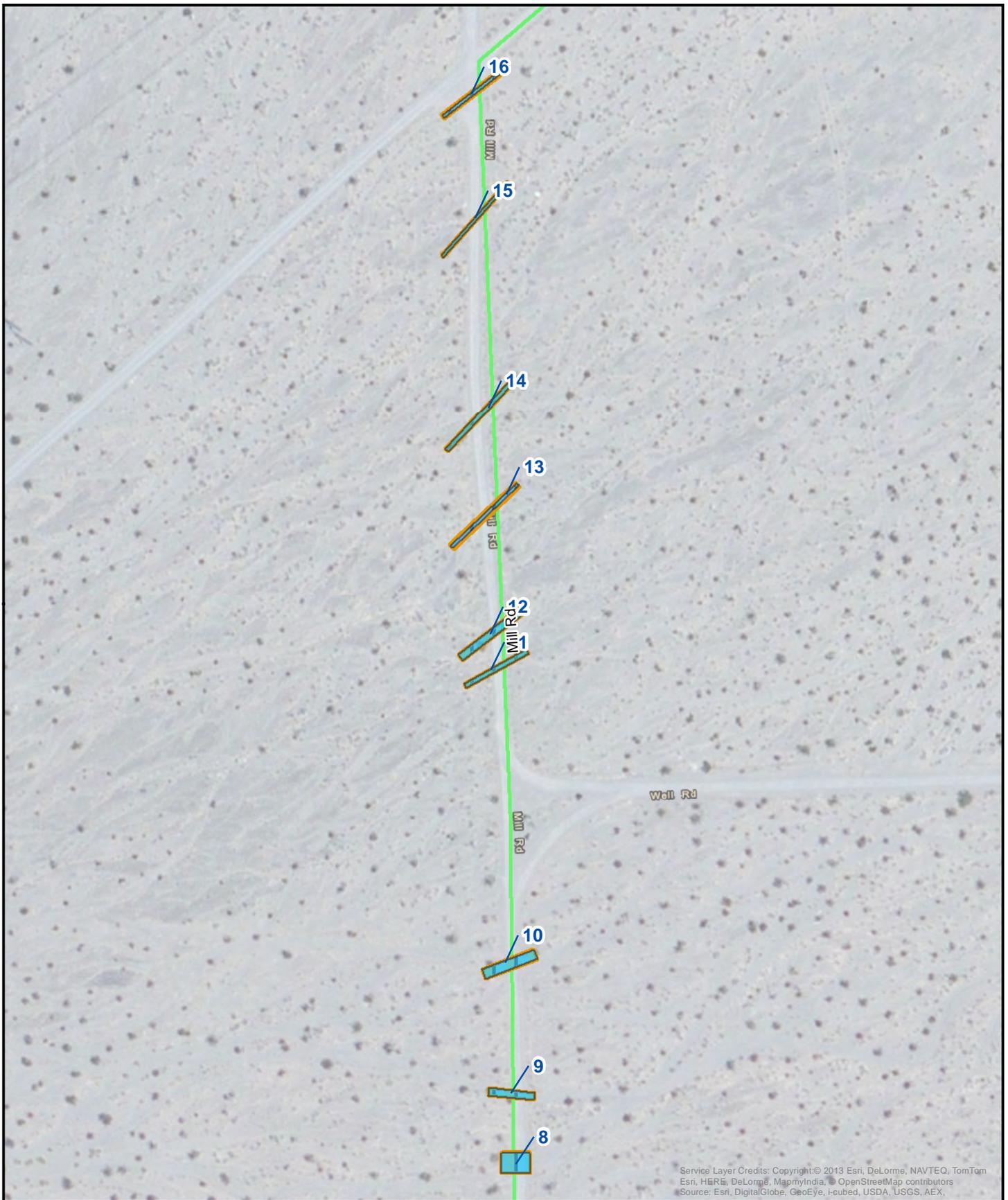
Service Layer Credits: Copyright © 2013 Esri, DeLorme, NAVTEQ, TomTom Esri, HERE, DeLorme, MapmyIndia, © OpenStreetMap contributors Source: Esri, DigitalGlobe, GeoEye, i-cubed, USDA, USGS, AEX.

**Legend**

Project Alignment	Jurisdictional Features
<span style="color: green;">—</span> Segment 1	<span style="border: 1px solid blue; background-color: lightblue; padding: 2px;"> </span> OHWM (USACE & RWQCB Jurisdiction)
<span style="color: purple;">—</span> Segment 2	<span style="border: 1px solid orange; background-color: lightorange; padding: 2px;"> </span> Bank-to-Bank (CDFW Jurisdiction)
<span style="color: orange;">—</span> Segment 3	<span style="border: 1px solid brown; background-color: lightbrown; padding: 2px;"> </span> Lakebed (USACE & RWQCB & CDFW Jurisdiction)
<span style="color: cyan;">—</span> Segment 4	
<span style="color: magenta;">■</span> Vault	



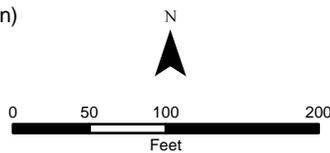
**Appendix B**  
AT&T Highway 127 Project  
Jurisdictional Delineation Maps



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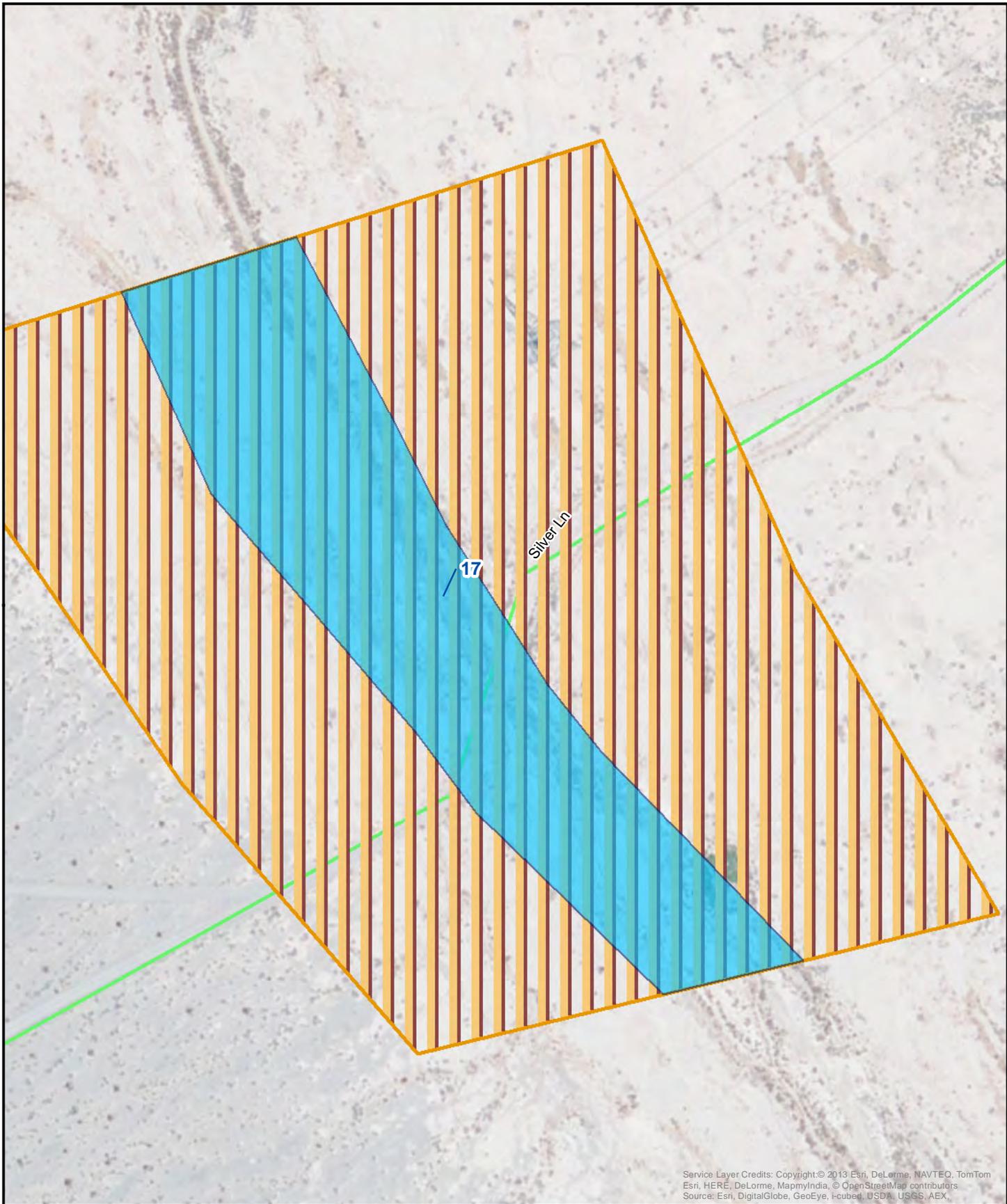
**Legend**

Project Alignment	Jurisdictional Features
<span style="color: green;">—</span> Segment 1	<span style="background-color: lightblue; border: 1px solid blue; display: inline-block; width: 15px; height: 10px;"></span> OHWM (USACE & RWQCB Jurisdiction)
<span style="color: purple;">—</span> Segment 2	<span style="background-color: orange; border: 1px solid orange; display: inline-block; width: 15px; height: 10px;"></span> Bank-to-Bank (CDFW Jurisdiction)
<span style="color: orange;">—</span> Segment 3	<span style="background-color: #d2b48c; border: 1px solid #d2b48c; display: inline-block; width: 15px; height: 10px;"></span> Lakebed (USACE & RWQCB & CDFW Jurisdiction)
<span style="color: cyan;">—</span> Segment 4	
<span style="background-color: magenta; border: 1px solid magenta; display: inline-block; width: 15px; height: 10px;"></span> Vault	



**Appendix B**  
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 Jurisdictional Delineation Maps

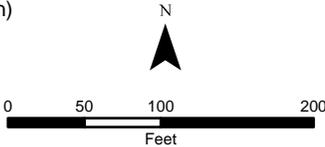




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**Legend**

Project Alignment	Jurisdictional Features
— Segment 1	OHWM (USACE & RWQCB Jurisdiction)
— Segment 2	Bank-to-Bank (CDFW Jurisdiction)
— Segment 3	Lakebed (USACE & RWQCB & CDFW Jurisdiction)
— Segment 4	
■ Vault	



**Appendix B**  
**AT&T Highway 127 Project**  
**Jurisdictional Delineation Maps**

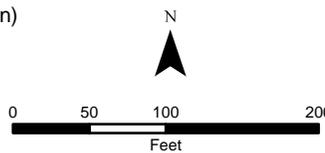




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**Legend**

Project Alignment	Jurisdictional Features
<span style="color: green;">—</span> Segment 1	<span style="border: 1px solid blue; display: inline-block; width: 15px; height: 10px;"></span> OHWM (USACE & RWQCB Jurisdiction)
<span style="color: purple;">—</span> Segment 2	<span style="border: 1px solid orange; display: inline-block; width: 15px; height: 10px;"></span> Bank-to-Bank (CDFW Jurisdiction)
<span style="color: orange;">—</span> Segment 3	<span style="border: 1px solid brown; display: inline-block; width: 15px; height: 10px;"></span> Lakebed (USACE & RWQCB & CDFW Jurisdiction)
<span style="color: lightblue;">—</span> Segment 4	
<span style="color: pink;">■</span> Vault	



**Appendix B**  
**AT&T Highway 127 Project**  
**Jurisdictional Delineation Maps**

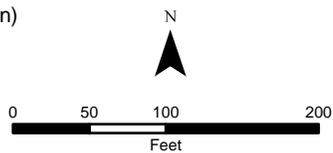




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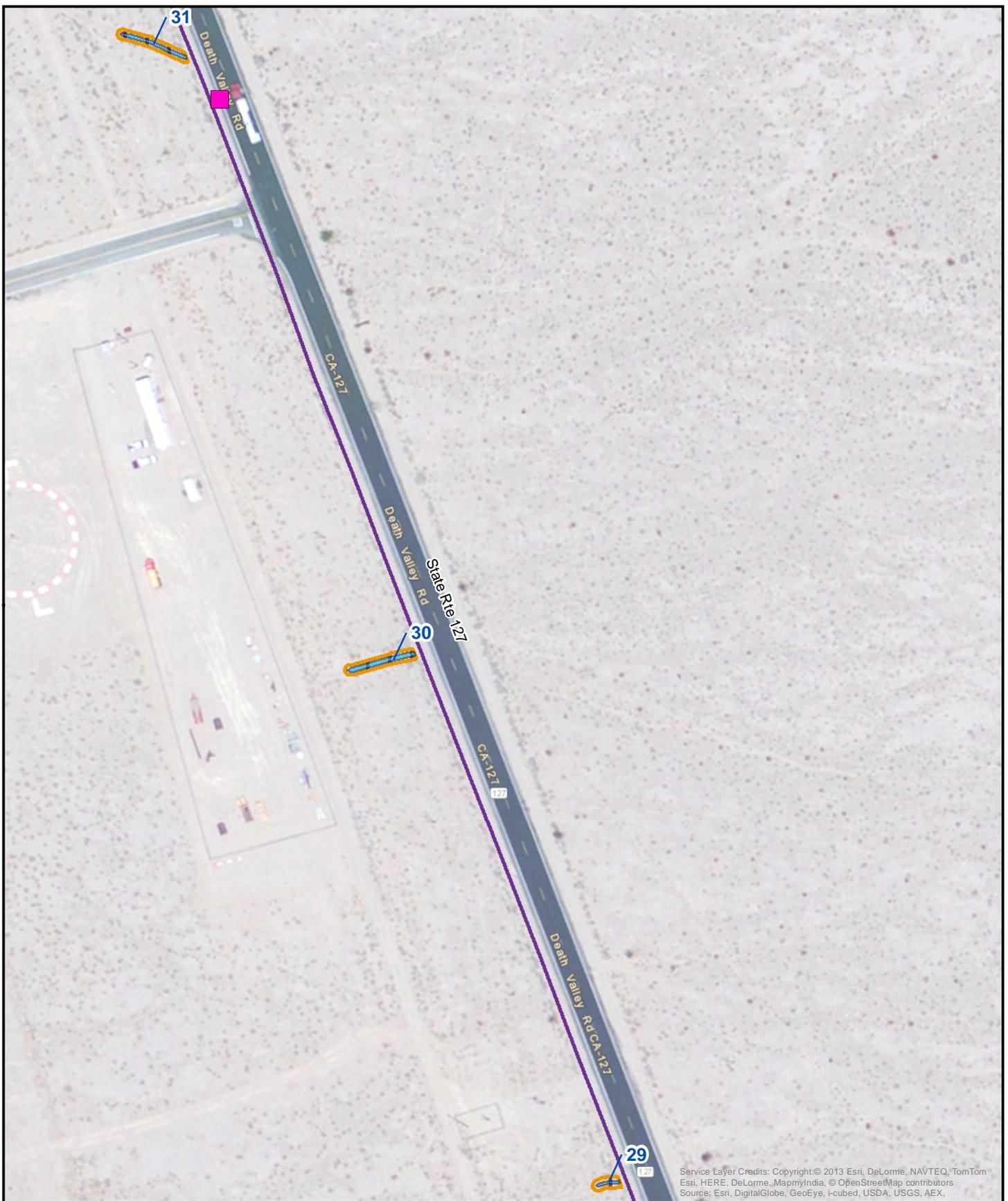
**Legend**

