# CEQA Initial Study

# Owens Lake 2011 SCRD and 2012 SCRD Dust Control Measures Projects

July 2014

General Manager
*Marcie Edwards*

Director of Water Operations
*Martin L. Adams*

Manager of Owens Lake Regulatory Affairs and Long-Term Planning
*Milad Taghavi*

Director of Environmental Affairs
*Mark J. Sedlacek*

Manager of Environmental Planning and Assessment
*Charles C. Holloway*

**Prepared by:**

Los Angeles Department of Water and Power
111 North Hope Street, Room 1044
Los Angeles, CA 90012

**Technical Assistance Provided by:**

MWH Americas, Inc.
300 North Lake Avenue, Suite 400
Pasadena, California 91101

Los Angeles Department of Water and Power

# Table of Contents

**Section Name** **Page Number**

# Table of Contents



## List of Tables

**Table Name** **Page Number**



## List of Figures

**Figure Name** **Page Number**

# Section 1
# Project and Agency Information

## 1.1 PROJECT TITLE AND LEAD AGENCY

| | |
|---|---|
| **Project Title:** | Owens Lake 2011 SCRD and 2012 SCRD Dust Control Measures Projects |
| **Lead Agency Name:** | Los Angeles Department of Water & Power |
| **Lead Agency Address:** | 111 North Hope Street, Room 1044<br>Los Angeles, California 90012 |
| **Contact Person:** | Mr. Charles Holloway |
| **Contact Phone Number:** | (213) 367-0285 |
| **Project Sponsor:** | Same as Lead Agency |

## 1.2 PROJECT BACKGROUND AND OBJECTIVES

### 1.2.1 Background

The City of Los Angeles Department of Water and Power (LADWP) is currently implementing the Owens Lake Dust Mitigation Program (OLDMP) on Owens Lake in order to reduce particulate matter ($PM_{10}$) emissions. LADWP constructs and operates dust control measures (DCMs) on the lake in compliance with Orders from the Great Basin Unified Air Pollution Control District (GBUAPCD) under the authority of California Health & Safety Code Sec. 42316, legal settlement agreements with GBUAPCD, lease agreements for use of state lands (administered by the California State Lands Commission (CSLC)), and other regulatory approvals.

LADWP has prepared a Remedial Action Plan (RAP; LADWP, 2013a) to address the 2011 Supplemental Control Requirements Determination (SCRD) dust control areas identified by GBUAPCD (GBUAPCD, 2011). The SCRD requirement and procedure are set forth in District Governing Board Order 080128-01 (January 28, 2008) contained in the 2008 Owens Valley $PM_{10}$ Planning Area Demonstration of Attainment State Implementation Plan (2008 SIP; GBUAPCD, 2008a).

While LADWP has prepared the RAP, the City has filed, (1) an action in the Los Angeles County Superior Court under Health and Safety Code Section 42316, subdivision (b), and the Code of Civil Procedure Section 1094.5, challenging the decision of the California Air Resources Board (CARB) sustaining the 2011 SCRD and the GBUAPCD's authority to issue the 2011 SCRD under Health and Safety Code section 42316, subdivision (a), and (2) an appeal with CARB concerning the 2012 SCRD pursuant to those same statues. Therefore, LADWP is conducting environmental review of the *tentative* 2011 SCRD and 2012 SCRD projects, but is concurrently continuing to pursue legal relief from the requirement to construct the projects as

presently contemplated. This Initial Study should not be interpreted as an acknowledgement of or admission regarding the propriety of the 2011 or 2012 SCRDs.

The 2011 SCRD project would be implemented on 13 new dust control areas (DCAs) totaling 2.86 square miles of Owens Lake. Best available control measures (BACM) proposed to be installed are: 2.072 square miles of Gravel Cover, 0.237 square miles of Managed Vegetation and 0.547 square miles of Shallow Flood. To conserve water use for the OLDMP, the project also includes the proposed transition of existing Shallow Flood DCA T18S (1.81 square miles) to approximately 1.42 square miles of Gravel Cover and 0.39 square miles of Shallow Flood.

LADWP is also developing design concepts for the 2012 SCRD dust control areas identified by GBUAPCD (GBUAPCD, 2012). The 2012 SCRD is based on data for the period of July 1, 2010 through June 30, 2011 and includes four DCAs totaling 0.76 square miles of Owens Lake. BACM in these areas would include Brine Shallow Flood and Gravel Cover.

LADWP has prepared this Initial Study (IS) to address the impacts of construction and operation of the Owens Lake 2011 SCRD and 2012 SCRD DCM projects. The IS has been prepared in accordance with the California Environmental Quality Act (CEQA), Public Resources Code Section 21000 et seq., and the State CEQA Guidelines, Title 14 California Code of Regulations (CCR) Section 15000 et seq. The IS serves to identify the site-specific impacts, evaluate their potential significance, and determine the appropriate document needed to comply with CEQA. For this project, LADWP has determined, based on the information reviewed and contained herein, that the proposed projects could potentially have a significant environmental impact. Based on this IS, an Environmental Impact Report (EIR) is the appropriate CEQA document for evaluating the potential environmental impacts of the Owens Lake 2011 SCRD and 2012 SCRD projects. After environmental review, if the 2011 SCRD and 2012 SCRD projects are adopted, the projects may be constructed at the same time, constructed separately, or one or both of the projects may not be implemented pending further legal decisions.

### 1.2.2 Project Objectives

The objective of the 2011 SCRD and 2012 SCRD projects is to implement dust control measures on Owens Lake to reduce emissions in accordance with applicable laws without increasing water commitments while, to the extent feasible, maintaining existing habitat values, maintaining aesthetics values, providing safe limited public access, preserving cultural resources, and utilizing existing infrastructure.

#### 1.2.2.1 Previous Environmental Documentation

To analyze the environmental effects of the Owens Valley $PM_{10}$ 2008 SIP (GBUAPCD, 2008a), the GBUAPCD prepared and certified a Final Subsequent Environmental Impact Report (2008 SIP FSEIR) (GBUAPCD, 2008b) on February 1, 2008 and authorized the implementation of 15.1 square miles of DCMs within the Owens Lake Planning Area. Since publication of the 2008 SIP FSEIR, LADWP has certified environmental documents for the Owens Lake Revised Moat and Row DCMs (LADWP, 2009a), the Phase 8 DCMs (LADWP, 2010c), and the Phase 7a DCMs (LADWP, 2013b). The Phase 8 project has been constructed; construction of the Phase 7a project is ongoing as of 2014. Implementation of the 2011 SCRD and 2012 SCRD projects

would expand the area of Owens Lake with dust control. Portions of the 2011 SCRD project area (portions of T21-L2, T10-1-L1, T32-1-L1, and T37-1-L1) and a portion of the 2012 SCRD project area (portion of T21-L4) were part of the 1.9-square mile study area considered in the 2008 SIP FSEIR. However, implementation of a dust control project on the majority of the 2011 SCRD and 2012 SCRD project areas was not previously reviewed under CEQA.

## 1.3 PROJECT LOCATION AND ENVIRONMENTAL SETTING

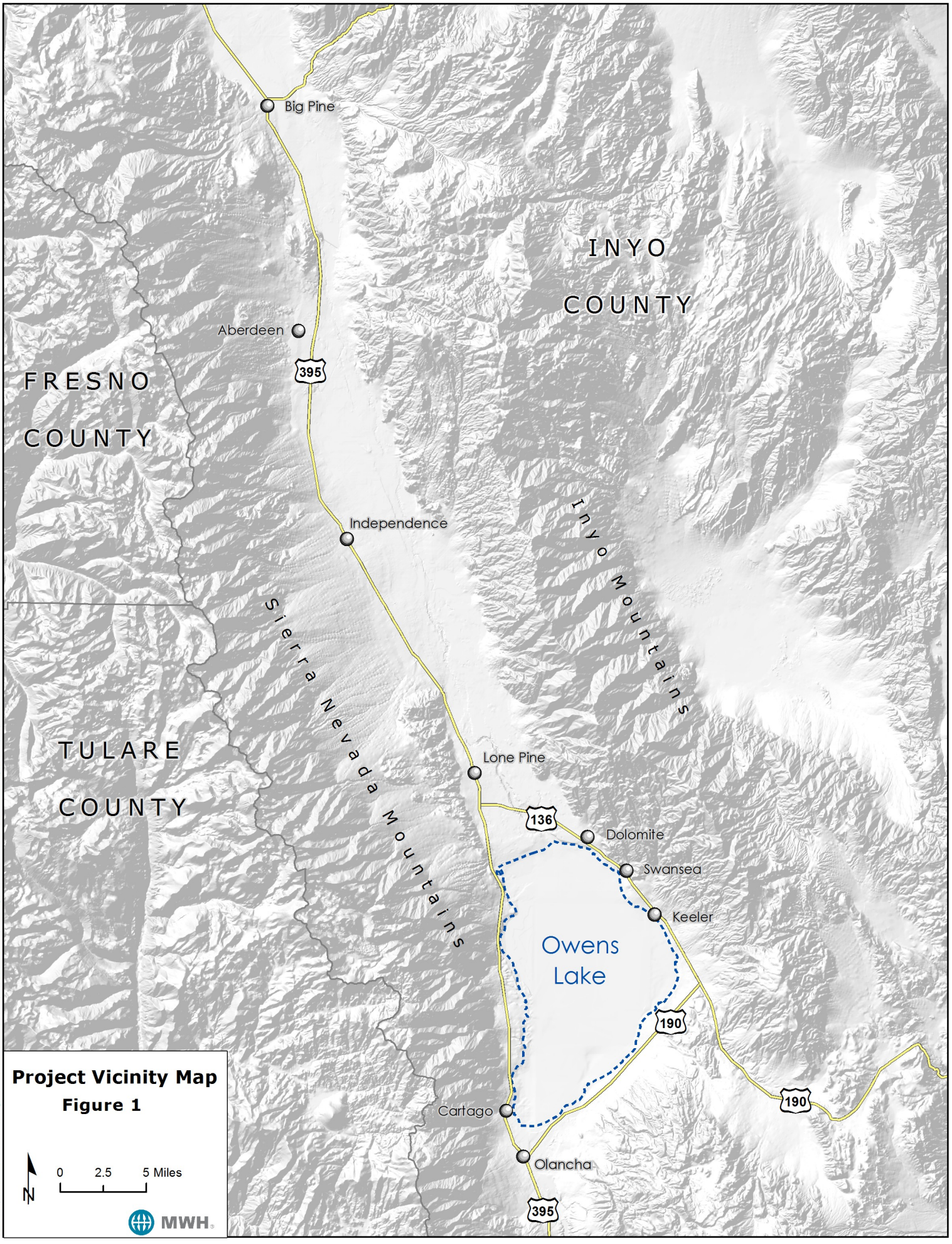
The Owens Valley is bounded by the eastern Sierra Nevada to the west and the Inyo Mountains to the east, with the Coso Range rising to the south. The 110 square-mile dry Owens Lake is located in Inyo County, California, approximately 5 miles south of the community of Lone Pine and approximately 61 miles south of the city of Bishop (**Figure 1**). Other nearby communities include Dolomite to the northeast, Boulder Creek to the northwest, Keeler to the east, and Cartago and Olancha to the south. Owens Lake is bounded by State Route (SR) 136 to the north and east, SR 190 to the south, and U.S. Highway (U.S.) 395 to the west. The 2011 SCRD and 2012 SCRD project areas are located as noted in **Table 1** and **Figure 2**.

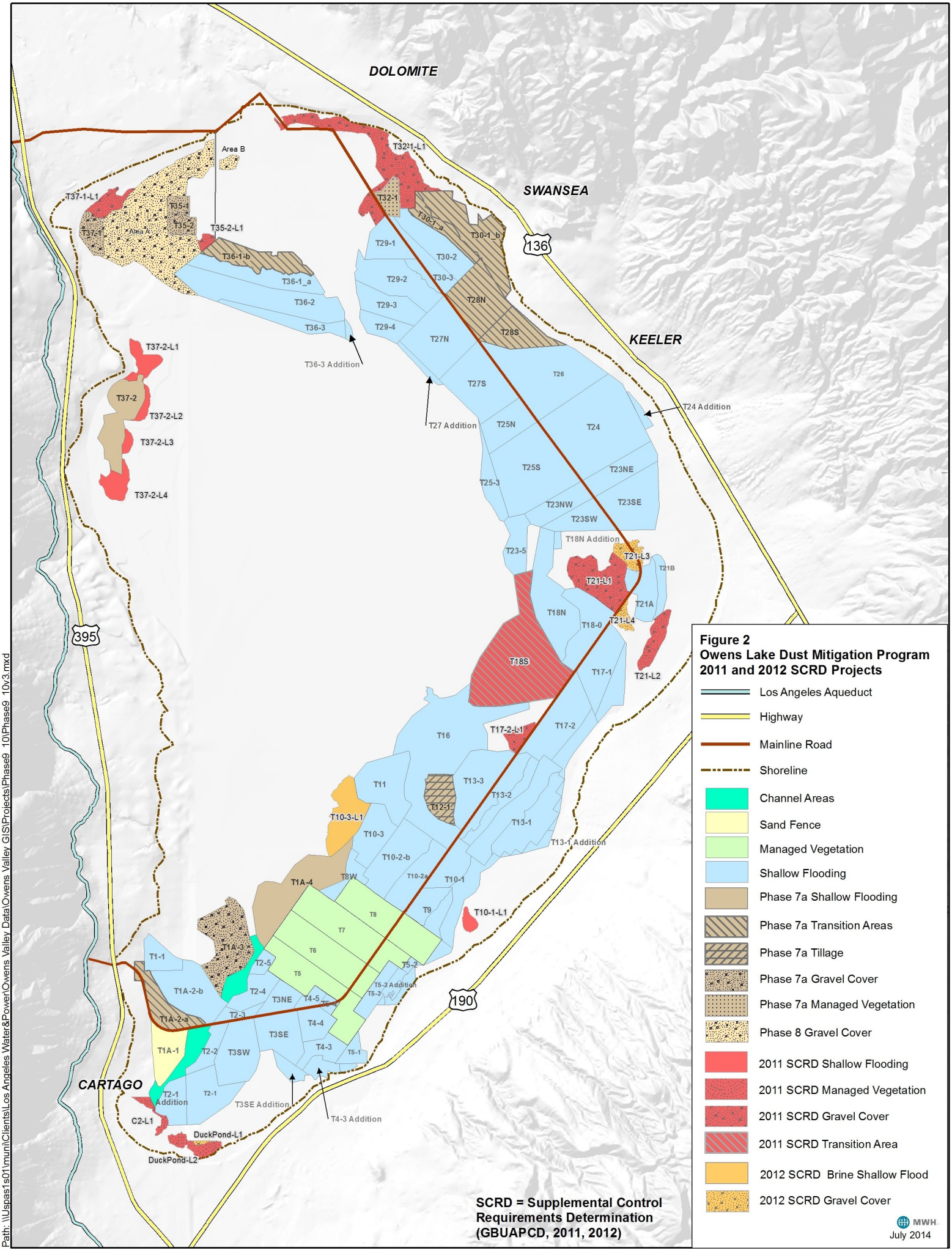
Owens Lake is characterized by vast areas of unvegetated desert playa, limited areas of vegetation, mining operations, the brine pool (which fluctuates in size) and the existing system of dust control (bermed areas of shallow flooding, managed vegetation and gravel, and the internal roadway network). The 2011 SCRD and 2012 SCRD project areas are primarily unvegetated barren playa; the T18 transition area is an existing bermed area with shallow flooding.

**Table 1**
**Locations of 2011 SCRD and 2012 SCRD Dust Control Areas**

| DCA | Size (acres) | USGS 7.5 Min Quadrangle | Distance to Nearest Community (miles) |
|---|---|---|---|
| **2011 SCRD** | | | |
| Duck Pond-L1 | 101 | Olancha and Vermillion Canyon | 1.3 miles to Olancha |
| C2-L1 | 50 | Olancha | 0.3 miles to Cartago |
| T10-1-L1 | 41 | Vermillion Canyon | 6.2 miles to Cartago |
| T17-2-L1 | 76 | Owens Lake | 5.8 miles to Keeler |
| T21-L2 | 138 | Keeler | 3.8 miles to Keeler |
| T21-L1 | 368 | Owens Lake and Keeler | 3.0 miles to Keeler |
| T37-2-L4 | 120 | Bartlett | 5.4 miles to Boulder Creek, 8.0 miles to Lone Pine |
| T37-2-L3 | 31 | Bartlett | 4.9 miles to Boulder Creek, 7.6 miles to Lone Pine |
| T37-2-L2 | 42 | Bartlett | 4.4 miles to Boulder Creek, 7.0 miles to Lone Pine |
| T37-2-L1 | 116 | Bartlett | 3.7 miles to Boulder Creek, 6.3 miles to Lone Pine |
| T35-2-L1 | 30 | Dolomite | 3.59 miles to Dolomite |
| T37-1-L1 | 113 | Lone Pine | 1.5 miles to Boulder Creek, 4.0 miles to Lone Pine |
| T32-1-L1 | 600 | Dolomite | 0.68 miles to Dolomite |
| **2012 SCRD** | | | |
| Duck Pond-L2 | 10 | Olancha and Vermillion Canyon | 1.3 miles to Olancha |
| T10-3-L1 | 315 | Owens Lake and Vermillion Canyon | 5.1 miles to Cartago |
| T21-L3 | 104 | Owens Lake and Keeler | 2.8 miles to Keeler |
| T21-L4 | 56 | Owens Lake and Keeler | 3.7 miles to Keeler |

DCA – dust control area; USGS – United States Geological Survey


Big Pine
INYO
COUNTY
Aberdeen
395
FRESNO
COUNTY
Independence
Inyo Mountains
Sierra Nevada Mountains
TULARE
COUNTY
Lone Pine
136
Dolomite
Swansea
Keeler
Owens
Lake
190
190
Cartago
Olancha
395
Project Vicinity Map
Figure 1
0
2.5
5 Miles
N
MWH
Path: \\Uspas1s01\munl\Clients\Los Angeles Water&Power\Owens Valley Data\Owens Valley GIS\Projects\Phase9\Ph9CEQA_ES\Phase9_ProjectVicinityMap.mxd


DOLOMITE
SWANSEA
KEELER
CARTAGO
136
395
190
Area B
Area A
T37-1-L1
T35-1
T37-1
T35-2
T35-2-L1
T36-1-b
T36-1_a
T36-2
T36-3
T36-3 Addition
T32-1-L1
T32-1
T30-1_a
T30-1_b
T29-1
T30-2
T29-2
T30-3
T29-3
T28N
T29-4
T28S
T27N
T27S
T27 Addition
T26
T24 Addition
T24
T25N
T25S
T23NE
T25-3
T23NW
T23SE
T23SW
T18N Addition
T23-5
T21-L3
T21B
T21-L1
T21A
T18N
T21-L4
T18-0
T18S
T17-1
T21-L2
T17-2-L1
T17-2
T16
T13-3
T11
T13-2
T12-1
T13-1
T10-3-L1
T13-1 Addition
T10-3
T10-2-b
T10-2a
T10-1
T8W
T1A-4
T9
T10-1-L1
T8
T7
T6
T1A-3
T1-1
T2-5
T5
T5-2
T5-3 Addition
T5-3
T1A-2-b
T2-4
T3NE
T4-5
T1A-2-a
T2-3
T4-4
T3SE
T1A-1
T2-2
T3SW
T4-3
T5-1
T2-1 Addition
T2-1
T3SE Addition
T4-3 Addition
C2-L1
DuckPond-L1
DuckPond-L2
T37-2-L1
T37-2
T37-2-L2
T37-2-L3
T37-2-L4
SCRD = Supplemental Control Requirements Determination (GBUAPCD, 2011, 2012)
Figure 2
Owens Lake Dust Mitigation Program
2011 and 2012 SCRD Projects
Los Angeles Aqueduct
Highway
Mainline Road
Shoreline
Channel Areas
Sand Fence
Managed Vegetation
Shallow Flooding
Phase 7a Shallow Flooding
Phase 7a Transition Areas
Phase 7a Tillage
Phase 7a Gravel Cover
Phase 7a Managed Vegetation
Phase 8 Gravel Cover
2011 SCRD Shallow Flooding
2011 SCRD Managed Vegetation
2011 SCRD Gravel Cover
2011 SCRD Transition Area
2012 SCRD Brine Shallow Flood
2012 SCRD Gravel Cover
MWH
July 2014
Path: \\Uspas1s01\muni\Clients\Los Angeles Water&Power\Owens Valley Data\Owens Valley GIS\Projects\Phase9_10\Phase9_10v3.mxd

## 1.4 PROJECT DESCRIPTION

The 2011 SCRD project consists of a total of 1,828 acres of new DCAs and 1,156 acres of transitioned dust control for a total area of 2,984 acres. The 2.86 square miles of new DCMs would be implemented on 13 separate DCAs. The 2012 SCRD project consists of four new DCAs totaling 485 acres. **Table 2** notes the area of each DCA as well as the estimated total area of construction disturbance, with an assumed 25 ft buffer around each new DCA, and the type of BACM proposed. Installation of BACM would require land leveling, berm creation, gravel application, seeding and planting, installation of surface and/or subsurface irrigation pipelines as well as excavation for pond creation.