Project Alignment	Jurisdictional Features
<span style="color: green;">—</span> Segment 1	<span style="border: 1px solid blue; background-color: lightblue; padding: 2px;"> </span> OHHM (USACE & RWQCB Jurisdiction)
<span style="color: purple;">—</span> Segment 2	<span style="border: 1px solid orange; background-color: yellow; padding: 2px;"> </span> Bank-to-Bank (CDFW Jurisdiction)
<span style="color: orange;">—</span> Segment 3	<span style="border: 1px solid brown; background-color: tan; padding: 2px;"> </span> Lakebed (USACE & RWQCB & CDFW Jurisdiction)
<span style="color: cyan;">—</span> Segment 4	
<span style="color: magenta;">■</span> Vault	



**Appendix B**  
**AT&T Highway 127 Project**  
**Jurisdictional Delineation Maps**

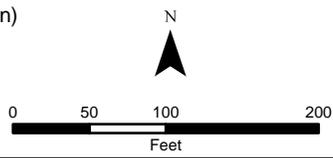




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**Legend**

Project Alignment	Jurisdictional Features
<span style="color: green;">—</span> Segment 1	<span style="border: 1px solid blue; padding: 2px;"> </span> OHHW (USACE & RWQCB Jurisdiction)
<span style="color: purple;">—</span> Segment 2	<span style="border: 1px solid orange; padding: 2px;"> </span> Bank-to-Bank (CDFW Jurisdiction)
<span style="color: orange;">—</span> Segment 3	<span style="border: 1px solid brown; padding: 2px;"> </span> Lakebed (USACE & RWQCB & CDFW Jurisdiction)
<span style="color: lightblue;">—</span> Segment 4	
<span style="color: pink;">■</span> Vault	



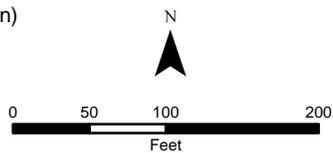
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**Legend**

Project Alignment	Jurisdictional Features
<span style="color: green;">—</span> Segment 1	<span style="background-color: lightblue; border: 1px solid blue; display: inline-block; width: 15px; height: 10px;"></span> OHWM (USACE & RWQCB Jurisdiction)
<span style="color: purple;">—</span> Segment 2	<span style="background-color: orange; border: 1px solid orange; display: inline-block; width: 15px; height: 10px;"></span> Bank-to-Bank (CDFW Jurisdiction)
<span style="color: orange;">—</span> Segment 3	<span style="background-color: yellow; border: 1px solid yellow; display: inline-block; width: 15px; height: 10px;"></span> Lakebed (USACE & RWQCB & CDFW Jurisdiction)
<span style="color: cyan;">—</span> Segment 4	
<span style="color: magenta;">■</span> Vault	



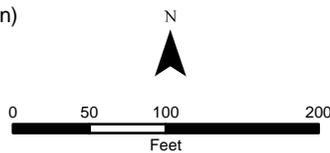
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**Legend**

Project Alignment	Jurisdictional Features
<span style="color: green;">—</span> Segment 1	<span style="background-color: lightblue; border: 1px solid blue; display: inline-block; width: 15px; height: 10px;"></span> OHWM (USACE & RWQCB Jurisdiction)
<span style="color: purple;">—</span> Segment 2	<span style="background-color: orange; border: 1px solid orange; display: inline-block; width: 15px; height: 10px;"></span> Bank-to-Bank (CDFW Jurisdiction)
<span style="color: orange;">—</span> Segment 3	<span style="background-color: yellow; border: 1px solid yellow; display: inline-block; width: 15px; height: 10px;"></span> Lakebed (USACE & RWQCB & CDFW Jurisdiction)
<span style="color: cyan;">—</span> Segment 4	
<span style="color: magenta;">■</span> Vault	



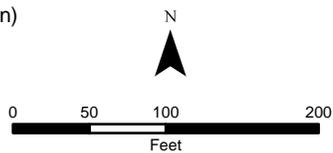
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**Legend**

Project Alignment	Jurisdictional Features
<span style="color: green;">—</span> Segment 1	<span style="background-color: lightblue; border: 1px solid blue;"> </span> OHWM (USACE & RWQCB Jurisdiction)
<span style="color: purple;">—</span> Segment 2	<span style="background-color: orange; border: 1px solid orange;"> </span> Bank-to-Bank (CDFW Jurisdiction)
<span style="color: orange;">—</span> Segment 3	<span style="background-color: yellow; border: 1px solid yellow;"> </span> Lakebed (USACE & RWQCB & CDFW Jurisdiction)
<span style="color: cyan;">—</span> Segment 4	
<span style="background-color: magenta; border: 1px solid magenta;"> </span> Vault	



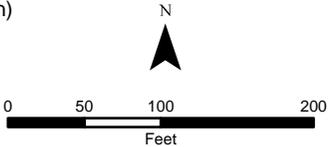
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**Legend**

Project Alignment	Jurisdictional Features
<span style="color: green;">—</span> Segment 1	<span style="background-color: lightblue; border: 1px solid blue; display: inline-block; width: 15px; height: 10px;"></span> OHWM (USACE & RWQCB Jurisdiction)
<span style="color: purple;">—</span> Segment 2	<span style="background-color: orange; border: 1px solid orange; display: inline-block; width: 15px; height: 10px;"></span> Bank-to-Bank (CDFW Jurisdiction)
<span style="color: orange;">—</span> Segment 3	<span style="background-color: yellow; border: 1px solid yellow; display: inline-block; width: 15px; height: 10px;"></span> Lakebed (USACE & RWQCB & CDFW Jurisdiction)
<span style="color: lightblue;">—</span> Segment 4	
<span style="color: magenta;">■</span> Vault	



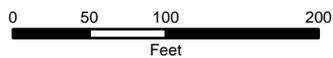
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**Legend**

Project Alignment	Jurisdictional Features
<span style="color: green;">—</span> Segment 1	<span style="background-color: lightblue; border: 1px solid black; display: inline-block; width: 15px; height: 10px;"></span> OHWM (USACE & RWQCB Jurisdiction)
<span style="color: purple;">—</span> Segment 2	<span style="background-color: yellow; border: 1px solid black; display: inline-block; width: 15px; height: 10px;"></span> Bank-to-Bank (CDFW Jurisdiction)
<span style="color: orange;">—</span> Segment 3	<span style="background-color: tan; border: 1px solid black; display: inline-block; width: 15px; height: 10px;"></span> Lakebed (USACE & RWQCB & CDFW Jurisdiction)
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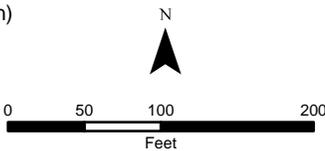
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**Legend**

Project Alignment	Jurisdictional Features
<span style="color: green;">—</span> Segment 1	<span style="border: 1px solid blue; background-color: lightblue; padding: 2px;"> </span> OHWM (USACE & RWQCB Jurisdiction)
<span style="color: purple;">—</span> Segment 2	<span style="border: 1px solid orange; background-color: orange; padding: 2px;"> </span> Bank-to-Bank (CDFW Jurisdiction)
<span style="color: orange;">—</span> Segment 3	<span style="border: 1px solid tan; background-color: tan; padding: 2px;"> </span> Lakebed (USACE & RWQCB & CDFW Jurisdiction)
<span style="color: cyan;">—</span> Segment 4	
<span style="color: magenta;">■</span> Vault	



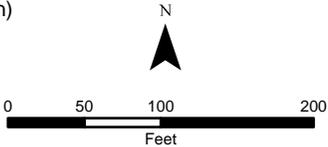
**Appendix B**  
 AT&T Highway 127 Project  
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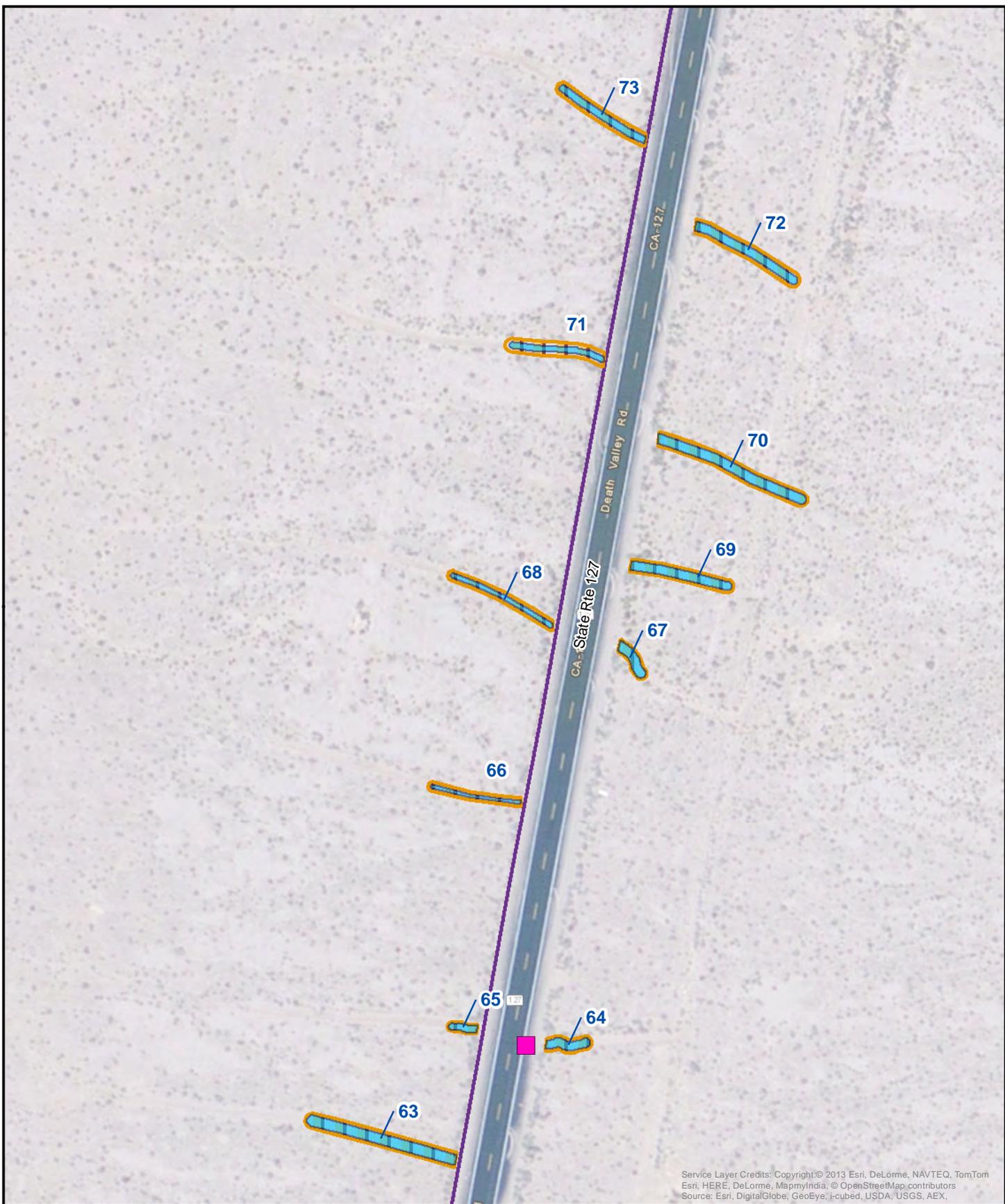
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**Legend**

Project Alignment	Jurisdictional Features
<span style="color: green;">—</span> Segment 1	<span style="background-color: lightblue; border: 1px solid blue;"> </span> OHWM (USACE & RWQCB Jurisdiction)
<span style="color: purple;">—</span> Segment 2	<span style="background-color: orange; border: 1px solid orange;"> </span> Bank-to-Bank (CDFW Jurisdiction)
<span style="color: orange;">—</span> Segment 3	<span style="background-color: yellow; border: 1px solid yellow;"> </span> Lakebed (USACE & RWQCB & CDFW Jurisdiction)
<span style="color: lightblue;">—</span> Segment 4	
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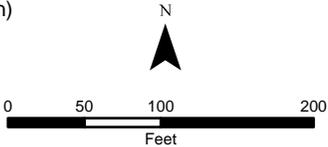
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**Legend**

Project Alignment	Jurisdictional Features
<span style="color: green;">—</span> Segment 1	<span style="background-color: lightblue; border: 1px solid blue; display: inline-block; width: 20px; height: 10px;"></span> OHWM (USACE & RWQCB Jurisdiction)
<span style="color: purple;">—</span> Segment 2	<span style="background-color: orange; border: 1px solid orange; display: inline-block; width: 20px; height: 10px;"></span> Bank-to-Bank (CDFW Jurisdiction)
<span style="color: orange;">—</span> Segment 3	<span style="background-color: yellow; border: 1px solid yellow; display: inline-block; width: 20px; height: 10px;"></span> Lakebed (USACE & RWQCB & CDFW Jurisdiction)
<span style="color: cyan;">—</span> Segment 4	
<span style="color: magenta;">■</span> Vault	



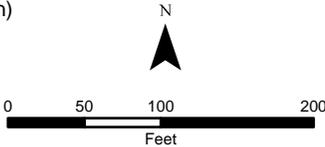
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**Legend**

Project Alignment	Jurisdictional Features
— Segment 1	OHWM (USACE & RWQCB Jurisdiction)
— Segment 2	Bank-to-Bank (CDFW Jurisdiction)
— Segment 3	Lakebed (USACE & RWQCB & CDFW Jurisdiction)
— Segment 4	
■ Vault	



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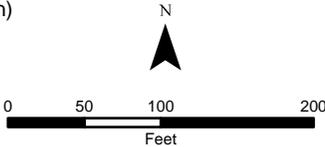




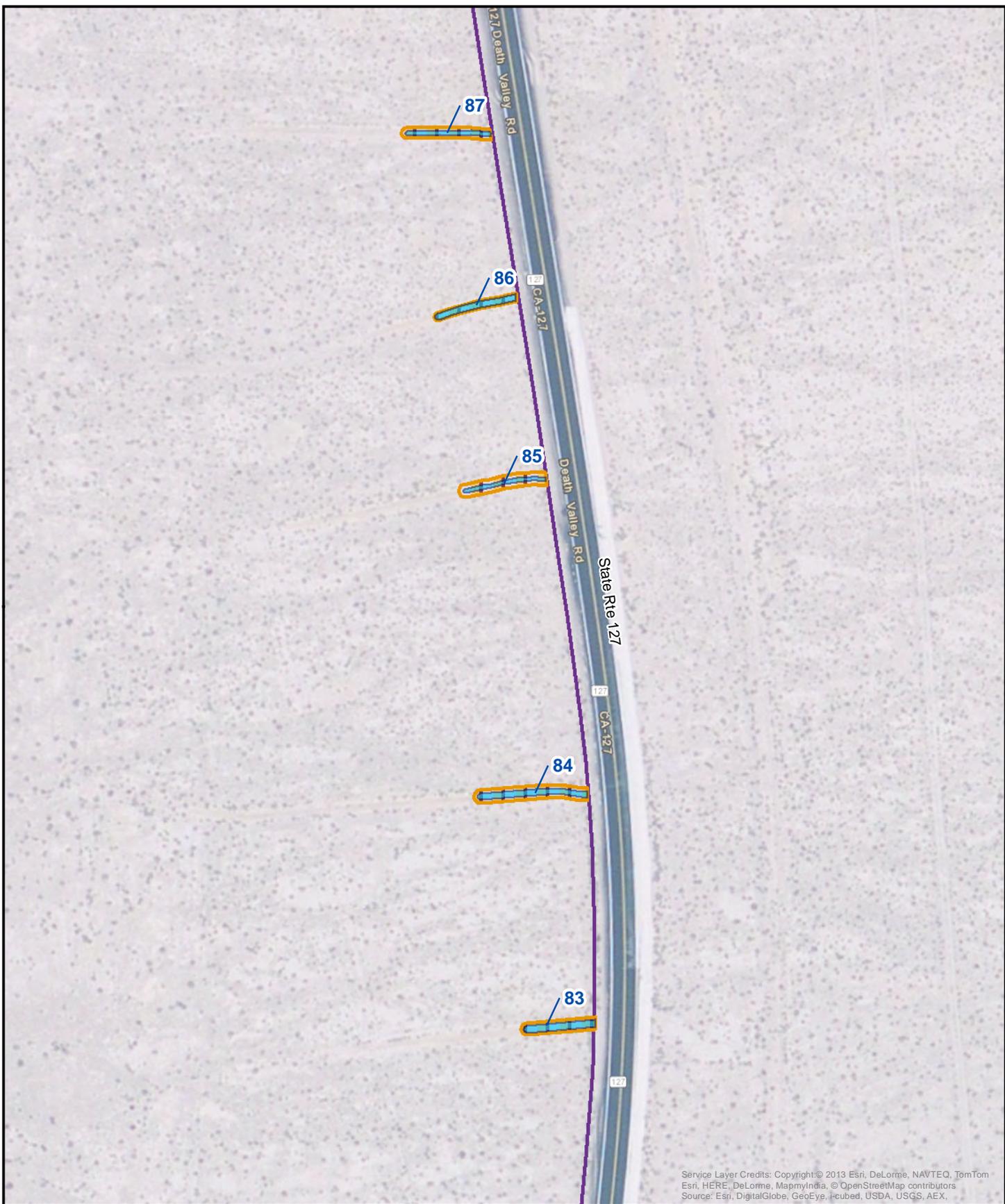
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 Source: Esri, DigitalGlobe, GeoEye, i-cubed, USDA, USGS, AEX,

**Legend**

Project Alignment	Jurisdictional Features
<span style="color: green;">—</span> Segment 1	<span style="background-color: lightblue; border: 1px solid black; display: inline-block; width: 15px; height: 10px;"></span> OHWM (USACE & RWQCB Jurisdiction)
<span style="color: purple;">—</span> Segment 2	<span style="background-color: orange; border: 1px solid black; display: inline-block; width: 15px; height: 10px;"></span> Bank-to-Bank (CDFW Jurisdiction)
<span style="color: orange;">—</span> Segment 3	<span style="background-color: yellow; border: 1px solid black; display: inline-block; width: 15px; height: 10px;"></span> Lakebed (USACE & RWQCB & CDFW Jurisdiction)
<span style="color: lightblue;">—</span> Segment 4	
<span style="background-color: pink; border: 1px solid black; display: inline-block; width: 15px; height: 10px;"></span> Vault	



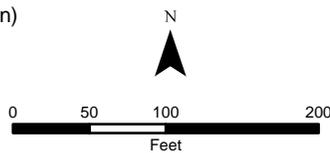
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**Legend**

Project Alignment	Jurisdictional Features
<span style="color: green;">—</span> Segment 1	<span style="background-color: lightblue; border: 1px solid blue;"> </span> OHWM (USACE & RWQCB Jurisdiction)
<span style="color: purple;">—</span> Segment 2	<span style="background-color: orange; border: 1px solid orange;"> </span> Bank-to-Bank (CDFW Jurisdiction)
<span style="color: orange;">—</span> Segment 3	<span style="background-color: yellow; border: 1px solid yellow;"> </span> Lakebed (USACE & RWQCB & CDFW Jurisdiction)
<span style="color: cyan;">—</span> Segment 4	
<span style="background-color: magenta; border: 1px solid magenta;"> </span> Vault	



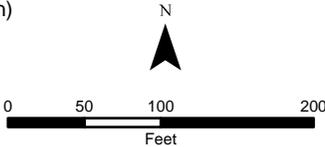
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Project Alignment	Jurisdictional Features
<span style="color: green;">—</span> Segment 1	<span style="background-color: lightblue; border: 1px solid blue;"> </span> OHWM (USACE & RWQCB Jurisdiction)
<span style="color: purple;">—</span> Segment 2	<span style="background-color: orange; border: 1px solid orange;"> </span> Bank-to-Bank (CDFW Jurisdiction)
<span style="color: orange;">—</span> Segment 3	<span style="background-color: yellow; border: 1px solid yellow;"> </span> Lakebed (USACE & RWQCB & CDFW Jurisdiction)
<span style="color: cyan;">—</span> Segment 4	
<span style="background-color: magenta; border: 1px solid magenta;"> </span> Vault	



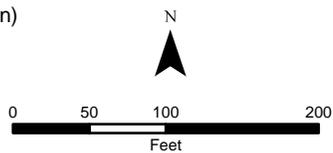
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**Legend**

Project Alignment	Jurisdictional Features
<span style="color: green;">—</span> Segment 1	<span style="background-color: lightblue; border: 1px solid blue;"> </span> OHWM (USACE & RWQCB Jurisdiction)
<span style="color: purple;">—</span> Segment 2	<span style="background-color: orange; border: 1px solid orange;"> </span> Bank-to-Bank (CDFW Jurisdiction)
<span style="color: orange;">—</span> Segment 3	<span style="background-color: yellow; border: 1px solid yellow;"> </span> Lakebed (USACE & RWQCB & CDFW Jurisdiction)
<span style="color: cyan;">—</span> Segment 4	
<span style="background-color: magenta; border: 1px solid magenta;"> </span> Vault	



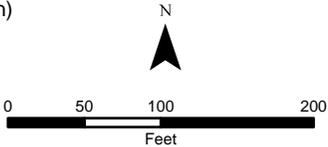
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Project Alignment	Jurisdictional Features
<span style="color: green;">—</span> Segment 1	<span style="border: 1px solid blue; background-color: lightblue; display: inline-block; width: 15px; height: 10px;"></span> OHWM (USACE & RWQCB Jurisdiction)
<span style="color: purple;">—</span> Segment 2	<span style="border: 1px solid orange; background-color: lightorange; display: inline-block; width: 15px; height: 10px;"></span> Bank-to-Bank (CDFW Jurisdiction)
<span style="color: orange;">—</span> Segment 3	<span style="border: 1px solid brown; background-color: lightbrown; display: inline-block; width: 15px; height: 10px;"></span> Lakebed (USACE & RWQCB & CDFW Jurisdiction)
<span style="color: cyan;">—</span> Segment 4	
<span style="color: magenta;">■</span> Vault	



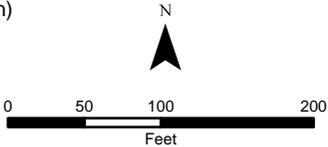
**Appendix B**  
 AT&T Highway 127 Project  
 Jurisdictional Delineation Maps



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**Legend**

Project Alignment	Jurisdictional Features
Segment 1	OHWM (USACE & RWQCB Jurisdiction)
Segment 2	Bank-to-Bank (CDFW Jurisdiction)
Segment 3	Lakebed (USACE & RWQCB & CDFW Jurisdiction)
Segment 4	
Vault	



**Appendix B**  
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 Jurisdictional Delineation Maps

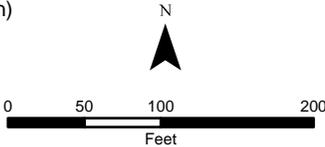




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**Legend**

Project Alignment	Jurisdictional Features
<span style="color: green;">—</span> Segment 1	<span style="background-color: lightblue; border: 1px solid blue;"> </span> OHWM (USACE & RWQCB Jurisdiction)
<span style="color: purple;">—</span> Segment 2	<span style="background-color: orange; border: 1px solid orange;"> </span> Bank-to-Bank (CDFW Jurisdiction)
<span style="color: orange;">—</span> Segment 3	<span style="background-color: tan; border: 1px solid tan;"> </span> Lakebed (USACE & RWQCB & CDFW Jurisdiction)
<span style="color: lightblue;">—</span> Segment 4	
<span style="background-color: magenta; border: 1px solid magenta;"> </span> Vault	



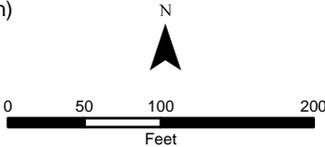
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**Legend**

Project Alignment	Jurisdictional Features
<span style="color: green;">—</span> Segment 1	<span style="background-color: lightblue; border: 1px solid blue;"> </span> OHWM (USACE & RWQCB Jurisdiction)
<span style="color: purple;">—</span> Segment 2	<span style="background-color: orange; border: 1px solid orange;"> </span> Bank-to-Bank (CDFW Jurisdiction)
<span style="color: orange;">—</span> Segment 3	<span style="background-color: yellow; border: 1px solid yellow;"> </span> Lakebed (USACE & RWQCB & CDFW Jurisdiction)
<span style="color: lightblue;">—</span> Segment 4	
<span style="color: pink;">■</span> Vault	



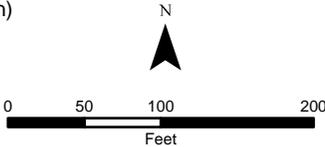
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**Legend**

Project Alignment	Jurisdictional Features
Segment 1	OHWM (USACE & RWQCB Jurisdiction)
Segment 2	Bank-to-Bank (CDFW Jurisdiction)
Segment 3	Lakebed (USACE & RWQCB & CDFW Jurisdiction)
Segment 4	
Vault	



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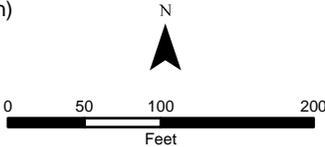




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**Legend**

Project Alignment	Jurisdictional Features
<span style="color: green;">—</span> Segment 1	<span style="border: 1px solid blue; background-color: lightblue; padding: 2px;"> </span> OHWM (USACE & RWQCB Jurisdiction)
<span style="color: purple;">—</span> Segment 2	<span style="border: 1px solid orange; background-color: lightorange; padding: 2px;"> </span> Bank-to-Bank (CDFW Jurisdiction)
<span style="color: orange;">—</span> Segment 3	<span style="border: 1px solid brown; background-color: lightbrown; padding: 2px;"> </span> Lakebed (USACE & RWQCB & CDFW Jurisdiction)
<span style="color: cyan;">—</span> Segment 4	
<span style="color: magenta;">■</span> Vault	



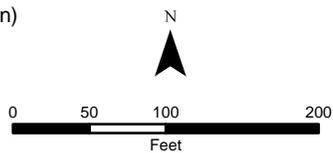
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**Legend**

Project Alignment	Jurisdictional Features
<span style="color: green;">—</span> Segment 1	<span style="color: blue;">▭</span> OHWM (USACE & RWQCB Jurisdiction)
<span style="color: purple;">—</span> Segment 2	<span style="color: orange;">▭</span> Bank-to-Bank (CDFW Jurisdiction)
<span style="color: orange;">—</span> Segment 3	<span style="color: yellow;">▭</span> Lakebed (USACE & RWQCB & CDFW Jurisdiction)
<span style="color: lightblue;">—</span> Segment 4	
<span style="color: magenta;">▭</span> Vault	



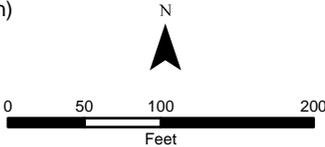
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**Legend**

Project Alignment	Jurisdictional Features
<span style="color: green;">—</span> Segment 1	<span style="color: lightblue;">■</span> OHWM (USACE & RWQCB Jurisdiction)
<span style="color: purple;">—</span> Segment 2	<span style="color: yellow;">■</span> Bank-to-Bank (CDFW Jurisdiction)
<span style="color: orange;">—</span> Segment 3	<span style="color: tan;">■</span> Lakebed (USACE & RWQCB & CDFW Jurisdiction)
<span style="color: cyan;">—</span> Segment 4	
<span style="color: magenta;">■</span> Vault	



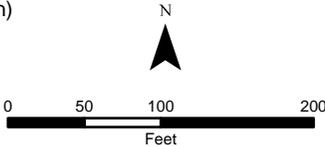
**Appendix B**  
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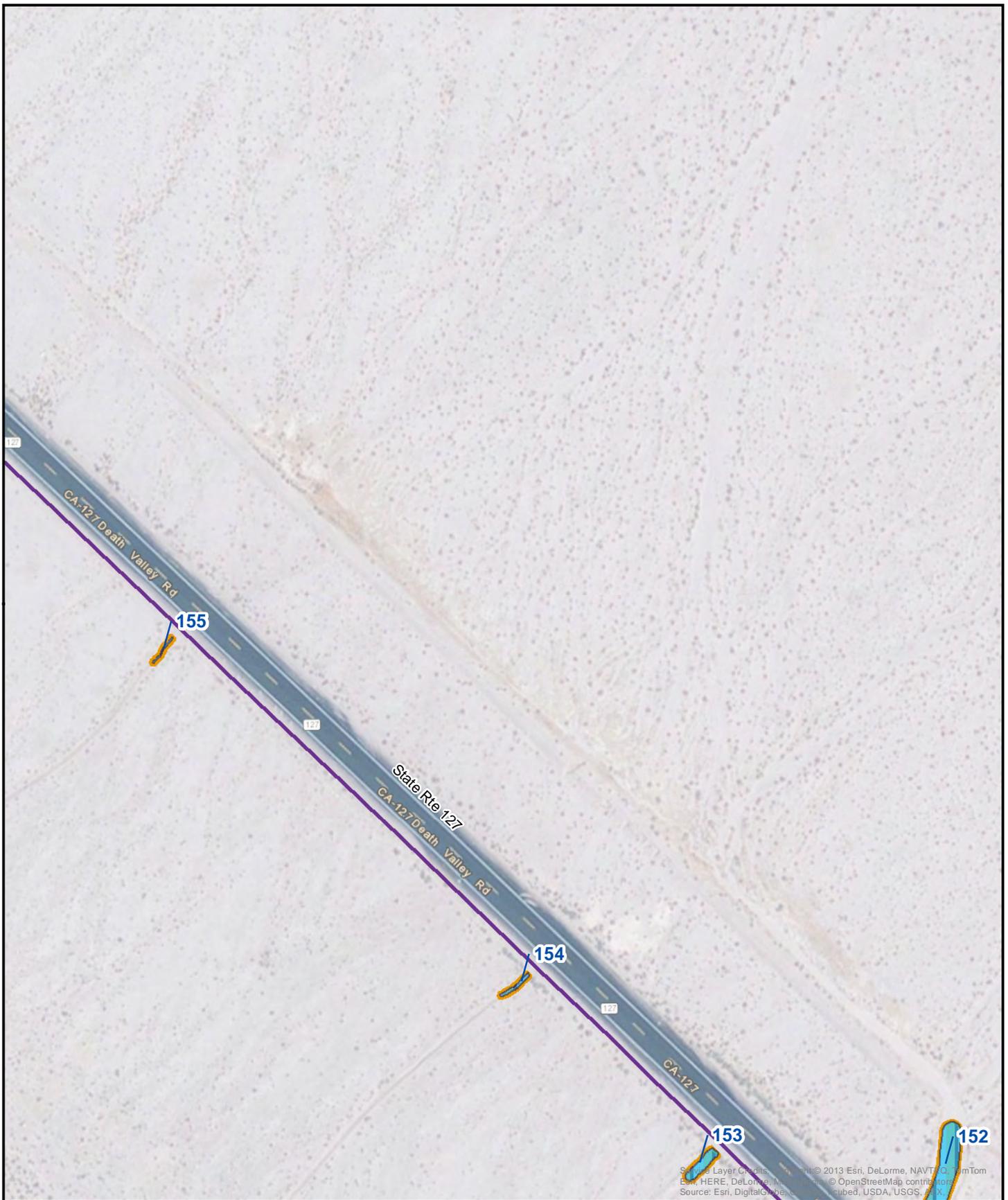
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Project Alignment	Jurisdictional Features
<span style="color: green;">—</span> Segment 1	<span style="background-color: lightblue; border: 1px solid blue; display: inline-block; width: 15px; height: 10px;"></span> OHWM (USACE & RWQCB Jurisdiction)
<span style="color: purple;">—</span> Segment 2	<span style="background-color: orange; border: 1px solid orange; display: inline-block; width: 15px; height: 10px;"></span> Bank-to-Bank (CDFW Jurisdiction)
<span style="color: orange;">—</span> Segment 3	<span style="background-color: tan; border: 1px solid tan; display: inline-block; width: 15px; height: 10px;"></span> Lakebed (USACE & RWQCB & CDFW Jurisdiction)
<span style="color: lightblue;">—</span> Segment 4	
<span style="color: magenta;">■</span> Vault	