Water demand related to implementation of BACM on the new DCAs would be balanced with water conservation measures at an existing DCA, T18S. The T18S DCA was previously disturbed for the installation of Shallow Flood in an earlier phase of the OLDMP. Construction in this area would occur within the existing berm surrounding the DCA.

**Table 2**
**2011 SCRD and 2012 SCRD Best Available Control Measures**

| DCA | Area (square miles) | Area (acres) | Total Estimated Area of Construction Disturbance (acres) | BACM |
|---|---|---|---|---|
| **2011 SCRD** | | | | |
| Duck Pond-L1 | 0.16 | 101 | 109 | Managed Vegetation |
| C2-L1 | 0.08 | 50 | 57 | Managed Vegetation |
| T10-1-L1 | 0.06 | 41 | 44 | Shallow Flood |
| T17-2-L1 | 0.12 | 76 | 81 | Gravel Cover |
| T21-L2 | 0.22 | 138 | 146 | Gravel Cover |
| T21-L1 | 0.58 | 368 | 379 | Gravel Cover |
| T37-2-L4 | 0.19 | 120 | 127 | Shallow Flood |
| T37-2-L3 | 0.05 | 31 | 34 | Shallow Flood |
| T37-2-L2 | 0.06 | 42 | 47 | Shallow Flood |
| T37-2-L1 | 0.18 | 116 | 124 | Shallow Flood |
| T35-2-L1 | 0.05 | 30 | 33 | Gravel Cover |
| T37-1-L1 | 0.18 | 113 | 120 | Gravel Cover |
| T32-1-L1 | 0.94 | 600 | 632 | Gravel Cover |
| **2011 SCRD Totals** | **2.86** | **1,828** | **1,934** | |

| DCA | Area (square miles) | Area (acres) | Total Estimated Area of Construction Disturbance (acres) | BACM |
|---|---|---|---|---|
| **2012 SCRD** | | | | |
| Duck Pond-L2 | 0.02 | 10 | 12 | Gravel Cover |
| T10-3-L1 | 0.49 | 315 | 326 | Brine Shallow Flood |
| T21-L3 | 0.16 | 104 | 109 | Gravel Cover |
| T21-L4 | 0.09 | 56 | 59 | Gravel Cover |
| **2012 SCRD Totals** | **0.76** | **485** | **506** | |

DCA – dust control area
BACM – best available control measure

### 1.4.1 Shallow Flood

#### 1.4.1.1 Shallow Flood Description

This DCM consists of releasing fresh and/or recycled water into a DCA and allowing it to spread, wet the surface, and thereby suppress windborne dust during the dust season (October 1st to June 30th). In order to meet the 99 percent dust control efficiency standard, generally 75 percent of the surface must be wet or have saturated soil. The coverage requirement for the 99 percent dust control areas can be reduced progressively during the spring shoulder season (May 16th to June 30th); 70 percent areal wetness cover from May 16th to May 31st; 65 percent areal wetness cover from June 1st to June 15th; and 60 percent areal wetness cover from June 15th through June 30th. The fall shoulder season is October 1st to October 15th; full levels of dust control are not required until October 16th. The performance requirements for Shallow Flood BACM are set forth in detail in the 2008 SIP (GBUAPCD, 2008a).

Areas of Shallow Flood would have water applied through sprinklers along lateral pipes served by submains (4- to 24-inch diameter buried pipelines) from the main line. Applied water would flow down–slope and pond. The area would be maintained such that applied water spreads out, ponding or saturating at least 75 percent of the land surface. Shallow Flood would result in shallow-ponds (1 to 6 inches deep), deeper ponds (1 to 2 feet deep), saturated soil surfaces and unsaturated areas. Submain pipes supplying water to the DCAs would be high density polyethylene (HDPE). The network includes a modified whipline array (either buried or above grade HDPE), spaced approximately 80 feet apart. The whipline array includes sprinkler heads spaced approximately 60 to 80 feet apart. Laterals up to 4,000 feet in length would have risers with drains at the end. Lateral valves would be placed at each intersection with the mainline. Flush lines would be incorporated for lateral and whipline drainage. The flush system would enable: water recycling to another DCA, emptying of the piping system to prevent damage from freezing, and sediment removal. Small pump stations (two variable speed 50 HP pumps) may be

located at the lowest point to drain the system. Based on individual soil conditions in each DCA, portions of the irrigation system may be installed above ground.

Shallow Flood in T18S would be similar to the existing Shallow Flood DCAs on the lake. Depending on topography and water level fluctuations, Shallow Flood may include ponded water as well as islands. The up-gradient edges of ponds are typically relatively shallow, with some areas adjacent to down-slope containment berms being a few feet deep. The specific design for Shallow Flood in T18S is currently ongoing with a focus on maintaining existing habitat value for Owens Lake wildlife.

**Brine Shallow Flood.** The GBUAPCD Governing Board approved Brine Shallow Flood as BACM in Board Order 130916-01 (September 16, 2013). The Order notes that the Air Pollution Control Officer will develop a Brine Shallow Flood BACM compliance methodology with input from LADWP.

When applied to the lakebed, Brine concentrates into a stable crust that would be expected to prevent dust emissions. A Brine method for dust control would include extraction of natural salts from the lakebed, production of brine by dissolving these minerals in water, and pumping of the solution (liquor) to DCAs that have been prepared for application. An initial 5-month investigation of this method is proposed to include application of 1.1 feet of brine to achieve a 1.5-inch-thick crust. Additional brine may be applied subsequently to maintain crust thickness. Site preparation will include site leveling and berming of 30 to 40 acre flat areas. To prevent seepage of the brine, the soils beneath and the berms around the application site would be sealed. Sealing would be accomplished in clay-dominated soils by disturbing and mixing the surface soils when wet. Perimeter seals would be created by vertically trenching into layers of clay and vigorous mixing.

**Turnout Facilities.** Water to the Shallow Flood DCAs would be distributed via area turnouts. Turnouts consist of above grade piping, pressure reducing valves (PRV), control valves (CV), magnetic flow meters (or flow elements, FE), isolation valves, combination air-vacuum release valves (CARV), pressure indicating transmitters (PIT), filtering system control valve filters, electric equipment, and monitoring and automatic control instrumentation. The turnouts are typically constructed on raised earthen pads adjacent to the DCAs. The turnouts include mechanical equipment and electrical equipment on concrete pads. New turnouts or expansions to existing turnouts may be required for expansion of the DCMs. The turnouts would be connected to the zonal mainline that is a continuous loop connecting to the Los Angeles Aqueduct (LAA) at the north and south ends of the OLDMP area.

Water enters a Shallow Flood area through PRVs, located at the turnouts. The turnouts distribute freshwater to the DCAs via area Shallow Flooding submains. The PRVs at the turnouts function to lower the zonal mainline pressure to the submain operating pressure for the shallow flood submains. The PRVs at the laterals function to control and further lower the Shallow Flooding submain pressure to the lateral operating maximum pressure.

The PRVs at the turnouts are hydraulically controlled valves. These valves operate by using pilot water (supplied by the freshwater from the submains) to control the valves. The freshwater from the submains contains large quantities of sediments. To prevent the PRVs from clogging, the

pilot water is diverted through a separate pilot water filtration system. Tailwater and drainwater pump stations collect and recirculate flow within a given Shallow Flood area to optimize water use within the irrigated zone and minimize loss of water offsite.

#### 1.4.1.2 Shallow Flood Construction

Shallow Flood construction activities would include:

- Installation of new turnouts, as applicable
- Land leveling
- Installation of berms
- Pipe and electrical cable excavation
- Placement of irrigation pipes and sprinklers

To the maximum extent feasible, earthwork in each area would be balanced onsite. As suitable, onsite material would be used to build berms and turnout earthen pads. Excess soil from one DCA may be relocated to other areas of the lake for reuse. In some cases, suitable material may be disked and spread to reduce moisture content before placement. Sand bedding, base course and riprap would be imported to the DCAs. It is anticipated that this material would be obtained from local gravel production operations such as the LADWP State Route 136 Shale borrow pit (LADWP Shale borrow pit) and the Federal White Aggregate (F.W. Aggregate) Dolomite mine. Final gravel source selection would be made by the Construction Contractor.

Land leveling would be performed based on existing topography to achieve 75 percent surface cover of water and in consideration of excavation of suitable material for berm and turnout pad construction. Grading of Shallow Flood areas would be required for construction of perimeter berms and maintenance roads. Based on soil conditions in individual DCAs, the irrigation system may be installed above ground, which would reduce required earthwork. It is anticipated that berm heights would vary from 3 to 5 feet or less and the turnout earthen pads may range up to 5 to 8 feet in height to protect facilities from localized flooding. Over excavation would be done underneath proposed earthen berm alignments to remove any unsuitable material. Geotextile would then be placed directly on the existing surface to create a firm base. The earthen berm would be constructed over the geotextile fabric (HDPE, minimum of 40 mils thick). Earthen berm side slopes would have a 3:1 slope and be armored with a 4-inch thick layer of up to 2-inch-diameter gravel.

### 1.4.2 Managed Vegetation

#### 1.4.2.1 Managed Vegetation Description

Vegetation on the playa reduces sand motion and soil erosion. Aboveground cover acts as a wind break, lowering the velocity at the playa surface. Under the 2011 SCRD RAP, Managed Vegetation is proposed for up to 101 acres of Duck Pond-L1 and up to 50 acres of C2-L1. Managed Vegetation DCAs may include areas that are shrub dominated and other areas that are predominantly meadow.

Saltgrass (*Distichlis spicata*) has been cultivated and maintained as a vegetation dust control measure on existing DCAs T5 through T8, located in the southeastern portion of the lake. Additional acreage of Managed Vegetation in a farm-like monoculture is not proposed. A revised plant species list for Owens Lake BACM was developed in 2010 and has been approved by GBUAPCD. The plant species on this list meet the locally-adapted native criterion specified by the 2008 SIP. In addition to saltgrass, 39 species have been proposed to increase the habitat diversity of the Managed Vegetation areas and increase the diversity and amount of seed produced on the playa for use in future projects. The final species mix would depend on the availability of planting material, and suitability of species to soil and hydrologic conditions. The initial cover may be achieved by fast-growing species, but after some time, the stand would probably change and diversify, partly from planted material, and partly from volunteer plants established from windblown seed.

Seed would be obtained from commercial sources, and additional seed of most species would be collected. Typically, seeds would be collected from locally adapted native seed sources on and adjacent to Owens Lake. Seed of some herbaceous species may be multiplied by planting in managed areas and then harvested. Once collected and cleaned, seed would be tested for germination, dried and stored. Before planting, some seed may require special treatment to break dormancy. If the full complement of desired species is not available initially, the area may be over-seeded or interplanted with additional species in the future. While seeding is preferred, some species may also be transplanted to accelerate establishment of vegetative cover. The finished habitat would consist of a variety of plants native to the Owens Lake area.

The goal would be to establish a compliant vegetative cover as quickly as possible. Vegetative cover is assessed each fall, and compliance is determined by comparing cover levels with criteria contained in the revised BACM definition. These new criteria allow for more variability in soil conditions and plant growth while requiring an overall average vegetation cover of 37 percent.

#### 1.4.2.2 Managed Vegetation Construction

Irrigation systems would be installed and may include sprinklers, bubblers or drip irrigation. For areas with sprinklers or bubblers, irrigation piping would be buried to avoid damage from traffic, animals, temperature fluctuations, and UV radiation. Laterals (HDPE) would convey flow to an array of either buried or above-grade HDPE whiplines spaced approximately every 45 feet. Sprinkler heads or bubblers would be located approximately every 45 feet along each whipline. For Duck Pond L-1, a new water supply pipeline would be required to connect the DCA to existing supply pipelines in T2. Similar to Shallow Flood, a flush system would be installed as part of the Managed Vegetation piping.

Some irrigation systems (i.e., drip irrigation) require filtration of water; filters would be located at the turnout or in the field. Liquid fertilizer would periodically be blended into irrigation water at relatively low rates that have been shown to accelerate growth and increase salinity tolerance (and therefore plant growth and survival) of several native species studied on Owens Lake. Fertilization is anticipated to be required twice per year. No new permanent fertilizer stations are proposed. Concrete pads (with containment for the injection point) may be constructed in Duck Pond-L1 and/or C2-L1 for use by portable fertilizer delivery tanks. Periodic fertilizer delivery would be by flatbed or pickup truck.

Broad, raised ridges would be formed to provide a drained area within which plants can grow. Without this feature, saline shallow groundwater can easily invade the root zone, especially during and after storms, and kill plants. The ridges would be laid out such that they gently traverse topographic contours, allowing surface water to drain slowly downhill (but avoid water erosion that might result from steeper gradients) along the direction of the broad ridges. Closed depressions that would otherwise prevent surface drainage would be opened by grading. If necessary, fertilizer to promote early growth may be applied and incorporated into the soil. The amounts of fertilizer applied to native plant stands are typically low relative to what is used for agricultural production, but the ability of plants to tolerate drought and salinity, and to rapidly expand to protect the soil, is greatly enhanced with fertilization.

Initial reclamation (reduction of salt concentration in the surface soil by irrigation) would be completed before planting. This may require several irrigation events over approximately 45 days. Once monitored soil salinity levels have declined to acceptable levels, the land would be allowed to dry sufficiently until it can again bear equipment traffic. Temporary above grade pipelines on existing berms would be used to convey brine from reclamation to existing high salinity ponds.

Seeding would be done with a range drill seeder (wheeled seed bin that tows behind a tractor) or similar implement capable of seeding a diverse mix of seeds of varied sizes and shapes. Seed is dispensed from the bottom of the box and shallowly planted by discs that also break up surface soil, providing good seed-soil contact needed for germination and emergence. Other methods may include a pull type broadcast seeder with cultipacker or hand seeder (belly grinder).

### 1.4.3 Gravel Cover

#### 1.4.3.1 Gravel Cover Description

Gravel Cover BACM includes a 2-inch-thick layer of coarse gravel to reduce $PM_{10}$ emissions by: (a) preventing the formation of efflorescent evaporite salt crusts at the surface, because the large pore spaces between the gravel particles disrupt the capillary movement of saline water to the surface where it can evaporate and deposit salts; and (b) creating a surface that has a high threshold wind velocity so that direct movement of the large gravel particles is prevented and the finer particles of the underlying lakebed soils are protected.

The term “gravel” includes clasts from both fluvial and alluvial sources and crushed stone. The gravel would be screened to greater than ½-inch in diameter, 2-inch diameter maximum. Gravel application is estimated at approximately:

- T17-2-L1– 30,700 tons distributed over 76 acres
- T21-L2 – 55,800 tons distributed over 138 acres
- T21-L1 – 148,500 tons distributed over 368 acres
- T35-2-L1 – 12,200 tons distributed over 30 acres
- T37-1-L1 – 45,500 tons distributed over 113 acres
- T32-1-L1– 242,000 tons distributed over 600 acres

- T18S – 365,400 tons distributed over 906 acres
- 2012 SCRD DCAs – up to an additional 4,000 tons

Additional gravel would be used for berms and slope stabilization. A total of approximately 995,000 tons of gravel would be used for Gravel Cover DCAs and road surfaces.

**Gravel Sources**. It is anticipated that gravel would be obtained from local gravel production operations such as the F.W. Aggregate Dolomite mine or the LADWP Shale borrow pit. The LADWP Shale borrow pit is located just west of the Keeler Fan gravel site – a site previously considered as a gravel source and referenced in the Memorandum of Agreement between LADWP and the GBUAPCD (1998 MOA). The LADWP Shale borrow pit is located east of SR 136, approximately 1.5 miles southeast of Keeler, and less than 2 miles from the lakebed. The LADWP Shale borrow pit is located on public lands managed by the U.S. Bureau of Land Management (BLM) and operated per the requirements of the Surface Mining and Reclamation Act (SMARA). Shale is a fine-grained sedimentary rock consisting of compacted and hardened clay, silt or mud. The LADWP Shale borrow pit is currently permitted for 40 acres of development.

The F.W. Aggregate Dolomite mine is a privately owned commercial aggregate facility located in Dolomite, California, approximately 0.75 miles southeast of Swansea. The access point for the mine is directly off SR 136, between Swansea and Keeler. The Dolomite mine is situated on both privately owned lands and public lands managed by the BLM. Three subareas of the mine (Durability, North Pole, and Translucent) total approximately 480 acres and are able to produce up to 50 million tons; the site is permitted up to the year 2057 (T. Lopes, pers. comm., June 25, 2010). Rock at the F.W. Aggregate site is obtained from a dolomitic limestone source (mountain face), which is blasted and crushed to supply primarily white decorative rock. The existing 0.14 square miles of Gravel Cover on Corridor 1 (which separates Phase 8 Areas A and B) and the 2.03 square mile Phase 8 area are covered with limestone from the Dolomite mine.