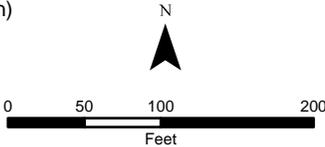


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**Legend**

Project Alignment	Jurisdictional Features
Segment 1	OHWM (USACE & RWQCB Jurisdiction)
Segment 2	Bank-to-Bank (CDFW Jurisdiction)
Segment 3	Lakebed (USACE & RWQCB & CDFW Jurisdiction)
Segment 4	
Vault	



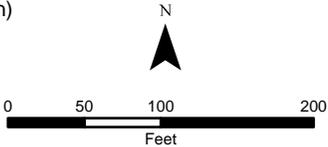
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Project Alignment	Jurisdictional Features
<span style="color: green;">—</span> Segment 1	<span style="background-color: lightblue; border: 1px solid black; display: inline-block; width: 15px; height: 10px;"></span> OHWM (USACE & RWQCB Jurisdiction)
<span style="color: purple;">—</span> Segment 2	<span style="background-color: orange; border: 1px solid black; display: inline-block; width: 15px; height: 10px;"></span> Bank-to-Bank (CDFW Jurisdiction)
<span style="color: orange;">—</span> Segment 3	<span style="background-color: tan; border: 1px solid black; display: inline-block; width: 15px; height: 10px;"></span> Lakebed (USACE & RWQCB & CDFW Jurisdiction)
<span style="color: cyan;">—</span> Segment 4	
<span style="color: magenta;">■</span> Vault	



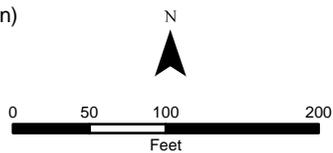
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Project Alignment	Jurisdictional Features
<span style="color: green;">—</span> Segment 1	<span style="background-color: lightblue; border: 1px solid black; display: inline-block; width: 15px; height: 10px;"></span> OHWM (USACE & RWQCB Jurisdiction)
<span style="color: purple;">—</span> Segment 2	<span style="background-color: orange; border: 1px solid black; display: inline-block; width: 15px; height: 10px;"></span> Bank-to-Bank (CDFW Jurisdiction)
<span style="color: orange;">—</span> Segment 3	<span style="background-color: yellow; border: 1px solid black; display: inline-block; width: 15px; height: 10px;"></span> Lakebed (USACE & RWQCB & CDFW Jurisdiction)
<span style="color: lightblue;">—</span> Segment 4	
<span style="color: magenta;">■</span> Vault	



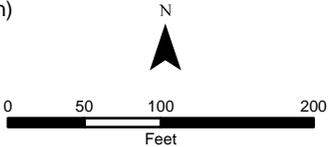
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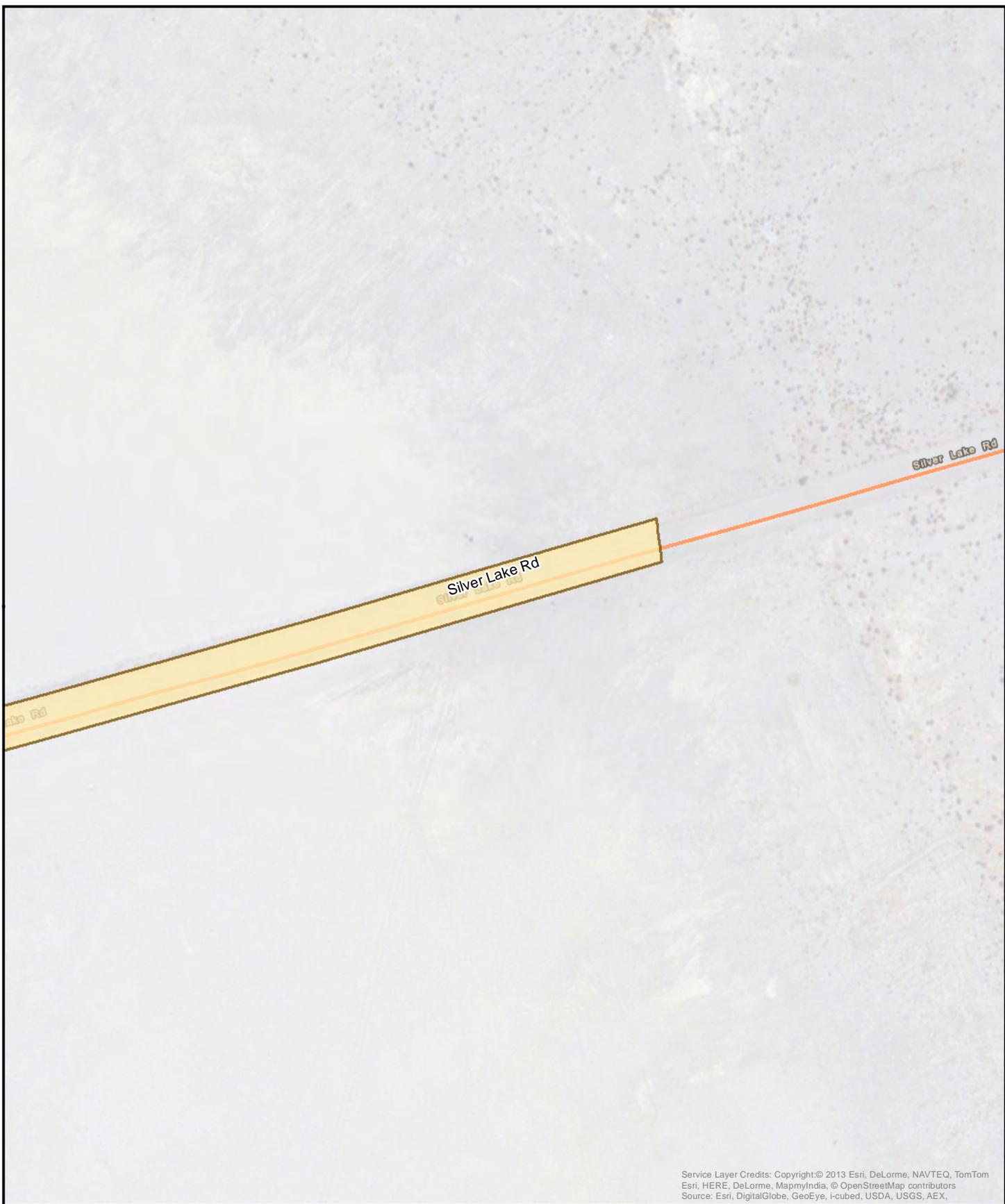
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Project Alignment	Jurisdictional Features
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<span style="color: purple;">—</span> Segment 2	<span style="background-color: yellow; border: 1px solid orange;"> </span> Bank-to-Bank (CDFW Jurisdiction)
<span style="color: orange;">—</span> Segment 3	<span style="background-color: tan; border: 1px solid brown;"> </span> Lakebed (USACE & RWQCB & CDFW Jurisdiction)
<span style="color: lightblue;">—</span> Segment 4	
<span style="color: magenta;">■</span> Vault	



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**AT&T Highway 127 Project**  
**Jurisdictional Delineation Maps**

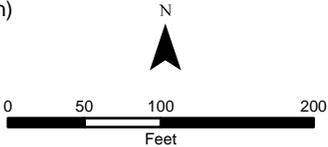




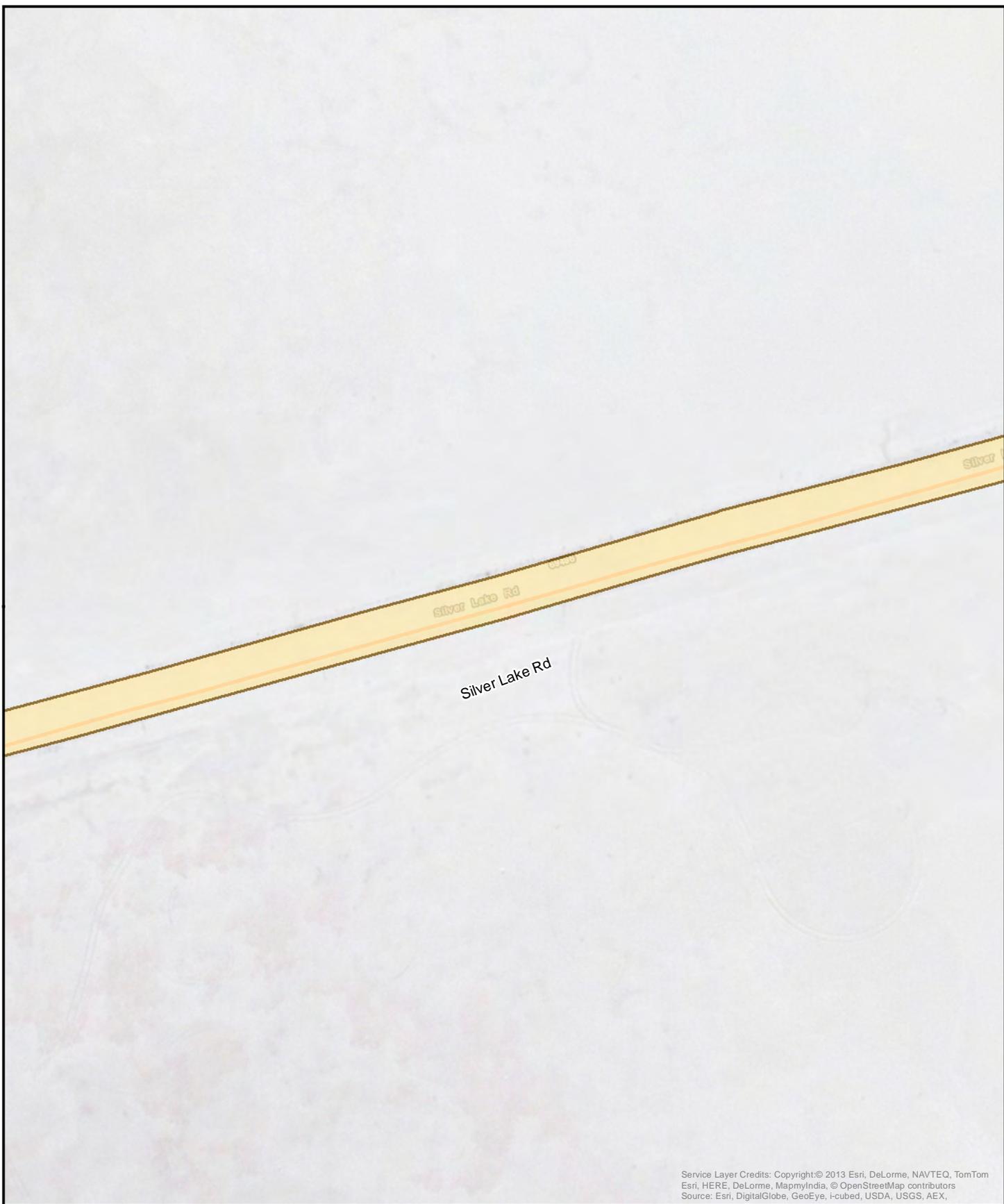
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<span style="color: green;">—</span> Segment 1	<span style="background-color: lightblue; border: 1px solid blue; display: inline-block; width: 15px; height: 10px;"></span> OHWM (USACE & RWQCB Jurisdiction)
<span style="color: purple;">—</span> Segment 2	<span style="background-color: orange; border: 1px solid orange; display: inline-block; width: 15px; height: 10px;"></span> Bank-to-Bank (CDFW Jurisdiction)
<span style="color: orange;">—</span> Segment 3	<span style="background-color: yellow; border: 1px solid yellow; display: inline-block; width: 15px; height: 10px;"></span> Lakebed (USACE & RWQCB & CDFW Jurisdiction)
<span style="color: cyan;">—</span> Segment 4	
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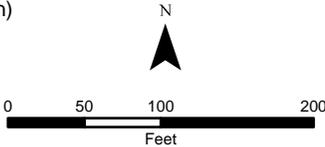
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<span style="color: green;">—</span> Segment 1	<span style="background-color: lightblue; border: 1px solid blue; display: inline-block; width: 15px; height: 10px;"></span> OHWM (USACE & RWQCB Jurisdiction)
<span style="color: purple;">—</span> Segment 2	<span style="background-color: orange; border: 1px solid orange; display: inline-block; width: 15px; height: 10px;"></span> Bank-to-Bank (CDFW Jurisdiction)
<span style="color: orange;">—</span> Segment 3	<span style="background-color: yellow; border: 1px solid yellow; display: inline-block; width: 15px; height: 10px;"></span> Lakebed (USACE & RWQCB & CDFW Jurisdiction)
<span style="color: cyan;">—</span> Segment 4	
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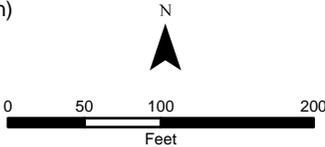
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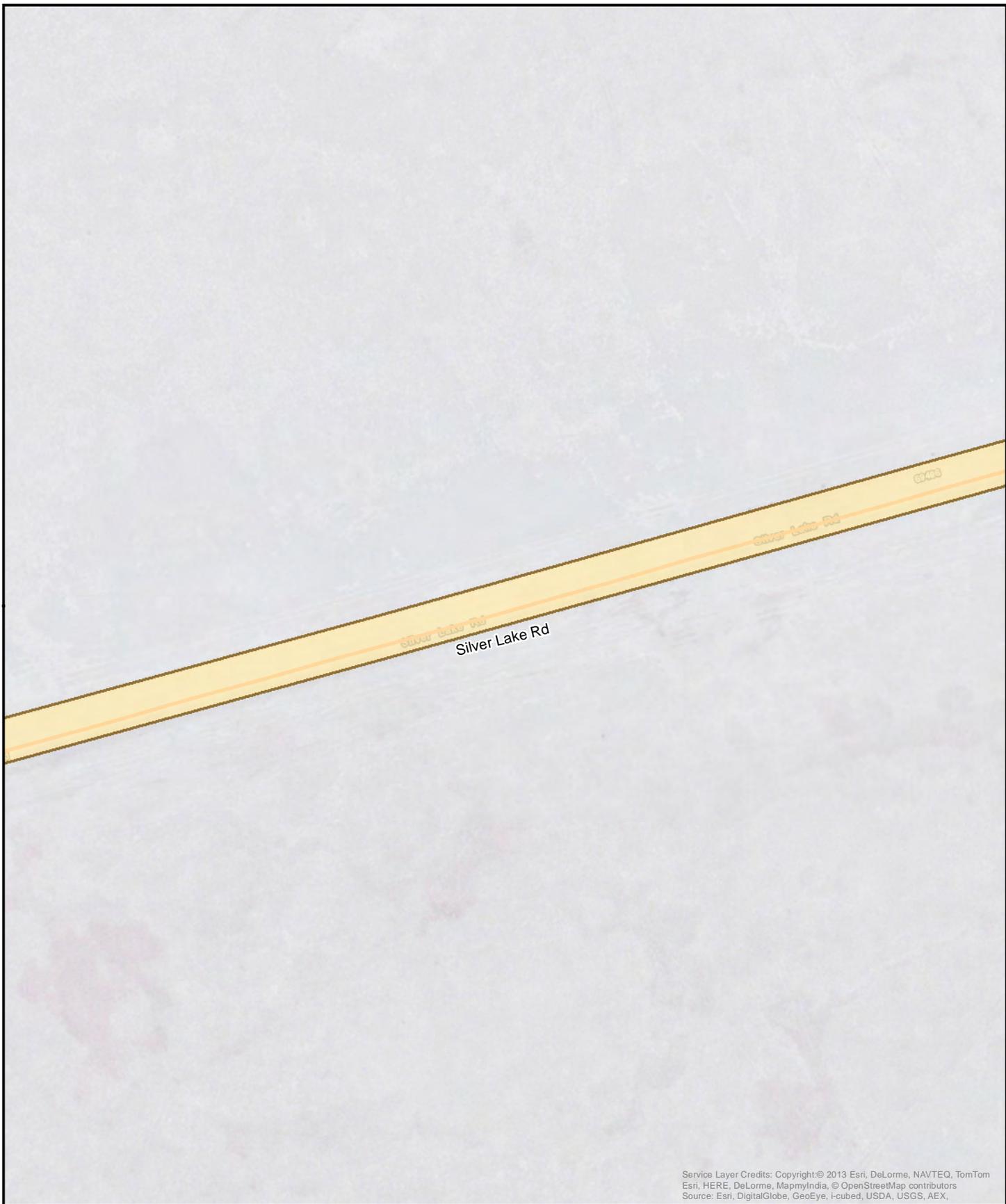
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Segment 1	OHWM (USACE & RWQCB Jurisdiction)
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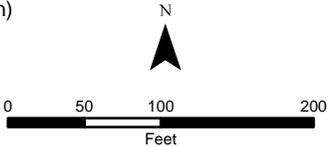
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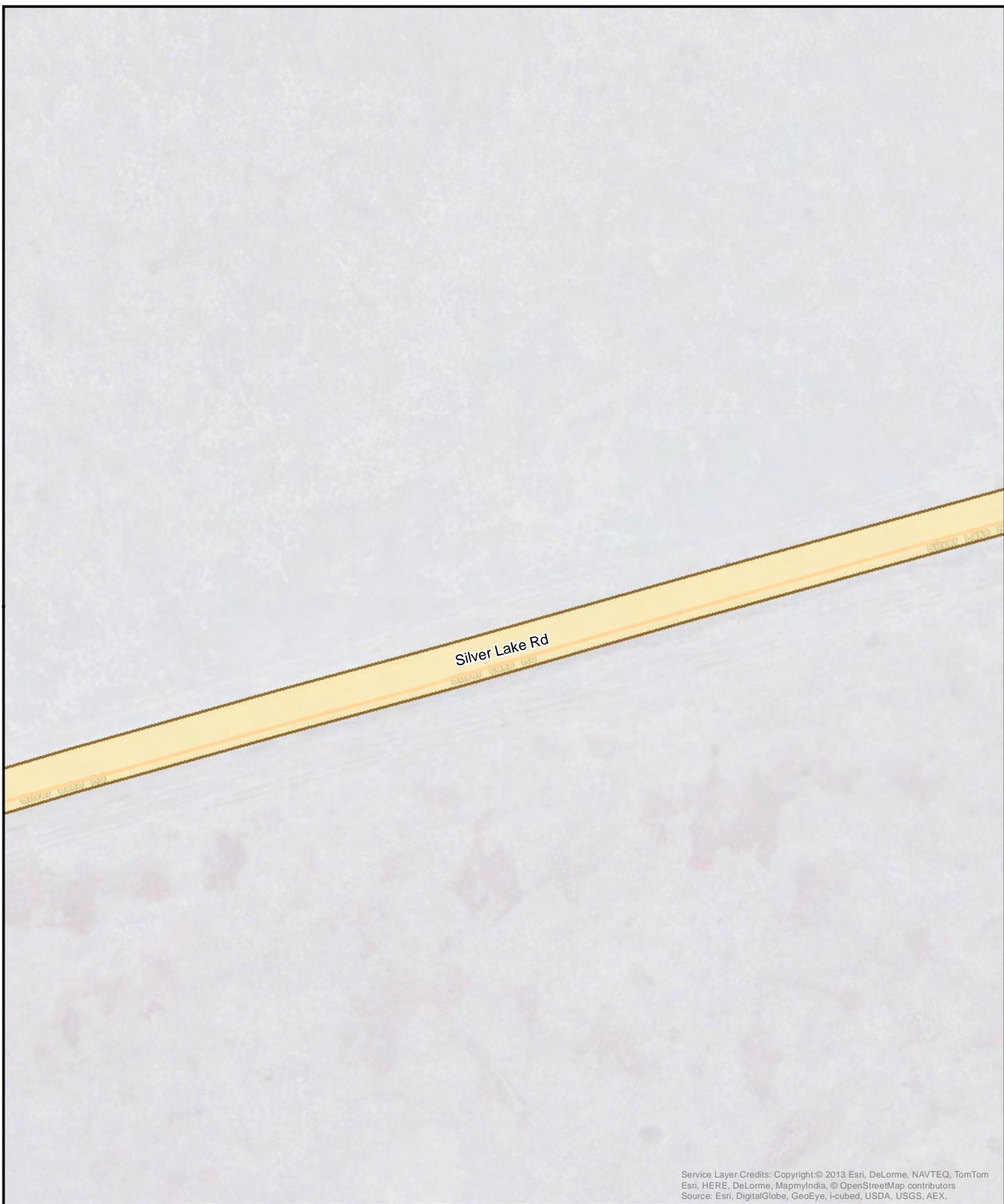
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Project Alignment	Jurisdictional Features
<span style="color: green;">—</span> Segment 1	<span style="background-color: lightblue; border: 1px solid blue; display: inline-block; width: 15px; height: 10px;"></span> OHWM (USACE & RWQCB Jurisdiction)
<span style="color: purple;">—</span> Segment 2	<span style="background-color: orange; border: 1px solid orange; display: inline-block; width: 15px; height: 10px;"></span> Bank-to-Bank (CDFW Jurisdiction)
<span style="color: orange;">—</span> Segment 3	<span style="background-color: yellow; border: 1px solid yellow; display: inline-block; width: 15px; height: 10px;"></span> Lakebed (USACE & RWQCB & CDFW Jurisdiction)
<span style="color: cyan;">—</span> Segment 4	
<span style="background-color: magenta; border: 1px solid magenta; display: inline-block; width: 15px; height: 10px;"></span> Vault	



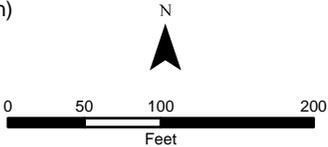
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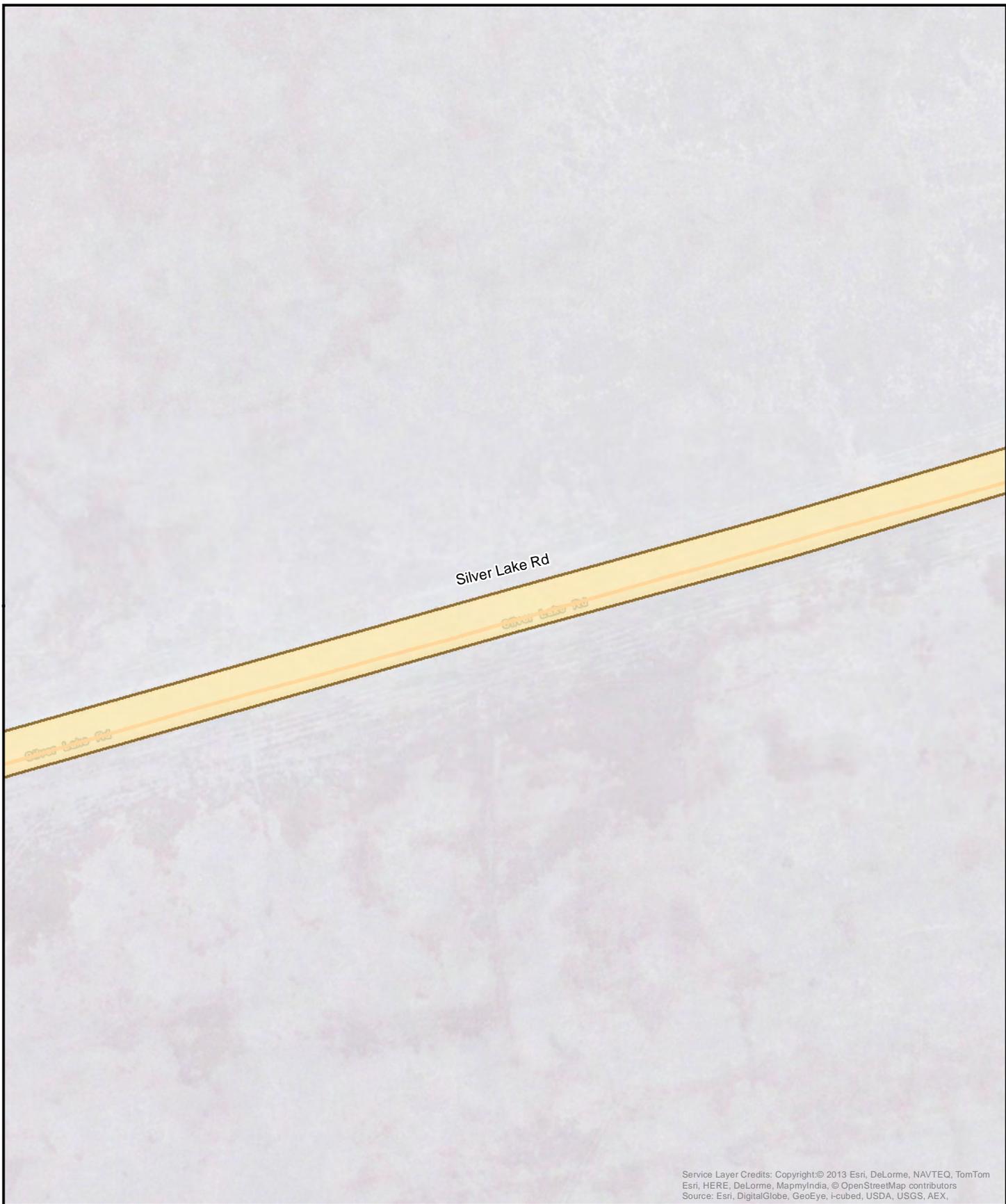
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Project Alignment	Jurisdictional Features
Segment 1	OHWM (USACE & RWQCB Jurisdiction)
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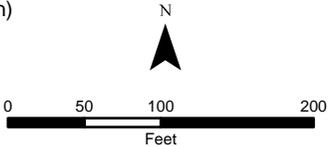
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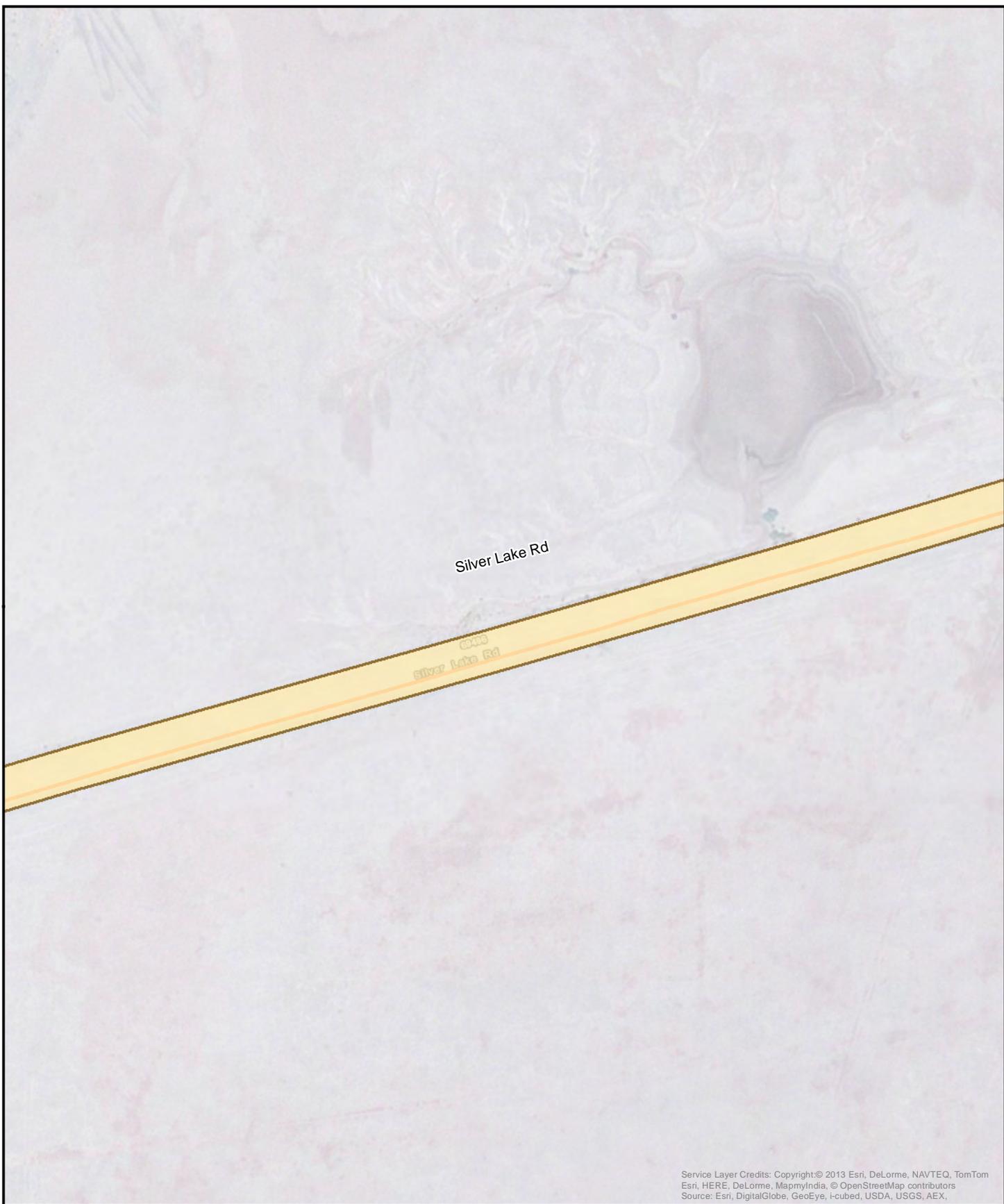
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Project Alignment	Jurisdictional Features
<span style="color: green;">—</span> Segment 1	<span style="background-color: lightblue; border: 1px solid blue; display: inline-block; width: 15px; height: 10px;"></span> OHWM (USACE & RWQCB Jurisdiction)
<span style="color: purple;">—</span> Segment 2	<span style="border: 1px solid orange; display: inline-block; width: 15px; height: 10px;"></span> Bank-to-Bank (CDFW Jurisdiction)
<span style="color: orange;">—</span> Segment 3	<span style="background-color: yellow; border: 1px solid brown; display: inline-block; width: 15px; height: 10px;"></span> Lakebed (USACE & RWQCB & CDFW Jurisdiction)
<span style="color: cyan;">—</span> Segment 4	
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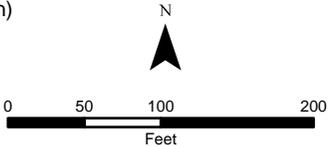
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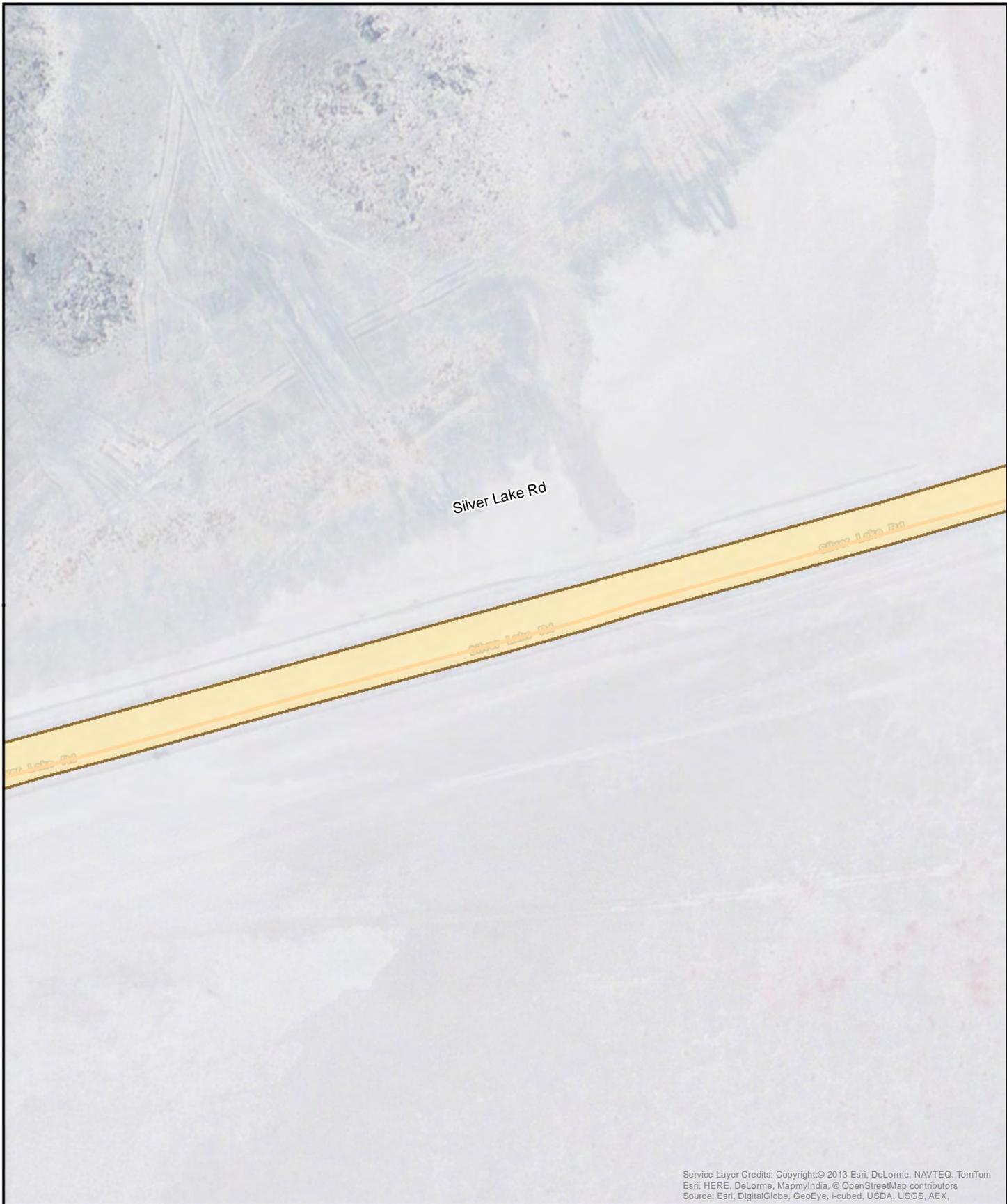
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Project Alignment	Jurisdictional Features
<span style="color: green;">—</span> Segment 1	<span style="color: blue;">■</span> OHWM (USACE & RWQCB Jurisdiction)
<span style="color: purple;">—</span> Segment 2	<span style="color: orange;">■</span> Bank-to-Bank (CDFW Jurisdiction)
<span style="color: orange;">—</span> Segment 3	<span style="color: yellow;">■</span> Lakebed (USACE & RWQCB & CDFW Jurisdiction)
<span style="color: lightblue;">—</span> Segment 4	
<span style="color: magenta;">■</span> Vault	