**Gravel Effectiveness**. The effectiveness of Gravel Cover is summarized from the 2008 SIP (GBUAPCD, 2008a). According to GBUAPCD, gravel blankets (also known as Gravel Cover) are effective at controlling dust emissions on essentially any type of soil surface. A gravel layer forms a non-erodible surface when the size of the gravel is large enough that the wind cannot move the surface. If the gravel surface does not move, it protects finer particles from being emitted from the surface. Gravel and rock coverings have been used successfully to prevent wind erosion from mine tailings in Arizona (Chow and Ono, 1992). In 2013, GBUAPCD approved a Reduced Thickness Gravel BACM – 2 inches of gravel with geotextile fabric underlay (GBUAPCD, 2013).

**Permeable Geotextile Fabric**. Gravel Cover would be placed over a nonwoven geotextile fabric (anticipated to be approximately 2.3 millimeter [90 mils] thick to prevent gravel from settling into lakebed sediments and thereby losing effectiveness in controlling dust emissions). Geotextile membranes are artificial fabrics that have a variety of uses including: filtration/drainage, ground stabilization, structural waterproofing, land containment, as well as weed and root control. For this use, the permanent geotextile would be permeable to allow draining. Nonwoven geotextiles are pervious sheets of polyester or polypropylene composed of

fibers held together by needle punching, spun bonding, thermal bonding or resin bonding. The geotextile is chemically inert and generally not affected by acids and alkalis that may be present in the soils. Geotextiles to be used for the project are non-hazardous articles as defined by the Federal Hazard Communication Standard CFR 1910.1299. Per GBUAPCD (2013), geotextile fabric would be Class I woven or nonwoven geotextile fabric meeting the minimum specifications set forth in the National Standard Materials Specification "Material Specification 592—Geotextile" (National Engineering Handbook, Chapter 3, Part 642), or equivalent (USDA, 2005).

**Access Roadways for Gravel Areas.** Gravel Cover DCAs would have raised roadbeds for vehicle access and for wind protection to limit sand inundation of the gravel. The roadbeds would be earthen, approximately 3 feet high, 16 feet wide and armored with gravel. Vehicle bypass pads (turnoff or turnaround pads) (approximately 20 feet by 40 feet in area) would facilitate vehicle travel in two directions. Geotextile fabric may be placed directly on the existing surface to create a firm base. The earthen raised roadway would be constructed over the geotextile fabric. Earthen side slopes facing water or adjacent to potential runoff flows would be armored with rip rap. Earthen slopes not directly in contact with water and travel surfaces would be covered with road base. Installation of access roadways would include earthwork inside of the boundary of the DCAs; suitable earth material would be scraped, used to construct the raised roadway, and then the area would be smoothed to an even slope. An approximately 4-inch thick layer of base course (crushed rock less than 1 inch) from a local gravel source would then be placed on the travel surface. Gravel Cover for the access roadways shall be consistent with the type, size, and color of the Gravel Cover placed on the adjoining lakebed areas.

**Drainage of Gravel Areas.** Culverts would be constructed through the raised roadbeds at low points within the Gravel Cover areas to allow drainage for collected water.

#### 1.4.3.2 Gravel Cover Construction

Gravel Cover installation includes:

- Development of gravel stockpile area
- Installation of access roadways
- Gravel conveyance
- Geotextile and Gravel installation

**Gravel Stockpile.** Gravel stockpile areas, covered with aggregate, would be developed within the boundaries of each Gravel Cover DCA to prepare the sites for gravel deliveries. Dump trucks would deposit gravel and a dozer would be used to pile the aggregate. Assuming 25 tons per truck, approximately 2,500 tons per day would be transported to the Gravel Cover DCAs. Gravel transport would continue throughout the construction period concurrent with geotextile fabric and gravel installation. From the stockpile locations, low ground pressure (LGP) vehicles would be used for travel directly on the playa.

**Gravel Conveyance**. If gravel is obtained from the LADWP Shale borrow pit, trucks would cross SR 136 to Sulfate Road to Main Line Road and then to the Gravel Cover DCAs (**Figure 3**).

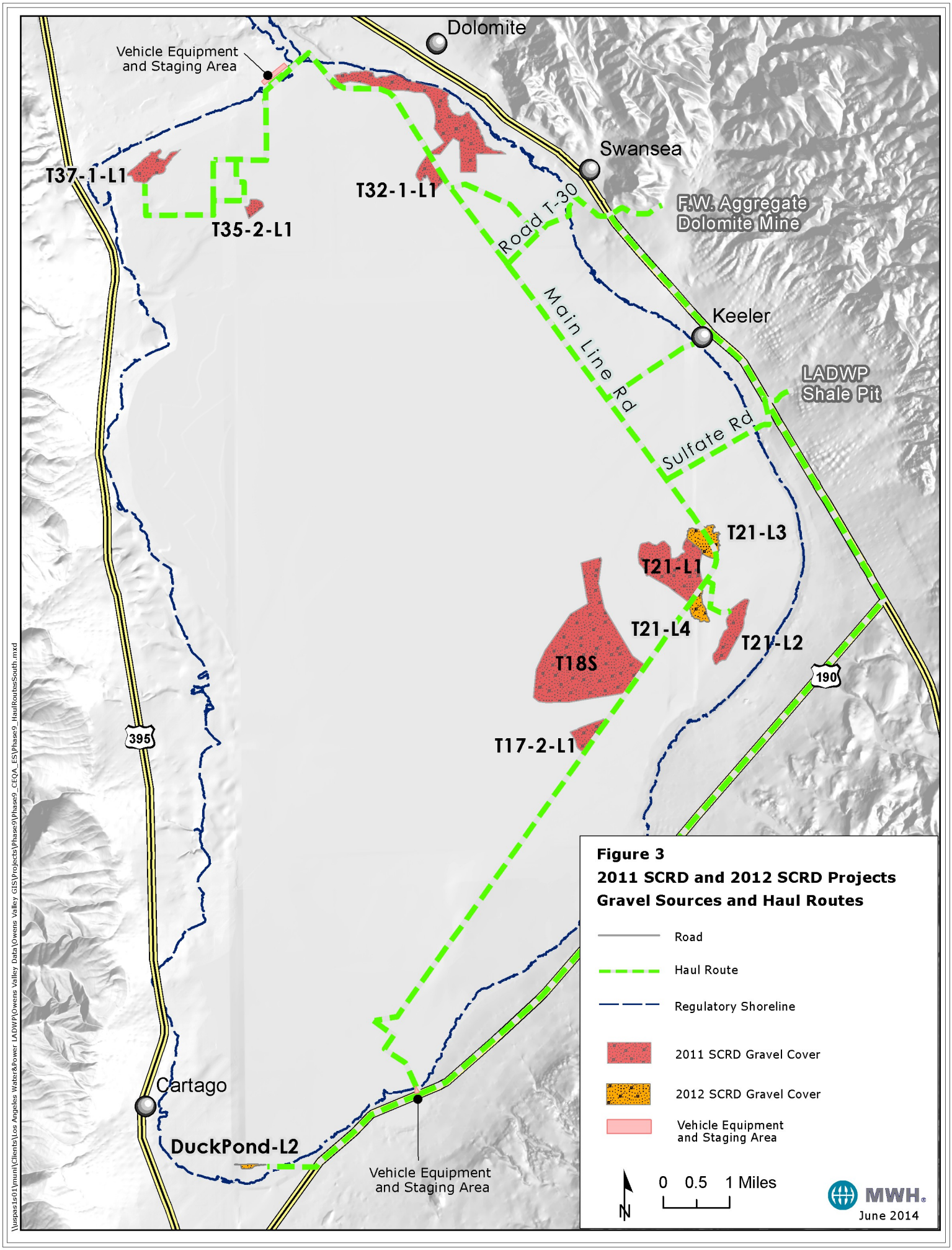
If gravel is obtained from F.W. Aggregate Dolomite mine, trucks would cross SR 136 to the T30 road to Main Line Road and then to the Gravel Cover DCAs. Gravel source(s) would be determined by the Construction Contractor. Stockpile areas would be covered with aggregate to prepare the sites for gravel deliveries during the initial months of construction. Dump trucks would deposit gravel and a dozer would be used to pile the aggregate. Gravel transport would continue throughout the construction period concurrent with geotextile fabric and gravel installation. From the stockpile location, low ground pressure (LGP) vehicles would be used for travel directly on the playa. Depending on site conditions, conveyors may be used internally within individual DCAs or to move gravel from the stockpiles.

**Geotextile Installation.** Before installation of the geotextile membrane, land leveling may be required in areas where obstructions would damage the fabric. A pipe or I-beam dragged behind a tractor, box drag, scraper, or similar process would be used to remove localized high and low spots and prepare the surface; there would be no import or export of soils related to this site preparation. Fabric would be delivered to the site on spools carried by flatbed trucks. Small areas of fabric would be rolled out and staked to secure them before gravel installation.

The two vehicle and equipment staging areas previously used (for Phases 7 and 8) would be used for the 2011 SCRD and 2012 SCRD projects (**Figure 3**). These previously disturbed sites are located near the intersection of Main Line Road and Corridor 1 at the north end of the lake (20 acre site) and at the southern end of the lake adjacent to Dirty Socks Access Road (2.7 acre site). In addition to office trailers and equipment and vehicle storage, these areas would have fueling stations for gas and diesel. Fuel trucks would be used to refuel construction equipment (including the LGP gravel trucks) and the long haul gravel trucks; no vehicle fuels or oils would be stored in the gravel stockpile areas. Additionally, refueling may occur at the existing LADWP Sulfate facility. Once the geotextile is staked, dozers and ground crews would spread gravel to the required 2-inch thickness.

The onsite construction workforce would consist of equipment operators, truck drivers, laborers, supervisory personnel, support personnel, and construction management personnel.

**Concrete Block Mat**. Concrete block mats may be used alternatively in areas designated for Gravel Cover. To form the mat, individual concrete blocks are tied together with a high strength polypropylene geogrid or cable systems. The concrete block mat currently under review consists of 5000 PSI concrete blocks (6.5 inches x 6.5 inches x 2.25 inches) with 1.5-inch spacing between the blocks to give the mat flexibility and to allow contouring to the land. The bottom layer is permeable non-woven fabric. With a minimum of 80 percent of the area covered directly by the concrete block, along with 100 percent coverage by the underlying fabric, a high efficiency for dust control is expected. The concrete block mat can be fabricated on or near the site of use, rolled, and installed in widths up to 16 feet. Since the mat is flexible, little or no ground leveling or clearing would be required in un-vegetated playa areas. Once installed, it is possible to walk and drive on the mat.


Dolomite
Vehicle Equipment and Staging Area
Swansea
T37-1-L1
T32-1-L1
T35-2-L1
Road T-30
F.W. Aggregate Dolomite Mine
Main Line Rd
Keeler
LADWP Shale Pit
Sulfate Rd
T21-L3
T21-L1
T21-L4
T21-L2
T18S
190
395
T17-2-L1
Cartago
DuckPond-L2
Vehicle Equipment and Staging Area
Figure 3
2011 SCRD and 2012 SCRD Projects
Gravel Sources and Haul Routes
Road
Haul Route
Regulatory Shoreline
2011 SCRD Gravel Cover
2012 SCRD Gravel Cover
Vehicle Equipment and Staging Area
0 0.5 1 Miles
N
MWH
June 2014
\\sepas1s01\muni\Clients\Los Angeles Water&Power LADWP\Owens Valley GIS\Projects\Phase9\Phase9_CEQA_ES\Phase9_HaulRoutesSouth.mxd

### 1.4.4 Alternative Dust Control Methods

Alternative dust control methods not currently approved as BACM include engineered roughness and Tillage. These methods will be described and analyzed as alternatives in EIR. GBUAPCD approval of the method(s) as BACM would be required prior to implementation on Owens Lake.

#### 1.4.4.1 Engineered Roughness

Engineered Roughness Elements are defined as the physical roughening of the land surface, usually to prevent wind and water erosion. It aims to alter air flow and trap moving particles. Increasing the surface roughness reduces the wind velocity at the surface, so that windblown soil particles like sand are trapped. From an aerodynamic perspective, the soil type and method of roughness generation is immaterial as long as the requisite roughness is achieved.

#### 1.4.4.2 Tillage

Tillage, a type of engineered surface roughening, is commonly used to control wind erosion in agricultural and arid regions around the world. It works by roughening the soil surface, rendering it more resistant to wind erosion. Surface roughness reduces the wind velocity so that windblown soil particles like sand are trapped. The maintenance of natural soil aggregation (clods) through appropriate tillage methods also helps to form a stable surface resistant to wind erosion by binding together fine-grained soil particles that might be prone to wind transport.

Tillage was previously applied on the playa of Owens Lake for temporary dust control in some Shallow Flood construction areas (T21-B, T18, T17-1_a, T17-2_a, T16, T10-2_b, and T10-3) between October 1, 2009 and April 1, 2010. This Tillage reduced the frequency and intensity of observed emissions. Tillage has also been implemented in T12-1 since January 2012; T12-1 is an area with relatively heavy (rich in clay and silt) soils.

Tillage may be accomplished using conventionally agricultural implements such as plows and disks, but also by other means such as excavators. Wet soils at Owens Lake have been tilled with low-ground-pressure bulldozers, as well as excavators working on mats. Drier soils can be tilled with a wider variety of tools and tractors. Tractors pulling plows or harrows would roughen the surface creating serpentine swaths of tilled ridges (to provide greater control for all wind directions, and to avoid a gridded, regimented appearance) with spacing between swaths allowing for irrigation installation and maintenance, access to monitoring equipment, and re-entry for re-tillage. Tillage swath directions would generally be perpendicular to the prevailing wind. Earthwork in each area will be balanced onsite.

Over time, the surface roughness achieved by Tillage would begin to be altered by weathering and dust control efficiency may decline. The amount of fine material (sand and smaller particles) on the surface may change due to 1) disaggregation of soil, 2) crusting and re-aggregation of fine material, 3) deposition of transported fine material, and 4) erosion and export of material. When monitoring indicates that these processes have reduced the dust control efficiency achieved by Tillage, the area would normally be re-tilled. The goal of re-tilling would be to restore erosion-resistant levels of roughness and aggregation.

Tillage can be augmented with irrigation. After initial tilling, areas can be irrigated to increase soil moisture and dust control efficiency. Irrigation piping (submains and whiplines, flush lines connected to flush mains) can be buried with sprinkler risers positioned throughout the DCA or a temporary above ground sprinkler system, or other portable means to provide irrigation, may be used when necessary to rewet the soil.

Irrigation may also be needed for temporary dust control or to reconsolidate soils prior to re-tilling. If irrigation is needed, it can occur through sub-irrigation, portable sprinklers and supply lines, or through existing irrigation infrastructure.

### 1.4.5 Transition Area T18S

New Shallow Flood and Managed Vegetation in the 502 acres of Duck Pond L-1, C2-L1, T10-1-L1 and T37-2 would require on the order of 1,570 acre-feet per year (afy) of water. The Board of Water and Power Commissioners Resolution 010063 (Owens Lake Water Use Policy) sets the maximum water use for the OLDMP at 95,000 afy. To provide water for the 2011 SCRD project, T18S would be transitioned from Shallow Flood to a mix of Gravel Cover and Shallow Flood. The predicted water use related to the 2011 SCRD and 2012 SCRD projects will be discussed in the EIR.

### 1.4.6 Construction Dust Control Plan

A Dust Control Plan would be developed and implemented during construction of facilities. The plan would specifically address measures to be taken when removing T18S from service since this DCA may not be in full compliance during construction. The following best management practices (BMPs) would be implemented to minimize dust generation during construction:

- Use of water trucks to spray roadway travel surfaces on existing and temporary roads used for construction
- Installation of temporary sand fences strategically placed within the DCA being constructed
- Placement of a gravel surface on interim staging areas within the DCA used by the contractor
- Termination of work activities during high wind events

Sand fences may be temporarily installed during construction in order to limit the movement of sand from construction zones to adjacent areas of the lakebed. Sand fences were previously used during construction for Phase 7 of the OLDMP. The sand fence would be black fabric with 50 percent porosity that is UV stabilized (Model SF-50 from U.S. Fence, or equivalent) and supported by steel T-posts (8 feet in height and driven into the ground to a depth of 4 feet, resulting in 4 feet of height for exposed post). Since the fence would not exceed 60 inches in height, wire or monofilament line across the top would not be necessary to reduce perching by predators (corvids).

Temporary sand fencing would be maintained and then removed at the completion of construction activities. Sand fences that deteriorate and could potentially create litter on the lakebed would be repaired or removed.

### 1.4.7 Other Features for DCAS

#### 1.4.7.1 Drainage System

Drainage systems would be installed beneath Managed Vegetation fields and/or on the margins of Shallow Flood areas. New drainage laterals to be installed would be perforated plastic pipes (heavy duty corrugated polyethylene) in covered trenches placed 5 to 9 feet below the ground surface. The drainage system would control soil saturation to:

- maintain drained root zone under irrigated vegetation
- maintain drained pipe zone (prevent pipe floatation)
- capture water along the DCA perimeters to reduce seepage off-site

Drainage return flows can be recirculated into Managed Vegetation and Shallow Flood areas. The existing drainwater system functions in this manner. A drainwater mainline (brineline) runs parallel to the water supply mainline throughout the dust mitigation area from T2 to T25. The drainwater mainline collects and delivers recirculated water to the Managed Vegetation and Shallow Flood areas. Management of drainwater would ultimately depend on salt management needs for dust control, since drainwater tends to be saltier than water from the Los Angeles Aqueduct. Improvements (pipelines, submain pump stations) to the brine management may be required.

#### 1.4.7.2 Power Supply and Controls

Power for pumps for water conveyance to and from DCAs is supplied by an existing underground 3-phase, 4.8 KV grid. The 4.8 KV grid would be connected to new turnouts, if any, with directed buried cables. The turnouts have their own distribution system for power and controls. Transformers at the turnouts convert the power to lower voltages to supply various equipment, lighting, and control instrumentation. The 3-phase, 480 volt alternating current (VAC) is typically used for pump stations. Directed buried cables would be used to supply power from the turnouts to the pump stations. New high voltage cable may be installed to power pumps.

### 1.4.8 Overall Construction Sequence

Construction activities would include:

- Earthwork, berm construction and water distribution systems for Managed Vegetation Areas
- Planting and seeding in Managed Vegetation Areas
- Earthwork, berm construction and water distribution systems for Shallow Flood Areas
- Turnout and pump station construction, as necessary
- Gravel Cover installation

### 1.4.9 Operations and Maintenance

#### 1.4.9.1 Gravel Cover

Once the Gravel Cover has been applied to the playa, limited maintenance would be required to preserve the gravel blanket. The gravel would be visually monitored for sand and dust accumulation, evidence of washouts, or inundation. If any of these conditions are observed over a substantial area, additional gravel would be transported to the playa. It is assumed that no maintenance would be needed in the initial years of operation. Subsequently, small areas may require replenishment and later, larger areas may require replacement. It is anticipated that the total volume of gravel may be replaced, at most, once every 50 years.