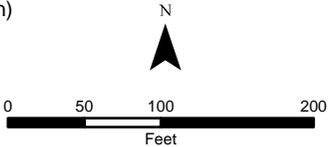
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Project Alignment	Jurisdictional Features
<span style="color: green;">—</span> Segment 1	<span style="background-color: lightblue; border: 1px solid black; display: inline-block; width: 15px; height: 10px;"></span> OHWM (USACE & RWQCB Jurisdiction)
<span style="color: purple;">—</span> Segment 2	<span style="background-color: orange; border: 1px solid black; display: inline-block; width: 15px; height: 10px;"></span> Bank-to-Bank (CDFW Jurisdiction)
<span style="color: orange;">—</span> Segment 3	<span style="background-color: yellow; border: 1px solid black; display: inline-block; width: 15px; height: 10px;"></span> Lakebed (USACE & RWQCB & CDFW Jurisdiction)
<span style="color: cyan;">—</span> Segment 4	
<span style="background-color: magenta; border: 1px solid black; display: inline-block; width: 15px; height: 10px;"></span> Vault	



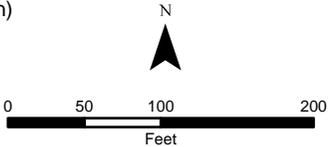
**Appendix B**  
 AT&T Highway 127 Project  
 Jurisdictional Delineation Maps



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 Source: Esri, DigitalGlobe, GeoEye, i-cubed, USDA, USGS, AEX,

**Legend**

Project Alignment	Jurisdictional Features
<span style="color: green;">—</span> Segment 1	<span style="background-color: lightblue; border: 1px solid black; display: inline-block; width: 15px; height: 10px;"></span> OHHM (USACE & RWQCB Jurisdiction)
<span style="color: purple;">—</span> Segment 2	<span style="background-color: orange; border: 1px solid black; display: inline-block; width: 15px; height: 10px;"></span> Bank-to-Bank (CDFW Jurisdiction)
<span style="color: orange;">—</span> Segment 3	<span style="background-color: yellow; border: 1px solid black; display: inline-block; width: 15px; height: 10px;"></span> Lakebed (USACE & RWQCB & CDFW Jurisdiction)
<span style="color: cyan;">—</span> Segment 4	
<span style="background-color: magenta; border: 1px solid black; display: inline-block; width: 15px; height: 10px;"></span> Vault	



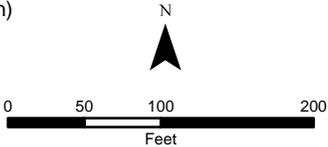
**Appendix B**  
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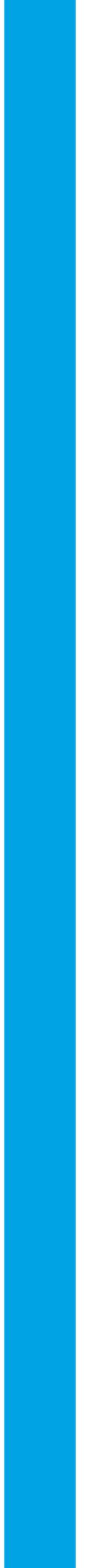
**Legend**

Project Alignment	Jurisdictional Features
<span style="color: green;">—</span> Segment 1	<span style="background-color: lightblue; border: 1px solid blue; display: inline-block; width: 15px; height: 10px;"></span> OHWM (USACE & RWQCB Jurisdiction)
<span style="color: purple;">—</span> Segment 2	<span style="background-color: yellow; border: 1px solid orange; display: inline-block; width: 15px; height: 10px;"></span> Bank-to-Bank (CDFW Jurisdiction)
<span style="color: orange;">—</span> Segment 3	<span style="background-color: #f0e68c; border: 1px solid brown; display: inline-block; width: 15px; height: 10px;"></span> Lakebed (USACE & RWQCB & CDFW Jurisdiction)
<span style="color: cyan;">—</span> Segment 4	
<span style="background-color: magenta; display: inline-block; width: 15px; height: 10px;"></span> Vault	



**Appendix B**  
**AT&T Highway 127 Project**  
**Jurisdictional Delineation Maps**

## **APPENDIX C – JURISDICTIONAL FEATURE PHOTOGRAPHS**



**SITE PHOTOGRAPHS**



**Photo 1 Typical drainage pattern from east side of Highway 127 along Segment 2. Note that jurisdictional signs of water flow (i.e. OWHM, lack of vegetation, cut banks, substrate shifting, etc.) stops at the point the drainage reaches the shoulder of the road (marked in red). AD33**



**Photo 2 Another drainage from the east side of Highway 127 along Segment 2 where jurisdictional signs of water flow cease upon reaching the shoulder of the highway. AD44**



**Photo 3** Another water feature on the east side of Highway 127 along Segment 2 with signs of water flow stopping at the edge the shoulder of the road. AD5



**Photo 4** There were many drainages on the west side of Highway 127 (Segment 2) that resembled the photo seen here. It appears as though channels are created/maintained due to the relative straightness of the features. MS16



**Photo 5** A drainage feature on the west side of Highway 127 (Segment 2). This feature presumably collects highway runoff and channels water towards Silver Lake. Note that signs of water flow are not apparent until beyond the edge of the highway shoulder (marked in red). MS 6



**Photo 6** This photo depicts an area of sheet flow along Segment 2 facing west towards Silver Lake. This area presumably collects highway runoff. MS32



**Photo 7** This photo is facing east and is associated with the feature in Photo 8 below. The highway and the shoulders of the highway along Segment 2 serve as the connection between these features; however this connectivity is sheetflow and not channelized and/or contained in a bed or bank that provides habitat. AD45



**Photo 8** This is the downstream portion of the feature from Photo 7 above. The highway and shoulders of the highway serve as the connectivity. AD4



**Photo 7** This photo is facing west from the eastern side of Silver Lake along Segment 3 of the Project. The edge of the lakebed is demarcated by the vegetation line seen in the photograph.

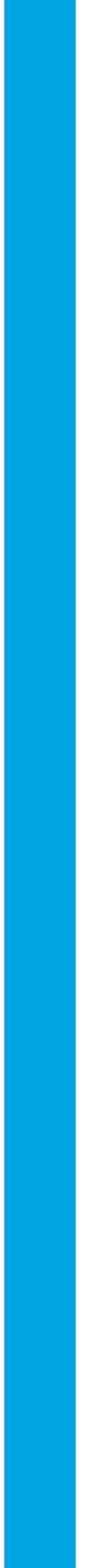


**Photo 8** This photo is facing east and shows the central portion of Silver Lake in Segment 3. Surface water can be seen to the north of Silver Lake Road.



**Photo 7 This photo is facing east and shows Segment 3 of the Project. The Project is located within Silver Lake Road, an established, maintained road.**

## **APPENDIX D – JURISDICTIONAL DELINEATION DATA TABLE**



Segment	Waters Number	Latitude	Longitude	Waters Feature	Existing Feature (linear feet)		Cable Impacts (linear feet)		Temporary (OHWM)	Temporary (B2B) USE THIS ONE	Permanent (B2B) USE THIS ONE	HDD Underground Cable	Bore Pit	20 ft ROW (OHWM)	20 ft ROW (BTB)
					OHWM	BTB	OHWM	BTB							
1	1	35.26465971240	-116.08395074900	Ephemeral	1.0	2.0	1.002	2.004	0.000	n/a	0.000	0.000	0.000	0.000	0.000
1	2	35.26659695190	-116.08393474700	Ephemeral	5.0	7.5	5.858	8.784	0.002	n/a	0.001	0.000	0.000	0.002	0.001
1	3	35.26737518390	-116.08397613900	Ephemeral	5.0	5.6	5.477	6.134	0.002	n/a	0.000	0.000	0.000	0.002	0.000
1	4	35.26761972050	-116.08398268800	Ephemeral	6.8	10.7	6.884	10.832	0.003	n/a	0.001	0.000	0.000	0.003	0.001
1	5	35.26864932250	-116.08396685900	Ephemeral	6.8	8.0	6.954	8.181	0.003	n/a	0.000	0.000	0.000	0.003	0.000
1	6	35.26896511290	-116.08398173600	Ephemeral	5.2	5.2	6.109	6.109	0.002	n/a	0.002	0.000	0.000	0.002	0.002
1	7	35.26964364930	-116.08398311100	Ephemeral	10.0	11.0	10.000	11.000	0.004	n/a	0.000	0.000	0.000	0.004	0.000
1	8	35.27008100100	-116.08396756100	Ephemeral	19.0	20.0	19.000	20.000	0.007	n/a	0.000	0.000	0.000	0.007	0.000
1	9	35.27025932820	-116.08397854900	Ephemeral	7.0	7.0	7.046	7.046	0.003	n/a	0.003	0.000	0.000	0.003	0.003
1	10	35.27059608830	-116.08398079300	Ephemeral	9.2	10.4	9.813	11.092	0.004	n/a	0.000	0.000	0.000	0.004	0.000
1	11	35.27136428760	-116.08401445100	Ephemeral	4.6	4.6	5.154	5.154	0.002	n/a	0.002	0.000	0.000	0.002	0.002
1	12	35.27145628310	-116.08402568900	Ephemeral	7.0	7.0	8.558	8.558	0.003	n/a	0.003	0.000	0.000	0.003	0.003
1	13	35.27176138250	-116.08404728600	Ephemeral	3.0	6.0	3.970	7.941	0.001	n/a	0.001	0.000	0.000	0.001	0.001
1	14	35.27201708620	-116.08406490300	Ephemeral	3.8	3.8	5.323	5.323	0.002	n/a	0.002	0.000	0.000	0.002	0.002
1	15	35.27253081070	-116.08406814400	Ephemeral	3.0	3.0	4.309	4.309	0.002	n/a	0.002	0.000	0.000	0.002	0.002
1	16	35.27285430470	-116.08407633700	Ephemeral	2.6	4.8	3.187	5.884	0.001	n/a	0.001	0.000	0.000	0.001	0.001
1	17	35.27477967640	-116.08140090500	Ephemeral	0.0	0.0	159.047	638.816	0.061	n/a	0.207	0.000	0.000	0.061	0.207
Total Segment 1					99.0	116.6	267.692	767.168	1.132	n/a	0.229	0.000	0.000	0.102	0.229
2	18	35.27856599200	-116.07584413700	Ephemeral	4.5	8.0	n/a	8.011	n/a	0.001	0.000	0.000	0.000	n/a	0.001

Segment	Waters Number	Latitude	Longitude	Waters Feature	Existing Feature (linear feet)		Cable Impacts (linear feet)		Temporary (OHWM)	Temporary (B2B) USE THIS ONE	Permanent (B2B) USE THIS ONE	HDD Underground Cable	Bore Pit	20 ft ROW (OHWM)	20 ft ROW (BTB)
					OHWM	BTB	OHWM	BTB							
2	19	35.27921098550	-116.07618598000	Ephemeral	2.0	13.0	n/a	13.239	n/a	0.001	0.000	0.000	0.000	n/a	0.001
2	20	35.27983889150	-116.07647532600	Ephemeral	2.5	9.0	n/a	9.044	n/a	0.001	0.000	0.000	0.000	n/a	0.001
2	21	35.28005353750	-116.07663529000	Ephemeral	3.5	9.5	n/a	9.593	n/a	0.001	0.000	0.000	0.000	n/a	0.001
2	22	35.28111183610	-116.07705969600	Ephemeral	3.0	9.0	n/a	9.067	n/a	0.001	0.000	0.000	0.000	n/a	0.001
2	23	35.28156588070	-116.07723445600	Ephemeral	3.0	9.0	n/a	9.187	n/a	0.001	0.000	0.000	0.000	n/a	0.001
2	24	35.28235571020	-116.07761348700	Ephemeral	4.0	10.5	n/a	10.549	n/a	0.001	0.000	0.000	0.000	n/a	0.001
2	25	35.28270802510	-116.07773324600	Ephemeral	2.0	10.0	n/a	10.036	n/a	0.001	0.000	0.000	0.000	n/a	0.001
2	26	35.28308098610	-116.07795114900	Ephemeral	5.0	10.0	n/a	10.011	n/a	0.001	0.000	0.000	0.000	n/a	0.001
2	28	35.28404746550	-116.07846128200	Ephemeral	3.0	12.0	n/a	12.029	n/a	0.001	0.000	0.000	0.000	n/a	0.001
2	29	35.28497194610	-116.07869372400	Ephemeral	2.5	10.5	n/a	11.060	n/a	0.001	0.000	0.000	0.000	n/a	0.001
2	30	35.28633147630	-116.07939411100	Ephemeral	4.0	10.0	n/a	10.119	n/a	0.001	0.000	0.000	0.000	n/a	0.001
2	31	35.28793698150	-116.08009645900	Ephemeral	3.0	9.0	n/a	12.935	n/a	0.001	0.000	0.000	0.000	n/a	0.001
2	33	35.29909656680	-116.08324374100	Ephemeral	6.0	12.0	n/a	17.908	n/a	0.003	0.000	0.000	0.000	n/a	0.003
2	34	35.29949202990	-116.08333153400	Ephemeral	3.5	9.0	n/a	10.593	n/a	0.001	0.000	0.000	0.000	n/a	0.001
2	35	35.30099864640	-116.08351746900	Ephemeral	6.0	9.0	n/a	9.928	n/a	0.001	0.000	0.000	0.000	n/a	0.001
2	36	35.30113334390	-116.08334911400	Ephemeral	8.0	13.0	n/a	13.739	n/a	0.002	0.000	0.000	0.000	n/a	0.002
2	38	35.30311269090	-116.08355049200	Ephemeral	9.0	14.0	n/a	14.180	n/a	0.001	0.000	0.000	0.000	n/a	0.001
2	41	35.30378185660	-116.08358504000	Ephemeral	6.0	12.0	n/a	12.030	n/a	0.003	0.000	0.000	0.000	n/a	0.003
2	42	35.30450269500	-116.08376787700	Ephemeral	6.0	12.0	n/a	12.162	n/a	0.001	0.000	0.000	0.000	n/a	0.001
2	45	35.30619723680	-116.08383678400	Ephemeral	13.0	16.0	n/a	16.219	n/a	0.002	0.000	0.000	0.000	n/a	0.002
2	46	35.30749662780	-116.08405294600	Ephemeral	3.5	11.0	n/a	13.553	n/a	0.001	0.000	0.000	0.000	n/a	0.001
2	47	35.30816098720	-116.08413976300	Ephemeral	2.5	6.5	n/a	7.114	n/a	0.001	0.000	0.000	0.000	n/a	0.001
2	48	35.30905996280	-116.08422141800	Ephemeral	1.0	9.5	n/a	9.503	n/a	0.001	0.000	0.000	0.000	n/a	0.001

Segment	Waters Number	Latitude	Longitude	Waters Feature	Existing Feature (linear feet)		Cable Impacts (linear feet)		Temporary (OHWM)	Temporary (B2B) USE THIS ONE	Permanent (B2B) USE THIS ONE	HDD Underground Cable	Bore Pit	20 ft ROW (OHWM)	20 ft ROW (BTB)
					OHWM	BTB	OHWM	BTB							
2	50	35.31018608360	-116.08431845300	Ephemeral	2.0	9.0	n/a	9.293	n/a	0.000	0.000	0.000	0.000	n/a	0.000
2	51	35.31124318920	-116.08427194200	Ephemeral	4.0	12.0	n/a	12.029	n/a	0.003	0.000	0.000	0.000	n/a	0.003
2	53	35.31215017620	-116.08434180600	Ephemeral	10.0	13.0	n/a	13.000	n/a	0.003	0.000	0.000	0.000	n/a	0.003
2	55	35.31322411120	-116.08441419600	Ephemeral	4.0	12.0	n/a	12.153	n/a	0.002	0.000	0.000	0.000	n/a	0.002
2	56	35.31388790270	-116.08423684400	Ephemeral	1.5	9.0	n/a	10.183	n/a	0.001	0.000	0.000	0.000	n/a	0.001
2	58	35.31492211600	-116.08392912100	Ephemeral	9.0	15.0	n/a	17.961	n/a	0.003	0.000	0.000	0.000	n/a	0.003
2	60	35.31733259580	-116.08335714800	Ephemeral	5.0	15.0	n/a	15.164	n/a	0.002	0.000	0.000	0.000	n/a	0.002
2	62	35.31785918420	-116.08340376500	Ephemeral	5.0	11.0	n/a	11.149	n/a	0.001	0.000	0.000	0.000	n/a	0.001
2	63	35.31850630160	-116.08328267200	Ephemeral	10.0	14.0	n/a	14.066	n/a	0.002	0.000	0.000	0.000	n/a	0.002
2	65	35.31879358170	-116.08302504400	Ephemeral	6.5	8.5	n/a	8.608	n/a	0.001	0.000	0.000	0.000	n/a	0.001
2	66	35.31939599130	-116.08298097300	Ephemeral	3.0	8.0	n/a	8.014	n/a	0.001	0.000	0.000	0.000	n/a	0.001
2	68	35.31990471970	-116.08288936600	Ephemeral	4.0	9.0	n/a	9.685	n/a	0.001	0.000	0.000	0.000	n/a	0.001
2	71	35.32054819440	-116.08270907900	Ephemeral	5.5	13.0	n/a	13.410	n/a	0.002	0.000	0.000	0.000	n/a	0.002
2	73	35.32115425420	-116.08256184100	Ephemeral	7.0	12.0	n/a	12.435	n/a	0.002	0.000	0.000	0.000	n/a	0.002
2	75	35.32210179850	-116.08236238100	Ephemeral	14.5	19.0	n/a	19.024	n/a	0.004	0.000	0.000	0.000	n/a	0.004
2	76	35.32300385960	-116.08214748600	Ephemeral	5.5	14.0	n/a	14.086	n/a	0.003	0.000	0.000	0.000	n/a	0.003
2	77	35.32367839130	-116.08193120600	Ephemeral	6.5	8.5	n/a	8.515	n/a	0.002	0.000	0.000	0.000	n/a	0.002
2	79	35.32538588630	-116.08155353600	Ephemeral	30.0	30.0	n/a	30.131	n/a	0.006	0.000	0.000	0.000	n/a	0.006
2	80	35.32599442370	-116.08140883400	Ephemeral	3.5	30.0	n/a	32.473	n/a	0.008	0.000	0.000	0.000	n/a	0.008
2	83	35.32810999330	-116.08102049000	Ephemeral	6.5	11.0	n/a	11.077	n/a	0.003	0.000	0.000	0.000	n/a	0.003
2	84	35.32871375770	-116.08109913700	Ephemeral	5.5	12.0	n/a	12.152	n/a	0.003	0.000	0.000	0.000	n/a	0.003
2	85	35.32951765110	-116.08118130900	Ephemeral	3.5	12.0	n/a	12.135	n/a	0.003	0.000	0.000	0.000	n/a	0.003
2	86	35.32997877530	-116.08126470400	Ephemeral	6.0	7.5	n/a	7.513	n/a	0.001	0.000	0.000	0.000	n/a	0.001

Segment	Waters Number	Latitude	Longitude	Waters Feature	Existing Feature (linear feet)		Cable Impacts (linear feet)		Temporary (OHWM)	Temporary (B2B) USE THIS ONE	Permanent (B2B) USE THIS ONE	HDD Underground Cable	Bore Pit	20 ft ROW (OHWM)	20 ft ROW (BTB)
					OHWM	BTB	OHWM	BTB							
2	87	35.33042532080	-116.08134832300	Ephemeral	4.0	10.0	n/a	10.268	n/a	0.002	0.000	0.000	0.000	n/a	0.002
2	88	35.33084324120	-116.08142316800	Ephemeral	3.5	11.0	n/a	11.598	n/a	0.001	0.000	0.000	0.000	n/a	0.001
2	95	35.34021544050	-116.08304681400	Ephemeral	6.0	17.0	n/a	17.907	n/a	0.003	0.000	0.000	0.000	n/a	0.003
2	97	35.34074640740	-116.08327383800	Ephemeral	7.0	12.0	n/a	12.282	n/a	0.002	0.000	0.000	0.000	n/a	0.002
2	99	35.34231190520	-116.08339994900	Ephemeral	10.5	13.0	n/a	13.832	n/a	0.003	0.000	0.000	0.000	n/a	0.003
2	101	35.34267542470	-116.08351724000	Ephemeral	3.0	11.0	n/a	12.048	n/a	0.003	0.000	0.000	0.000	n/a	0.003
2	103	35.34362947850	-116.08379054200	Ephemeral	10.5	14.0	n/a	14.805	n/a	0.002	0.000	0.000	0.000	n/a	0.002
2	104	35.34558098200	-116.08505047600	Ephemeral	1.5	10.0	n/a	10.043	n/a	0.002	0.000	0.000	0.000	n/a	0.002
2	105	35.34614484590	-116.08548746400	Ephemeral	1.0	10.0	n/a	11.115	n/a	0.002	0.000	0.000	0.000	n/a	0.002
2	106	35.34685990630	-116.08612020200	Ephemeral	1.5	8.5	n/a	10.026	n/a	0.001	0.000	0.000	0.000	n/a	0.001
2	112	35.34792156880	-116.08747704400	Ephemeral	8.0	12.0	n/a	12.158	n/a	0.001	0.000	0.000	0.000	n/a	0.001
2	114	35.34812806700	-116.08790913800	Ephemeral	3.0	12.0	n/a	12.001	n/a	0.000	0.000	0.000	0.000	n/a	0.000
2	115	35.34887120610	-116.08874835700	Ephemeral	2.5	5.0	n/a	5.025	n/a	0.001	0.000	0.000	0.000	n/a	0.001
2	125	35.35425324590	-116.09542516200	Ephemeral	8.0	10.0	n/a	6.055	n/a	0.000	0.000	0.000	0.000	n/a	0.000
2	134	35.35729341090	-116.09926272800	Ephemeral	1.5	12.0	n/a	12.537	n/a	0.000	0.000	0.000	0.000	n/a	0.000
2	135	35.35756494030	-116.09954042000	Ephemeral	1.5	8.0	n/a	8.669	n/a	0.001	0.000	0.000	0.000	n/a	0.001
2	136	35.35917676980	-116.10156591100	Ephemeral	2.0	8.0	n/a	8.616	n/a	0.000	0.000	0.000	0.000	n/a	0.000
2	145	35.36222724460	-116.10547165300	Ephemeral	9.0	12.0	n/a	6.449	n/a	0.000	0.000	0.000	0.000	n/a	0.000
2	148	35.36289463100	-116.10626847900	Ephemeral	6.0	18.0	n/a	18.139	n/a	0.001	0.000	0.000	0.000	n/a	0.001
2	150	35.36316296030	-116.10660462300	Ephemeral	6.0	20.0	n/a	20.015	n/a	0.001	0.000	0.000	0.000	n/a	0.001
2	151	35.36326324960	-116.10669518600	Ephemeral	5.0	12.0	n/a	12.004	n/a	0.001	0.000	0.000	0.000	n/a	0.001
2	153	35.36362818770	-116.10717543300	Ephemeral	9.0	12.0	n/a	12.235	n/a	0.001	0.000	0.000	0.000	n/a	0.001
2	154	35.36409529380	-116.10776034300	Ephemeral	3.0	6.0	n/a	5.956	n/a	0.000	0.000	0.000	0.000	n/a	0.000

Segment	Waters Number	Latitude	Longitude	Waters Feature	Existing Feature (linear feet)		Cable Impacts (linear feet)		Temporary (OHWM)	Temporary (B2B) USE THIS ONE	Permanent (B2B) USE THIS ONE	HDD Underground Cable	Bore Pit	20 ft ROW (OHWM)	20 ft ROW (BTB)
					OHWM	BTB	OHWM	BTB							
2	156	35.36544348360	-116.10942912000	Ephemeral	1.0	3.0	n/a	7.392	n/a	0.000	0.000	0.000	0.000	n/a	0.000
Total Segment 2					378.5	824.5	n/a	857.235	n/a	0.115	0.000	0.000	0.000	n/a	0.115
3	Silver Lake Crossing			Ephemeral	---	---	9,179 (1.73 miles)	9,179 (1.73 miles)	1.030	n/a	0.526	0.000	0.000	1.003	0.526

Habitat	Hydrology	Observed Soils	USGS-mapped Soils	USGS-Hydric Soil
scoured with saltbush scrub	scour, bed and bank, water marks	sandy with large gravel	not available	
scoured with saltbush scrub	scour, bed and bank, water marks	sandy with large gravel	not available	
scoured with saltbush scrub	scour, bed and bank, water marks	sandy with large gravel	not available	
scoured with saltbush scrub	scour, bed and bank, water marks	sandy with large gravel	not available	
scoured with saltbush scrub	scour, bed and bank, water marks	sandy with large gravel	not available	
scoured with saltbush scrub	scour, bed and bank, water marks	sandy with large gravel	not available	
scoured with saltbush scrub	scour, bed and bank, water marks	sandy with large gravel	not available	
scoured with saltbush scrub	scour, bed and bank, water marks	sandy with large gravel	not available	
scoured with saltbush scrub	scour, bed and bank, water marks	sandy loam	not available	
scoured with saltbush scrub	scour, bed and bank, water marks	sandy loam	not available	
scoured with saltbush scrub	scour, bed and bank, water marks	sandy loam	not available	
scoured with saltbush scrub	scour, bed and bank, water marks	sandy with large gravel	not available	
scoured with saltbush scrub	scour, bed and bank, water marks	sandy with large gravel	not available	
scoured with saltbush scrub	scour, bed and bank, water marks	sandy with large gravel	not available	
scoured with saltbush scrub	scour, bed and bank, water marks	sandy with large gravel	not available	
scoured with saltbush scrub	scour, bed and bank, water marks	sandy loam	not available	
scoured with saltbush scrub	scour, bed and bank, water marks	sandy loam	not available	
scoured with saltbush scrub	scour, bed and bank, water marks	sandy loam	not available	
scoured with saltbush scrub	scour, bed and bank, water marks	sandy loam	not available	
scoured with saltbush scrub	scour, bed and bank, water marks, drift deposits, biotic crust	sandy	not available	
Mojave Creosote Bush Scrub	scour, bed and bank, water marks	sandy with gravels	not available	







<b>Habitat</b>	<b>Hydrology</b>	<b>Observed Soils</b>	<b>USGS-mapped Soils</b>	<b>USGS- Hydric Soil</b>

Mojave Creosote  
Bush Scrub

scour, bed and bank,  
water marks

sandy with gravels

not available

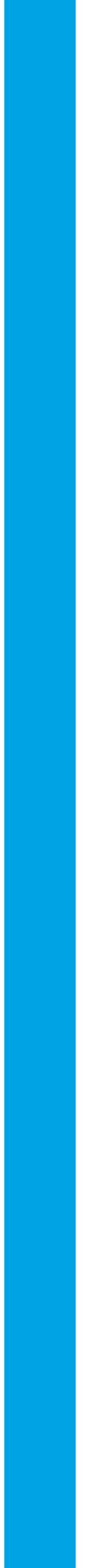
dry lakebed

surface soil cracks,  
salt crust

sandy loam

not available

## **APPENDIX E – HDD CONTINGENCY AND RESOURCE PROTECTION PLAN**



**HORIZONTAL DIRECTIONAL DRILLING:  
CONTINGENCY AND RESOURCE  
PROTECTION PLAN  
CONSTRUCTION OF THE AT&T FIBER OPTIC  
CABLE INSTALLATION PROJECT  
LAS VEGAS TO VICTORVILLE FTB  
CLARK COUNTY, NEVADA, AND SAN BERNARDINO COUNTY'S,  
CALIFORNIA**

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## I. INTRODUCTION

Horizontal Directional Drilling (HDD) methods are often employed to avoid direct effects to sensitive resources such as stream crossings and archeological sites. However, indirect effects to sensitive resources may occur as a result of the inadvertent release of drilling fluids. This document provides a brief summary of HDD procedures, including an explanation of the role of drilling fluids. Furthermore, the potential effects to sensitive resources associated with HDD operations are examined followed by the presentation of a plan to avoid and minimize these potential environmental effects.