#### 1.4.9.2 Shallow Flood

Surface saturation in Shallow Flood areas would continue to be monitored via satellite images (as is currently the practice). Maintenance activities would occur as needed throughout the year. However, when feasible, extended facility maintenance (repair of pumps, berms, laterals, and submains) would be completed during the non-dust control season when dust storms generally do not occur (July to September). Inflows, outflows and water quality in Shallow Flood areas would also be monitored. Drains and valves would be inspected periodically and maintained as necessary.

#### 1.4.9.3 Berms and Roadways

Berms and roadways would be continually maintained to prevent erosion and washout, and to maintain safe driving conditions. Maintenance activity would include minor earthwork and gravel replenishment.

#### 1.4.9.4 Managed Vegetation

Vegetation would be monitored in the field to determine reclamation progress (declines in soil salinity), soil moisture, irrigation system function (including leak identification and repair), germination success, transplant mortality, and plant vigor. Once established, soil fertility and plant tissue would be monitored at least annually, and vegetative cover would be assessed with satellite imagery. At present, imagery is ground-truthed with specialized, near-surface digital images of vegetative cover. Operations activities would include maintenance of irrigation systems and replanting/reseeding as necessary.

After initial seeding, areas with limited growth would be assessed for drainage limitations. Drainage would be improved by constructing surface, French, or subsurface drains; or the area may be replanted. The site would continue to be managed to achieve dust compliance standards as swiftly as possible.

## 1.5 APPLICABLE PLANS AND POLICIES

The majority of the project sites are located on CSLC-administered lands within Inyo County. Inyo County designates the land use of the lakebed as SFL (State and Federal Lands). The zoning overlay is OS-40 (Open Space, 40-acre lot minimum). Portions of the Duck Pond area and T32 are located on land owned and administered by the BLM. Portions of the Duck Pond area, C2 and T32 are under private ownership.

## 1.6 PROJECT APPROVALS

If constructed, the 2011 SCRD and 2012 SCRD projects would install, operate and maintain approved DCMs in areas identified by GBUAPCD. If the projects are adopted by LADWP, permits and approvals from other agencies are anticipated to include:

- A right-of-way agreement from BLM for construction and operation of dust control on federal land.
- A lease amendment for use of state lands from the CSLC prior to project construction.
- A land use agreement from the private land owners for portions of Duck Pond, C2 and T32.
- Consistent with the previous DCMs installed on Owens Lake, a Lakebed Alteration Agreement per Section 1602 of the Fish and Game Code would be sought from the California Department of Fish and Wildlife (CDFW).
- LADWP would submit a request for an amendment to existing Clean Water Act Section 404 permit SPL-2008-00582-BAH from the U.S. Army Corps of Engineers for Phase 7 to include construction, operations, and maintenance associated with the 2011 SCRD and 2012 SCRD projects.
- LADWP would submit a request for an amendment to the existing Clean Water Act Section 401 Water Quality Certification from the Lahontan Regional Water Quality Control Board to include construction, operations, and maintenance associated with the 2011 SCRD and 2012 SCRD projects.
- Construction would be completed in compliance with the National Pollutant Discharge Elimination System (NPDES) General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities (Order No. 2009-0009-DWQ, NPDES NO. CAS000002). Per the General Permit, a Storm Water Pollution Prevention Plan (SWPPP) incorporating best management practices (BMPs) for erosion control would be developed and implemented during project construction.
- Discharge of water to the Lake for dust control is currently permitted by the Lahontan Regional Board through Waste Discharge Requirements (WDR) for the Southern Zones Dust Control Project (Board Order No. R6V-2006-0036). The Regional Board determined that implementation of the Phase 7a project does not warrant a revision or amendment to the existing WDR (J. Zimmerman, P.G., Regional Board, pers. comm.,

2011). It is anticipated that implementation and operation of the 2011 SCRD and 2012 SCRD projects would also be done in conformance with the existing Board Order.

- Use of the SR 136 right-of-way for gravel transport would require approval from Bureau of Land Management (BLM) and an encroachment permit from Caltrans. Caltrans encroachment permits would also be obtained for access roadways, Dirty Socks Road and other roadways as relevant. The permits would address access, maintenance, legal sized load restrictions and traffic control (i.e., Traffic Work Safety Plan).

- A permit or non-objection letter from Inyo County for the maintenance of the Highway 395/access road would be sought.

- Relevant archaeological investigation and/or excavation permits would be obtained from the CSLC.

- Additionally, installation of fuel tank(s) at the construction staging areas to serve the haul trucks would require compliance with:

  1) Permit to Operate (1316-00-06) – An air quality permit from GBUAPCD related to vapor recovery.

  2) Certified Unified Program Agency (CUPA) Facility Permit – A hazardous material/waste permit and associated contingency and business plan from the Inyo County Department of Environmental Health Services.

  3) Spill Prevention Control and Countermeasure (SPCC) Plan – For aboveground oil tanks of 1,320 gallons or more, and for fuel trucks when fuel would be left in the truck overnight. The Plan is filed with the Inyo County Department of Environmental Health Services.

# Section 2
# Environmental Analysis

## 2.1 ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED

The environmental factors checked below would be potentially affected by this project, involving at least one impact that is a "Potentially Significant Impact" as indicated by the checklist on the following pages.

| | | |
|---|---|---|
| ☒ Aesthetics | ☒ Greenhouse Gas Emissions | ☐ Population and Housing |
| ☐ Agricultural Resources | ☐ Hazards and Hazardous Materials | ☐ Public Services |
| ☒ Air Quality | ☐ Hydrology and Water Quality | ☐ Recreation |
| ☒ Biological Resources | ☒ Land Use and Planning | ☐ Transportation and Traffic |
| ☒ Cultural Resources | ☐ Mineral Resources | ☒ Utilities and Service Systems |
| ☐ Geology and Soils | ☐ Noise | ☒ Mandatory Findings of Significance |

## 2.2 AGENCY DETERMINATION

On the basis of this initial evaluation:

☐ I find that the project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.

☐ I find that although the project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the project have been made by or agreed to by the applicant. A MITIGATED NEGATIVE DECLARATION will be prepared.

☒ I find that the project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.

☐ I find that the project MAY have a "potentially significant impact" or "potentially significant unless mitigated" impact on the environment, but at least one effect 1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and 2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.

☐ I find that although the project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier EIR or NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier EIR or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the project, nothing further is required.

Signature: Charles C. Holloway Title: Manager of Environmental Assessment

Printed Name: Charles C Holloway Date: 7/9/14

## 2.3 ENVIRONMENTAL CHECKLIST

### 2.3.1 Aesthetics

| Issues and Supporting Information Sources | Potentially Significant Impact | Less Than Significant With Mitigation Incorporated | Less Than Significant Impact | No Impact |
|---|---|---|---|---|
| Would the project: | | | | |
| a) Have a substantial adverse effect on a scenic vista? | ☒ | ☐ | ☐ | ☐ |
| b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway? | ☐ | ☐ | ☒ | ☐ |
| c) Substantially degrade the existing visual character or quality of the site and its surroundings? | ☒ | ☐ | ☐ | ☐ |
| d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area? | ☐ | ☐ | ☒ | ☐ |

**Discussion:** The Owens Valley is straddled by the eastern Sierra Nevada to the west and the Inyo Mountains to the east, with the Coso Range rising to the south. The valley floor is interspersed with small, rural communities (e.g., Cartago, Olancha, Keeler and Dolomite) surrounded by dry, desert environment with minimal vegetation. Under existing conditions, views of Owens Lake are characterized by pockets of desert vegetation, limited vegetated areas related to seeps and springs and the Delta, vast areas of desert playa, mining operations, the brine pool (which fluctuates in size) and the existing system of dust control – bermed areas periodically filled with water, areas of managed vegetation and the internal roadway network (**Figure 4**).

a) and c) **Potentially Significant Impact.** Under the 2011 SCRD and 2012 SCRD projects, areas of the lake that are currently primarily barren playa would be altered by installation of DCMs. Additionally, existing Shallow Flood DCA T18S would be transitioned to be approximately 80 percent Gravel Cover, 20 percent Shallow Flood. The RAP for the 2011 SCRD project describes the BACM proposed for each new DCA. However, a RAP for the 2012 SCRD project is in development, and additional dust control methods are under review. Therefore, the impacts of the 2011 SCRD and 2012 SCRD projects on scenic vistas and the visual character of the lake will be described in the EIR.

b) **Less than Significant Impact.** Scenic roadways are designated by BLM, Inyo National Forest, Caltrans, and the Federal Highway Administration. State Highway 395 is an officially designated State Scenic Highway from Independence to north of Tinemaha Reservoir (postmiles 76.5 to 96.9) (Caltrans, 2008). State Highway 395 is eligible for designation in the portions north and south of that segment (Caltrans, 2008). The project site is just east of State Highway 395 in the eligible, but not designated, portion of the roadway. There are no trees, major landform features or rock outcroppings within the project areas and none would be disturbed by project implementation. Implementation of the projects would alter the views of

approximately 5.4 square miles of the lakebed. Installation of BACM in the DCAs that are adjacent to SR 395 would alter the look of these parcels but would not change the dramatic backdrop or natural feel of the overall landscape. The impact on views from a portion of roadway eligible for designation as a scenic roadway, SR 395, is therefore less than significant.

d) **Less Than Significant Impact.** The proposed project does not include permanent installation of new sources of lighting. Construction activities would occur primarily in daylight hours; some limited use of lighting may be necessary in the early morning or evening hours (especially in winter). Use of portable lights during construction, if any, would be localized; large-scale activities such as grading would not occur at night. Since the proposed lighting would be of limited duration and confined to the specific area of construction, impacts on light and glare that could affect day or nighttime views of the project area would be less than significant. Protection of biological resources related to the potential use of limited lighting will be described in the EIR.

**Figure 4**
**Owens Lake Aerial View**

### 2.3.2 Agricultural and Forest Resources

| Issues and Supporting Information Sources | Potentially Significant Impact | Less Than Significant With Mitigation Incorporated | Less Than Significant Impact | No Impact |
|---|---|---|---|---|
| Would the project: | | | | |
| a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use? | ☐ | ☐ | ☐ | ☒ |
| b) Conflict with existing zoning for agricultural use, or a Williamson Act contract? | ☐ | ☐ | ☐ | ☒ |
| c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))? | ☐ | ☐ | ☐ | ☒ |
| d) Result in the loss of forest land or conversion of forest land to non-forest use? | ☐ | ☐ | ☐ | ☒ |
| e) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use? | ☐ | ☐ | ☐ | ☒ |

**Discussion:**

a) **No Impact.** The Farmland Mapping and Monitoring Program (FMMP) does not include Inyo County; therefore the proposed project would have no impact on conversion of FMMP designated Farmland (California Department of Conservation, 2006).

b) **No Impact.** Existing zoning by Inyo County is OS-40 (Open Space, 40-acre lot minimum) with a land use designation of SFL (State and Federal Lands) (Inyo County, 2011). Since Inyo County does not offer a Williamson Act program (California Department of Conservation, 2008), the proposed project would have no impact on agricultural zoning or Williamson Act contracts.

c) and d) **No Impact.** The project site is not zoned as forested land and the proposed project would not result in conversion of forest land to non-forest use. Public Resources Code Section 12220 (g) defines "Forest land" as land that can support 10-percent native tree cover of any species, including hardwoods, under natural conditions, and that allows for management of one or more forest resources, including timber, aesthetics, fish and wildlife, biodiversity, water quality, recreation, and other public benefits. Since no trees exist on the project site, removal of native trees is not proposed. Therefore, the proposed project would have no impact on forest lands.

e) **No Impact.** Active ranches are located near the lakebed – Horseshoe Livestock to the south and Islands and Delta Livestock, Lubkin Adjunct Livestock, and Mount Whitney Ranch north and west of the lake. The presence of livestock on the lake is limited to stray animals from adjacent leases. However, since the project does not include new permanent fences, alter water distribution to the ranches or include haul routes across ranch properties, there would be no impact on agricultural operations from construction and operation of the 2011 SCRD and 2012 SCRD projects.

### 2.3.3 Air Quality

| Issues and Supporting Information Sources | Potentially Significant Impact | Less Than Significant With Mitigation Incorporated | Less Than Significant Impact | No Impact |
|---|---|---|---|---|
| Would the project: | | | | |
| a) Conflict with or obstruct implementation of the applicable air quality plan? | ☒ | ☐ | ☐ | ☐ |
| b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation? | ☒ | ☐ | ☐ | ☐ |
| c) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)? | ☒ | ☐ | ☐ | ☐ |
| d) Expose sensitive receptors to substantial pollutant concentrations? | ☐ | ☐ | ☒ | ☐ |
| e) Create objectionable odors affecting a substantial number of people? | ☐ | ☐ | ☒ | ☐ |

**Discussion:**

The southern Owens Valley is located within the jurisdiction of the GBUAPCD. The valley has been designated by the State and EPA as a non-attainment area for the state and federal 24-hour average $PM_{10}$ standards. With the exception of $PM_{10}$, air quality is considered excellent and the area has been designated as attainment or unclassified for all other ambient air quality standards. The major sources of criteria pollutants, other than wind-blown dust, are woodstoves, fireplaces, vehicle tailpipe emissions, fugitive dust from travel on unpaved roads, prescribed burning, and gravel mining.

a), b), c) **Potentially Significant Impact.** The GBUAPCD's relevant air quality plan for the project area is the Final 2008 Owens Valley $PM_{10}$ Planning Area Demonstration of Attainment SIP (GBUAPCD, 2008a). The focus of this planning document is implementation of DCMs at Owens Lake.

The 2011 SCRD and 2012 SCRD projects are an expansion of the OLDMP described in the 2008 SIP. Therefore project consistency with the applicable air quality plan has not been described in previous environmental documents. The consistency of the 2011 SCRD and 2012 SCRD projects with the applicable air quality plan will be described in the EIR.

Emissions during project construction would result from the operation of the equipment including: dozers, scrapers, dump trucks, flatbed trucks, fuel trucks, backhoes or tractors, water trucks, light duty trucks, and workers personal vehicles. Air pollutant emissions estimates for construction of the projects and their potential cumulative effects have not been specifically described in other environmental documents. Air pollutant emission estimates will be quantified and described in the EIR.

d) **Less Than Significant Impact.** Sensitive receptors include schools, day-care facilities, nursing homes, and residences. The closest sensitive receptors to the project areas are residences in Keeler, Dolomite, Olancha and Cartago (see **Table 1**). The closest sensitive receptors to the gravel haul routes are approximately 0.7 miles from the Dolomite Quarry haul route, and approximately 0.8 miles from the LADWP Shale pit haul route.

Construction of the proposed project would include operation of mechanical equipment. However, given the distance of residential sensitive receptors to the project sites, the impact from gas and diesel fumes associated with motor vehicles and heavy equipment engines on sensitive receptors would be less than significant. Implementation of the proposed project would decrease the exposure of residents to $PM_{10}$ emissions from the Owens Lake in the long term, a beneficial impact.

e) **Less Than Significant Impact.** Project construction and operation would result in minor localized odors associated with fuel use for equipment and vehicles. These odors are common, not normally considered offensive, and would not be experienced by any residences since none are located on or immediately adjacent to the project sites. Odor impacts to potential recreation visitors at the sites during construction activities would be temporary and less than significant.

### 2.3.4 Biological Resources

| Issues and Supporting Information Sources | Potentially Significant Impact | Less Than Significant With Mitigation Incorporated | Less Than Significant Impact | No Impact |
|---|---|---|---|---|
| Would the project: | | | | |
| a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service? | ☒ | ☐ | ☐ | ☐ |
| b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, and regulations or by the California Department of Fish and Game or U.S. Fish and Wildlife Service? | ☒ | ☐ | ☐ | ☐ |
| c) Have a substantial adverse effect on federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means? | ☒ | ☐ | ☐ | ☐ |
| d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of wildlife nursery sites? | ☒ | ☐ | ☐ | ☐ |
| e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance? | ☐ | ☐ | ☒ | ☐ |
| f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan? | ☐ | ☐ | ☒ | ☐ |

**Discussion:** Prior to implementation of the Dust Control Project, Owens Lake consisted of a large expanse of barren playa, a remnant hypersaline brine pool, and scattered springs and seeps along its shoreline. Implementation of DCMs has resulted in an increase in the use of Owens Lake by wildlife species because water and vegetation resources are now present on much of the former barren playa. Shallow Flooding has attracted birds, primarily gulls, avocets, stilts and plovers (LADWP, 2010b).

a), b), c), d) **Potentially Significant Impact.** Based on California Natural Diversity Data Base (CNDDB) listings for the Vermillion Canyon, Owens Lake, Keeler, Lone Pine, Dolomite, Bartlett, and Olancha USGS quadrangles, and LADWP knowledge of the areas, sensitive plant and animal species and sensitive natural communities have the potential to occur on or near the project areas. Additionally, a breeding population of Snowy Plover occurs on Owens Lake and the lake is an important site along the Pacific Flyway for migratory waterbirds. Per the terms of previous mitigation measures, LADWP is required to maintain a baseline of at least 272 Snowy Plovers as determined during dedicated annual surveys (GBUAPCD, 2003)

and a minimum of 523 acres of Shallow Flood habitat for Snowy Plovers in consultation with CDFW (GBUAPCD, 2008b). This habitat is described as a mix of exposed sandy or gravelly substrate suitable for nesting in close proximity to standing water equal to or less than 12 inches in depth; the 523-acre area has been designated along the east side of the lake.

The impacts of the 2011 SCRD and 2012 SCRD projects on sensitive species and natural communities will be described in the EIR.

e) **Less Than Significant Impact.** No tree ordinances apply to the project area and no trees are present on the project site. The Inyo County General Plan Goals and Policies document (2001) includes two goals for biological resources issues: Maintain and enhance biological diversity and healthy ecosystems throughout the County, and provide a balanced approach to resource protection and recreation use of the natural environment (Goals BIO-1 and BIO-2). Since the project site would remain as open space and would continue to provide habitat for Snowy Plovers and other species, the project would not conflict with these goals. The impact on local policies or ordinances protecting biological resources would be less than significant. Additional description of biological resources of the 2011 SCRD and 2012 SCRD parcels will be provided in the EIR.

f) **Less Than Significant Impact.** The project site is not within a Significant Natural Area (SNA) as determined by CDFW. LADWP is currently preparing a Habitat Conservation Plan (HCP) for LADWP-owned lands in Inyo and Mono Counties; this plan is not yet finalized but would not cover the 2011 SCRD and 2012 SCRD portions of Owens Lake since they are primarily property of the CSLC. However, in compliance with mitigation measure Biology-14 of the 2008 SIP FSEIR (GBUAPCD, 2008b), LADWP prepared the Owens Lake Habitat Management Plan (OLHMP) for the Owens Lake Dust Mitigation Project (LADWP, 2010b). The OLHMP serves as a guide for compatibility between construction, maintenance, and operational needs of the Dust Mitigation Project, and the needs of resident and migratory wildlife resources utilizing the Owens Lake Dust Control Area. The overall goal of the OLHMP is to avoid direct and cumulative impacts to native wildlife communities that may result from the Dust Control Program. The 2011 SCRD and 2012 SCRD projects would be implemented by LADWP in a manner consistent with the LADWP OLHMP; the impact on adopted habitat plans is therefore less than significant.

Additionally, LADWP is currently working collaboratively with a wide range of stakeholders to develop a Master Project for Owens Lakebed. The Master Project will identify goals and objectives to enhance the Owens Lakebed with a focus on dust mitigation, habitat and wildlife, water efficiency methods, and potential renewable energy development. Although the Master Project is not an approved habitat conservation plan, the consistency of the proposed project with the Master Project will be described in the EIR.

### 2.3.5 Cultural Resources

| Issues and Supporting Information Sources | Potentially Significant Impact | Less Than Significant With Mitigation Incorporated | Less Than Significant Impact | No Impact |
|---|---|---|---|---|
| Would the project: | | | | |
| a) Cause a substantial adverse change in the significance of a historical resource as defined in §15064.5? | ☒ | ☐ | ☐ | ☐ |
| b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5? | ☒ | ☐ | ☐ | ☐ |
| c) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature? | ☒ | ☐ | ☐ | ☐ |
| d) Disturb any human remains, including those interred outside of formal cemeteries? | ☒ | ☐ | ☐ | ☐ |

**Discussion**: Prehistoric and historic cultural resources have been previously identified on Owens Lake. Additionally, the lake area is mapped as Quaternary lake and sand deposits, edged by Quaternary alluvium (Mathews and Burnett, 1965, Streitz and Stinson, 1974). The older Pleistocene and late Holocene portion of each geological unit is considered to have moderate sensitivity for paleontological resources.

Field survey for observable cultural resources on the 2011 SCRD and 2012 SCRD parcels was completed in 2013. Documentation of results from the field survey and subsequent evaluation of resources is ongoing.

a), b), c), d) **Potentially Significant Impact.** Construction of 2011 SCRD and 2012 SCRD project facilities would include earthwork in areas that have not been previously disturbed for construction of DCMs. Disturbance to cultural resources potentially present in project areas from construction is a potentially significant impact. The existing setting for cultural resources, results of record searches and pedestrian surveys, results of ongoing evaluations of known resources, and the significance of potential impacts to cultural resources will be described in the EIR.

## 2.3.6 Geology and Soils

| Issues and Supporting Information Sources | Potentially Significant Impact | Less Than Significant With Mitigation Incorporated | Less Than Significant Impact | No Impact |
|---|---|---|---|---|
| Would the project: | | | | |
| a) Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving: | | | | |
| i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42. | ☐ | ☐ | ☒ | ☐ |
| ii) Strong seismic ground shaking? | ☐ | ☐ | ☒ | ☐ |
| iii) Seismic-related ground failure, including liquefaction? | ☐ | ☐ | ☒ | ☐ |
| iv) Landslides? | ☐ | ☐ | ☒ | ☐ |
| b) Result in substantial soil erosion or the loss of topsoil? | ☐ | ☐ | ☒ | ☐ |
| c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse? | ☐ | ☐ | ☒ | ☐ |
| d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994) creating substantial risks to life or property? | ☐ | ☐ | ☐ | ☒ |
| e) Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems, where sewers are not available for the disposal of wastewater? | ☐ | ☐ | ☐ | ☒ |

**Discussion:**

The project area is on Owens dry lakebed, just south of Lone Pine in the Owens Valley. The Owens Valley of eastern California is a deep north-south trending basin, lying between the Sierra Nevada to the west and the White-Inyo Mountains to the east. The Owens Valley was formed as a fault block basin with the valley floor dropped down relative to the mountain blocks on either side.

The Owens Valley is the westernmost basin in a geologic province known as the Basin and Range, a region of fault-bounded, closed basins separated by parallel mountain ranges stretching from central Utah to the Sierra Nevada and encompassing all of the state of Nevada. Geological formations in the project areas are of Cenozoic age, chiefly Quaternary.

The soils in Owens Valley contain mostly Quaternary alluvial fan, basin-fill, and lacustrine deposits. On alluvial fans, the soils are mostly Xeric and Typic Torrifluvents, Xeric and Typic

Torriorthents, and Xeric and Typic Haplargids. All soils on alluvial fans are well drained (Miles and Goudy, 1997).

a)-i) and a)-ii) **Less Than Significant Impact.** The west side of the Basin is bounded by a north-south trending fault zone along the east side of the Sierra Nevada known as the Sierra Nevada Frontal Fault (Stone et. al., 2000). The east margin of the Basin is delineated by the Inyo Mountains Fault, which is a belt of west-side-down normal faults along the Inyo Mountains (Hollett et. al., 1991; Neponset, 1999). Roughly in the middle between the Inyo Mountains Fault and Owens Valley Fault is the Owens River Fault (Neponset and Aquila, 1997). To the south, a number of unnamed fault segments were mapped in front of the Coso Range (Stinson, 1977; Hollett et. al., 1991).

The project DCAs are located on USGS quadrangles which include designated Alquist-Priolo Special Studies Zones. Surface rupture on local faults is also possible outside of the currently mapped active traces of these range-front faults. However, since habitable structures would not be built as part of the proposed project, people would not be exposed to adverse effects involving seismic ground shaking. Damage to project facilities (irrigation lines, drainlines, turnouts, roadways, geotextile membranes or gravel layers) would be repaired as necessary; impacts would therefore be less than significant.

a)-iii) **Less Than Significant Impact.** The project does not expose people to potential substantial adverse effects involving strong seismic-related ground failure, including liquefaction. Shallow groundwater does occur on the lake and the 2011 SCRD project includes new areas of Shallow Flood. However, since habitable structures would not be built as part of the proposed project, people would not be exposed to adverse effects involving seismic-related ground failure. Damage to project facilities (irrigation lines, drainlines, turnouts, roadways, geotextile membranes or gravel layers) would be repaired as necessary; impacts would therefore be less than significant.

a)-iv) **Less Than Significant Impact.** The project site is located well away from the mountain front, and would not be subject to impacts from landslides. Additionally, since habitable structures would not be built as part of the proposed project, people would not be exposed to adverse effects involving landslides. Damage to project facilities (irrigation lines, drainlines, turnouts, roadways, geotextile membranes or gravel layers) would be repaired as necessary; impacts would therefore be less than significant.

b) **Less Than Significant Impact.** Construction activities for the 2011 SCRD and 2012 SCRD projects include site preparation (excavation, soil conditioning, and land leveling), preparation of gravel stockpile areas, raised roadway and irrigation pipeline installation, installation of electrical and mechanical equipment related to the irrigation systems, installation of the geotextile and gravel layer, and planting activities. Earthwork required for construction has the potential to temporarily increase soil erosion from the disturbed areas. However, since construction methods would include BMPs identified in a SWPPP completed in compliance with the NPDES General Permit for Storm Water Discharges Associated with Construction Activity (General Permit), wind and water erosion of soils during construction would be minimized. The impact is less than significant.

The intent of installing Gravel Cover, Shallow Flood, Managed Vegetation, and potentially other dust control measures on the lakebed is to stabilize soils in an effort to reduce soil erosion via wind. Therefore, the 2011 SCRD and 2012 SCRD projects would have a beneficial impact during project operation by reducing soil erosion.

c) **Less Than Significant Impact.** New structures included in the 2011 SCRD and 2012 SCRD projects (irrigation lines, drainlines, turnouts, roadways, geotextile membranes, etc.) may be located on lakebed soils that are considered unstable. Prior to final design of new facilities, geotechnical investigations would be conducted and fill soils, armoring, and potentially other design features would be used where warranted. Since no habitable structures would be built as part of the proposed project, the impact would be less than significant.

d) **No Impact.** Habitable structures would not be built as part of the proposed project. Therefore, there would be no project-related impacts from expansive soils.

e) **No Impact.** Sanitation facilities are not present or proposed for the project site. Therefore, there would be no impact on soils related to wastewater disposal.

### 2.3.7 Greenhouse Gas Emissions

| Issues and Supporting Information Sources | Potentially Significant Impact | Less Than Significant With Mitigation Incorporated | Less Than Significant Impact | No Impact |
|---|---|---|---|---|
| Would the project: | | | | |
| a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment? | ☒ | ☐ | ☐ | ☐ |
| b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases? | ☒ | ☐ | ☐ | ☐ |

**Discussion:** LADWP has instituted numerous programs for reducing GHG emissions, such as providing rebates to encourage use of energy efficient equipment, retrofitting City-owned facilities for increased energy efficiency, promoting the installation of solar and renewable power, and reducing GHG from vehicles by pursuing electric fleet vehicles.

a), b) **Potentially Significant Impact.** Greenhouse gases include, but are not limited to, carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons and sulfur hexafluoride. Project-related emissions of greenhouse gases would include air pollutants generated from construction vehicles during the temporary construction activities. Operations-related air pollutant emissions would result from maintenance activities (vehicle emissions). Otherwise, operation of the project has no air pollutant emissions; the project reduces the emissions of dust from the lakebed.

Since the air pollutant emissions related to construction and operation of the 2011 SCRD and 2012 SCRD projects have not yet been quantified, greenhouse gas emissions and the consistency of the project with planning documents focused on the reduction of greenhouse gas emissions will be described in the EIR.

## 2.3.8 Hazards and Hazardous Materials

| Issues and Supporting Information Sources | Potentially Significant Impact | Less Than Significant With Mitigation Incorporated | Less Than Significant Impact | No Impact |
|---|---|---|---|---|
| Would the project: | | | | |
| a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials? | ☐ | ☐ | ☒ | ☐ |
| b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment? | ☐ | ☐ | ☒ | ☐ |
| c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school? | ☐ | ☐ | ☒ | ☐ |
| d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment? | ☐ | ☐ | ☐ | ☒ |
| e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area? | ☐ | ☐ | ☐ | ☒ |
| f) For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area? | ☐ | ☐ | ☐ | ☒ |
| g) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan? | ☐ | ☐ | ☒ | ☐ |
| h) Expose people or structures to the risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands? | ☐ | ☐ | ☒ | ☐ |

**Discussion:** Aside from fuels, hazardous materials are not currently used or stored on the project site. Fertilizer is stored on the lakebed in a contained area at existing Managed Vegetation DCA T5. Fertilizer is used as necessary for the existing T5 – T8 Managed Vegetation DCAs, and is planned for use in future Managed Vegetation DCAs.

a) and b) **Less Than Significant Impact.** Construction of the proposed project would require the routine transport, use, and storage of limited quantities of gasoline and diesel fuel, and potentially degreasers and solvents for construction vehicle maintenance. The existing LADWP Sulfate Facility is located off Sulfate Road west of SR 136, on the east side of the lake. This facility includes a vehicle wash station, refueling station, and fuel tanks as well as areas for vehicle maintenance. Additionally, the two vehicle and equipment staging areas previously used (for Phases 7 and 8) would be used for the 2011 SCRD and 2012 SCRD projects. These previously disturbed sites are located near the intersection of Main Line Road

and Corridor 1 at the north end of the lake (20 acre site) and at the southern end of the lake adjacent to Dirty Socks Access Road (2.7 acre site). In addition to office trailers and equipment and vehicle storage, these areas would have fueling stations for gas and diesel. Fuel trucks would be used to refuel construction equipment (including the low ground pressure gravel trucks) and the long haul gravel trucks; no vehicle fuels or oils would be stored in the gravel stockpile areas. No new permanent fertilizer stations are proposed. Concrete pads (with containment for the injection point) may be constructed in Duck Pond-L1 and/or C2-L1 for use by portable fertilizer delivery tanks. Periodic fertilizer delivery would be by flatbed or pickup truck. Other chemical use is not anticipated.

LADWP would employ standard operating procedures for the routine transport, use, storage, handling, and disposal of hazardous materials related to the operation of the DCMs. LADWP also prepares an annual update on the transport, use, storage, handling, and disposal of hazardous materials. Therefore, with adherence to the standard operations procedures for hazardous materials use, impacts related to release or accidental exposure to humans or the environment would be less than significant.

Water would be used during project construction for dust control but water would not be used in volumes sufficient to cause standing water. During project operation, water would be used to irrigate areas of Managed Vegetation and for Shallow Flood. Since the 2011 SCRD and 2012 SCRD projects would not increase water commitments, the overall area of standing water on the lakebed would not significantly increase. Creation of mosquito habitat by the creation of standing water would be managed as under existing conditions. LADWP has an annual contract with the Inyo County Agricultural Department which manages the Owens Valley Mosquito Abatement Program. The Agricultural Commissioner would be notified of the changes in the Shallow Flood DCAs prior to project operation. Since these mosquito abatement practices would continue and since the 2011 SCRD and 2012 SCRD projects would not substantially increase the area of mosquito habitat, the impact related to vectors would be less than significant.

c) **Less Than Significant Impact.** There are no schools within ¼ mile of the 2011 SCRD and 2012 SCRD projects area. The closest school is located in Lone Pine (over 4 miles north of Owens Lake). Additionally, hazardous materials use would be limited to fuels for construction vehicles. Since these materials would be properly handled (as described above), the impact on the schools from hazardous materials would be less than significant.

d) **No Impact.** Section 65962.5 of the California Government Code requires the California Environmental Protection Agency (CalEPA) to update a list of known hazardous materials sites, which is also called the "Cortese List." The sites on the Cortese List are designated by the State Water Resources Control Board, the Integrated Waste Management Board, and the Department of Toxic Substances Control.

Based on a search of hazardous waste and substances sites listed in the Department of Toxic Substances Control (DTSC) "EnviroStor" database; a search of leaking underground storage tank (LUST) sites listed in the State Water Resources Control Board (SWRCB) "GeoTracker" database; and a search of solid waste disposal sites identified by the SWRCB

with waste constituents above hazardous waste levels outside the waste management unit, there were no sites listed on or adjacent to the project site. Therefore, the project would have no impact related to hazardous waste sites.

e) and f) **No Impact.** Seven public access airports and six private airstrips are located throughout Inyo County (Inyo County, 2001). The Lone Pine Airport is closest to the project site; it is located approximately 3.6 miles to the north. However, the project does not propose new tall structures and the project area is not located sufficiently near either a private airstrip or public airport to pose a safety risk. Therefore, there would be no project-related impacts on airport safety.

g) **Less Than Significant Impact.** Internal Owens Lake roadways are not part of an emergency evacuation plan route and therefore construction and operation activities on the lake would have no impact on a designated emergency route. Gravel transport necessary for the 2011 SCRD and 2012 SCRD projects would require gravel trucks to cross SR 136 (from the F.W. Aggregate or the LADWP Shale pit) (**Figure 3**) which would be coordinated with Caltrans. However, since Owens Lake is not designated as an emergency staging area, the project would have a less than significant impact on emergency access and evacuation plans.

h) **Less Than Significant Impact.** The project area is not typically subject to wildland fires and the project site has only limited areas of vegetation. Permanent habitable structures do not exist and none are proposed for the project site. Since 2006, fire protection services have been provided by the California Department of Forestry (CDF) and Owens Lake is included in their State Responsibility Area (SRA). The new areas of Gravel Cover would not alter the existing low risk of fire and areas of Shallow Flood would reduce the risk. Managed Vegetation areas would be irrigated. Therefore, the project would have a less than significant impact related to wildland fires.

## 2.3.9 Hydrology and Water Quality

| Issues and Supporting Information Sources | Potentially Significant Impact | Less Than Significant With Mitigation Incorporated | Less Than Significant Impact | No Impact |
|---|---|---|---|---|
| Would the project: | | | | |
| a) Violate any water quality standards or waste discharge requirements? | ☐ | ☐ | ☒ | ☐ |
| b) Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)? | ☐ | ☐ | ☒ | ☐ |
| c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site? | ☐ | ☐ | ☒ | ☐ |
| d) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site? | ☐ | ☐ | ☒ | ☐ |
| e) Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff? | ☐ | ☐ | ☒ | ☐ |
| f) Otherwise substantially degrade water quality? | ☐ | ☐ | ☒ | ☐ |
| g) Place housing within a 100-year flood hazard area, as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map? | ☐ | ☐ | ☐ | ☒ |
| h) Place within a 100-year flood hazard area structures which would impede or redirect flood flows? | ☐ | ☐ | ☒ | ☐ |
| i) Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam? | ☐ | ☐ | ☐ | ☒ |
| j) Expose people or structures to a significant risk of loss, injury or death involving inundation by seiche, tsunami, or mudflow? | ☐ | ☐ | ☒ | ☐ |

**Discussion**: The floor of the Owens Valley ranges in elevation from a low of approximately 3,550 feet above mean sea level (MSL) on the Owens dry lakebed to the south to approximately 4,100 feet above MSL near Bishop to the north. The bed of Owens Lake is relatively flat with only 50 feet of topographic relief from an elevation of 3,600 ft MSL to the lowest portion of the lakebed. The lakebed can be divided into two main areas: the brine pool (below an elevation of 3,553.53 ft MSL) and the playa (the area between the brine pool and the shoreline at 3,600 ft MSL). A shoreline of 3,600 ft MSL is used for analysis, but does not reflect the actual Owens

Lake shoreline absent LADWP water gathering activities. The playa generally consists of lacustrine and alluvial sediments ranging in size from fine gravels to clays and containing a high salt content. The brine pool is the remnant portion of the historic Owens Lake and contains a high accumulation of mineral salts. The brine pool is generally wet during part of the year, depending on the amount of precipitation and runoff from the surrounding mountains.

Surface runoff occurs from creeks and small intermountain watersheds emanating from precipitation on the Sierra Nevada and adjacent foothills. Some surface flows from the major creeks are captured by the LAA and exported to the City of Los Angeles. Runoff not intercepted by the LAA flows toward Owens Lake. Under normal conditions, these creek beds and washes are dry; however, surface flow may occur during periods of extremely high runoff or flash floods. As part of the Lower Owens River Project (LORP), minimum Owens River flows are released from the LORP pump station (approximately 6 to 9 cfs on an annual average basis; minimum releases at any time are approximately 3 cfs) for discharge to the Owens River Delta and, depending on conditions, to an area of the lake known as the brine pool transition area. In addition, portions of the LORP seasonal habitat flows (up to approximately 200 cfs ramped up and down over approximately 14 days) are bypassed at the pump station and released towards the Owens River Delta.

Groundwater occurs in multiple aquifers beneath the lakebed surface. A discontinuous surficial aquifer is present on portions of the Owens Lake playa and delta area (MWH, 2011a). Since 1992, GBUAPCD monitored an extensive network of shallow piezometers in the lakebed with depths of 4, 10 and 30 ft. This monitoring activity has recently been transferred to the LADWP. Groundwater level monitoring data indicate groundwater occurs at depths ranging from less than 2, to 15 feet below ground surface (ft bgs) (GBUAPCD, 2009). Shallow groundwater generally flows toward the brine pool, where it becomes an evaporative sink. A deeper aquifer system consists of up to five permeable zones (aquifers) at depths ranging from 65 to more than 1,500 ft bgs (MWH, 2011b). Monitoring data suggest that the water levels in these deep aquifers range from over 100 feet around the margins of the lake to a pressure of more than 60 ft above ground surface on the lakebed (MWH, 2011b).