## II. GENERAL HDD OPERATING PROCEDURES AND PROJECT SPECIFIC MEASURES

Conventional HDD operations have three main steps: the pilot bore, back-reaming and the pulling of product (i.e. conduit and/or casing). The pilot bore involves drilling the length of the bore with a small-diameter drill head to establish an accurate bore path. Once the entire bore path has been pilot-bored a reamer is placed on the drill head. The reamer is then pulled back through the borehole to widen the hole (back-reaming). The final step entails attaching the product to the drill head and pulling it back through the entire length of the borehole.

HDD operations for this project range from 100 to 1000 feet in length. The depth of the bore shall be at least 10 feet below the lower extent of the sensitive resource being avoided. This depth shall increase as determined by site-specific conditions.

General commitments to be enforced project wide:

- HDD operations shall be limited to daytime hours for wet drainages and dry drainages when the National Weather Service forecast indicates a 50% or greater chance of rain within the following 24 hours;
- Depth of bore below sensitive resource shall be at least ten feet;
- Dye shall be mixed into drilling fluids to help spot surface releases at wet crossings;
- Drilling fluid materials and their respective Material Safety Data Sheets (MSDS) shall be disclosed; and
- Drilling fluids shall be monitored to assure pH values remain neutral (between 6.5 and 8.0).

The operator shall study the site-specific conditions for each drainage crossing (Table 6.3-1). Based on this information, operator shall highlight potential problem areas, prepare an appropriate site specific plan and commit to employing all measures necessary to maximize the success of the HDD operation. For example, these measures may include substituting drill bits or reamers, altering the viscosity of the drilling fluid, and introduce drilling fluid additives as indicated by soil types and varying substrates found throughout the bore profile. The following information are required aspects to be evaluated when analyzing the site-specific conditions:

- Specific geo-technical studies (only for Arroyo Santa Rosa and Calleguas Creeks);
- General geology and upland soils (from NRCS soil survey maps);
- Summary of sensitive resources present or potentially present;
- Existing conditions of bed and bank (from field visit);
- Topographic map showing the location of the stream crossing;
- Photos showing the existing setting; and
- Sketch of bore site, including equipment staging areas, approximate location of drilling entry and exit (subject to minor change at time of construction due to soil conditions encountered during bore process), approximate location of access roads in relation to surrounding area

### **III. DRILLING FLUIDS**

Typically, the drilling fluid is composed of two basic elements: water and clay particulates. The clay particulate component typically consists of bentonite. Bentonite is composed essentially of montmorillonite clay, which has a relatively high shrink-swell capacity. The structure of bentonite resembles a sandwiched deck of cards. When mixed in water, these cards or clay platelets rearrange for increased surface area exposure. Bentonite attracts water to its negative face and magnetically bonds to water molecules. Because of this unique characteristic, bentonite is capable of absorbing seven to ten times its own weight in water, and swelling up to eighteen times its dry volume (<http://www.bhbentonite.com>). Together, the bentonite and water mixture acts to lubricate and cool the drill head, seal and fill the pore spaces surrounding the drill hole, prevent the bore hole walls from collapsing inward, and suspend cuttings (native soil removed during the boring process) within the drill hole.

In some cases, inert and non-toxic Loss Circulation Materials (LCMs) are added to the mixture. These materials include, but are not limited to, cotton dust, cotton seed hulls, wood fiber, M-1 mica and cedar fiber. Specific information on all of these materials is presented in Appendix A of this plan.

During typical HDD operations, some drilling fluids are absorbed by the lateral and subterranean fractures within the formation. This is a fairly normal occurrence during HDD operations that does not necessarily mean the drilling fluid is rising to the surface or migrating great distances from the borehole. However, it is possible that drilling fluids may reach the surface by following a vertical fracture in the formation. This event is commonly referred to as a hydro-geologic fracture (frac-out). The released drilling fluids may contain a lower concentration of bentonite when they surface because they can be filtered as they pass through certain types of ground material such as sandy soils.

### **IV. POTENTIAL IMPACTS TO BIOLOGICAL RESOURCES**

The release of drilling fluid from fractures in the earth's surface may be terrestrial or aquatic in nature and vary in quantity. Terrestrial frac-outs occurring in upland areas are typically easy to contain and therefore result in relatively minor effects to the surrounding environment. Frac-outs occurring in aquatic environments are more difficult to contain primarily because bentonite readily disperses in flowing water and quickly settles in standing water. Bentonite is non-toxic, but there are two specific indirect effects of bentonite on aquatic life. Initially, the suspended bentonite may inhibit respiration of fishes, although this is typically short-lived. Once the bentonite settles, secondary long-term effects can result. For example, egg masses of fish could be covered by a layer of bentonite inhibiting the flow of dissolved oxygen to the egg masses. Secondly, benthonic invertebrates and/or the larval stages of pelagic organisms may be covered and suffocate due to fouled gills and/or lack of oxygen.

### **V. ON-SITE MONITORING**

During drilling operations, visual inspection along the bore path of the alignment shall take place at all times. Additionally, at stream crossings with flowing water monitors shall be stationed approximately 50 feet upstream and downstream of the crossing point, access permitting. On-site training shall be provided for all monitors, and names and phone numbers of the monitors shall be provided to the on-site agency representatives.

The Contractor shall supply the following information to the monitoring team throughout the duration of the HDD operation at specific time intervals (e.g. upon completion of each drill rod):

- Position of the drilling head relative to the drilling point of entry;
- Estimated total volume of drilling fluid that has been pumped during the drilling operation;

- Comparison of the current total volume of drilling fluid used and the estimated current total volume of returns;
- Equipment breakdowns and repairs;
- Any abnormal drilling fluid pressure at the time of occurrence; and
- Any change of drilling fluid contents (e.g. new bentonite mixture or introduction of LCMs).

## **VI. FIELD RESPONSE PLAN**

During the drilling process, the operator shall adjust the thickness of the bentonite mixture to match the substrate conditions and ensure continuous flow. Subsequently, the operator shall closely monitor drilling pressures and penetration rates so use of fluid pressure shall be optimal to penetrate the formation.

Some loss of returns may be inevitable as drilling fluids are absorbed by the lateral and subterranean fractures within the formation. In case of a gradual loss of approximately fifty- percent of expected returns, the Contractor shall act to restore returns, including:

- Modifying drilling fluid properties (viscosity and gel strength);
- Modifying pressure and volume;
- Advance or retreat pilot stem and/or wash over pipe (i.e. swab the borehole); and
- Introduce LCMs according to manufacturer's instructions.

A complete and sudden loss of returns serves as a signal to both the operator and the monitor that something more significant may be occurring and to watch closely for a possible surface release. This plan uses the loss of returns or pressure, the use of a tracing dye and visual indications, to trigger response and mitigation actions.

In the event of a sudden loss of approximately 75 percent of expected returns, or in the event that a surface release of drilling fluid or dye are detected, the contractor shall temporarily cease operations to determine what actions need to be taken. In areas containing sensitive resources, agency notifications shall be made and the decision to resume operations shall be determined in consultation with the appropriate agencies' representatives (Section VII). Any release to the surface shall be addressed in accordance with the release response plan (see below).

All equipment required to contain and clean up a frac-out release would either be available at the work site or readily available at an offsite location within 10 minutes of the bore site. This equipment includes the following:

- Heavy weight plastic clean gravel filled sand bags (at least 20 bags);
- Geotek filter bags 10-by-12-foot size or equivalent (at least 3 bags per segment);
- Several hard plastic (5-gallon) buckets;
- One wide heavy-duty push broom;
- Three flat blade shovels;
- Silt fence;
- Hay bales;
- Two bundles of absorbent pads to use with plastic sheeting for placement beneath motorized equipment while in operation in the vicinity of a riparian/stream zone;
- Straw logs (wattles or fiber rolls)(at least two 10-foot rolls);
- Portable pumps;
- A minimum of 100 feet of hose; and
- Vacuum truck (800 and 3000-gallon).

All primary containment equipment (i.e., all of the above items except the portable pumps and 3000-gallon vacuum truck) would be kept onsite at each bore location. 800-gallon vacuum trucks and portable pumps would be maintained onsite under the following circumstances:

(1) the crossing contains sensitive species and/or there exists flowing or standing water; or, (2) the bore has experienced a previous frac-out. General responses to frac-out releases related commitments are as follows:

- Directional boring would stop immediately;
- The bore stem would be pulled back to relieve pressure on frac-out;
- The Project Environmental Inspector (PEI) would be notified to ensure adequate response actions are taken and notifications are made;
- Terrestrial releases would be cleaned up using on-site equipment;
- A dike/berm may be constructed around the frac-out (terrestrial only) to entrap released drilling fluid;
- Response equipment stored offsite in readily accessible locations (e.g., portable pumps and fully equipped 800 or 3,000 gallon vacuum trucks) would be mobilized to recover larger releases of drilling fluid;
- Access to the frac-out release area would be via existing roads and temporary work easements. Additional access needed to perform cleanup activities would be coordinated with and require the approval of all regulating entities;
- All equipment or vehicles driven or operated adjacent to a water body or wetland would be checked and maintained daily to prevent leaks of hazardous materials.

The directional bore activities would be designed to avoid and otherwise minimize the potential for affects to sensitive biological and cultural resources. Additionally, the crew, with the guidance of on-site monitors and the PEI, would construct barriers (i.e. straw bales or silt fences) around the perimeter of all sensitive resources (e.g. stream bank, riparian vegetation, or known cultural sites) prior to the commencement of work. This technique is aimed to prevent released material from reaching the sensitive resources.

In addition to the aforementioned procedures, the following containment procedures and commitments shall be implemented for all frac-out releases located within a water body:

- A standing pipe (such as a 55-gallon drum with the top and bottom removed, heavy PVC pipe or CMP or culvert type material) shall be placed around the frac-out to contain the drilling mud;
- Sand bags would be used (if necessary) to seal the base of the standing pipe;
- Any existing berms, barriers, or silt fence established to protect sensitive resources would be strengthened, as necessary, to contain drilling fluids and prevent their encroachment on sensitive biological and cultural resources and divert drilling fluid from entering jurisdictional waters;
- Secondary containment (plastic sheeting) for the pump unit would be used;
- A trailer mounted vacuum or vacuum truck shall be deployed to vacuum out contained drilling fluids;
- Vacuumed drilling fluids shall be disposed in accordance with local, state and federal regulations;
- No refueling would occur within 100 feet of the stream zone;
- All other response activities would take place on the authorized ROW unless otherwise approved in writing.

The following commitments shall be adhered to at all sites where sensitive species have the potential to occur:

- Focused pre-construction surveys shall be conducted within two weeks prior to construction by qualified biologists to identify all species potentially affected by drilling operations;
- The results of the pre-construction surveys shall be conveyed to the appropriate agencies (Section VII);
- If focused pre-construction surveys conclude that sensitive species are absent from the site, construction would proceed.

- If sensitive species are identified in the project area, the PEI would seek advice from the appropriate regulatory agencies to determine whether or not the proposed construction would result in any adverse impact to the species. If it were decided that no adverse impact would result, then construction would commence. If it were decided that the proposed construction would result in potential adverse impacts to any sensitive species, drilling operations would not commence until further measures, developed in consultation with the appropriate agencies, ensure the full protection of all sensitive species.
- Prior to any construction activity, biological monitors would flag and demarcate all sensitive biological resources. Flagging would remain in place for the duration of the construction effort; and
- A qualified biological monitor would be onsite for the duration of the drilling operation.

## **VII. PROPER NOTIFICATION AND DOCUMENTATION**

If a frac-out occurs or any degree of dye were detected within the water column of the stream, the PEI shall immediately notify the appropriate permitting agencies, and additional follow-up response actions would be developed in coordination with agency representatives. The following entities shall be contacted by phone with a written report to follow:

- The appropriate county office, or designated county representative, shall be notified if there were a release of any amount of drilling fluids.
- The appropriate California Department of Fish and Game (CDFG) office, or designated CDFG representative, shall be notified if there were potential adverse affect to a stream, wetland, or State listed threatened or endangered species or its habitat.
- The appropriate United States Fish and Wildlife Service (USFWS) office, or designated USFWS representative, shall be contacted if a federally listed threatened or endangered species or its habitat were potentially affected by a release.
- The appropriate National Marine Fisheries Service (NMFS) office, or designated NMFS representative, shall be contacted if a federal-listed threatened or endangered fish species (e.g., southern steelhead trout) or its habitat were potentially affected by a release.
- The appropriate Regional Water Quality Control Board (RWQCB) office shall be contacted in the event of a release in any Waters of the State where standing or flowing water were present, or if a release has the potential to affect a stream channel.
- The appropriate United States Corps of Engineers (Corps) office shall be contacted in the event of a release in any Waters of the United States where standing or flowing water were present, or if a release has the potential to affect a stream channel.

Documentation of environmental compliance would include written reports of observations, documentation of events and follow-up, and project tracking. The following forms of documentation shall be submitted to the noted agencies on a timely manner:

- Pre-construction survey reports for biological and botanical resources shall be provided to the appropriate county, CDFG, and USFWS prior to construction.
- Pre-construction geo-technical evaluations at major bore sites would be provided to the appropriate county, CDFG, and RWQCB prior to construction.
- Monthly Monitoring Reports would summarize construction activity and daily monitoring logs for the previous month of construction, and would be provided to the appropriate county, CDFG, and RWQCB.
- Post-Construction Summary Report would summarize the construction activity and monitoring results for the Project, and would be submitted to the appropriate county, CDFG, RWQCB, NMFS, and USFWS.
- Post-Construction Revegetation Monitoring Reports would be prepared annually for the first 3 years following construction. These reports would be provided to the appropriate county, CDFG, and USFWS.

## VII. TRAINING OF PROJECT PERSONNEL

Prior to the commencement of construction, the Contractor's and engineer's personnel shall attend a training session on-site. The training session shall cover the following topics:

- Details of the information found within this Plan;
- Specific permitting conditions and requirements;
- Requirement to retain copies of all appropriate permits on the site during all operations;
- Sensitive resources located at or near the site;
- Requirement to monitoring during all operations;
- Situations that invoke a halt of operation;
- Proper lines of communication (see attached flow diagram);
- Proper lines of authority and responsibility(see attached flow diagram);
- Information the Contractor shall provide to the monitoring personnel and engineering site representative;
- Contact names and phone numbers of the appropriate individuals and agencies; and,
- Types of events that the Contractor is required to report and to whom.

The Contractor shall provide an overview of the drilling operation in their work plan. The training session shall ensure that Contractor personnel recognize the authority of the on-site monitors to stop drilling.

The focus on environmental orientation would be to both educate and motivate all project personnel to minimize disturbance to the surrounding environment and to take actions to protect sensitive resources. Knowledgeable environmental compliance team members would be available to answer questions and provide relevant information as requested. The worker orientation program would inform project workers of their responsibilities in regards to sensitive biological resources. The PEI would serve as a contact for issues that may arise concerning implementation of protection measures, and to document and report on adherence to these measures.