On August 4, 2009, the LADWP Board of Water and Power Commissioners, which manages all water resources and facilities for the City of Los Angeles, passed a resolution requiring LADWP to implement water conservation measures on Owens Lake to reduce LAA diversions for existing and future Owens Lake dust control projects to below 95,000 afy. The 2010 Urban Water Management Plan does not allocate any further water for Owens Lake mitigation. Thus, any additional water needed for dust control on Owens Lake above and beyond the allocated 95,000 afy needs to be offset from some other source besides the LAA. The 2011 SCRD project would transition existing dust control in T18S from Shallow Flood to a mix of Gravel Cover and Shallow Flood in order to make available some or all of the necessary water supply for new dust controls in other areas. The impact on water supplies will be discussed in the EIR.

a) and f) **Less than Significant Impact.** Beneficial uses and water quality objectives are specified in the Water Quality Control Plan for the Lahontan Region (Basin Plan) prepared by the Lahontan Regional Water Quality Control Board (Regional Board, 2005). Relevant to

the project site, beneficial uses are designated for Owens Lake and Owens Lake wetlands (**Table 3**).

**Table 3**
**Beneficial Uses of Owens Lake**
**(Regional Board, 2005)**

| Surface water | MUN | ARG | GWR | REC-1 | REC-2 | COMM | WARM | COLD | SAL | WILD | WQE | FLD |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Owens Lake | | | | X | X | X | X | X | X | X | | |
| Owens Lake Wetlands | X | X | X | X | X | | X | X | | X | X | X |

MUN – municipal and domestic supply; AGR – agricultural supply; GWR – groundwater recharge, REC-1 – water contact recreation; REC-2 – noncontact water recreation; COMM – commercial and sportfishing; WARM – warm freshwater habitat; COLD – cold freshwater habitat, SAL – inland saline water habitat; WILD – wildlife habitat, WQE – water quality enhancement; FLD - flood peak attenuation/flood water storage.
Source: Regional Board, 2005.

Waterbody-specific numeric objectives for the protection of these beneficial uses are not defined in the Basin Plan for Owens Lake. However, narrative and numeric water quality standards applicable to all surface waters (including wetlands) in the region are specified for: ammonia, coliform bacteria, biostimulatory substances, chemical constituents, total residual chlorine, color, dissolved oxygen, floating materials, oil and grease, non-degradation of aquatic communities and populations, pesticides, pH, radioactivity, sediment, settleable materials, suspended materials, taste and odor, temperature, toxicity, and turbidity.

Water associated with operation of the proposed project would be from the LAA or Lower Owens River. The quality of these sources would not violate applicable narrative or numeric water quality standards. The existing DCAs are operated under Board Order No. R6V-2006-0036, Revised Waste Discharge Requirements (WDRs) for the Southern Zones dust control project. Monitoring is conducted and reported semi-annually; the existing dust control project is in compliance with the adopted WDRs. The Regional Board has determined that implementation of the Phase 7a project does not warrant a revision or amendment to the existing WDR (J. Zimmerman, P.G., Regional Board, pers. comm., 2011). It is therefore assumed that implementation and operation of the 2011 SCRD and 2012 SCRD projects would be done in conformance with the existing permit.

**Water Quality Impacts During Construction**. During project construction, disturbance to surface soils would result from land leveling, raised roadway construction, irrigation system installation, and preparation of gravel stockpile locations. Because site disturbance would exceed 1 acre during construction, stormwater would be managed in accordance with BMPs identified in a SWPPP completed in compliance with the NPDES General Permit for Storm Water. As summarized in **Table 4**, the specific BMPs to be implemented are anticipated to be similar to those used during construction of the Phase 7 dust control measures.

With implementation of the required SWPPP, potential increases of sediment load in stormwater would not adversely affect surface water. Therefore, the impact on water quality during project construction would be less than significant.

**Table 4**
**Summary of Anticipated Construction Stormwater BMPs**

| Best Management Practices for the Protection of Stormwater Quality During Construction |
|---|
| Housekeeping Measures<br>• Conduct an inventory of products used or expected to be used<br>• Cover and/or berm loose stockpiled construction materials<br>• Store chemicals in watertight containers |
| Employee Training<br>• Brief staff on the importance of preventing stormwater pollution<br>• Have staff review SWPPP<br>• Conduct refresher training during the wet season<br>• Document training |
| Erosion and Sediment Controls<br>• Provide effective cover for inactive areas – cover, berm, or direct runoff to suitable basins<br>• Establish and maintain effective perimeter control<br>• Stabilize construction entrances and exits to control sediment – inspect ingress and egress points daily, and maintain as necessary<br>• Control dust during earthwork<br>• Place sandbags or other barriers to direct stormwater flow to suitable basins |
| Spill Prevention and Control<br>• Inspect construction equipment for leaking<br>• Use drip pans until equipment can be repaired<br>• Cleanup spills Immediately – remove adsorbent promptly<br>• Notify the proper entities in the event of a spill |
| Concrete Truck Washing Waste<br>• Provide containment for capture of wash water<br>• Maintain containment area |
| Hazardous Waters Management and Disposal<br>• Store hazardous wastes in covered, labeled containers with secondary containment for liquid hazardous wastes<br>• Store wastes separately to promote recycling and to prevent undesirable chemical reactions |
| Materials Handling and Storage<br>• Establish a designated area for hazardous materials<br>• Berm, cover, and/or contain the storage area as necessary to prevent materials from leaking or spilling<br>• Store the minimum volume of hazardous materials necessary for the work |
| Vehicle and Equipment Maintenance, Repair, and Storage<br>• Inspect vehicles and equipment regularly<br>• Conduct maintenance as necessary<br>• Designate areas for storage – where fluids can be captured and disposed of properly |

| Best Management Practices for the Protection of Stormwater Quality During Construction |
|---|
| Scheduling<br>• Avoid work during storm events<br>• Stabilize work areas prior to predicted storm events |

**Water Quality Impacts from Chemical Use**. Construction of the proposed project would require the routine transport, use, and storage of limited quantities of gasoline and diesel fuel, and potentially degreasers and solvents for construction vehicle maintenance. The existing LADWP Sulfate Facility is located off Sulfate Road west of SR 136 on the east side of the lake. This facility includes a vehicle wash station, refueling station, and fuel tanks as well as areas for vehicle maintenance. Additionally, the two vehicle and equipment staging areas previously used (for Phases 7 and 8) would be used for the 2011 SCRD and 2012 SCRD projects. These previously-disturbed sites are located near the intersection of Main Line Road and Corridor 1 at the north end of the lake (20 acre site) and at the southern end of the lake adjacent to Dirty Socks Access Road (2.7 acre site). In addition to office trailers and equipment and vehicle storage, these areas would have fueling stations for gas and diesel. Fuel trucks would be used to refuel construction equipment (including the low ground pressure gravel trucks) and the long haul gravel trucks; no vehicle fuels or oils would be stored in the gravel stockpile areas. Additional permanent fertilizer storage for the proposed Managed Vegetation areas is not proposed under the 2011 SCRD and 2012 SCRD projects. Concrete pads (with containment) may be constructed in Duck Pond-L1 and/or C2-L1 for use by portable fertilizer delivery tanks. Periodic fertilizer delivery would be by flatbed or pickup truck. Other chemical use is not anticipated.

During construction, implementation of the BMPs related to handling of hazardous materials would be implemented to limit the potential for accidental release of fuels and degreasers or solvents to stormwater. During operation of the 2011 SCRD and 2012 SCRD projects, LADWP would employ standard operating procedures (SOPs) for the routine transport, use, storage, handling, and disposal of hazardous materials related to operation of the DCMs. These SOPs include:

- Routine inspection and maintenance of fertilizer storage facilities and secondary containment
- Specification of how fuel and fertilizer are transported within the lakebed
- Designation of acceptable refueling locations; designation of equipment parking, storage, and maintenance areas at Keeler Yard; routine inspection and maintenance of vehicles and equipment
- Adherence to the Keeler Yard Spill Prevention and Response Plan
- Employee training

LADWP also prepares an annual update on the transport, use, storage, handling, and disposal of hazardous materials. Therefore, with adherence to the SOPs for hazardous materials use,

impacts related to release or accidental exposure to humans or the environment, including impacts on water quality, would be less than significant.

**Water Quality Impacts from Geotextile Use.** The geotextile proposed for use under Gravel Cover and roadway areas would be permeable to allow draining. Nonwoven geotextiles are pervious sheets of polyester or polypropylene composed of fibers held together by needle punching, spun bonding, thermal bonding or resin bonding. The geotextile is chemically inert and generally not affected by acids and alkalis that may be present in the soils. The geotextile fabric to be used for the 2011 SCRD and 2012 SCRD projects would be non-hazardous as defined by the Federal Hazard Communication Standard CFR 1910.1299. Because the geotextile would be permeable, chemically inert and non-hazardous, it would not contribute contaminants to stormwater or underlying soils. The impact on water quality and soils from use of the geotextile would therefore be less than significant.

**Water Quality Impacts from Gravel Use.** Gravel sources were previously evaluated as part of GBUAPCD's Final EIR for the Owens Valley $PM_{10}$ Planning Area Demonstration of Attainment State Implementation Plan (July 1997). The composition and structure of the rock from each gravel source (which included the Keeler Fan and the Dolomite site) were considered to be such that the gravel produced would not deteriorate during the life of the project. Leachate from the gravel was not predicted by GBUAPCD to significantly increase the concentration of metals in the brine pool. Because leachate from the gravel would not significantly increase the toxicity of the brine pool and discharges associated with the project would continue to be in compliance with applicable WDRs, impacts related to water quality would be less than significant.

b) **Less than Significant Impact.** Construction of the project, and maintenance activities including gravel replenishment, would require the use of water trucks to control fugitive dust. Water trucks would be filled from existing J stands off the Main Line pipeline; the water source is the LAA and therefore originally Owens Valley surface or groundwater. Otherwise, construction and operation of the 2011 SCRD and 2012 SCRD DCMs would not require the use of groundwater. Since the geotextile to be used for the Gravel Cover areas is permeable, the project would not substantially alter groundwater recharge at the site.

Construction of new areas of Shallow Flood may result in localized changes to shallow groundwater flow patterns. As part of the Owens Lake Groundwater Evaluation Project (OLGEP), MWH conducted an analysis of the effects of DCMs on the hydrologic regime of the Owens Lake (MWH, 2011b). MWH reviewed historical groundwater level data from GPUAPCD shallow piezometers and other deeper monitoring wells before and after implementation of DCMs. A review of hydrographs suggests that DCMs influence groundwater levels only immediately adjacent to the DCMs, and only in the very shallow piezometers on the lakebed. Comparison of water levels in shallow and deep monitoring wells generally indicates a consistent upward groundwater gradient, which implies that groundwater is flowing toward the ground surface, where it is ultimately consumed by evaporation.

The effect of DCMs on groundwater appears to be limited to thin sand layers on the surface of the lake, because DCMs have no apparent effect on deeper aquifer zones. The presence of strong upward vertical gradients and relatively impermeable lakebed clays prohibits water from DCMs migrating downward into deeper aquifers. A review of groundwater level measurements before and after construction of DCMs suggests that water from DCMs is not affecting flow directions or the amount of groundwater in storage in deeper aquifers. This is consistent with the fact that the DCMs are underlain by a large thickness of relatively impermeable clays which effectively isolate them from the deeper groundwater system (MWH, 2011b). For these reasons, impacts on groundwater would be less than significant.

c), d), and e) **Less than Significant Impact.** Construction of new DCMs would result in localized changes to drainage patterns in the vicinity of the 2011 SCRD and 2012 SCRD DCAs. Construction of the raised berms / access roadways around the DCAs would alter the existing stormwater drainage pattern in the immediate area of each affected DCA. Berm heights would vary from 3 to 5 ft or less above existing ground surface. Stormwater intercepted by the roadways would be routed toward existing channels through culverts to minimize changes to downstream flow patterns. Similar to existing DCM design, stormwater would continue to flow around the containing berms toward the brine pool. Experience with this design has shown that modifications in the drainage pattern resulting from the project would not result in substantial erosion or siltation, flooding, or add a substantial source of polluted runoff. Because the drainage pattern from the project sites flows in the same direction as existing conditions and eventually to the brine pool, the impact on drainage pattern and stormwater drainage would be less than significant.

g) and i) **No Impact.** A 100-year floodplain has been delineated on the Owens River and most of Owens Lake below the shoreline (Federal Emergency Management Agency [FEMA], 1986). Therefore, most of the 2011 SCRD and 2012 SCRD DCAs are located within the mapped 100-year floodplain. However, no habitable structures are proposed as part of the project. The redirection of flood flows would not risk habitable structures since none are present on the lake. No levees or dams are present on the project sites and no off-site levees or dams would be modified as part of project implementation. The project would have no impact on housing or structures in a 100-year flood hazard area.

h) **Less than Significant Impact**. Raised roadways would protect the 2011 SCRD and 2012 SCRD DCAs from inundation and washout and, as under existing conditions, stormwater would flow towards the brine pool. New raised roadways would be constructed around new DCAs. Since flows would continue, as under existing conditions, to flow to the brine pool, the impacts on redirection of flood flows would be less than significant.

j) **Less than Significant Impact.** Due to the distance to the ocean, tsunami is not relevant for the proposed project. Depending on volume conditions, localized seiche of the brine pool is possible but would not expose people or structures to loss, injury or death. Due to the low relief of the Owens Lake area, mudflows are not likely, and would not impact habitable structures since none are present. Since earthquake-induced damage to irrigation lines, drainlines, turnouts, roadways, geotextile membranes or gravel layers could be readily repaired by re-installing of the facilities, the impact is less than significant.

## 2.3.10 Land Use and Planning

| Issues and Supporting Information Sources | Potentially Significant Impact | Less Than Significant With Mitigation Incorporated | Less Than Significant Impact | No Impact |
|---|---|---|---|---|
| Would the project: | | | | |
| a) Physically divide an established community? | ☐ | ☐ | ☐ | ☒ |
| b) Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect? | ☒ | ☐ | ☐ | ☐ |
| c) Conflict with any applicable habitat conservation plan or natural community conservation plan? | ☐ | ☐ | ☒ | ☐ |

**Discussion:** The majority of the 2011 SCRD and 2012 SCRD DCAs are located on CSLC-administered lands within Inyo County. The Inyo County General Plan designates the land use of the project area as SFL (State and Federal Lands). The zoning overlay is OS-40 (Open Space, 40-acre lot minimum) (Inyo County, 2011). The closest communities to the project areas are located outside the Owens lakebed (**Table 1**). No permanent habitable structures are located on or immediately adjacent to the project site, and none are planned as part of the proposed project.

As a condition of its lease with CSLC, LADWP allows public access to Owens Lake and members of the public are able to birdwatch, hike, hunt, and utilize the roads constructed by LADWP to access areas of the lakebed that would be inaccessible without them (LADWP, 2010b).

a) **No Impact.** The proposed project is located in an area zoned for open space and with a General Plan designation of SFL (Inyo County, 2011). The Inyo County Land Use and Conservation/Open Space elements designate the lake as NR – Natural Resources (Diagram 1) (Inyo County, 2002). The closest communities to the project areas are located outside the Owens lakebed (**Table 1**). No habitable structures are located on or immediately adjacent to the project site, and none are planned as part of the proposed project. Therefore, there would be no project-related impacts on established communities.

b) **Potentially Significant Impact.** The majority of the project sites are located on CSLC-administered lands within Inyo County. Portions of the Duck Pond area and T32-1-L1 are located on land owned and administered by the BLM. Portions of the Duck Pond area, C2-L1 and T32-1-L1 are under private ownership. Use of the project areas for dust control is considered relevant to CSLC, Inyo County, and BLM planning.

**California State Lands Commission**. The majority of the project area is located on land owned and operated in trust for the people of the State of California by the CSLC. Public Resources Code sections 6301 and 6216 authorize CSLC authority and responsibility as trustee of the State's Public Trust lands. A lease from CSLC would be required in order to

install DCMs on the 2011 SCRD and 2012 SCRD DCAs. In granting the lease, CSLC would consider the Public Trust Doctrine. The consistency of the project with CSLC land use policies, including the Public Trust Doctrine, will be described in the EIR.

**Inyo County General Plan.** The Land Use Element of the Inyo County General Plan (2001) includes Policy LU-5.6 State and Federal Lands Designation. This designation applies to those State- and Federally-owned parks, forests, recreation, and/or management areas that have adopted management plans. The Conservation/Open Space Element of the Inyo County General Plan (2001) includes Policy REC-1.2 Recreational Opportunities on Federal, State, and LADWP Lands: Encourage the continued management of existing recreational areas and open space, and appropriate expansion of new recreational opportunities on federal, state, and LADWP lands.

**Bureau of Land Management**. Some of the project areas (portions of the Duck Pond area and T32-1-L1) are located on land owned and administered by the BLM. A right-of-way agreement with BLM would be required in order to install DCMs on the federal portion of these parcels. BLM review would include consultation with the State Historic Preservation Officer under Section 106 of the National Historic Preservation Act and consultation with the U.S. Fish and Wildlife Service for potential impacts to federally listed plant and wildlife species.

c) **Less than Significant Impact.** Please see Section 2.3.4 Biological Resources, item f.

## 2.3.11 Mineral Resources

| Issues and Supporting Information Sources | Potentially Significant Impact | Less Than Significant With Mitigation Incorporated | Less Than Significant Impact | No Impact |
|---|---|---|---|---|
| Would the project: | | | | |
| a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state? | ☐ | ☐ | ☒ | ☐ |
| b) Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan? | ☐ | ☐ | ☒ | ☐ |

**Discussion:** Mineral resources are defined as naturally occurring materials in the earth that can be utilized for commercial purposes (Inyo County, 2001). The Owens Lake Planning Area contains known mineral resources of statewide or regional importance. U.S. Borax (parent company Rio Tinto Mining) mines evaporite minerals from approximately 16,000 acres of leased land on the west side of the lake. Minerals mined include trona (hydrated sodium bicarbonate carbonate), burkeite (silicate) and halite (sodium chloride). Because minerals are mined from the surface, the facility is sensitive to surface water changes on the lake.

Other important mineral resources surrounding the Owens Lake area include gravel deposits associated with alluvial fans and sand deposits associated with the Owens River and local dunes.

Inyo County is the Lead Agency for the processing of surfacing mining reclamation plan applications on private lands; Inyo County's Road Department, City of Los Angeles, and California Department of Transportation borrow pits; and surface mining on federally administered lands. All surface mining operations that disturb greater than 1 acre or move more than 1,000 cubic yards are required to have an approved reclamation plan before the start of mining activity. Reclamation plans are required by the Surface Mining and Reclamation Act (SMARA) to assure that:

- Adverse environmental effects are prevented or minimized and mined lands are reclaimed to a useable condition readily adaptable for alternate land uses.
- Production and conservation of minerals are encouraged, while considering recreation, watershed, wildlife, aesthetic, range and forage values.
- Residual hazards to public health and safety are eliminated.

LADWP's shale pit has an approved Reclamation Plan on file with the County and reviewed by BLM (2005-03/LADWP).

a) and b) **Less Than Significant Impact.** The U.S. Borax lease on Owens Lake occupies the central portion of the lake, extending to the west. None of the 2011 SCRD DCAs overlap or are immediately adjacent to the lease, or to active mining operations. Active mining operations are located immediately northwest of 2012 SCRD DCA T10-3-L1.

Implementation of dust control at T10-3-L1 will make approximately 149 acres of the approximately 16,000-acre lease unavailable for mining operations. Since this represents less than 1 percent of the total lease area and since active mining operations are not located within T10-3-L1, the impact on the U.S. Borax lease area would be less than significant. Prior to construction of the 2012 SCRD project, LADWP would obtain a lease from the CSLC for use of state lands. As part of this process, CSLC will transfer portions of the mineral lease area to dust control area. An amendment to the U.S. Borax lease will delete the approved DCA from the mineral lease legal description. Construction in this DCA would be coordinated with U.S. Borax.

Additionally, implementation of a Brine method DCM could include extraction of salts from the U.S. Borax lease. Since project activities for this DCM would be done in collaboration with U.S. Borax, the impact on active mining operations on Owens Lake would be less than significant.

Implementation of the project includes use of local mineral resources. Approximately 995,000 tons of gravel would be applied to new DCAs. Gravel would likely be obtained from local gravel production operations such as the LADWP shale pit and the F.W. Aggregate Dolomite mine (**Figure 3**). Ample aggregate is available from these sources for the project. Three subareas of the Dolomite mine (Durability, North Pole, and Translucent) total approximately 480 acres and are able to produce up to 50 million tons (T. Lopez, pers. comm., June 25, 2010). The LADWP shale pit (State Mine ID Number 91-14-0130) is currently permitted for 40 acres of development (approximately 200,000 – 400,000 tons of shale), with potential for expansion. The proposed project would include the use of locally-important mineral resources, but would not result in a substantial loss of availability of the resource. Since mineral resources would still be available, impacts on mining operations adjacent to Owens Lake would be less than significant.

## 2.3.12 Noise

| Issues and Supporting Information Sources | Potentially Significant Impact | Less Than Significant With Mitigation Incorporated | Less Than Significant Impact | No Impact |
|---|---|---|---|---|
| Would the project result in: | | | | |
| a) Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies? | ☐ | ☐ | ☒ | ☐ |
| b) Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels? | ☐ | ☐ | ☒ | ☐ |
| c) A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project? | ☐ | ☐ | ☒ | ☐ |
| d) A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project? | ☐ | ☐ | ☒ | ☐ |
| e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels? | ☐ | ☐ | ☐ | ☒ |
| f) For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels? | ☐ | ☐ | ☐ | ☒ |

**Discussion:** Owens Lake is located in a remote area of the upper Mojave Desert where the main sources of noise are the mining operations on the lakebed, construction and maintenance activities related to the DCMs, and roadway noise along U.S. 395, SR 190, and SR 136. Sensitive noise receptors in the Owens Lake area include residents in the communities of Boulder Creek, Lone Pine, Dolomite, Keeler, Olancha and Cartago.

Per the Public Safety Element of the Inyo County General Plan (2001), the normally acceptable noise level for residential properties ranges up to 60 Ldn and conditionally acceptable noise level ranges up to 70 Ldn. The term "Ldn" refers to the average sound exposure over a 24-hour period. Ldn values are calculated from hourly Leq values, with the Leq values for the nighttime period (10:00 p.m. to 7:00 a.m.) increased by 10 dB to reflect their greater disturbance potential.

a) and d) **Less Than Significant Impact.** The closest noise receptor to the project areas are in Cartago, over 1,200 feet northwest of C2-L1, in Dolomite, 0.7 miles northeast of T32-1-L1 and in Boulder Creek, approximately 1.5 miles northwest of T37-1-L1. Along the gravel haul route from the mines, aside from LADWP's Sulfate Facility, the closest noise receptors would be the residents approximately 0.7 miles from the Dolomite Quarry haul route, and approximately 0.8 miles from the LADWP Shale pit haul route. The closest school is in Lone Pine, over 4 miles north of Owens Lake.

During construction of the 2011 SCRD and 2012 SCRD projects, noise would be generated from dozers, flatbed trucks, water trucks, and dump trucks at the DCAs and along the gravel truck haul routes. Noise would be noticeable to on-lake workers and potentially persons visiting the lake for recreation. The minimum distance of 1,000 feet between residents and the project areas is generally considered sufficient distance to reduce noise generated from construction activities. For example, construction equipment emitting 90 dBA at 50 feet would attenuate to 64 dBA at 1,000 feet (Canter, 1977). Additionally, construction activity would not occur during 10:00 p.m. to 6:00 a.m. when there is greater potential for noise disturbance to residences. Therefore, given the distance from the project site and the haul routes to sensitive residential receptors, the project would not cause noise levels to exceed established thresholds and noise impacts would be less than significant.

Potential noise impacts on biological resources related to project construction and operation will be described in the EIR.

b) **Less Than Significant Impact.** Equipment used for project construction may create minor groundborne vibration or groundborne noise. Since the closest buildings are over 1,000 feet away, impacts related to temporary groundborne vibration or noise would be less than significant.

c) **Less Than Significant Impact**. Noise generated during project operation would include equipment noise related to periodic maintenance activities necessary for proper operation of pumps, pipelines, roadways, and other infrastructure as well as for replenishment of gravel. As maintenance operations are on-going at the lake, operations-related noise would be similar to existing conditions. Since fewer trucks would be required, the noise impact would be less than that for project construction. Due to the distance to the nearest receptors, noise impacts from project operation would be less than significant.

e) and f) **No Impact.** Seven public access airports and six private airstrips are located throughout Inyo County (Inyo County, 2001). The Lone Pine Airport is the closest public access airport to the project site; it is located approximately 3.6 miles north of the lakebed. Therefore, the project is not located sufficiently near either a private airstrip or public airport to expose people residing or working in the area to experience excessive noise levels. There would be no project-related impacts on noise near an airport/airstrip.

## 2.3.13 Population and Housing

| Issues and Supporting Information Sources | Potentially Significant Impact | Less Than Significant With Mitigation Incorporated | Less Than Significant Impact | No Impact |
|---|---|---|---|---|
| Would the project: | | | | |
| a) Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)? | ☐ | ☐ | ☒ | ☐ |
| b) Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere? | ☐ | ☐ | ☐ | ☒ |
| c) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere? | ☐ | ☐ | ☐ | ☒ |

**Discussion**:

a) **Less Than Significant Impact.** Since the project does not include construction of homes or businesses, it would not directly impact population growth in the Owens Lake area. However, construction of the project would require workers to be in the area from 2015 to 2021. These workers may be LADWP staff or a mix of LADWP staff and contractors. Additional workers would be required after the initial construction to develop and maintain areas of Managed Vegetation. The number of workers over the construction period would have a less than significant impact on population growth.

b) and c) **No Impact.** No habitable structures are located on or immediately adjacent to the project areas, and none are planned as part of the proposed project. Therefore, there would be no impacts on housing from implementation of the 2011 SCRD and 2012 SCRD projects.

## 2.3.14 Public Services

| Issues and Supporting Information Sources | Potentially Significant Impact | Less Than Significant With Mitigation Incorporated | Less Than Significant Impact | No Impact |
|---|---|---|---|---|
| a) Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services: | | | | |
| i) Fire protection? | ☐ | ☐ | ☒ | ☐ |
| ii) Police protection? | ☐ | ☐ | ☐ | ☒ |
| iii) Schools? | ☐ | ☐ | ☐ | ☒ |
| iv) Parks? | ☐ | ☐ | ☐ | ☒ |
| v) Other public facilities? | ☐ | ☐ | ☐ | ☒ |

**Discussion:**

a)-i **Less Than Significant Impact**. The project area has only limited areas of vegetation and therefore limited fuel for fires; habitable structures do not exist and none are proposed for the project site. The new areas of Gravel Cover would not alter the existing low risk of fire and areas of Shallow Flooding would reduce the risk. Managed Vegetation areas would be irrigated. Therefore, the project would have a less than significant impact related to provision of fire suppression services.

a)-ii – v) **No Impact.** Habitable structures are not present on the project site and none are proposed as part of the project. The limited number of construction workers required to implement the project would not generate substantial population growth or create the need for new or expanded public services. Therefore, there would be no project-related impacts on police protection, schools, parks, or other public facilities.

## 2.3.15 Recreation

| | Issues and Supporting Information Sources | Potentially Significant Impact | Less Than Significant With Mitigation Incorporated | Less Than Significant Impact | No Impact |
|---|---|---|---|---|---|
| a) | Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated? | ☐ | ☐ | ☐ | ☒ |
| b) | Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment? | ☐ | ☐ | ☒ | ☐ |

**Discussion:**

a) **No Impact.** Habitable structures are not present on the project site and none are proposed as part of the project. The number of construction workers required to implement the project would not generate substantial population growth or create the need for new or expanded parks. Therefore, the project would have no impact on neighborhood or regional parks or other recreation facilities.

b) **Less Than Significant Impact.** The project would not generate population growth that would require the construction or expansion of recreational facilities. Limited public access opportunities (e.g., boardwalks, trails, access berms and visitor overlooks) may be included as part of the project. As available, additional information on these amenities will be presented in the EIR. Incorporation of these public access elements would enhance the recreational amenities of Owens Lake.

The Owens lakebed is openly accessible to the public for recreation. However, during construction and maintenance of the 2011 SCRD and 2012 SCRD projects, access may be temporarily limited if determined by LADWP to be necessary for public and/or worker safety. If approved by CSLC, signs may be posted indicating restricted construction or maintenance areas. After construction is complete, public access would be increased (expansion of on-lake roadway system) and recreational opportunities would be enhanced. Therefore, impacts on recreation during project construction and maintenance would be less than significant.

## 2.3.16 Transportation and Traffic

| Issues and Supporting Information Sources | Potentially Significant Impact | Less Than Significant With Mitigation Incorporated | Less Than Significant Impact | No Impact |
|---|---|---|---|---|
| Would the project: | | | | |
| a) Conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit? | ☐ | ☐ | ☒ | ☐ |
| b) Conflict with an applicable congestion management program, including but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways? | ☐ | ☐ | ☒ | ☐ |
| c) Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks? | ☐ | ☐ | ☐ | ☒ |
| d) Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)? | ☐ | ☒ | ☐ | ☐ |
| e) Result in inadequate emergency access? | ☐ | ☐ | ☒ | ☐ |
| f) Conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities? | ☐ | ☐ | ☐ | ☒ |

**Discussion:** Major roadways around Owens Lake include U.S. 395, SR 136, and SR 190. Roads located on the lakebed relevant to the project include Sulfate Road, T-30 Road, and Main Line Road.

**U.S. 395** – U.S. 395 is the main north-south transportation route through Inyo County and the Owens Valley. The majority of U.S. 395 adjacent to the lake is a four-lane divided highway.

**SR 136** – SR 136 is a two-lane northwest/southeast highway connecting U.S. 395 to the north and SR 190 to the south. SR 136 has 12-foot-wide lanes with unimproved gravel shoulders in each direction in the vicinity of Owens Lake.

**SR 190** – SR 190 is a two-lane southwest/northeast highway connecting U.S. 395 to the west and SR 136 to the east. SR 190 has 12-foot-wide lanes with unimproved gravel shoulders in each direction in the vicinity of Owens Lake.

Additionally, as part of implementation of the DCMs, an internal network of roadways has been constructed on Owens Lake. The Main Line Road roughly bisects existing dust control areas in the south and along the east side of the lake; the roadway crosses the Owens River in the north. From the LADWP Shale Pit, gravel trucks would cross SR 136 and connect to Sulfate Road, or travel north on SR 136 to the T-30 Road, or travel to the south on SR 136 and SR 190 to the southern DCAs. From the Dolomite mine, gravel trucks would cross SR 136 and connect to the T-30 Road, or travel to the south on SR 136 and SR 190. From SR 190, trucks would access the lake from the Dirty Socks Access Road to the southern vehicle and equipment staging area.

a) and b) **Less Than Significant Impact.** Level of Service (LOS) is a qualitative measure describing operational conditions within traffic stream, or their perception by motorists and/or passengers which is calculated based on a number of design and operating criteria, such as lane width, roadside obstacles, trucks and busses, curvature, grades, etc. (Transportation Research Board, 2000). LOS A reflects free-flow conditions; at LOS E a road is operating at capacity and is congested. Typically, LOS C or LOS D represents acceptable flow conditions. The highway capacity as determined by the Highway Capacity Manual 2000 for a two-lane highway is 1,600 passenger cars per hour (pc/h) for each direction of travel; the capacity of a two lane-highway is 3,200 pc/h for both directions of travel combined. Based on 2011 traffic counts reported by Caltrans, U.S. 395, SR 136, and SR 190 all operate well below capacity at LOS A (Caltrans, 2011).

Construction would increase traffic on these roadways for the transport of gravel, delivery of seed and plant material, delivery of pipelines and other infrastructure, and related to the movement of construction equipment and personnel during the construction period. Construction equipment would be mobilized to the staging areas and then would remain on the lake; plant material and infrastructure deliveries would be limited. Therefore, the primary impact on local roadways would be for gravel transport.

During mobilization for the project, vehicles required for construction (dozers, flatbed trucks, water trucks) may be transported to the site via U.S. 395, SR 136, and/or SR 190. It is anticipated that vehicles would be transported to the site once, remain on-site for the construction period, and then be demobilized. Based on the limited number of vehicles to be mobilized and the existing excellent LOS on these roadways, project-related impacts on U.S. 395 would be temporary and less than significant.

However, project-related traffic would travel on SR 190 and SR 136 throughout the Gravel Cover construction period. In 2011, average annual daily traffic (AADT - total traffic volume for the year divided by 365 days) for SR 136 ranged between 540 vehicles at the junction of U.S. 395 and approximately 430 vehicles at the junction with SR 190, well below the 1,600 pc/hr capacity for each direction of travel. The SR 136 truck AADTs were 13 (at the junction with U.S. 395) and 11 (at the junction with SR 190). The AADT on SR 190 at SR 136 was 520 vehicles in 2011, with truck AADTs of 53 (Caltrans, 2011).

Gravel haul trips would be on-going for the 1.5 to 2 year period. Approximately 100 daily round trips would be required to haul gravel from the mines on the east side of the lake to the stockpile locations. At approximately 200 one-way trips per day and a 10 hour work day, approximately one truck would cross SR 136 every 3 minutes. Gravel trucks would add to the average daily traffic volumes on SR 136 and SR 190 and would cross SR 136

approximately 200 times per day. The peak hour traffic volume on SR 136 (at SR 190) was 90 vehicles in 2012; the peak hour volume on SR 190 (at SR 136) was 110 vehicles in 2012 (Caltrans, 2012). Since SR 136 and SR 190 operate well below capacity and at LOS A, the addition of approximately 20 trucks on SR 136 or SR 190 per hour would not substantially degrade the level of service on these roadways and project-related impacts on traffic would be less than significant.

c) **No Impact.** The project areas are not located sufficiently near either a private airstrip or public airport, nor does the project contain features that would alter air traffic patterns. The Lone Pine Airport is located approximately 3.6 miles north of the lake. No impacts on air safety would occur.

d) **Less Than Significant Impact with Mitigation Incorporated.** The 2011 SCRD and 2012 SCRD projects do not include construction or modification of off-lake roadways. New internal roadways would be created surrounding new DCAs. The expansion of the on-lake roadway system would not create new roadway hazards for the public.

However, construction of the project is estimated to require approximately 200 truck crossings of SR 136 per day during installation of Gravel Cover. Since these crossings are not signalized and would be on-going for approximately 1.5 to 2 years, impacts related to traffic hazards are potentially significant. Additionally, degradation of the road surface on SR 136 at these crossing could result from traffic related to construction. With implementation of mitigation measures Trans-1 and Trans-2 (Traffic Work Safety Plan and repair of roadway damage at the SR 136 crossings), impacts would be reduced to a less than significant level.

e) **Less Than Significant Impact.** Owens Lake is currently accessible to emergency vehicles via SR 136/Sulfate Road, SR 190/Dirty Socks access road, and U.S. 395/North and South Main Line access roads. Construction of the proposed project would increase the volume of trucks travelling on these roadways but would not alter the access points. The impact of the addition of approximately 20 truck trips per hour would be less than significant on emergency access.

f) **No Impact.** The project does not include housing, employment, or roadway improvements relevant to alternative transportation measures. Therefore, there would be no project-related impacts on alternative transportation.

**Mitigation Measures to Reduce Impacts on Transportation and Traffic**

**Trans-1.** LADWP shall develop and implement a Traffic Work Safety Plan to be approved by Caltrans for the construction phase of the 2011 SCRD and 2012 SCRD projects. The Plan shall address the use of warning lights, signs, traffic cones, signals, flag persons and/or comparable measures as needed to maintain safe travel of haul trucks on SR 136 and SR 190 during construction.

**Trans-2.** LADWP shall repair damage to SR 136 and SR 190 where project related truck traffic would travel on these roadways. Prior to the start of construction activity, existing conditions on SR 136 and SR 190 shall be documented. After construction is complete, physical damage documented on the portions of SR 136 and SR 190 used for construction of the 2011 SCRD and

2012 SCRD projects shall be repaired. In addition, LADWP shall have its contractor install corrugated steel plates to reduce the possibility of trucks tracking dirt onto the highways. Any debris tracked onto the highways shall be removed in a timely manner.

With implementation of the above mitigation measures, project-related impacts on transportation and traffic would be less than significant.

## 2.3.17 Utilities and Service Systems

| Issues and Supporting Information Sources | Potentially Significant Impact | Less Than Significant With Mitigation Incorporated | Less Than Significant Impact | No Impact |
|---|---|---|---|---|
| Would the project: | | | | |
| a) Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board? | ☐ | ☐ | ☒ | ☐ |
| b) Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects? | ☐ | ☐ | ☒ | ☐ |
| c) Require or result in the construction of new stormwater drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects? | ☐ | ☐ | ☒ | ☐ |
| d) Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed? | ☒ | ☐ | ☐ | ☐ |
| e) Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments? | ☐ | ☐ | ☒ | ☐ |
| f) Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs? | ☐ | ☐ | ☒ | ☐ |
| g) Comply with federal, state, and local statues and regulations related to solid waste? | ☐ | ☐ | ☒ | ☐ |

**Discussion:**

a), b) and e) **Less Than Significant Impact.** Habitable structures are not present on the project sites and none are proposed as part of the projects. The limited number of construction workers required to implement the dust control would not generate substantial population growth or create the need for new or expanded water or wastewater service facilities. Wastewater generated at portable toilets or pumped from the septic system at the Sulfate Facility is treated by the Lone Pine Community Services District in compliance with the requirements of the Lahontan Regional Water Quality Control Board. The impact on water and wastewater facilities is less than significant.

c) **Less Than Significant Impact.** The existing 2011 SCRD and 2012 SCRD areas do not have storm drain infrastructure or connect to any off-site storm drain facilities. The DCAs will be surrounded by raised roadways. Since stormflows will continue to drain in the direction of brine pool, as under existing conditions, impacts on stormwater facilities would be less than significant.

d) **Potentially Significant Impact.** As of April 2011, LADWP has installed and is operating 41.5 square miles of DCMs on Owens Lake playa which use water from, or that would have

been input to, the LAA. In 2010, LADWP prepared a water supply assessment for the Phase 8 project that determined that there is insufficient surplus water supply available for LADWP to continue to implement Shallow Flood as a DCM on Owens Lake (LADWP, 2010a). Since this determination is relevant to any additional water commitment in excess of 95,000 afy, it is also applicable to the 2011 SCRD and 2012 SCRD projects. Additionally, in January 2014 the Governor declared a drought state of emergency for California. Therefore, water use for new areas of Shallow Flood and Managed Vegetation would be offset by transition of an existing area of Shallow Flood (T18S) to be less water intensive. However, since the design of T18S is not complete, and since the design will in part be dependent on maintenance of habitat, the overall water use of the new dust projects is not known. Therefore, increased water commitments by the 2011 SCRD and 2012 SCRD projects are a potentially significant impact on water supplies that will be discussed in the EIR.

f) and g) **Less Than Significant Impact.** Installation of Shallow Flood, Managed Vegetation, Gravel Cover and potentially other dust control methods in the project areas would not generate substantial volumes of solid waste. The limited volumes of solid waste generated by construction workers would be disposed at a permitted landfill in compliance with applicable regulations. The Lone Pine Landfill serves the Owens Lake Planning Area and has a remaining site life of over approximately 50 years (GBUAPCD, 2008b). Therefore, impacts related to solid waste disposal would be less than significant.

### 2.3.18 Mandatory Findings of Significance

| | Issues and Supporting Information Sources | Potentially Significant Impact | Less Than Significant With Mitigation Incorporated | Less Than Significant Impact | No Impact |
|---|---|---|---|---|---|
| a) | Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal, or eliminate important examples of the major periods of California history or prehistory? | ☒ | ☐ | ☐ | ☐ |
| b) | Does the project have the potential to achieve short-term, to the disadvantage of long-term, environmental goals? | ☐ | ☐ | ☐ | ☒ |
| c) | Does the project have impacts that are individually limited, but cumulatively considerable ("cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, effects of other current projects, and the effects of probable future projects.)? | ☒ | ☐ | ☐ | ☐ |
| d) | Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly? | ☒ | ☐ | ☐ | ☐ |

**Discussion:**

a) **Potentially Significant Impact.** The impacts of the 2011 SCRD and 2012 SCRD projects on sensitive species and natural communities are currently being assessed. Impacts to biological resources will be described in the EIR.

Construction of new facilities would include earthwork in areas that have not been previously disturbed for construction of DCMs. Disturbance to cultural resources potentially present in project areas from construction activities is a potentially significant impact. The existing setting for cultural resources, results of record searches and pedestrian surveys, results of ongoing evaluations of known resources, and the significance of potential impacts to cultural resources will be described in the EIR.

b) **No Impact**. This goal of the project is to be part of the long-term solution for dust control on Owens Lake. There are no short-term goals related to the project that would be disadvantageous to this long-term goal.

c) **Potentially Significant Impact.** Cumulatively with other DCMs on the lake, the project would be beneficial for air quality. However, other cumulative impacts of the proposed project with other related projects will be described in the EIR. Based on LADWP's water supply assessment for the Phase 8 project, there may be insufficient surplus water available for LADWP to continue to implement Shallow Flood as a DCM on Owens Lake (LADWP, 2010a). Therefore, the proposed project and the related projects may have potentially significant cumulative water supply impacts.

d) **Potentially Significant Impact.** This goal of the project is to be part of the long-term solution for dust control on Owens Lake – a beneficial impact on human beings. Temporary impacts on air quality including emission of GHGs would occur during project construction. Therefore, environmental effects of the proposed project related to air pollutant emissions will be described in the EIR. The impact on water supplies related to the project will also be discussed in the EIR.

# Section 3
# References, Abbreviations and Report Preparation

## 3.1 REFERENCES AND BIBLIOGRAPHY


California Department of Conservation. 2006. Division of Land Resource Protection Farmland Mapping and Monitoring Program. Map of Important Farmland in California, 2006. Available: ftp://ftp.consrv.ca.gov/pub/dlrp/FMMP/pdf/statewide/2006/

-----. 2007. Historic Properties Directory. Sacramento, California.

-----. 2008. Williamson Act Program - Reports and Statistics. Available: http://www.conservation.ca.gov/dlrp/lca/stats_reports/Pages/index.aspx

California Department of Fish and Wildlife. 2013. Natural Diversity Data Base (CNDDB). Available: http://www.dfg.ca.gov/biogeodata/cnddb

California Department of Parks and Recreation (CA-DPR). 1976. California Inventory of Historic Resources. Sacramento, California.

California Department of Toxic Substances and Control (DTSC). 2009. Hazardous waste and substances sites (EnviroStor) database.
Available: http://www.dtsc.ca.gov/SiteCleanup/Cortese_List.cfm

California Department of Transportation (Caltrans). 2008. Eligible (E) and Officially Designated (OD) Scenic Highways.
Available: http://www.dot.ca.gov/hq/LandArch/scenic/cahisys4.htm

-----. 2011. 2011 Annual Average Daily Truck Traffic on the California State Highway System Compiled by Traffic and Vehicle Data Systems State of California Business, Transportation and Housing Agency Department of Transportation Prepared in cooperation with the U.S. Department of Transportation Federal Highway Administration. September, 2009.

-----. 2012. 2012 Traffic Volumes on California State Highways. Prepared in Cooperation with the U.S. Department of Transportation. Sacramento, California.

Cal EPA. 2009. Sites identified with waste constituents above hazardous waste levels outside the waste management unit. Available:
http://www.calepa.ca.gov/SiteCleanup/CorteseList/CurrentList.pdf

California Geological Survey. 2007. Fault-Rupture Hazard Zones in California. Special Publication 42. Alquist-Priolo Earthquake Fault Zoning Act with Index to Earthquake Fault Zones Maps. by W.A. Bryant and E.W. Hart.
Available: http://www.conservation.ca.gov/cgs/rghm/ap/Map_index/Pages/F4I.aspx

California State Constitution. Available: http://www.leginfo.ca.gov/.const/.article_10

California State Lands Commission. 2007. The Public Trust Doctrine and the Modern Waterfront. A Public Trust Synopsis. Available:
http://www.slc.ca.gov/Misc_Pages/Public_Trust/Public_Trust.pdf

California State Water Resources Control Board. 2009. Leaking Underground Storage Tank Sites Database (Geotracker).
Available: https://geotracker.waterboards.ca.gov/sites_by_county.asp

Canter, L.W. 1977. Environmental Impact Assessment. McGraw-Hill Series in Water Resources and Environmental Engineering.

Chow, J. and Ono, D. 1992. $PM_{10}$ Standards and Non-traditional Particulate Source Controls. Fugitive Emissions Control on Dry Copper Tailings with Crushed Rock Armor. Air & Waste Management Association, Pittsburgh, Pennsylvania.

Federal Emergency Management Agency (FEMA). 1986. Flood insurance rate map, Inyo County, California. Map Number 0600731275C and 0600731475C. Washington, DC.

Geological Society of America (GSA). 2009. Geological Rock-Color Chart. Produced by Munsell Color. Grand Rapids, Michigan.

Great Basin Unified Air Pollution Control District (GBUAPCD) and LADWP. 1998. Memorandum of Agreement Between the City of Los Angeles and the Great Basin Unified Air Pollution Control District.

-----. 2003. Owens Valley $PM_{10}$ Planning Area Demonstration of Attainment State Implementation Plan - 2003 Revision. Bishop, CA. November 13, 2003.

-----. 2008a. Final 2008 Owens Valley PM10 Planning Area Demonstration of Attainment State Implementation Plan (SIP).

-----. 2008b. Final Supplemental Environmental Impact Report for the 2008 Owens Valley PM10 Planning Area Demonstration of Attainment State Implementation Plan (SIP). Prepared by Sapphos Environmental, Pasadena, California.

-----. 2009. Owens Lake Shallow Hydrology Monitoring Data and Chemistry. 1992 – 2004.

-----. 2011. Owens Lake Dust Control Final 2011 Supplemental Control Requirements Determination. Air Pollution Control Officers Final 2006 through 2010 Determination

Requiring the City of Los Angeles to Implement, Operate and Maintain Air Pollution Control Measures on Additional Areas of the Owens Lake Bed. August 1, 2011. Available: http://www.gbuapcd.org/owenslake/2011SCR/2011_SCR_GBUAPCD_Final_110801_Binder1.pdf.

-----. 2012. Owens Lake Dust Control Final 2012 Supplemental Control Requirements Determination. November 16, 2012. Available: http://www.gbuapcd.org/owenslake/2012SCR/GBUAPCD_Final%202012%20SCRD_CoverLetter20121116.pdf.

-----. 2013. 2013 Amendment to the Owens Valley PM10 SIP. Board Order 130916-01. Available: http://gbuapcd.org/boardmeetings/2013/20130819/Agenda.pdf.

Historic Maps. Ballarat, CA 1908 60-minute topographic quadrangle; Ballarat, CA 1913 60-minute topographic quadrangle; Olancha, CA 1907, reprinted 1931 15-minute topographic quadrangle.

Hollett, K.J., W.R. Danskin, W.F. McCaffrey, and C.L. Walti. 1991. Geology and Water Resources of the Owens Valley, California. U.S. Geological Survey Water-Supply Paper 2370-B. U.S. Geological Survey, Denver, CO. 77 p.

Inyo County. 2001. Inyo County General Plan Goals and Policies Report. Available: http://www.inyoplanning.org/general_plan/goals.htm.

Inyo County. 2002. Inyo County Land Use Diagrams. Diagram 1 – County-wide. Available: http://www.inyoplanning.org/general_plan/landuse.htm.

-----. 2011. Inyo County Interactive Mapping (GIS). Available: http://inyoplanning.org

Lahontan Regional Water Quality Control Board (Lahontan Regional Board). 2005. Water Quality Control Plan for the Lahontan Region (Basin Plan). Amended through December 2005.

Lopes, T. 2010. Personal Communication with R. Strub, Los Angeles Department of Water and Power. June 25, 2010.

Los Angeles Department of Water and Power (LADWP). 2005. Urban Water Management Plan. Prepared by CDM, Carlsbad, CA.

-----. 2009a. Final Supplemental Environmental Impact Report Owens Lake Revised Moat and Row Dust Control Measures. Prepared by EDAW, Sacramento, California.

-----. 2009b. Owens Lake Dust Control Project 2009 Biological Compliance Monitoring Report. Prepared for GBUAPCD and CSLC. Bishop, CA.

-----. 2010a. Water Supply Assessment for the Owens Lake Dust Mitigation Program – Phase 8. In Preparation by Malcolm Pirnie, Inc. Los Angeles. July 2010.

-----. 2010b. Owens Lake Habitat Management Plan.

-----. 2010c. Owens Lake Phase 8 Dust Control Measures. Initial Study and Mitigation Negative Declaration. Prepared by MWH. July, 2010.

-----. 2013a. Remedial Action Plan for 2011 Supplemental Control Requirements Determination (Phase 9 Project). Submitted to Great Basin Unified Air Pollution Control District. January 14, 2013.

-----. 2013b. Owens Lake Phase 7a Dust Control Measures. Final Environmental Impact Report. Prepared by MWH. April 2013.

Matthews, R.A., and Burnett. 1965. Jenkins, Olaf .P. Edition of the Geologic Map of California Fresno Sheet. 1:250,000. California Division of Mines and Geology.

Miles, S. R. and C. B. Goudy. 1997. Ecological Subregions of California. USDA, Forest Service Pacific Southwest Region, San Francisco.

MWH. 2011a. Technical Memorandum – Preliminary Conceptual Model Task 401.1.2 – Owens Lake Groundwater Evaluation Project, prepared for LADWP, January 2011.

-----. 2011b. Technical Memorandum – Updated Conceptual Model Task 401.1.2 – Owens Lake Groundwater Evaluation Project, prepared for LADWP, August 2011 (DRAFT).

-----. 2012. Final Report on the Owens Lake Groundwater Evaluation Project. Prepared for LADWP. October 2012.

Neponset Geophysical Corporation (Neponset). 1999. Characterization of the Owens Lake Basin Hydrology System. Prepared for Great Basin Unified Air Pollution Control District. Inyo County, CA.

Neponset Geophysical Corporation (Neponset) and Aquila Geosciences, Inc. 1997. Final Report, Phase 3 and 4 Seismic Program. Prepared for Great Basin Unified Air Pollution Control District. Owens Lake, Inyo County, CA.

Stinson, M. C. 1977. Geologic Map and Sections of the Keeler 15-minute Quadrangle, Inyo County, California. 1:62,500. 15 Minute Series. State of California, The Resources Agency, Department of Conservation, California Division of Mines and Geology, Map Sheet 38.

Stone, P., G. C. Dunne, J. G. Moore, and G. I. Smith. 2000. Geologic Map of the Lone Pine 15' Quadrangle, Inyo County, California. 1:62,500. 15 Minute Series. USGS, Washington D.C.

Streitz, R., and M. C. Stinson. 1974. The Geologic Map of California, Death Valley Sheet. California Division of Mines and Geology. Scale 1:250,000.

Transportation Research Board. 2000. Highway Capacity Manual.

USDA. 2005. National Engineering Handbook. Part 642. Specifications for Construction Contracts. 201-VI-NEH.

Zimmerman, J., P.G. 2011. Personal Communication from Lahontan Regional Board to K. Rubin (Los Angeles Department of Water and Power). Letter dated October 12, 2011. Concerning Owens Lake Dust Mitigation Program by city of Los Angeles, Phase 7a Project, Inyo County.

## 3.2 ACRONYMS AND ABBREVIATIONS

| | |
|---|---|
| **AADT** | average annual daily traffic |
| **AFY** | acre-feet per year |
| **APE** | Area of Potential Effect |
| **AQMP** | Air Quality Management Plan |
| **BACM** | Best Available Control Measure |
| **Bgs** | below ground surface |
| **BLM** | (United States) Bureau of Land Management |
| **BMPs** | best management practices |
| **BNHM** | Berkeley Natural History Museum |
| **CalEPA** | California Environmental Protection Agency |
| **Caltrans** | California Department of Transportation |
| **CARB** | California Air Resources Board |
| **CAT** | Climate Action Team |
| **CARV** | Combination air-vacuum release valves |
| **CCR** | California Code of Regulations |
| **CCRI** | Climate Change Research Initiative |
| **CDF** | California Department of Forestry |
| **CDFW** | California Department of Fish and Wildlife |
| **CEC** | California Energy Commission |
| **CEQA** | California Environmental Quality Act |
| **CFR** | Code of Federal Regulation |
| **CNDDB** | California Natural Diversity Database |
| **CRHR** | California Register of Historic Resources |
| **CSLC** | California State Lands Commission |
| **CUPA** | Certified Unified Program Agency |
| **CV** | control valve |
| **DCA** | dust control area |
| **DCM** | dust control measure |
| **DTSC** | Department of Toxic Substances Control |
| **DWR** | (California) Department of Water Resources |
| **EIC** | Eastern Information Center (at University of California at Riverside) |

| | |
|---|---|
| **EIR** | Environmental Impact Report |
| **EPA** | (United States) Environmental Protection Agency |
| **Farmland** | Prime Farmland, Unique Farmland, or Farmland of Statewide Importance |
| **FE** | flow elements |
| **FEMA** | Federal Emergency Management Agency |
| **FMMP** | Farmland Mapping and Monitoring Program |
| **FSEIR** | Final Subsequent Environmental Impact Report |
| **GBUAPCD** | Great Basin Unified Air Pollution Control District |
| **GCDIS** | Global Change Data and Information System |
| **GCRIO** | Global Change Research Information Office |
| **GHG** | greenhouse gas |
| **GLO** | (United States) General Land Office |
| **GSA** | Geological Society of America |
| **HCP** | Habitat Conservation Plan |
| **HDPE** | High density polyethylene |
| **Hp** | Horsepower |
| **ICWD** | Inyo County Water Department |
| **IS** | Initial Study |
| **LAA** | Los Angeles Aqueduct |
| **LADWP** | (City of) Los Angeles Department of Water and Power |
| **LGP** | low ground pressure |
| **LOS** | Level of Service |
| **LUST** | leaking underground storage tank |
| **mm** | millimeters |
| **MND** | Mitigated Negative Declaration |
| **MOA** | Memorandum of Agreement |
| **MSHA** | Mine Safety and Health Administration |
| **MSL** | mean sea level |
| **NAAQS** | National Ambient Air Quality Standards |
| **NAHC** | Native American Heritage Commission |
| **NAST** | National Assessment Syntheses Team |
| **NPDES** | National Pollutant Discharge Elimination System |

| | |
|---|---|
| **NRHP** | National Register of Historic Places |
| **OLDMP** | Owens Lake Dust Mitigation Program |
| **OLGEP** | Owens Lake Groundwater Evaluation Project |
| **OLHMP** | Owens Lake Habitat Management Plan |
| **OSHA** | Occupational Safety and Health Administration |
| **pc/h** | passenger cars per hour |
| **PIT** | pressure indicating transmitters |
| **PM** | particulate matter |
| **PM10** | particulate matter 10 microns or less in diameter |
| **PRV** | Pressure reducing valve |
| **SCRD** | Supplemental Control Requirements Determination |
| **SFL** | State and Federal Lands |
| **SIP** | State Implementation Plan |
| **SLC** | State Lands Commission |
| **SMARA** | Surface Mining and Reclamation Act |
| **SNA** | Significant Natural Areas |
| **SPCC** | Spill Prevention Control and Countermeasure |
| **SR** | State Route |
| **SRA** | State Responsibility Area |
| **SWPPP** | Storm Water Pollution Prevention Plan |
| **SWRCB** | State Water Resources Control Board |
| **USCCSP** | United States Climate Change Science Program |
| **USEPA** | United States Environmental Protection Agency |
| **USGCRP** | United States Global Change Research Program |
| **USGS** | United States Geological Survey |
| **UWMP** | Urban Water Management Plan |
| **VAC** | volt alternating current |

## 3.3 PREPARERS OF THE INITIAL STUDY

**Prepared by:**

**Los Angeles Department of Water and Power**
Environmental Services
111 North Hope Street, Room 1044
Los Angeles, California 90012

EIR Project Management
Mark Sedlacek, Director of Environmental Affairs
Charles C. Holloway, Manager of Environmental Planning and Assessment
David Porter, Environmental Project Manager

Project Design
Milad Taghavi, PE, MSCE, MBA, Manager of Owens Lake Regulatory Affairs and Long-Term Planning
Nelson O. Mejia, P.E., Engineering Project Manager

Biological Resources
Jeff Nordin, Watershed Resources Specialist
Lori Dermody, Watershed Resources Specialist

Owens Lake Operations
Raymond Ramirez, Environmental Specialist

**TECHNICAL ASSISTANCE PROVIDED BY:**

**MWH Americas, Inc**.
300 North Lake Avenue, Suite 400
Pasadena, California 91101

Sarah Garber, PMP, CPP, Project Manager
Dr. Janet Fahey, P.E., Technical Reviewer
David Ringel, P.E., Hydrology
Jackie Silber, GISP, GIS